

LOW VISIBILITY AIRPORT WINDROSE SUMMARIES

By ROBERT W. KNIGHT

Technical Development Note No. 22
July 1940



CIVIL AERONAUTICS AUTHORITY
WASHINGTON, D. C.

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LOW VISIBILITY
AIRPORT WINDROSE
SUMMARIES

By ROBERT W. KNIGHT
Chief, Air Transport Section

JULY 1940

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Low Visibility Airport Windrose Summaries

SUMMARY

This report of wind and climatic conditions during periods of restricted visibility, covers the 5-year period from 1934 to 1938, inclusive. Observations were made by the United States Weather Bureau, and under its supervision, the Works Progress Administration compiled the data. This detailed information was then tabulated and analyzed by the

Civil Aeronautics Authority, and a suitable type of windrose chart was developed to portray the results pictorially, and show other important data in convenient reference form. These charts are intended for use in planning airport runways, extensions, and air navigation facilities, including instrument landing systems.

DESCRIPTION

Surface windroses of a large number of airports have been available for the past several years, and this information has enabled airport engineers to design airports and plan runway directions advantageously in accordance with the prevailing winds at each location. Such data have been quite sufficient up to the present.

With the advent of reliable instrument landing equipment, however, it now becomes necessary to determine the direction and velocity of prevailing winds during conditions of restricted visibility as a separate study, since these are not necessarily in agreement with surface winds under other conditions of weather. By the use of such information it is possible to plan new airport runways, runway extensions, instrument landing systems, and other air navigation facilities so that they may be used to best advantage for bad-weather approaches and landings.

The logical method of determining probable wind velocities and directions during conditions of reduced visibility is, of course, to analyze the available weather records. Through the cooperation of the United States Weather Bureau, and the Works Projects Administration, such an analysis has been made possible. This study has been in progress for approximately a year, during which time about seven million weather observations were reviewed. The weather data were tabulated on summary sheets by those agencies for the Civil Aeronautics Authority. The information was then plotted by the Authority in the form of the charts contained herein.

Because of the mass of data necessary for compilation in the conduct of this study, and the constant airport construction work, it is entirely probable that the charts contain some errors in spite of our best efforts to avoid them. As far as the weather data are concerned, it is believed that any errors will be negligible, few, if any, exceeding 1 percent.

This report contains charts covering most of the airports in the United States for which weather data were available. The States are listed alphabetically and the cities of each fol-

low in alphabetical order. The number of airports included in the study was limited only by the availability of sufficient data for each location; therefore, omission of certain cities was due to the lack of such data, or of sufficient data to draw any worthwhile conclusions. It is believed preferable to eliminate the chart for an airport entirely rather than to present a distorted picture due to insufficient data or the occurrence of only one or two conditions of restricted visibility during a period of several years. Charts for C. A. A. Intermediate Fields are being compiled separately for use of the Authority as are the charts for certain airports in Alaska, Hawaii, Puerto Rico, and other possessions of the United States.

Basic data

This low visibility windrose study covers a 5-year period from 1934 to 1938, inclusive, utilizing the full number of 24 daily observations wherever available. In some cases the weather reporting service was not in operation for the entire period, or fewer observations were taken daily, but in most cases this information is indicated. Some of the data covering smaller airports where there were no aerological stations were taken from the city weather offices. In cases where weather stations were in operation at airports for only a portion of the period of study, the data represent a combination of observations, at both the stations and the city offices.

In the upper left corner of each chart is shown the number of observations taken daily (if not too variable), the total number of observations for the period, and the frequency of occurrence of low visibility conditions. The number given for daily observations, where shown, was the schedule for that location. In some cases the totals are more, and in others less than the schedule would total for the given period, but these variations would appear to have little if any effect on the value of the findings.

These data are analyzed and grouped in various ways in an effort to make them readily usable for airport planning. All categorical classifications of any data of this type

made during the period of study when visibility was one-half mile or less, 50 percent of them were during conditions when the wind was 5 m. p. h. or less, and that the same conditions prevailed during 60 percent of the observations when visibilities were from three-fourths mile to 1 mile.

Each circle on the chart represents 1 percent. There are 15 circular lines in addition to the center circle on the majority of charts, which allow room to indicate up to 15 percent, because this is ample for most airport locations and it was desirable that the charts be kept within a convenient limit. A few charts have 30 circular lines or several additional lines representing 30 percent to accommodate cases of very high percentages.

The length of a vector depends upon the percentage of wind from that direction in each visibility group. By adding the percentages of all winds in group I to the percentage of calms for that group, shown in the center circle, the total amounts to 100 percent, which accounts for all observations in that group. The same applies to group II.

In cases when the vector extensions would be too long (percentage above 15 percent) they are doubled back as, for example, on the chart of Billings, Mont. On this chart the percentage of winds from the north amounts to 27 percent during group II visibility conditions (light cross-hatching), divided as follows: Winds of 6-10 m. p. h., $7\frac{1}{3}$ percent; winds of 11-20 m. p. h., $14\frac{2}{3}$ percent, and winds in excess of 20 m. p. h., 5 percent.

In the case of Cheyenne, Wyo., the north vector, showing winds amounting to 30 percent during group II conditions, was extended as well as doubled back, because of lack of space. Since space permitted, the north wind vector of group I was not extended, but doubled back only, and represents a total of 21 percent.

Causes of restricted visibility

The causes for restricted visibility are fog, smoke, rain, dust, and snow. Other causes, such as haze, or a combination of causes, such as fog and smoke, may have been responsible for the condition in some cases, but the pre-

dominant factor was selected by the Weather Bureau for each such occurrence.

Summary tables reduced to percentages are listed on all charts separately for each visibility group, showing the above causes of low visibility conditions and wind velocities for each cause. Thus it is possible to readily determine the most probable winds to be encountered during each of the five conditions. It will be noted that the higher velocities are generally associated with dust and snow, and the lower velocities or calms are usually prevalent during the presence of fog.

Groups I and II are combined in a table at the lower left corner of the chart which lists the occurrences during calms (0-5 m. p. h.) of each cause for each of the 12 months during the entire period. From this table the number of occurrences and causes therefore can be quickly ascertained for any month of the year over the period. Totals are given by months and by causes.

Airport layouts

Each chart is provided with a sketch of the airport with the most recent information available pertaining to dimensions and development. In some cases recent improvements may not be shown, but the layouts given contain the latest data available at the time this report was compiled.

In the majority of cases the weather data were obtained from the airports represented on the charts. In some cases such as Washington, Baltimore, and Philadelphia, the data were obtained from the existing airports nearby, but the sketches show airports proposed, under construction, or recently completed. Because of the close proximity of these fields it is believed that the data are essentially correct, and the new or proposed airports are illustrated for purposes of planning.

True north on the airport sketches corresponds to true north on the windroses.

Ceilings

The ceilings, or height of the overcast covering each observation during the period of study would have been desirable, but, be-

APPENDIX

NOTICE

In order to interpret the following charts properly, the foregoing text should be carefully studied.

ALABAMA

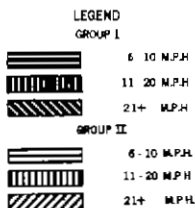
Birmingham

Mobile

Montgomery

BIRMINGHAM, ALA.
MUNICIPAL AIRPORT

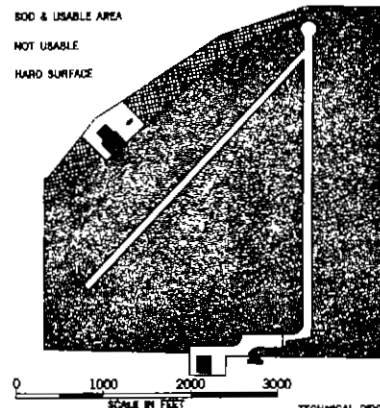
OBSERVATIONS DAILY	24
TOTAL OBSERVATIONS	43 731
SIGHTLY 0 TO 1/2 MILE	089.09
SIGHTLY 3/4 TO 1 MILE	085.18
TOTAL 0 1 MILE	089.27



(Figures indicate percentage)

(Figures indicate percentage)

NOTE.
Percentages in windrose are based on the number of observations in each windability group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



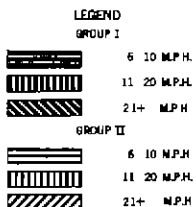
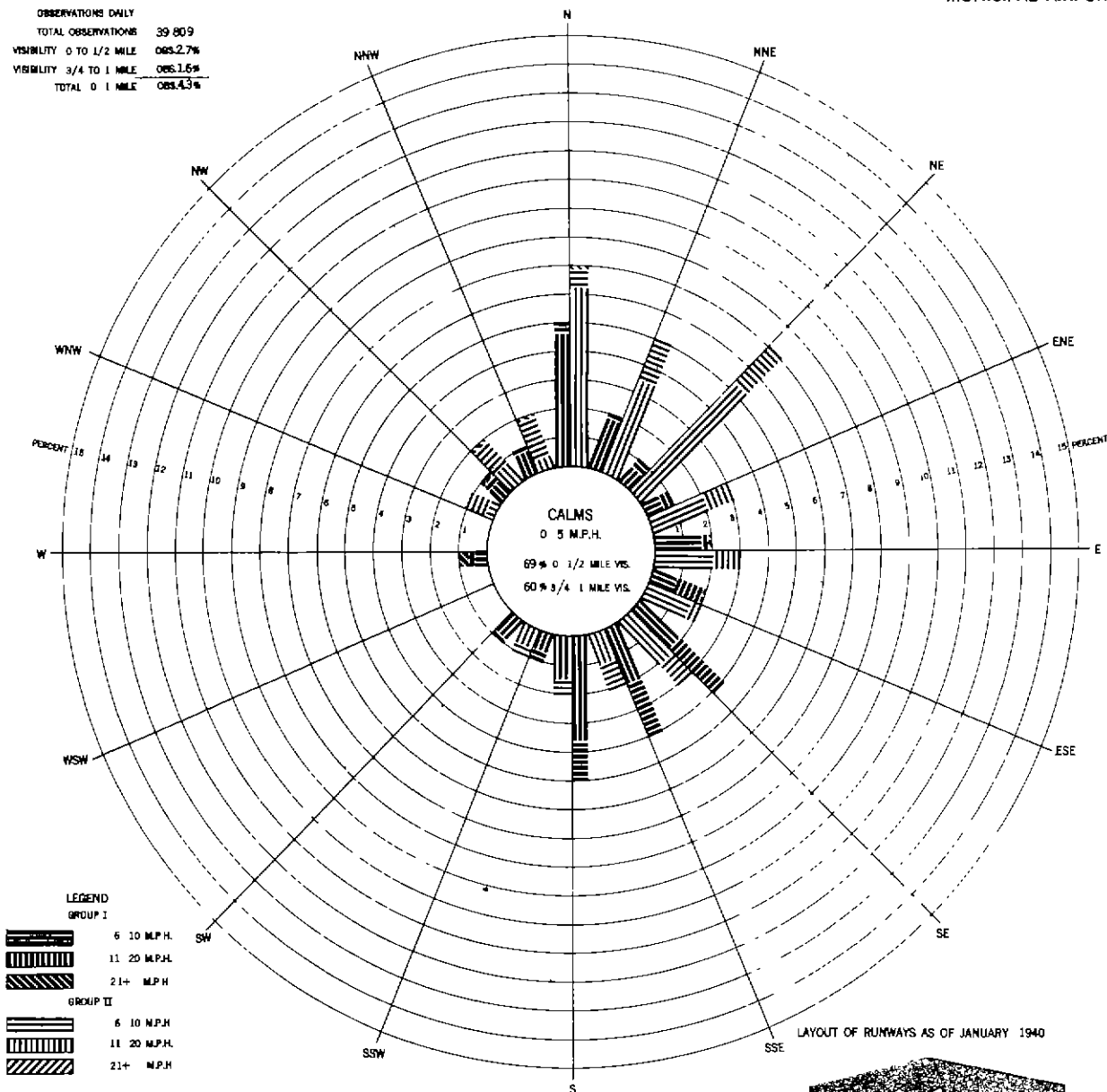
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 39 809
VISIBILITY 0 TO 1/2 MILE OBS. 2.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.6%
TOTAL 0 1 MILE OBS. 4.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MOBILE, ALA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	90	64 25
SMOKE	10	5 1
RAIN		1 2 2
DUST		
SNOW		
TOTALS	100	70 28 2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	60	41 16
SMOKE	38	29 4
RAIN	1	3 5 1
DUST	1	
SNOW		
TOTALS	100	73 25 2

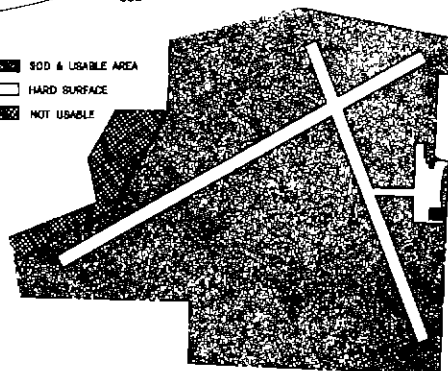
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	151	163	108	94	46	9	15	6	18	78	28	179	895
SMOKE	23	37	9	3			2			27	48	60	209
RAIN					1		2			2			5
DUST	1		1										2
SNOW													
TOTALS	175	200	118	97	47	9	19	6	18	107	76	239	1111

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 84 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

SHD & USABLE AREA
HARD SURFACE
NOT USABLE



0 1000 2000
SCALE IN FEET

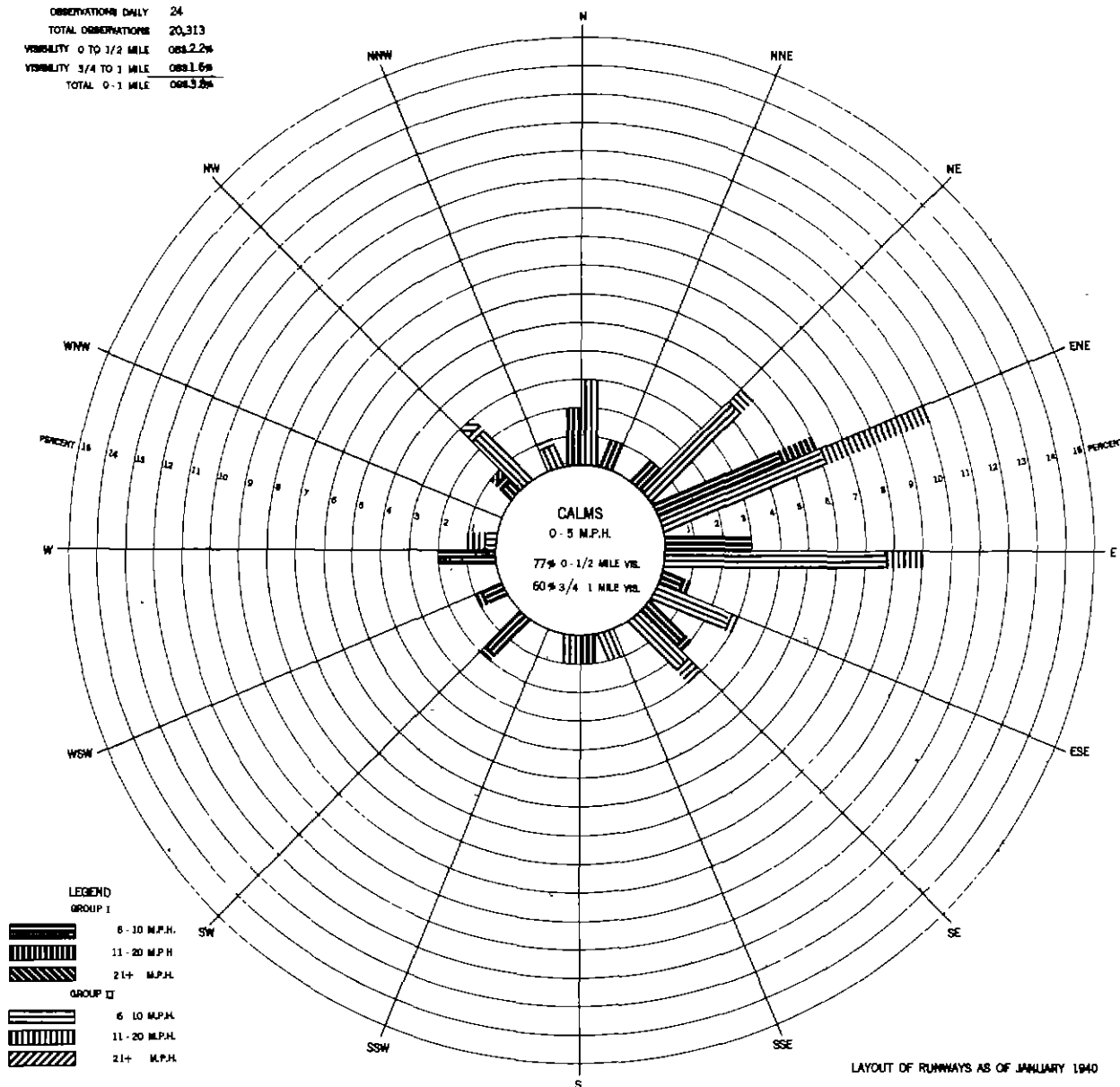
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 20,313
VISIBILITY 0 TO 1/2 MILE 088.22%
VISIBILITY 3/4 TO 1 MILE 089.16%
TOTAL 0-1 MILE 088.32%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MONTGOMERY, ALA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	66	67
SMOKE	32	10
RAIN	2	8
DUST		1
SNOW		1
TOTALS	100	86

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	53	40
SMOKE	42	21
RAIN	4	17
DUST	1	1
SNOW		1
TOTALS	100	79

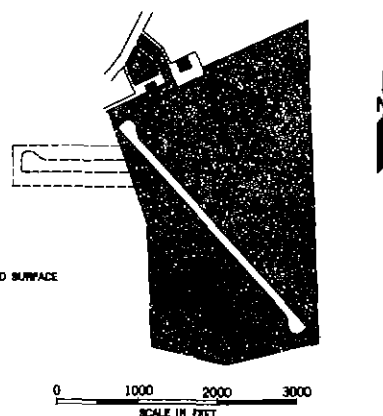
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	88	53	14	30	23	6	11	27	26	7	9	37	331
SMOKE	36	35	13	12	4	3	2	2	16	12	25	31	191
RAIN	3	1		2				1	1	2	1	3	14
DUST												1	1
SNOW													
TOTALS	127	89	27	44	27	9	14	30	44	19	35	72	537

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 66 indicates the percentage of wind in other Group I, or Group II, depending upon the specific identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



ARIZONA

Douglas

Kingman

Phoenix

Tucson

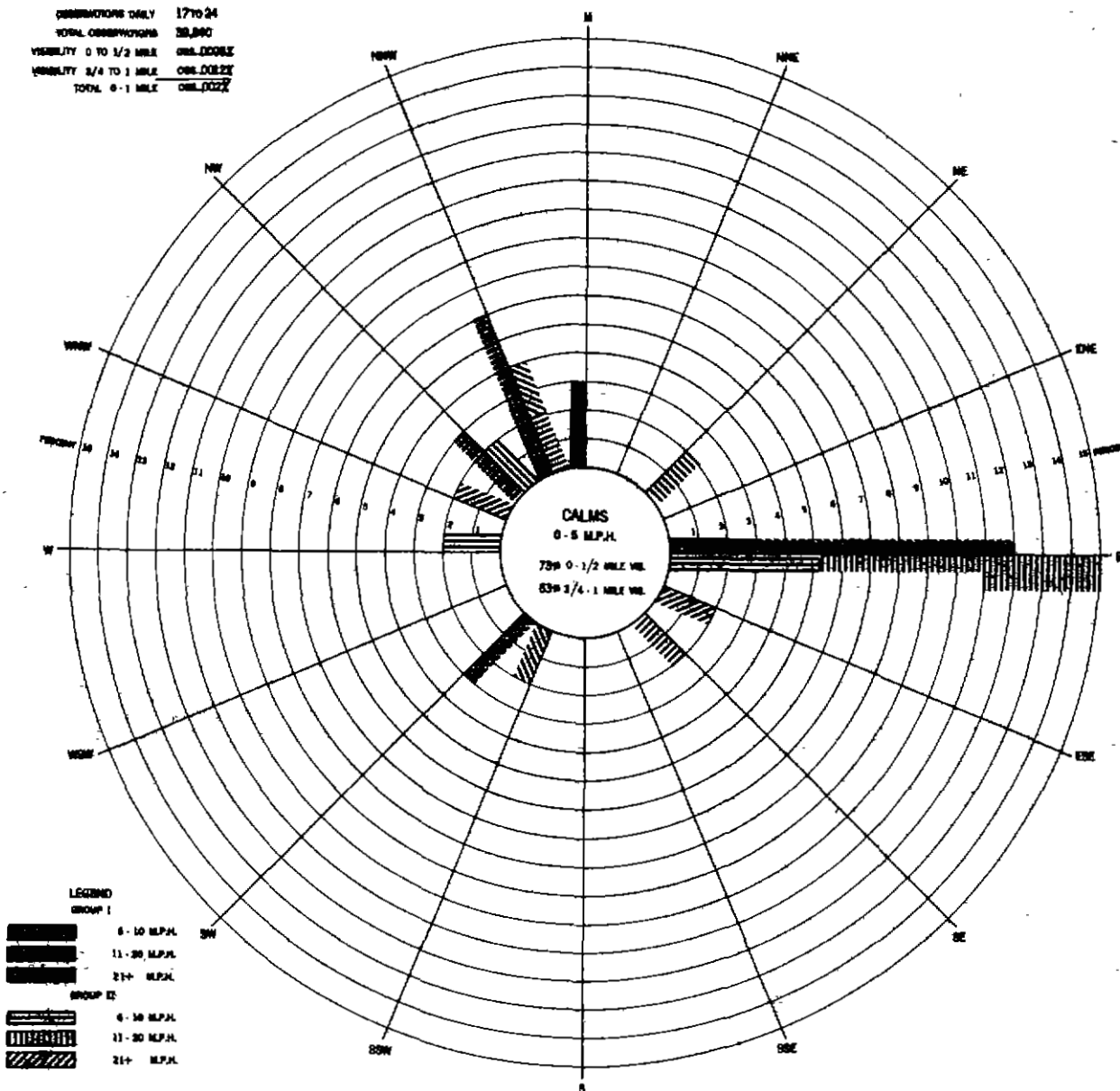
Winslow

SUMMARY OF 5 YEAR PERIOD
1964 TO 1968 INCLUSIVE

OBSERVATIONS DAILY 177024
TOTAL OBSERVATIONS 35,890
VISIBILITY 0 TO 1/2 MILE 091,000000
VISIBILITY 3/4 TO 1 MILE 091,000000
TOTAL 0-1 MILE 091,000000

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

DOUGLAS, ARIZ.
MUNICIPAL AIRPORT



LEGEND
GROUP I
0-5 M.P.H. SW
6-10 M.P.H. SW
11-20 M.P.H. SW
21+ M.P.H. SW
GROUP II
0-5 M.P.H. SW
6-10 M.P.H. SW
11-20 M.P.H. SW
21+ M.P.H. SW

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	70	11
SMOKE	50	11
RAIN		
DRIFT		11
SNOW		22
TOTALS	100	45

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	27	6
SMOKE	30	11
RAIN		6
DRIFT		17
SNOW	3	11
TOTALS	60	50

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

CAUSES	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	1	1								4	1	17	24
SMOKE		1	1	1		1	1	2	2	7	8	3	26
RAIN													
DRIFT													
SNOW	1												1
TOTALS	2	2	1	1		1	1	2	2	11	10	20	53

NOTE:
Percentages are based on the number of observations in each visibility group.
Smaller figures indicate the percentage of total in either Group I or Group II depending upon the typical identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1968



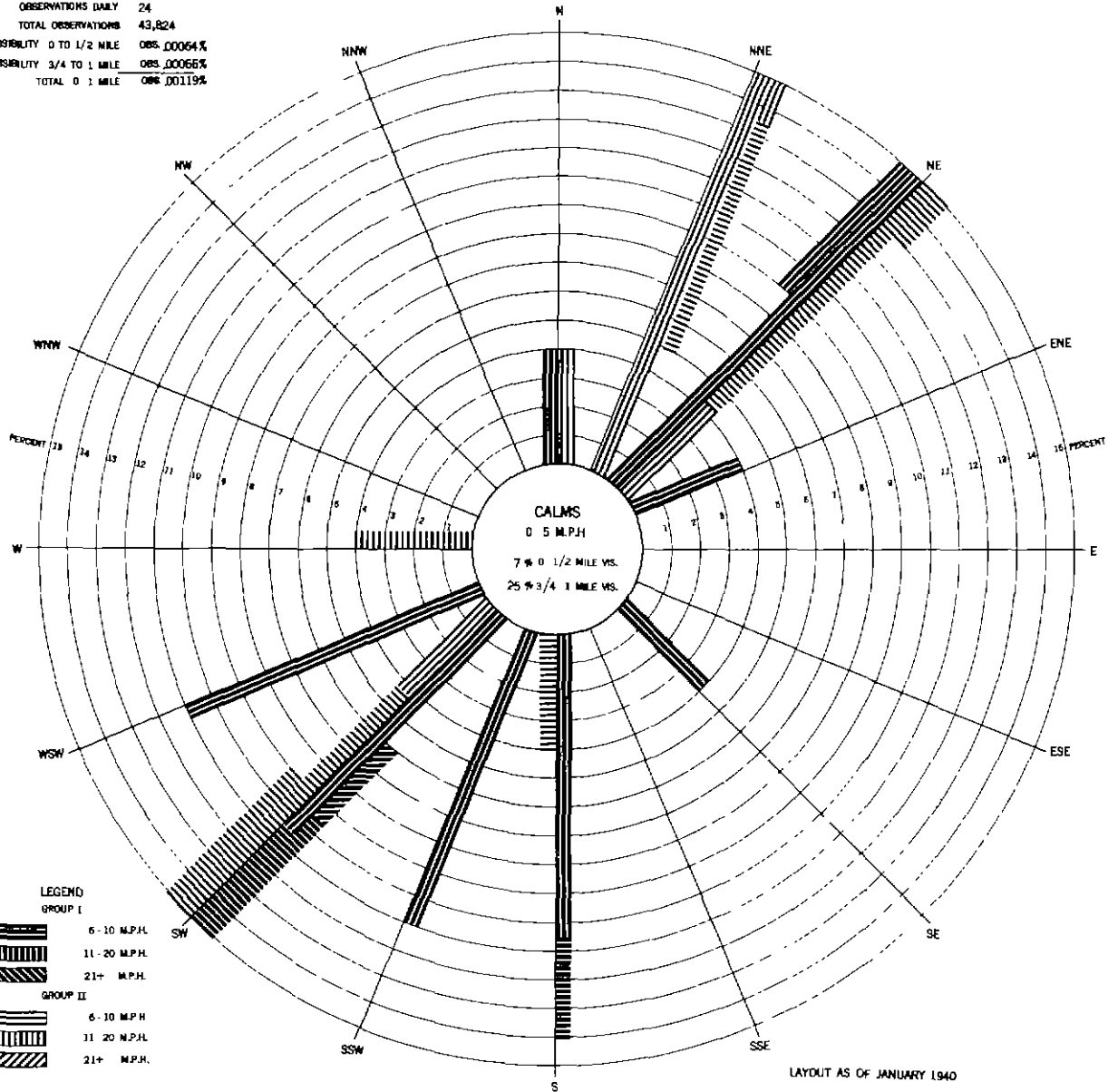
TECHNICAL DEVELOPMENT DIVISION
AIR WEATHER SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 0.0064%
VISIBILITY 3/4 TO 1 MILE OBS. 0.0065%
TOTAL 0 1 MILE OBS. 0.0119%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

KINGMAN, ARIZ.
TWA AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	100	73 15
SMOKE		
RAIN		
DUST		
SNOW		6 4
TOTALS	100	81 15 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	83	33 28
SMOKE		
RAIN		11
DUST		
SNOW	17	6 22
TOTALS	100	39 61

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	1	4										2	7
SMOKE													
RAIN													
DUST													
SNOW												1	1
TOTALS	1	4										3	8

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 7% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 4000
SCALE IN FEET

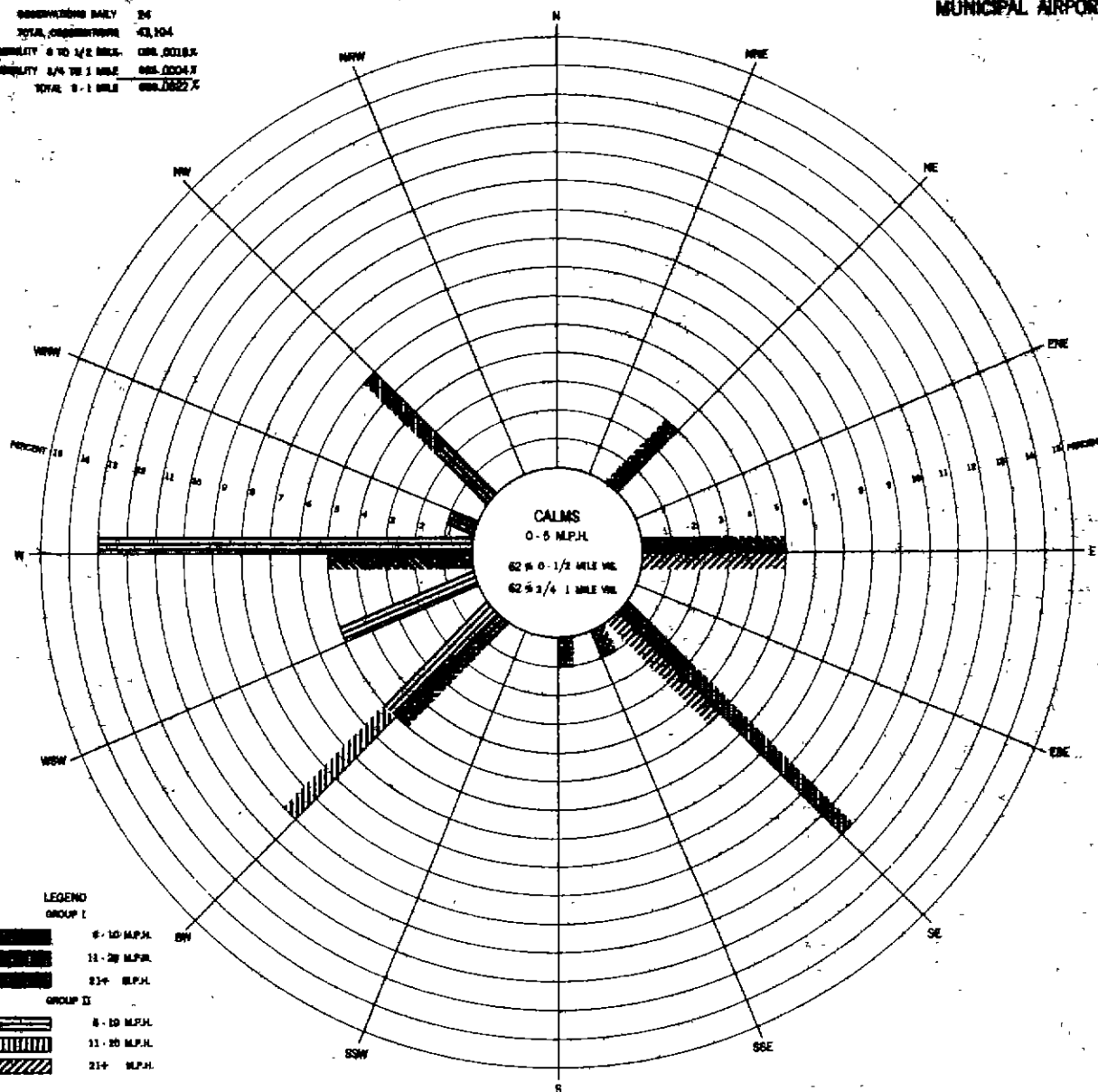
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,104
VISIBILITY 0 TO 1/2 MILE 000.0018%
VISIBILITY 1/4 TO 1 MILE 000.0004%
TOTAL 0-1 MILE 000.0022%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

PHOENIX, ARIZ.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
0-5 M.P.H.	SW
6-10 M.P.H.	SW
11-20 M.P.H.	SW
21+ M.P.H.	SW
GROUP II	
0-5 M.P.H.	SW
6-10 M.P.H.	SW
11-20 M.P.H.	SW
21+ M.P.H.	SW

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	26 3
SMOKE		
RAIN		3 7
DUST		
SNOW		
TOTALS	100	29 3 68

(Figures indicate percentages)

GROUP II
1/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	77	26
SMOKE		
RAIN	8	26 12
DUST	15	12 12
SNOW		
TOTALS	100	64 12 24

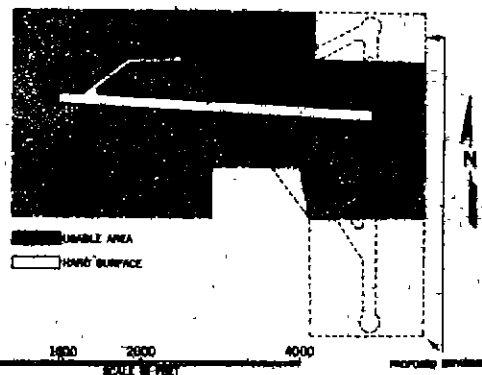
(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	11	1									12	36	60
SMOKE													
RAIN	1												1
DUST													
SNOW	2												2
TOTALS	14	1									12	36	60

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 1% indicating the percentage of wind in either Group I or Group II depending upon the speed classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



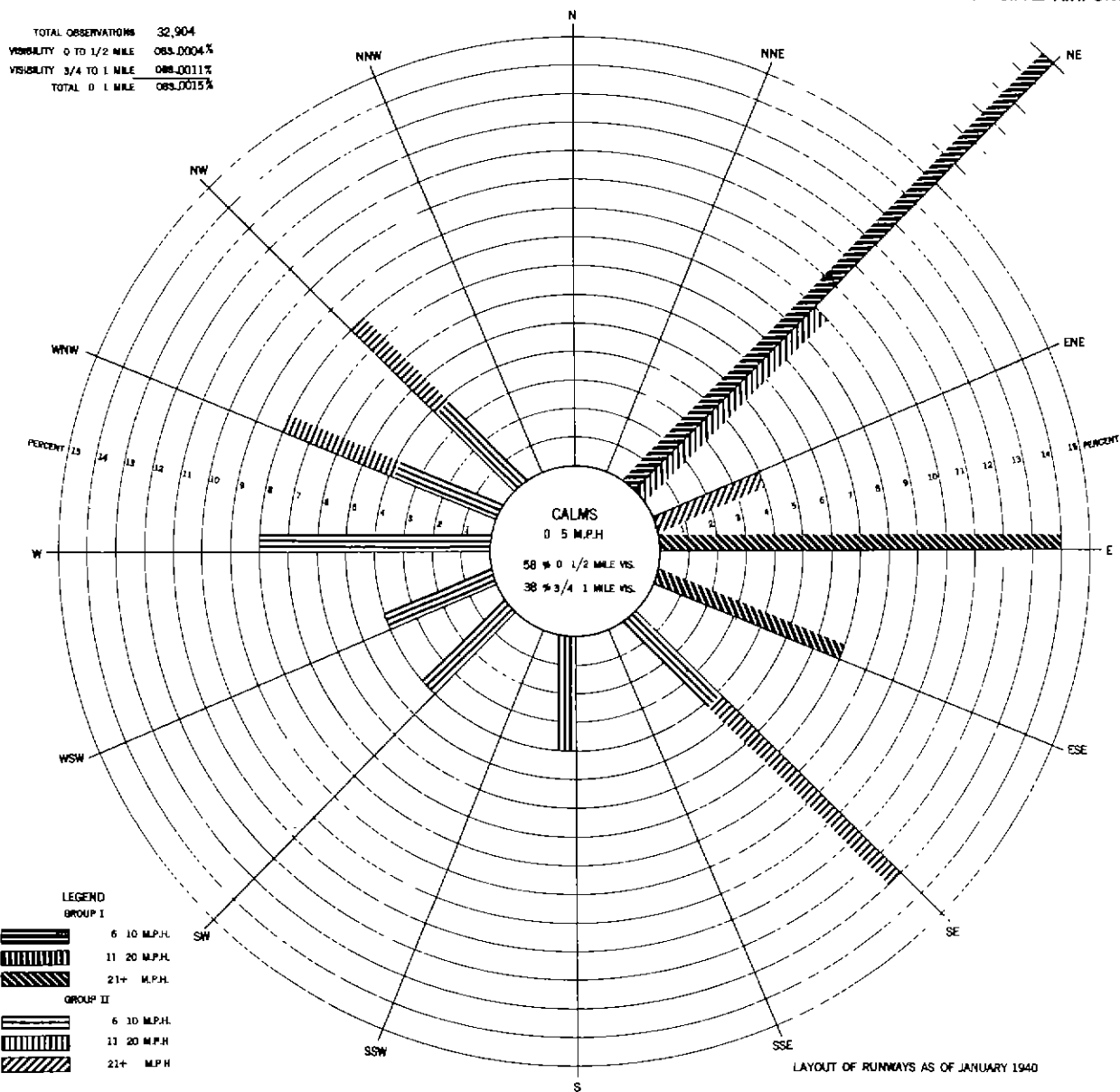
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT DIVISION

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

TUCSON, ARIZ.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 32,904
VISIBILITY 0 TO 1/2 MILE OBS. 0.004%
VISIBILITY 3/4 TO 1 MILE OBS. 0.011%
TOTAL 0 1 MILE OBS. 0.015%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	38	
SMOKE		
RAIN		
DUST		100
SNOW	62	
TOTALS	100	100

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	78	
SMOKE	11	
RAIN		7 7 7
DUST		7 13 13
SNOW	11	39 7
TOTALS	100	53 27 20

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

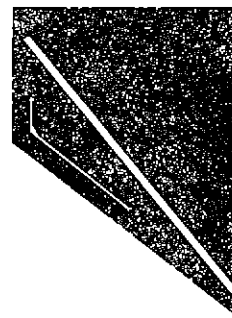
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	10												10
SMOKE													
RAIN			1										1
DUST													
SNOW	6												6
TOTALS	16	1											17

NOTE

Percentages in windrose are based on the number of observations in each visibility group.

Example: 5% indicates the percentage of wind in either Group I or Group II blowing from the specified direction.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 3000
SCALE IN FEET

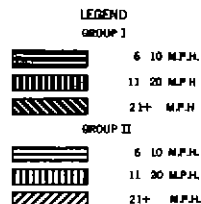
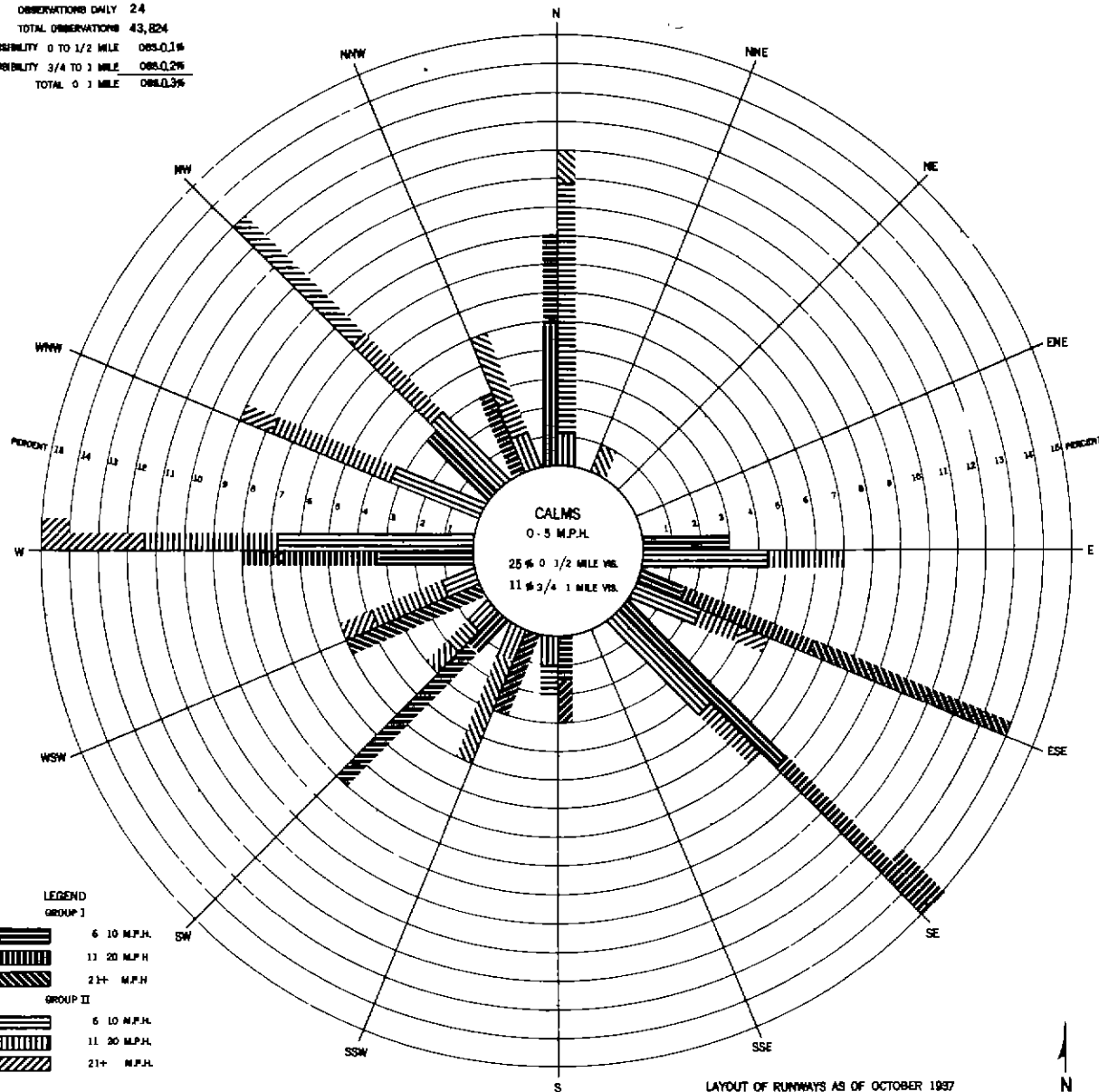
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 0.1%
VISIBILITY 3/4 TO 1 MILE OBS. 0.2%
TOTAL 0 1 MILE OBS. 0.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WINSLOW, ARIZ.
T.W.A. AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	27 19
SMOKE		
RAIN		
DUST		2 25
SNOW	7	6 15 6
TOTALS	100	33 36 31

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

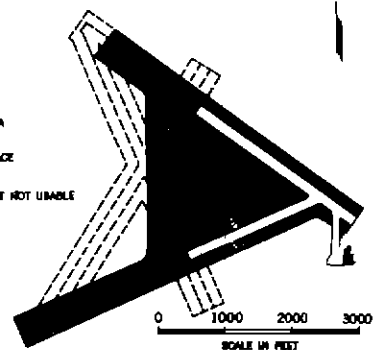
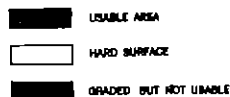
CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	80	17 10 4
SMOKE		
RAIN		
DUST		2 17
SNOW	20	18 27 5
TOTALS	100	37 37 26

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	1	1	2						1		3	14	22
SMOKE													
RAIN													
DUST													
SNOW	2	1											3
TOTALS	3	2	2						1		3	14	25

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind at other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1937



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

ARKANSAS

Little Rock

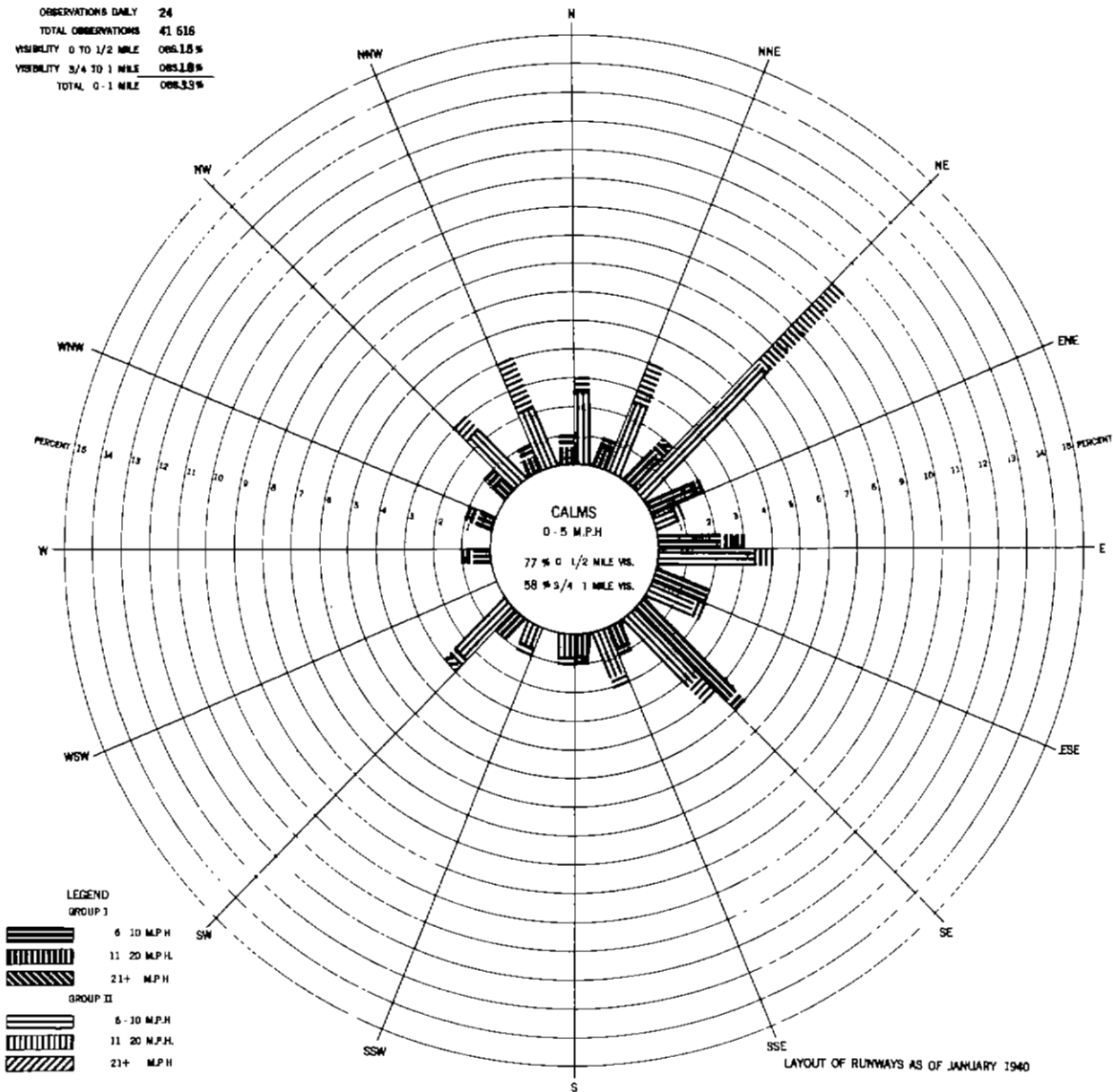
Texarkana

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 41 516
VISIBILITY 0 TO 1/2 MILE 086.18%
VISIBILITY 3/4 TO 1 MILE 085.18%
TOTAL 0-1 MILE 086.33%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

LITTLE ROCK, ARK.
MUNICIPAL AIRPORT



LEGEND
GROUP I
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

LAYOUT OF RUNWAYS AS OF JANUARY 1940

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	73 12 1
SMOKE	7	
RAIN	1	3 2
DUST		1 3
SNOW		2 3
TOTALS	100	79 20 1

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

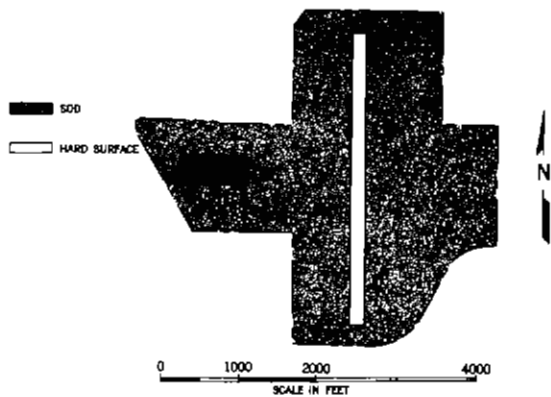
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	78	62 20
SMOKE	17	2
RAIN	3	3 4
DUST	1	2 3
SNOW	1	2 2
TOTALS	100	71 29

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	235	86	81	13	19	13	36	18	12	57	63	208	811
SMOKE	13	21			1	1				1	22	14	74
RAIN	12				1			1	2				16
DUST				3							1		4
SNOW	7	1											8
TOTALS	267	108	84	13	21	14	37	20	13	58	86	222	913

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the symbol modification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Service Administration.



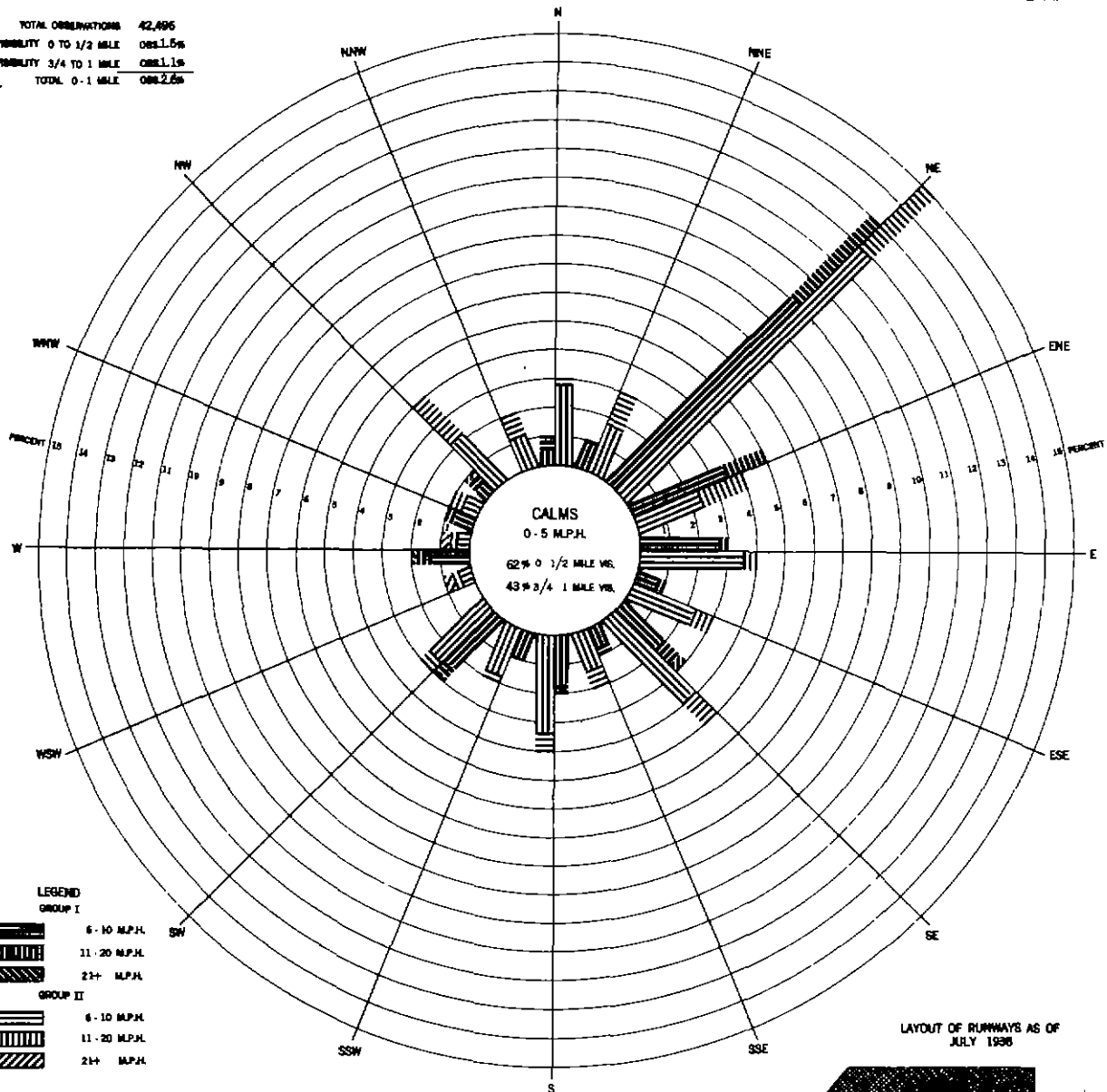
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 42,496
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 1.1%
TOTAL 0-1 MILE OBS. 2.6%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

TEXARKANA, ARK.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	73 19
SMOKE	5	
RAIN		1 1
DUST		3
SNOW	1	2 1
TOTALS	100	75 24 1

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	87	63 24
SMOKE	11	2
RAIN	1	1 2
DUST		2 2
SNOW	1	2 2
TOTALS	100	70 30

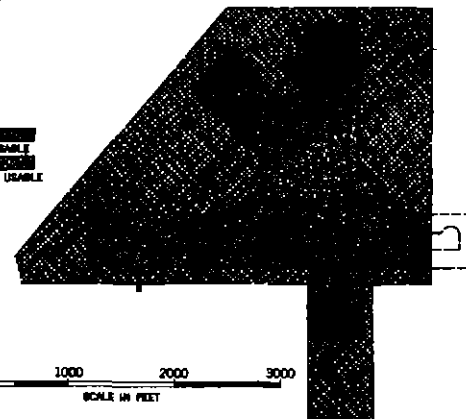
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	102	49	18	32	12	3	8	11	5	60	40	189	528
SMOKE			6										
RAIN	1		1	1									3
DUST													
SNOW	1											5	6
TOTALS	104	49	25	33	12	3	8	11	5	63	44	199	576

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in other Group I or Group II depending upon the spatial identification.
This data furnished through the courtesy of the U. S. Weather Bureau and the Radio Program Administration.

LAYOUT OF RUNWAYS AS OF
JULY 1938



0 1000 2000 3000
SCALE IN FEET

CALIFORNIA

Bakersfield

Burbank

Fresno

Long Beach

Los Angeles

Oakland

Redding

Sacramento

San Diego

San Francisco

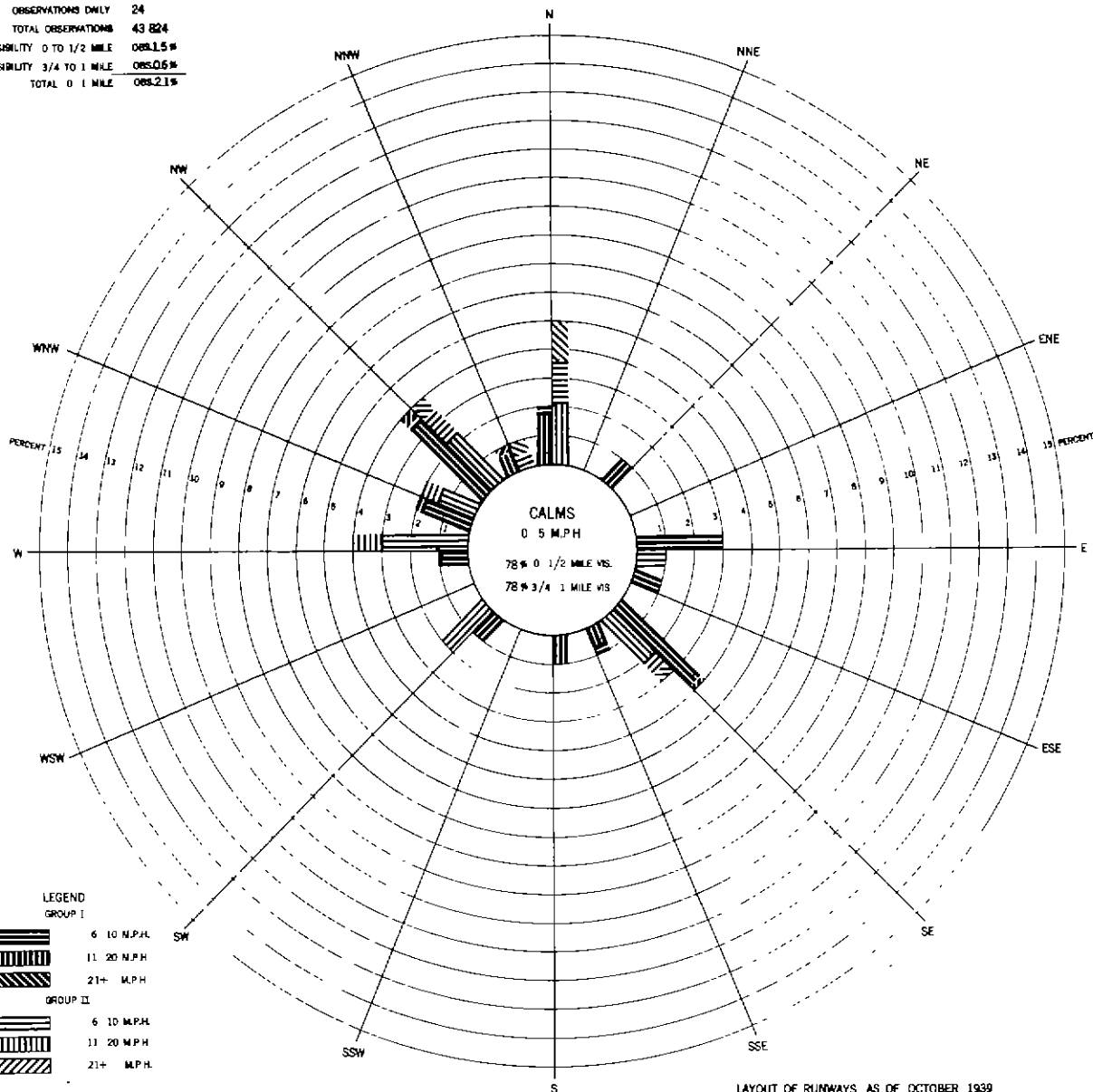
Santa Barbara

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 0.6%
TOTAL 0 1 MILE OBS. 2.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BAKERSFIELD, CALIF.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	100	94 2 1
SMOKE		
RAIN		
DUST		1 2
SNOW		
TOTALS	100	94 3 3

GROUP II
3/4 TO 1 MILE VISIBILITY

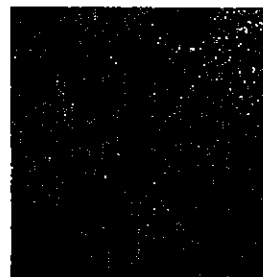
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	96	63 4
SMOKE		
RAIN		
DUST	4	4 18 11
SNOW		
TOTALS	100	67 22 11

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
(GROUP I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	317	66	12							7	38	257	699
SMOKE													
RAIN													
DUST	4	1									2		7
SNOW													
TOTALS	321	69	12							7	40	257	706

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Cause: This indicates the percentage of wind in either Group I or Group II depending upon the special identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

GRADED & USABLE
DILED SURFACE



0 1000 2000
SCALE IN FEET

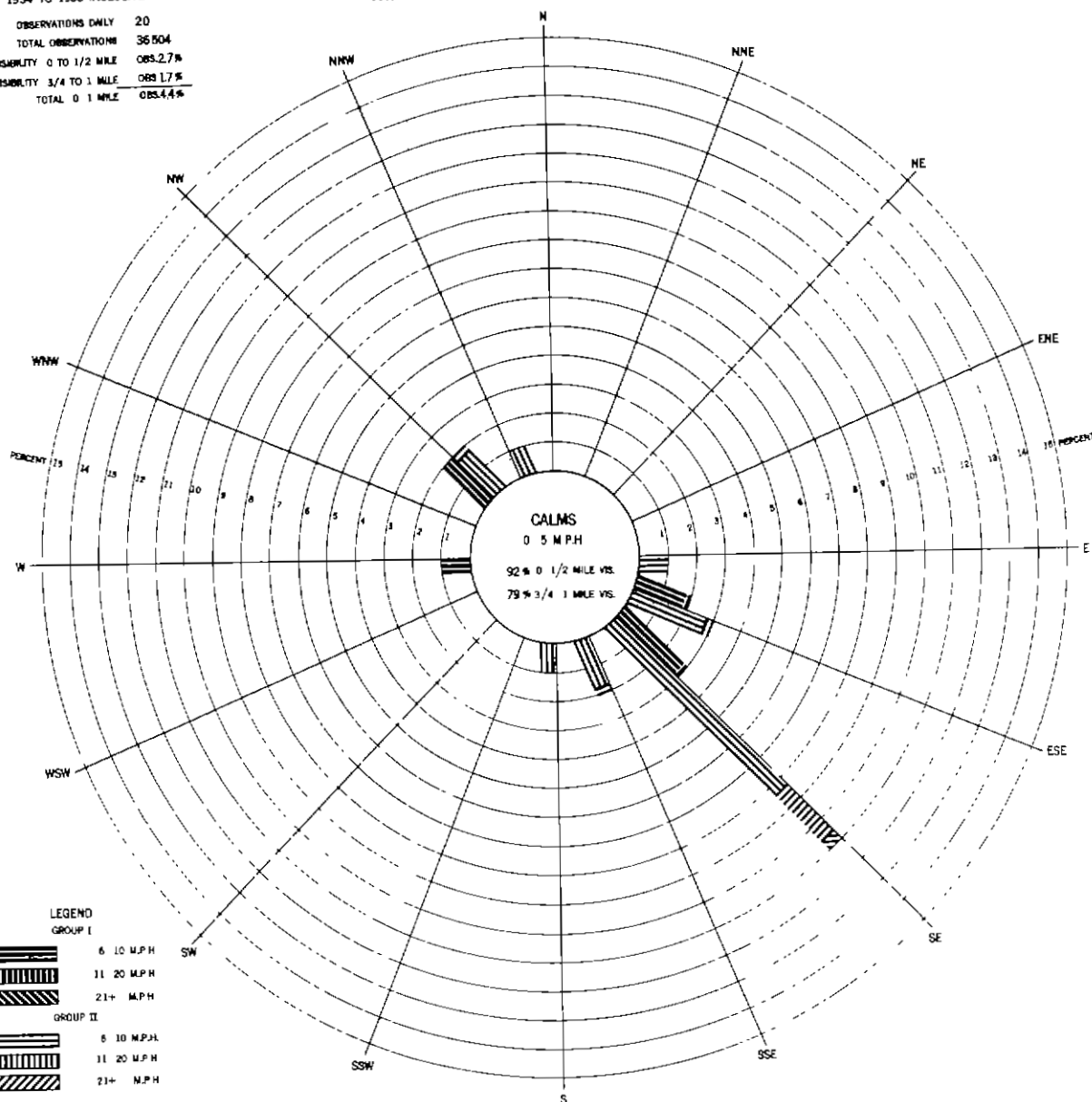
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 20
TOTAL OBSERVATIONS 36504
VISIBILITY 0 TO 1/2 MILE OBS. 2.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.7%
TOTAL 0 1 MILE OBS. 4.4%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BURBANK, CALIF.
UNION AIR TERMINAL



LEGEND

GROUP I
0 5 M.P.H.
5 10 M.P.H.
10 15 M.P.H.
15 20 M.P.H.
20 21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	5 10 M.P.H. 10 15 M.P.H. 15 20 M.P.H. 20 21+ M.P.H.
FOG	100	97
SMOKE		1
RAIN		
DUST		
SNOW		
TOTALS	100	98

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	5 10 M.P.H. 10 15 M.P.H. 15 20 M.P.H. 20 21+ M.P.H.
FOG	91	67
SMOKE	1	2
RAIN		2
DUST	8	15
SNOW		2
TOTALS	100	86

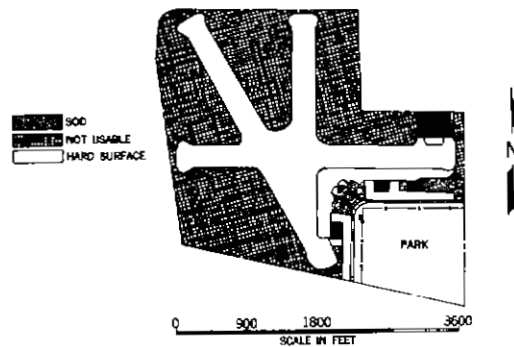
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
(GROUP I & II COMBINED)

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	55	74	84	115	81	187	113	146	77	203	119	58	1312
SMOKE	3	1											4
RAIN													2
DUST	2	2	5	1	2	5	1	4	2	10	5		39
SNOW													
TOTALS	60	79	89	116	83	193	114	150	79	213	124	58	1357

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 92% indicates the percentage of wind in either Group I or Group II depending upon the specified identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



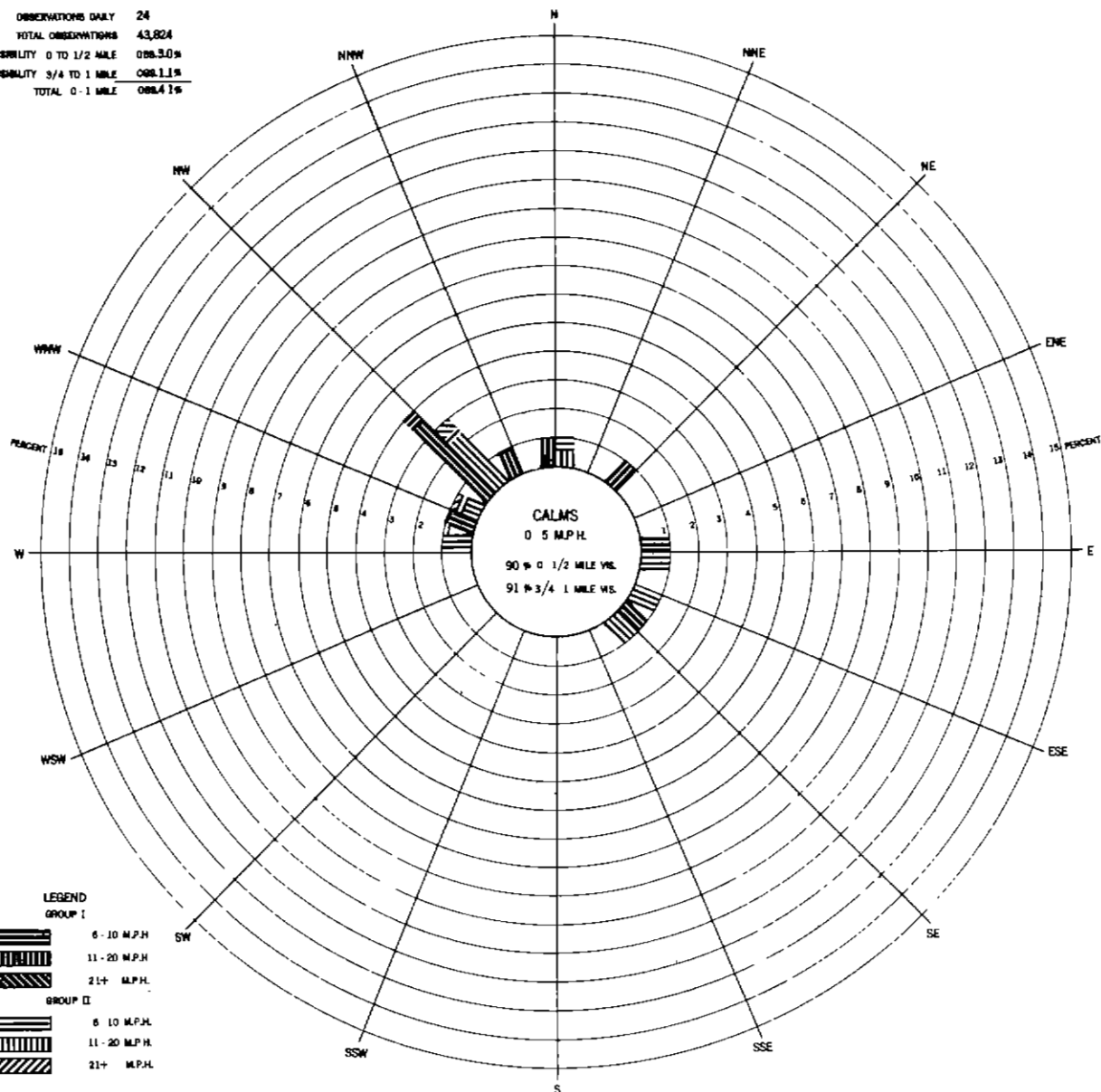
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

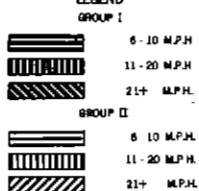
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 088.30%
VISIBILITY 3/4 TO 1 MILE 088.11%
TOTAL 0-1 MILE 088.41%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

FRESNO, CALIF.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	100	92	7	
SMOKE		1		
RAIN				
DUST				
SNOW				
TOTALS	100	93	7	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	91	75	9	
SMOKE	3	2		
RAIN		5		
DUST	6		2	7
SNOW				
TOTALS	100	82	11	7

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

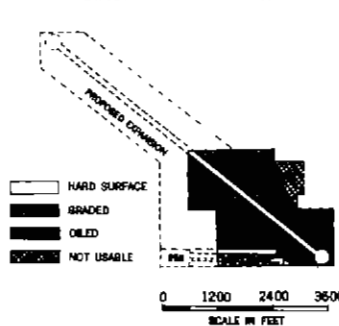
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOR	513	192	112	2					1	9	238	517	1584
SMOKE	1		4								4	6	15
RAIN													
DUST	6									1	8	11	26
SNOW													
TOTALS	520	192	116	2					1	10	250	534	1628

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.

Example: 94 indicates the percentage of wind in either Group I or Group II depending upon the visibility identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT AS OF JANUARY 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

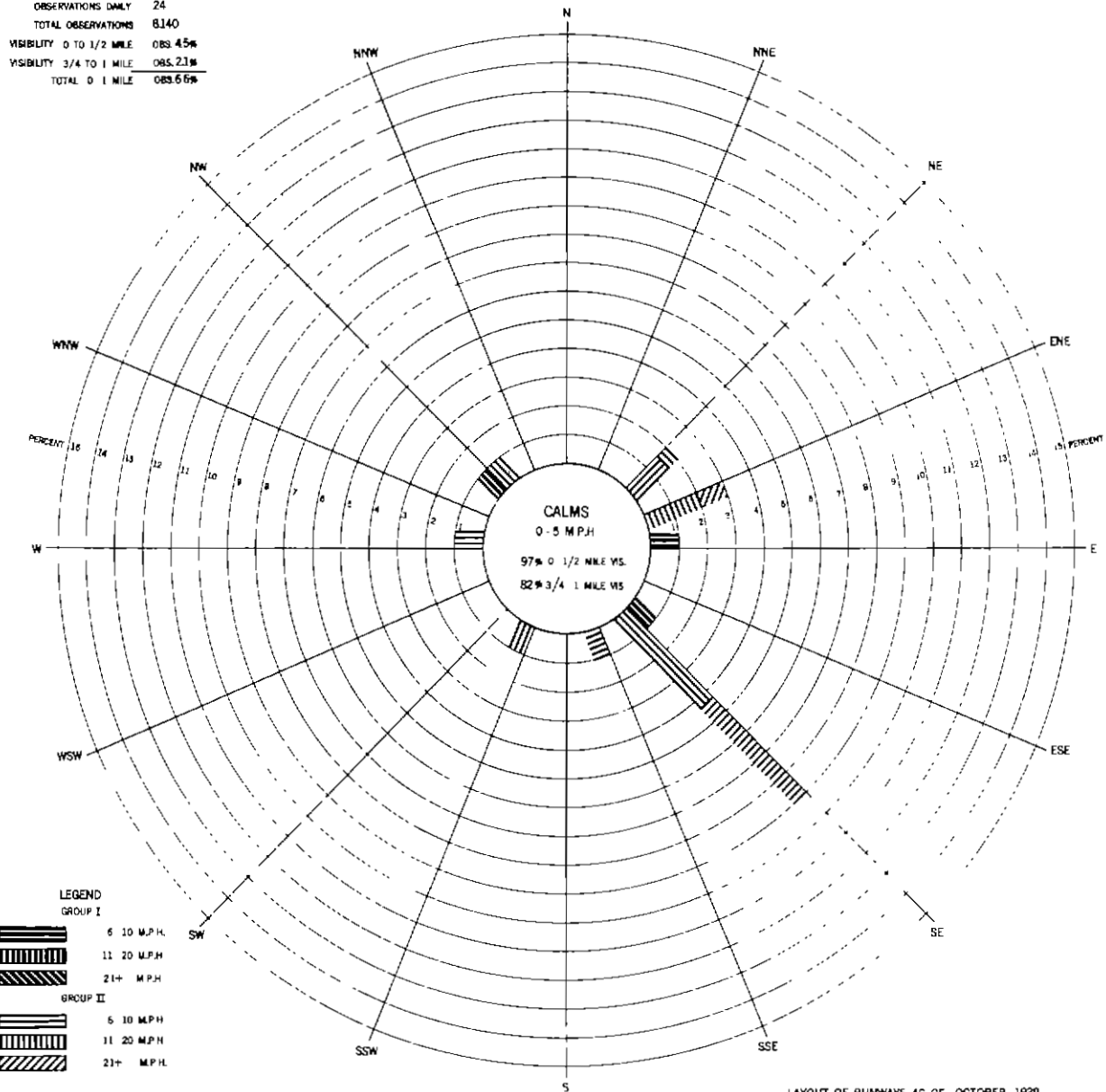
6

SUMMARY OF 1 YEAR PERIOD
1938 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 8140
VISIBILITY 0 TO 1/2 MILE OBS. 4.5%
VISIBILITY 3/4 TO 1 MILE OBS. 2.1%
TOTAL 0 1 MILE OBS. 6.6%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

LONG BEACH, CAL.
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF OCTOBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	100
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	100

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

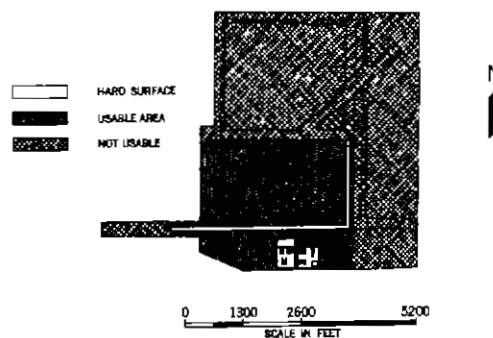
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	32 17
SMOKE	2	
RAIN	1	3 21
DUST	4	3 17 7
SNOW		
TOTALS	100	38 55 7

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	3	23	23	45	48	13	20	44	91	96	25	54	485
SMOKE											3		3
RAIN													1
DUST													6
SNOW													
TOTALS	3	23	26	45	49	14	20	44	91	97	29	56	495

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identified on.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

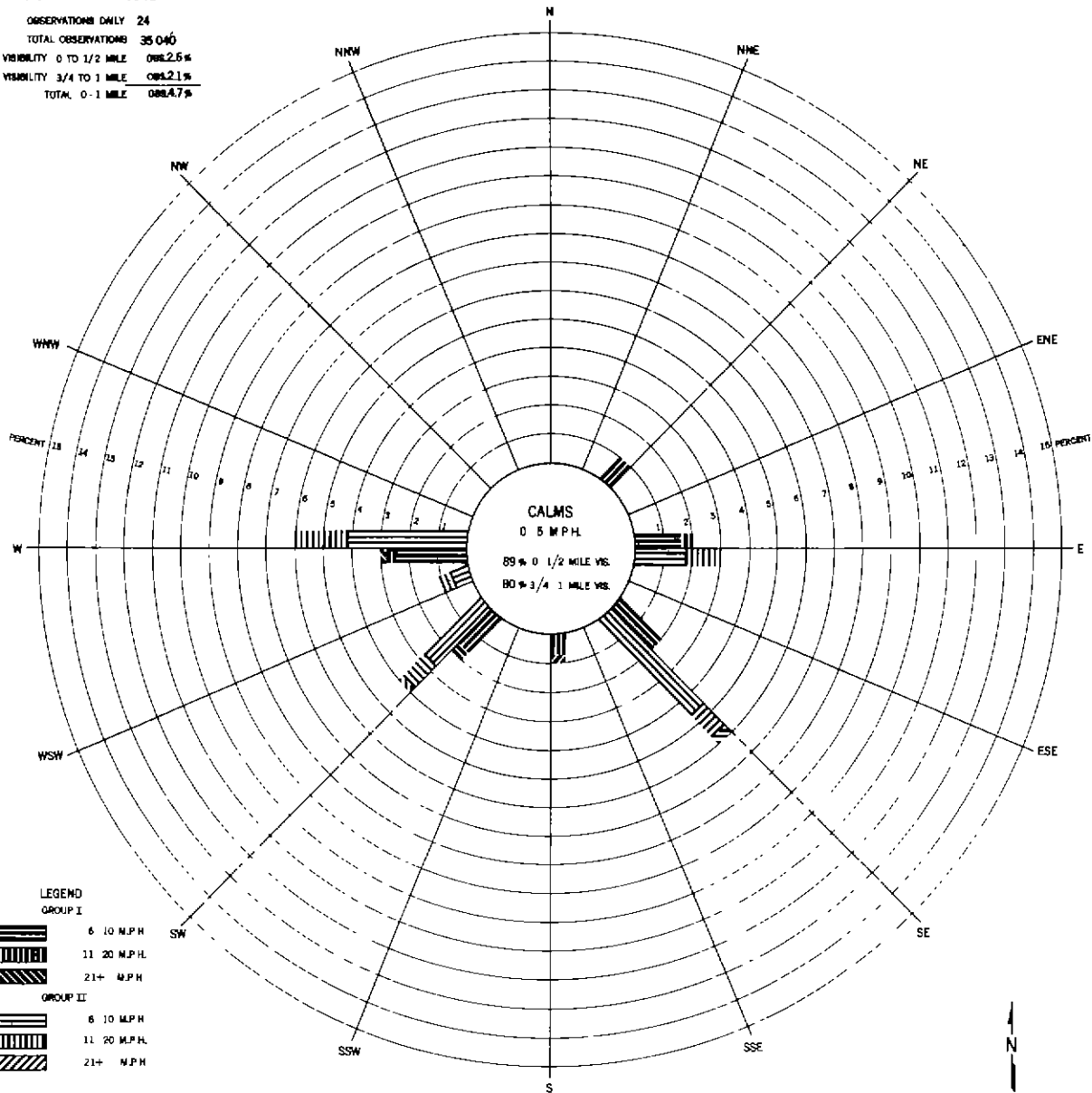
SUMMARY OF 4 YEAR PERIOD
1938 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 35 040

VISIBILITY 0 TO 1/2 MILE 0.0%
VISIBILITY 3/4 TO 1 MILE 0.0%
TOTAL 0 - 1 MILE 0.0%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LOS ANGELES, CAL
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP II

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	85 8 3
SMOKE		2
RAIN		2
DUST		
SNOW		
TOTAL	100	87 8 5

GROUP II
3/4 TO 1 MILE VISIBILITY

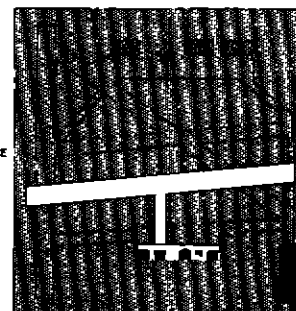
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	64 22
SMOKE		
RAIN	1	7 5 2
DUST		
SNOW		
TOTALS	100	71 27 2

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	52	31	26	35	54	30	20	83	90	228	166	70	885
SMOKE													
RAIN		1		1									2
DUST													
SNOW													
TOTALS	52	32	26	36	54	30	20	83	90	228	166	70	887

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1939



0 1200 2400 4800
SCALE IN FEET

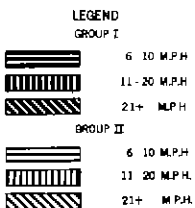
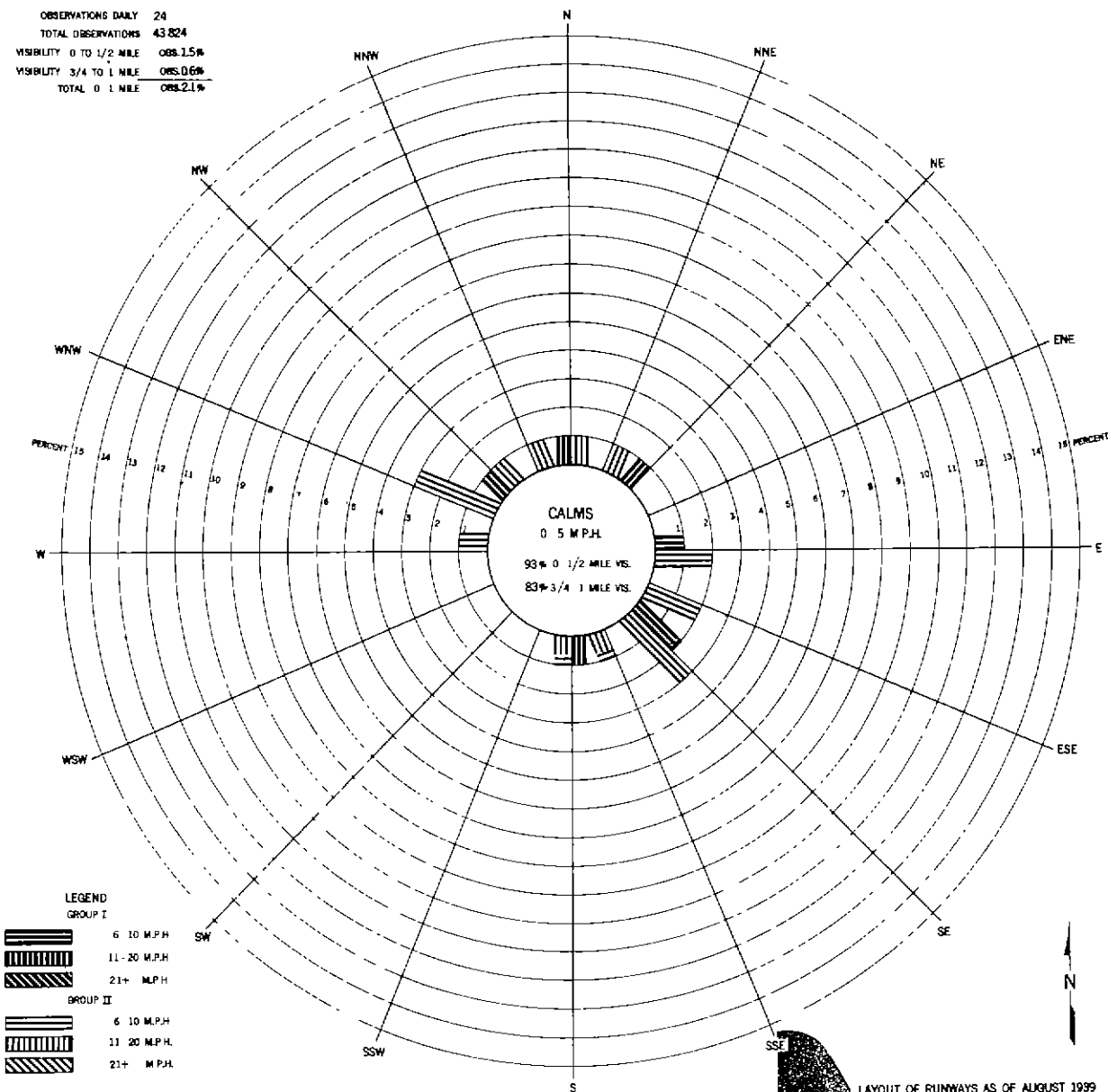
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 0.6%
TOTAL 0 1 MILE OBS. 2.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

OAKLAND, CAL.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	98 2
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	98 2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

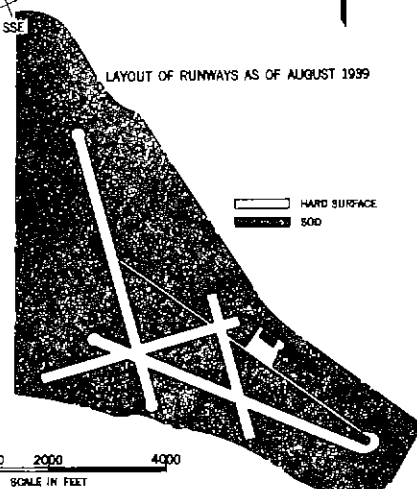
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	90 2
SMOKE	3	
RAIN	1	6 2
DUST		
SNOW		
TOTALS	100	96 4

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	130	49	72	15				5	12	80	205	252	820
SMOKE												6	6
RAIN		2										1	3
DUST													
SNOW													
TOTALS	130	51	72	15				5	12	80	205	259	829

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 54 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration



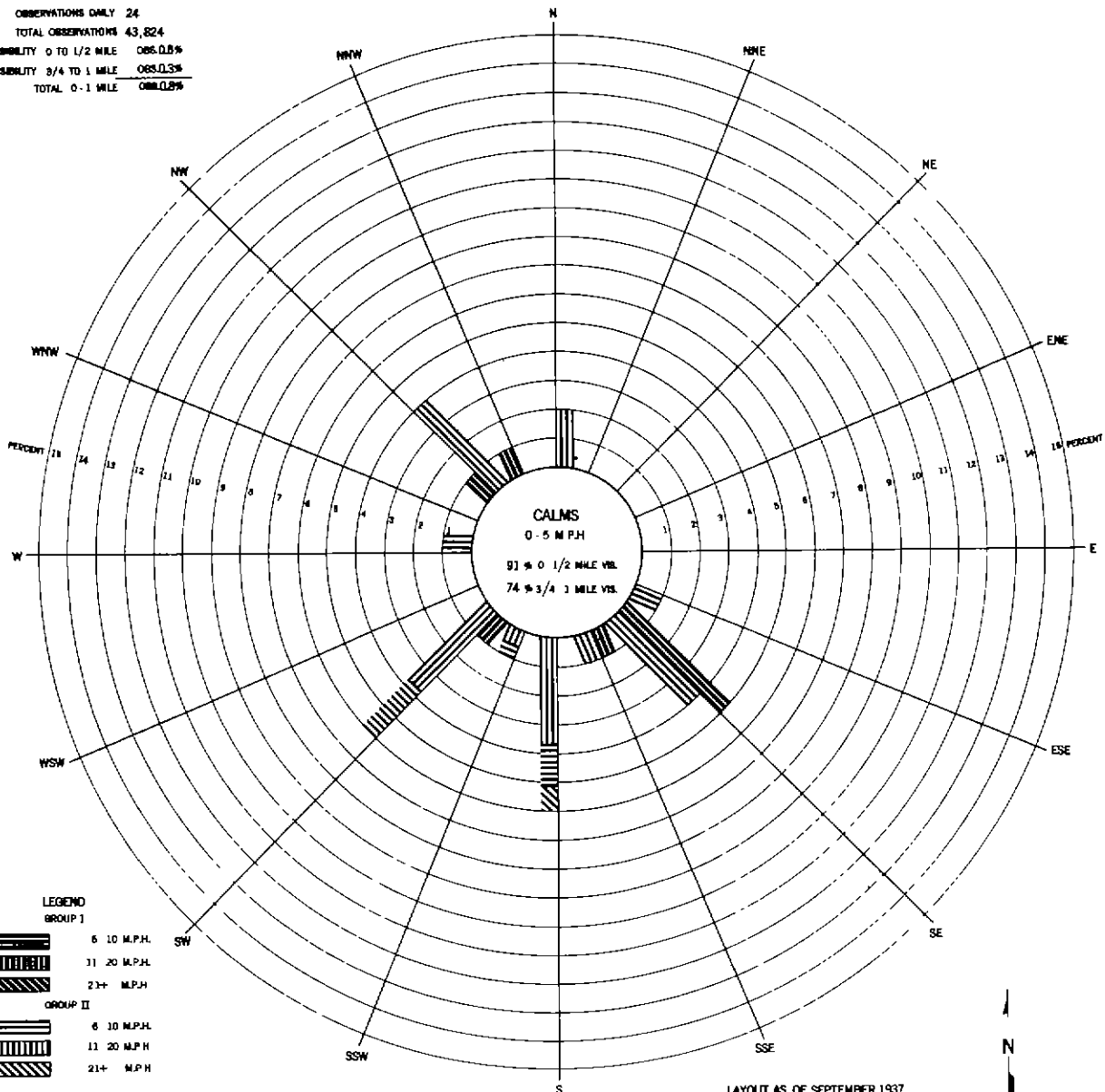
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 086.08%
VISIBILITY 3/4 TO 1 MILE 088.03%
TOTAL 0-1 MILE 087.08%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

REDDING, CALIF.
MUNICIPAL AIRPORT



LEGEND

GROUP I

[Pattern]	6-10 M.P.H.
[Pattern]	11-20 M.P.H.
[Pattern]	21+ M.P.H.

GROUP II

[Pattern]	6-10 M.P.H.
[Pattern]	11-20 M.P.H.
[Pattern]	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	92 4
SMOKE		
RAIN	1	
DUST		
SNOW		4
TOTALS	100	96 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	
SMOKE		
RAIN		
DUST		
SNOW	3	
TOTALS	100	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAY	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	130	97	1	5	1	3				5	3	128	313
SMOKE													
RAIN													
DUST													
SNOW	3												3
TOTALS	133	97	1	5	1	3				5	3	128	316

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 96 indicates the percentage of wind in excess of 5 M.P.H. of total in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

USABLE AREA
DILLED SURFACE

0 600 1200 1800 24
SCALE IN FEET

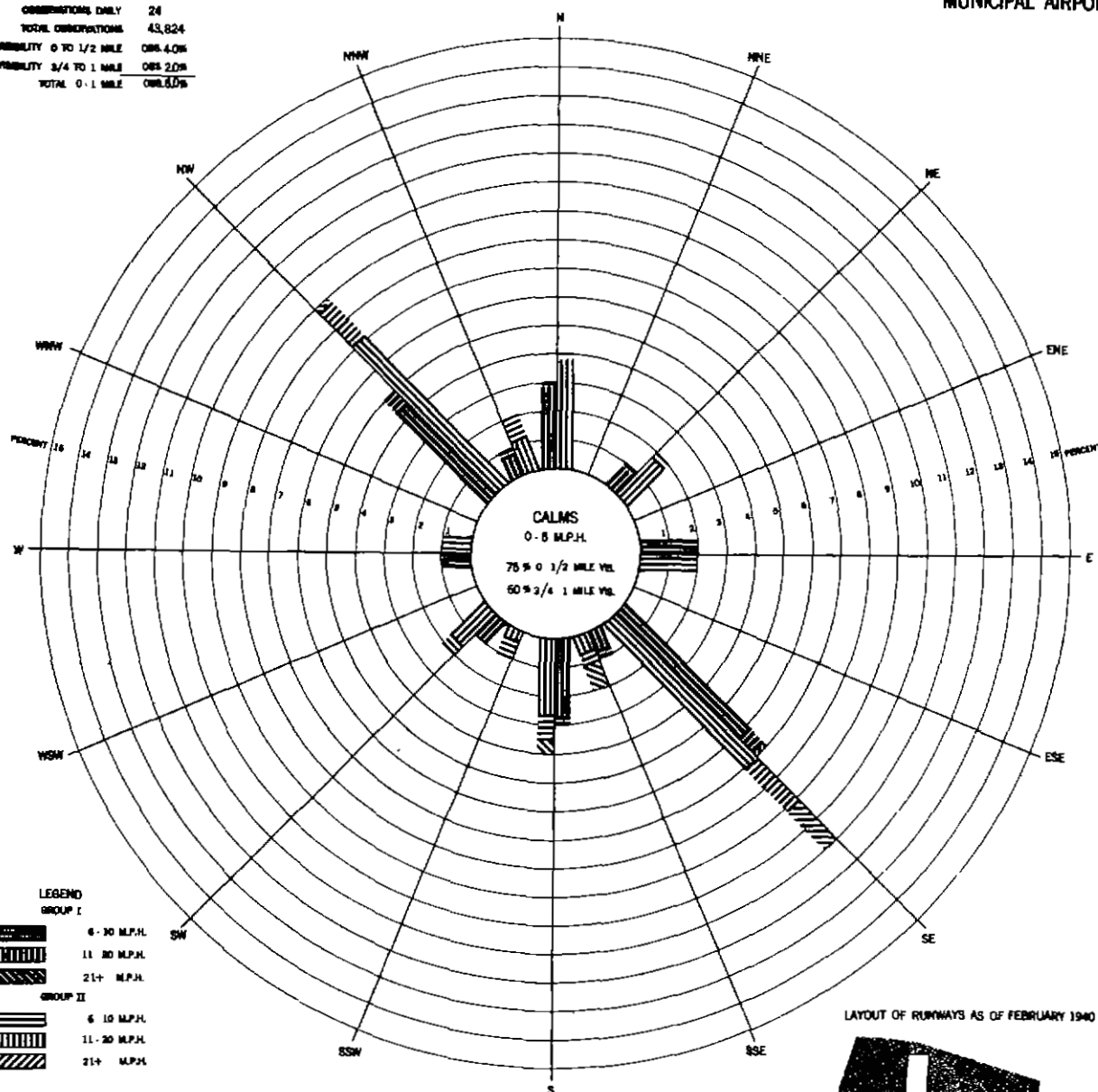
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1984 TO 1988 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 4.0%
VISIBILITY 3/4 TO 1 MILE OBS. 2.0%
TOTAL 0-1 MILE OBS. 6.0%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SACRAMENTO, CALIF.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	90 9
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	90 10

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	82	60 14 3
SMOKE	14	11 1
RAIN	1	2 1 4
DUST	3	1 1 2
SNOW		
TOTALS	100	74 17 9

(Figures indicate percentage)

TOTAL OCCURRENCE OF CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	430	202	91	14	9			1		54	287	645	1734
SMOKE	2										36	39	77
RAIN	3	1										4	8
DUST	4	1										6	18
SNOW													
TOTALS	439	204	91	14	9			1		54	329	695	1837

NOTE.

Percentages in tables are based on the number of observations in each visibility group.

Percentages in tables indicate the percentage of wind in other Group I or Group II depending upon the actual classification.

This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

LAYOUT OF RUNWAYS AS OF FEBRUARY 1940



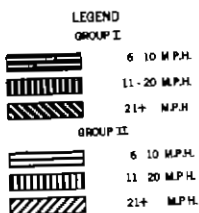
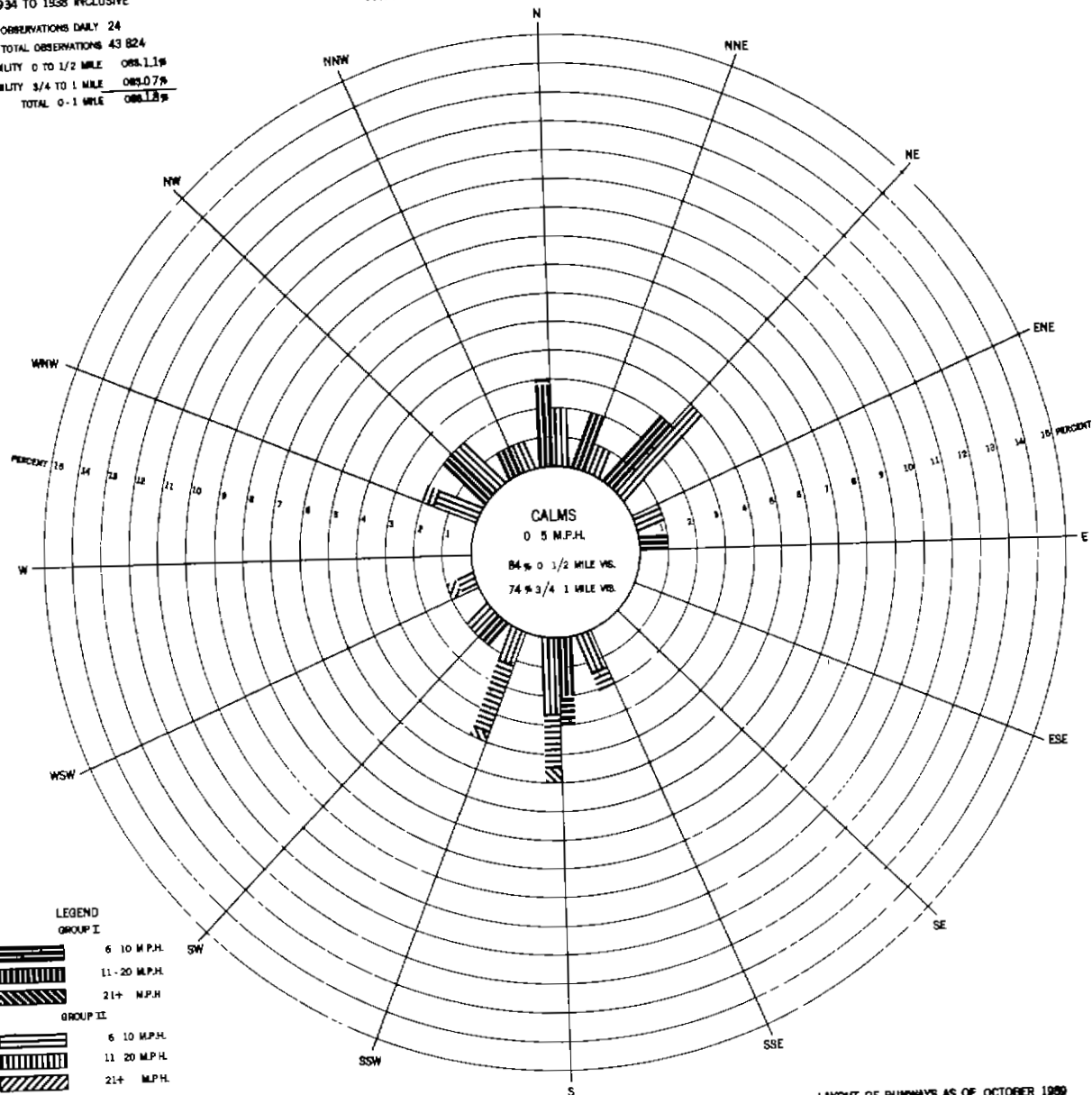
HARD SURFACE
NOT USABLE
SOIL

0 1000 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
VISIBILITY 3/4 TO 1 MILE OBS. 0.7%
TOTAL 0-1 MILE OBS. 1.8%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-20 M.P.H.
FOG	100	93
SMOKE		7
RAIN		
DUST		
SNOW		
TOTALS	100	93

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H.
FOG	99	70
SMOKE		17
RAIN		5
DUST	1	1
SNOW		
TOTALS	100	72

(Figures indicate percentages)

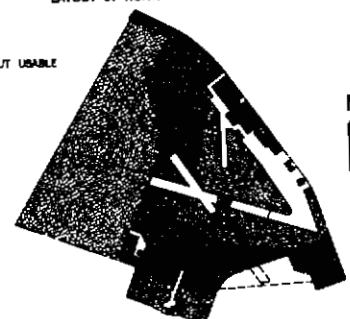
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	57	62	102	27	22	15	13	6	72	141	77	45	644
SMOKE										1			1
RAIN													2
DUST													
SNOW													
TOTALS	57	62	102	27	22	15	14	6	72	43	77	45	647

(Figures indicate percentages)

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in excess of 5 m.p.h. in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



0 1000 2000 3000
SCALE IN FEET

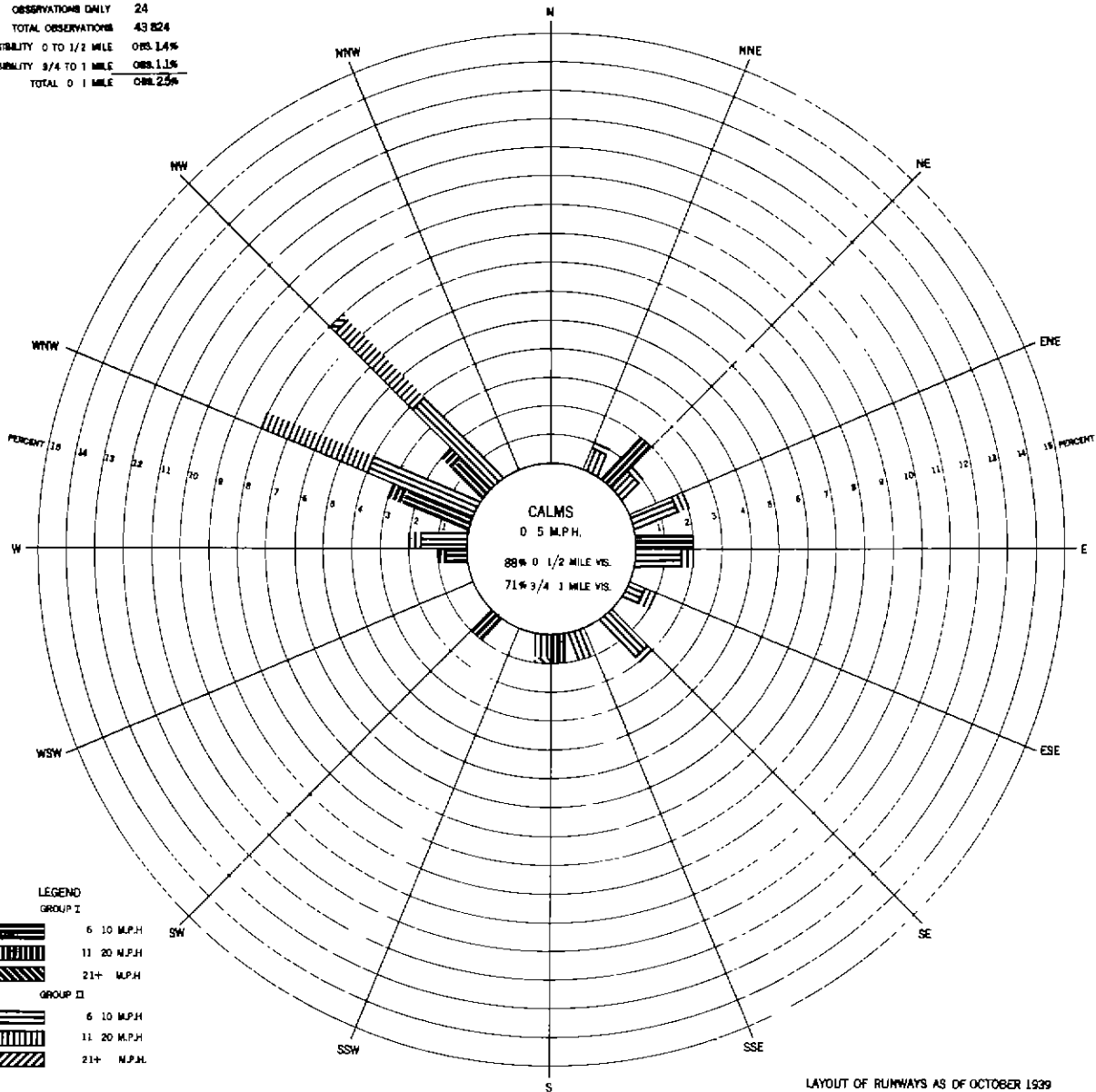
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.4%
VISIBILITY 3/4 TO 1 MILE OBS. 1.1%
TOTAL 0 1 MILE OBS. 2.5%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SAN FRANCISCO, CAL.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0 5 M.P.H.	6-10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	100	90	10	
SMOKE				
RAIN				
DUST				
SNOW				
TOTALS	100	90	10	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0 5 M.P.H.	6-10 M.P.H.	11 20 M.P.H.	21+ M.P.H.	
FOG	92	52	26	3	
SMOKE					
RAIN	1	4	3		
DUST	7	7	6		
SNOW					
TOTALS	100	63	34	3	

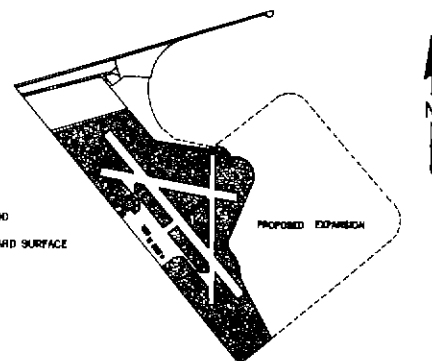
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS 10-5 M.P.H. BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	187	67	54	11	2				13	36	56	155	280
SMOKE													
RAIN	1	1	1										4
DUST													1
SNOW													
TOTALS	188	68	55	12	2				13	36	56	155	345

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Specific 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



0 1000 3000 5000
SCALE IN FEET

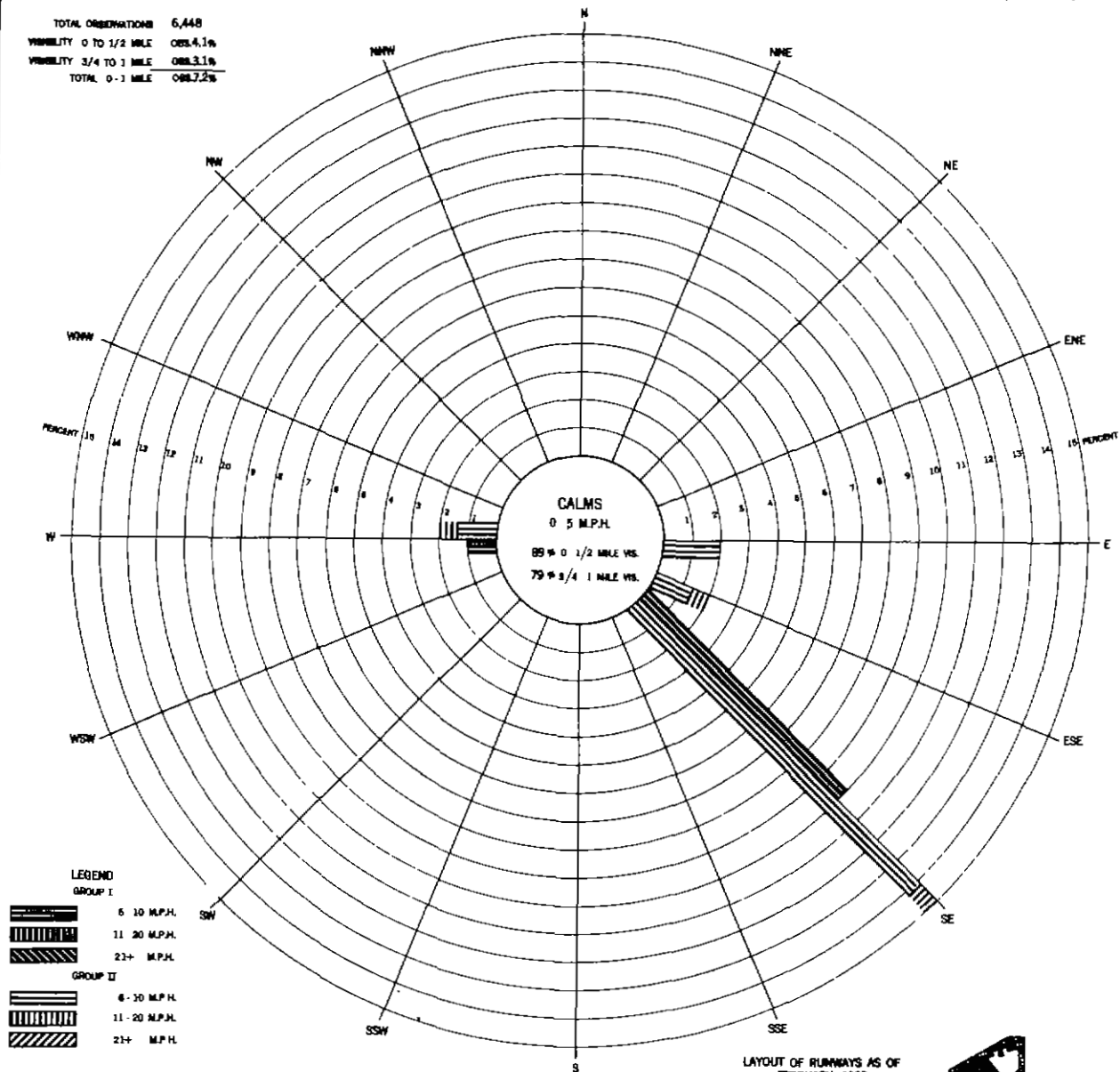
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SANTA BARBARA CAL
(GOLETA)

TOTAL OBSERVATIONS 6,448
VISIBILITY 0 TO 1/2 MILE OBS. 4.1%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0-1 MILE OBS. 7.2%



LEGEND

GROUP I

[Solid black]	5-10 M.P.H.
[Horizontal lines]	11-20 M.P.H.
[Diagonal lines \]	21+ M.P.H.

GROUP II

[Horizontal lines]	5-10 M.P.H.
[Horizontal lines]	11-20 M.P.H.
[Diagonal lines \]	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	100
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	100

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	98	79
SMOKE		
RAIN	2	7
DUST		2
SNOW		
TOTALS	100	88

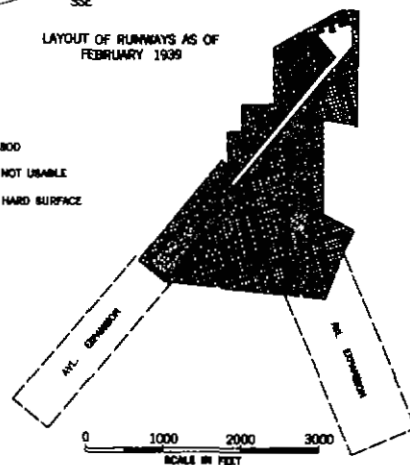
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	1	16	46	28	28	45	47	64	47	46	22	2	392
SMOKE													
RAIN	1			1		1							3
DUST													
SNOW													
TOTALS	2	16	46	29	28	46	47	64	47	46	22	2	395

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 89 indicates the percentage of total in Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

800
NOT USABLE
HARD SURFACE



COLORADO

Colorado Springs

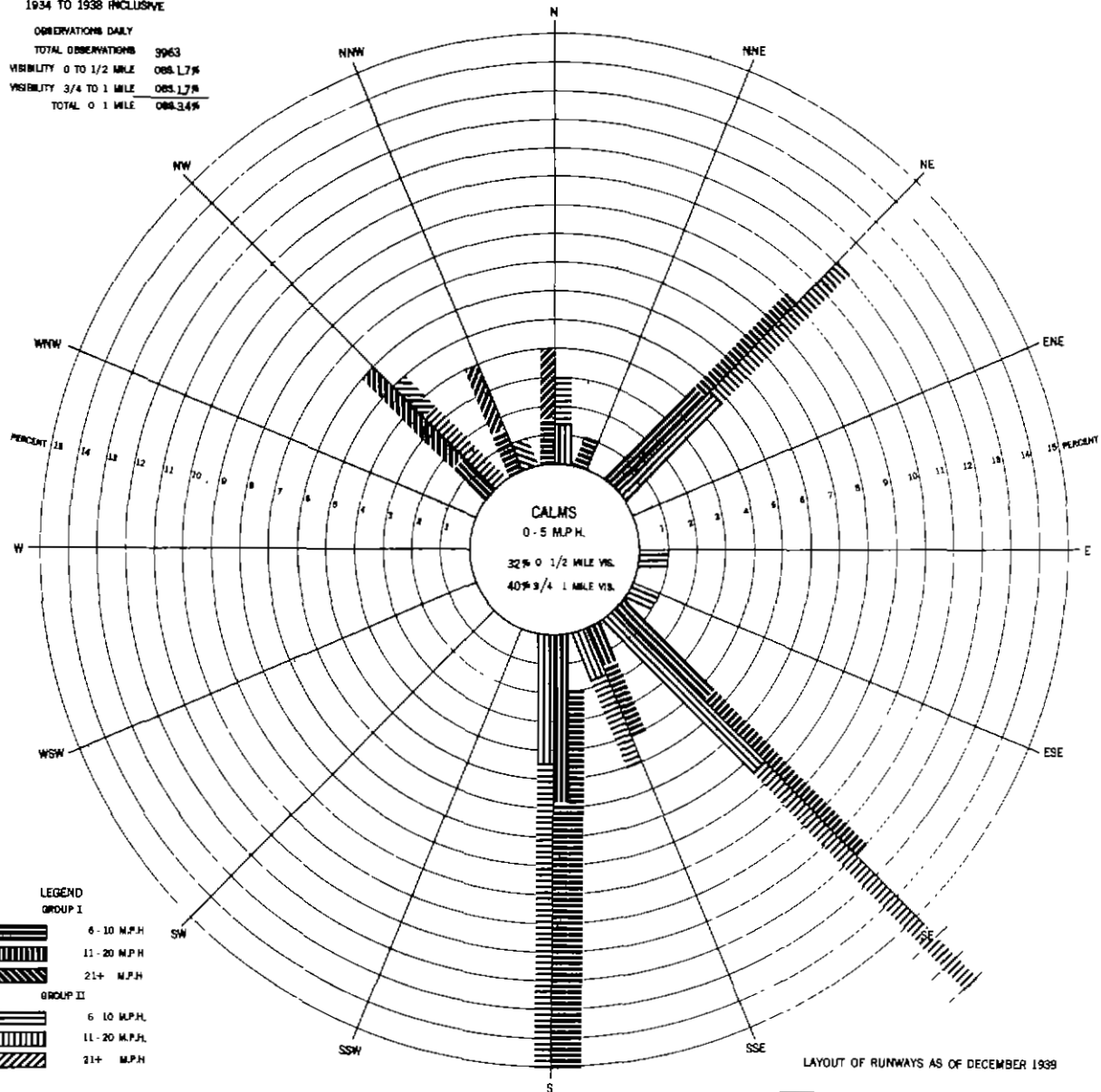
Denver

Pueblo

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 3963
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.7%
TOTAL 0 1 MILE OBS. 3.4%



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	91	26 55 17
SMOKE		
RAIN		
DUST		
SNOW	9	4 4
TOTALS	100	26 59 15

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	36 50
SMOKE		
RAIN		2 2
DUST		2 2
SNOW	8	6 4
TOTALS	100	38 58 4

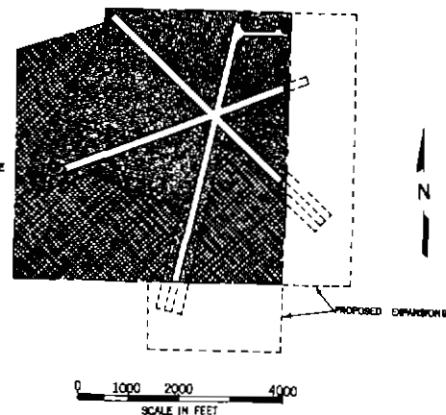
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	1	9	4	1	4				1	1	8	2	44
SMOKE													
RAIN													
DUST													
SNOW										2	2		4
TOTALS	1	9	4	1	4				1	1	10	4	48

NOTE
Percentages in windrosettes are based on the number of observations in each visibility group.
(Example: 1% indicates the percentage of what is either Group I or Group II depending upon the symbol identification.)
This data furnished through the cooperation of the U. S. Weather Bureau and the Victor Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939

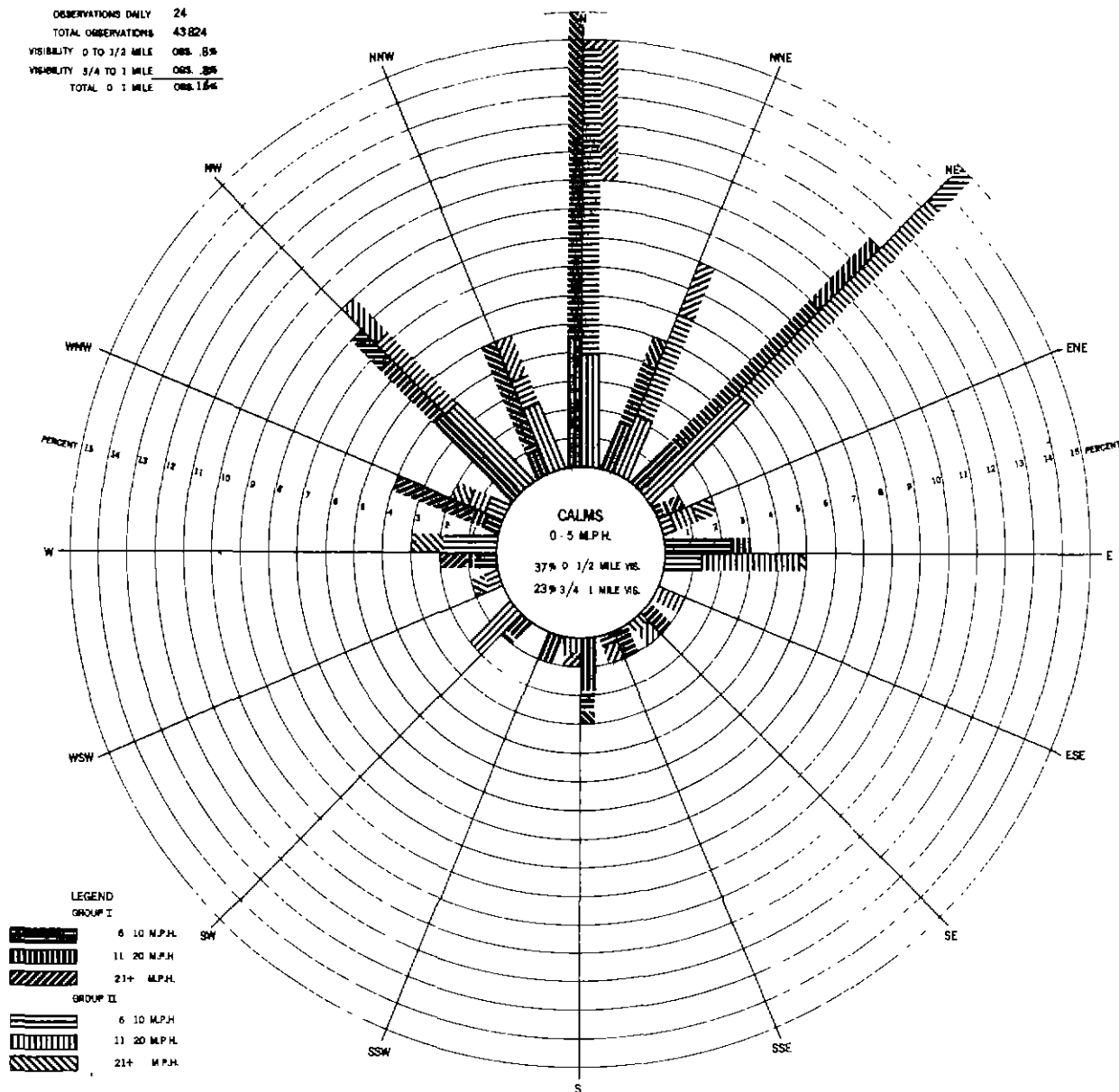


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 8%
VISIBILITY 3/4 TO 1 MILE OBS. 26%
TOTAL 0 1 MILE OBS. 14%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DENVER, COL.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.	SW
11-20 M.P.H.	
21+ M.P.H.	

GROUP II

6-10 M.P.H.	
11-20 M.P.H.	
21+ M.P.H.	

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	24 17 6
SMOKE	2	
RAIN		
DUST	2	2 3 14
SNOW	4	6 17 11
TOTALS	100	32 37 31

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	58	22 23 4
SMOKE	12	3
RAIN		
DUST	2	1 3 11
SNOW	28	7 19 7
TOTALS	100	33 45 22

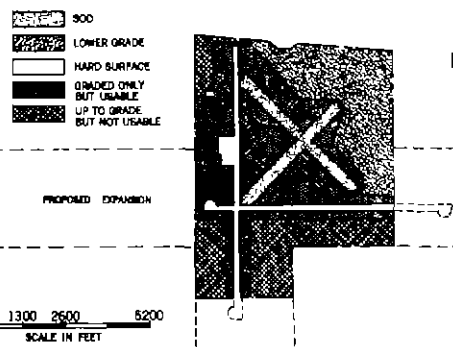
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I (ALL) COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	18	28	17	6	7	3	1	1	16	19	6	44	163
SMOKE		6											12
RAIN													
DUST					4								4
SNOW	1	8	1	4					1	5	3	4	27
TOTALS	16	42	18	14	7	3	1	1	17	24	12	61	206

NOTE:
Percentages in parentheses are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1929



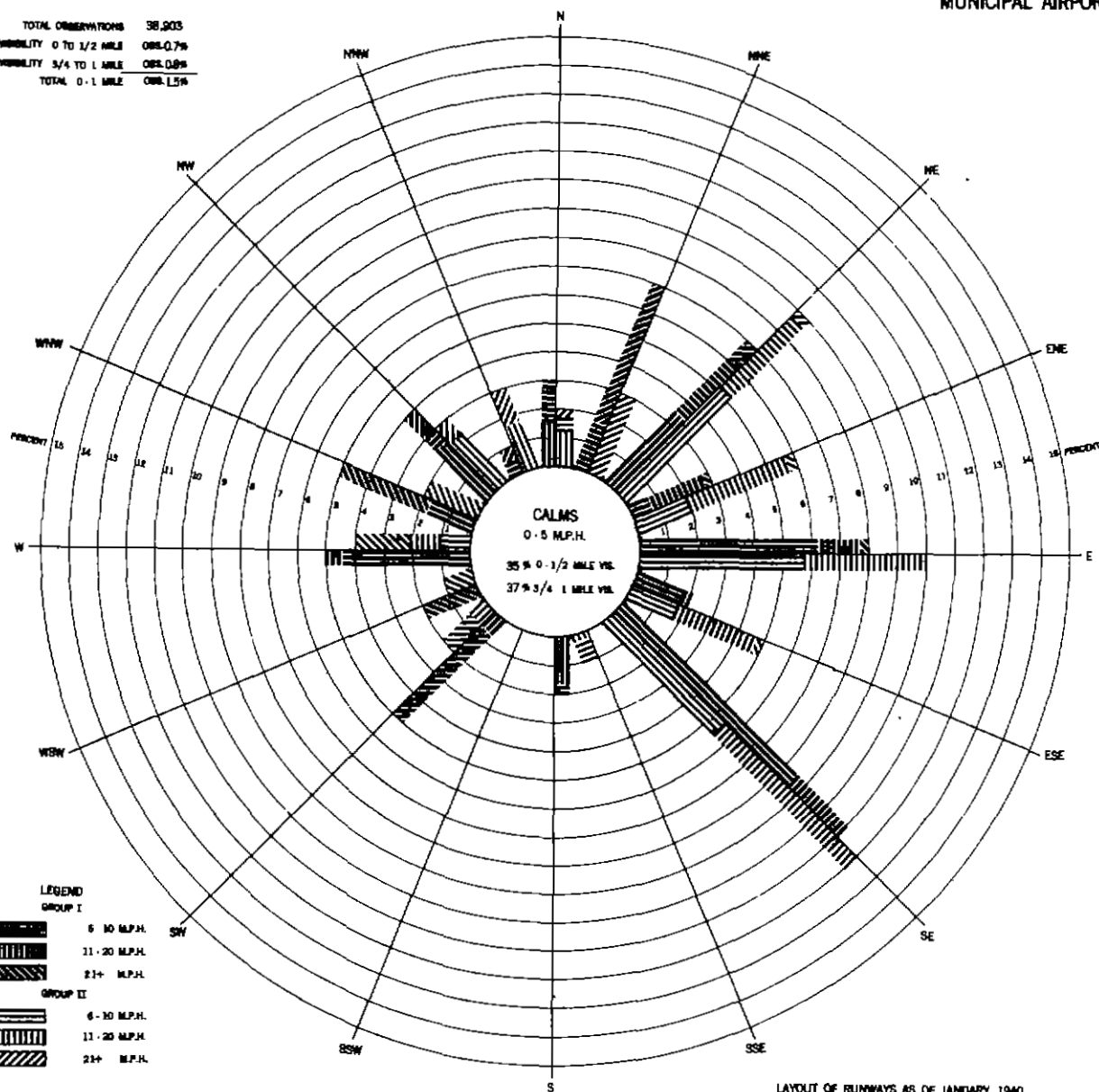
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

PUEBLO, COLO.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 38,303
VISIBILITY 0 TO 1/2 MILE OBS. 0.7%
VISIBILITY 3/4 TO 1 MILE OBS. 0.6%
TOTAL 0-1 MILE OBS. 1.3%



LEGEND

GROUP I

5-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	5-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	79	40 13 2
SMOKE	16	3
RAIN		
DUST	1	3 1 26
SNOW	6	4 5 3
TOTALS	100	50 19 31

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	58	32 26 1
SMOKE	28	3
RAIN		1 1 1
DUST	10	5 2 18
SNOW	4	2 7 1
TOTALS	100	43 36 21

(Figures indicate percentage)

TOTAL OCCURRENCES (DURING CALMS (0-5 M.P.H.) BY MONTHS GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	18	25	13	1	10	2	1	9	14	5	11	36	144
SMOKE	16	11	3	1							7	9	47
RAIN													
DUST					12								12
SNOW	2	2	2									3	9
TOTALS	96	98	18	13	10	2	1	9	14	5	18	48	212

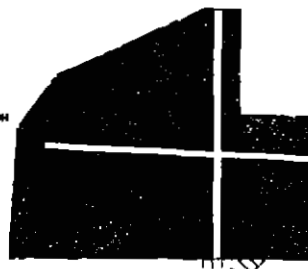
NOTE

Percentages in tables are based on the number of observations in each visibility group.
Example: 0% indicates the percentage of wind in either Group I or Group II depending upon the reported visibility.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940

USABLE BUT ROUGH
HARD SURFACE



0 1000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

CONNECTICUT

Hartford

New Haven

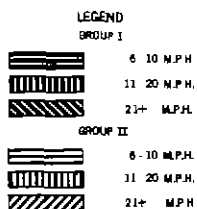
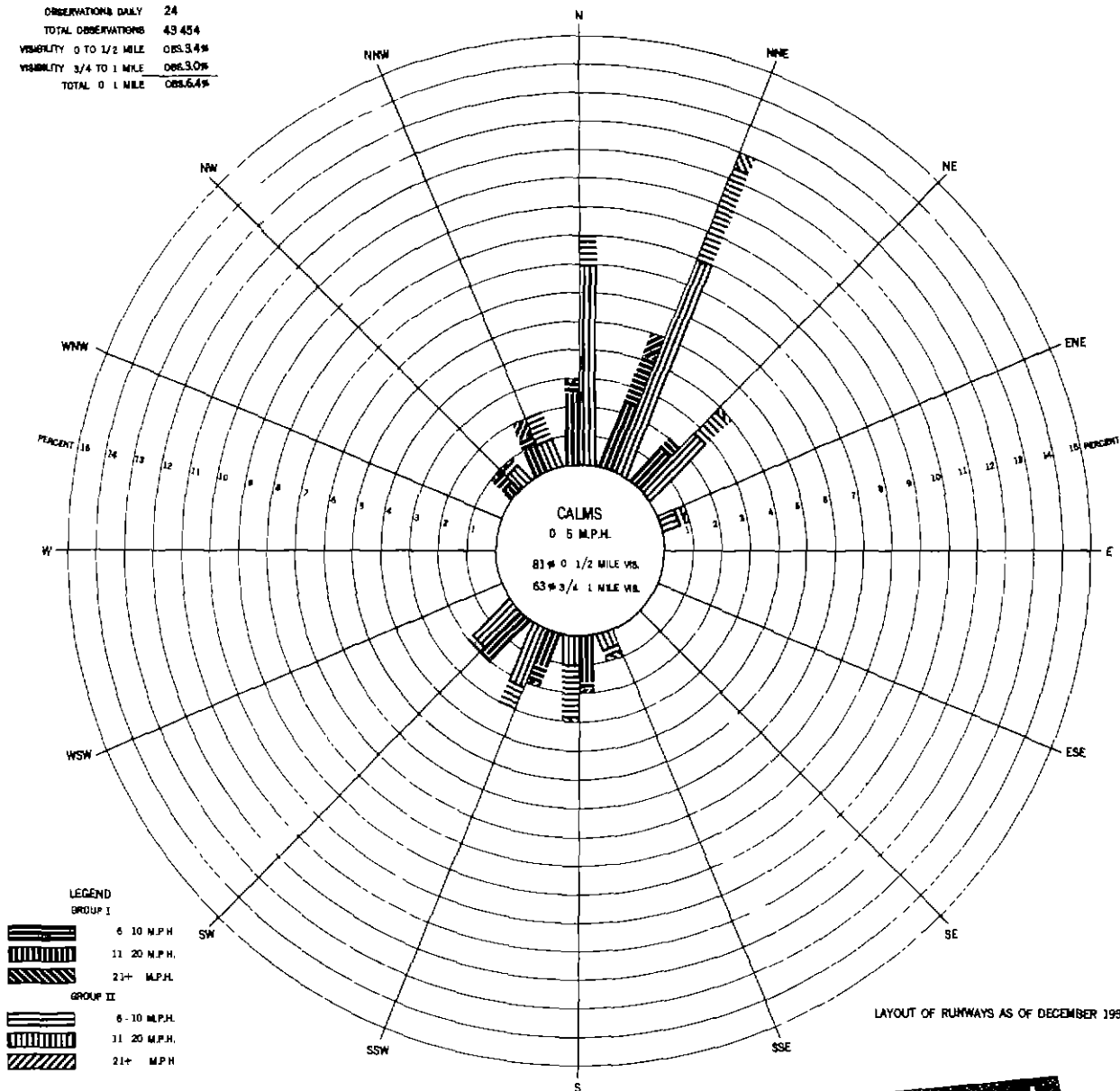
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 454

VISIBILITY 0 TO 1/2 MILE 085.34%
VISIBILITY 3/4 TO 1 MILE 086.30%
TOTAL 0 1 MILE 085.64%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

HARTFORD, CONN.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	99	63 18 2
SMOKE		
RAIN		
DUST		
SNOW	1	6 5 6
TOTALS	100	69 23 8

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

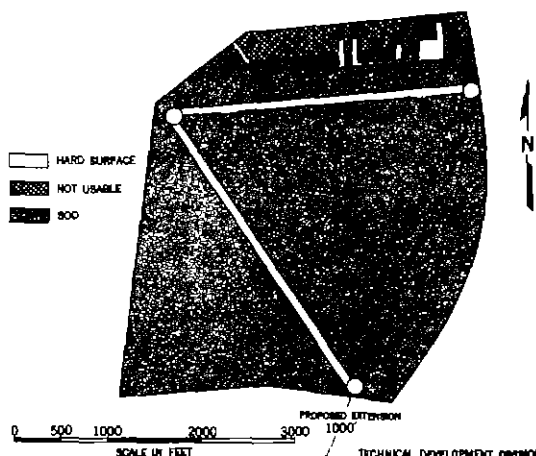
CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	97	69 17 3
SMOKE		
RAIN		
DUST	1	
SNOW	2	4 6 1
TOTALS	100	73 23 4

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	248	157	144	52	58	146	102	214	271	225	169	184	1967
SMOKE													
RAIN													
DUST	3	1									1		5
SNOW	9	6	12									1	28
TOTALS	257	164	156	52	58	146	102	214	271	225	170	185	2000

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the War Relocation Administration.

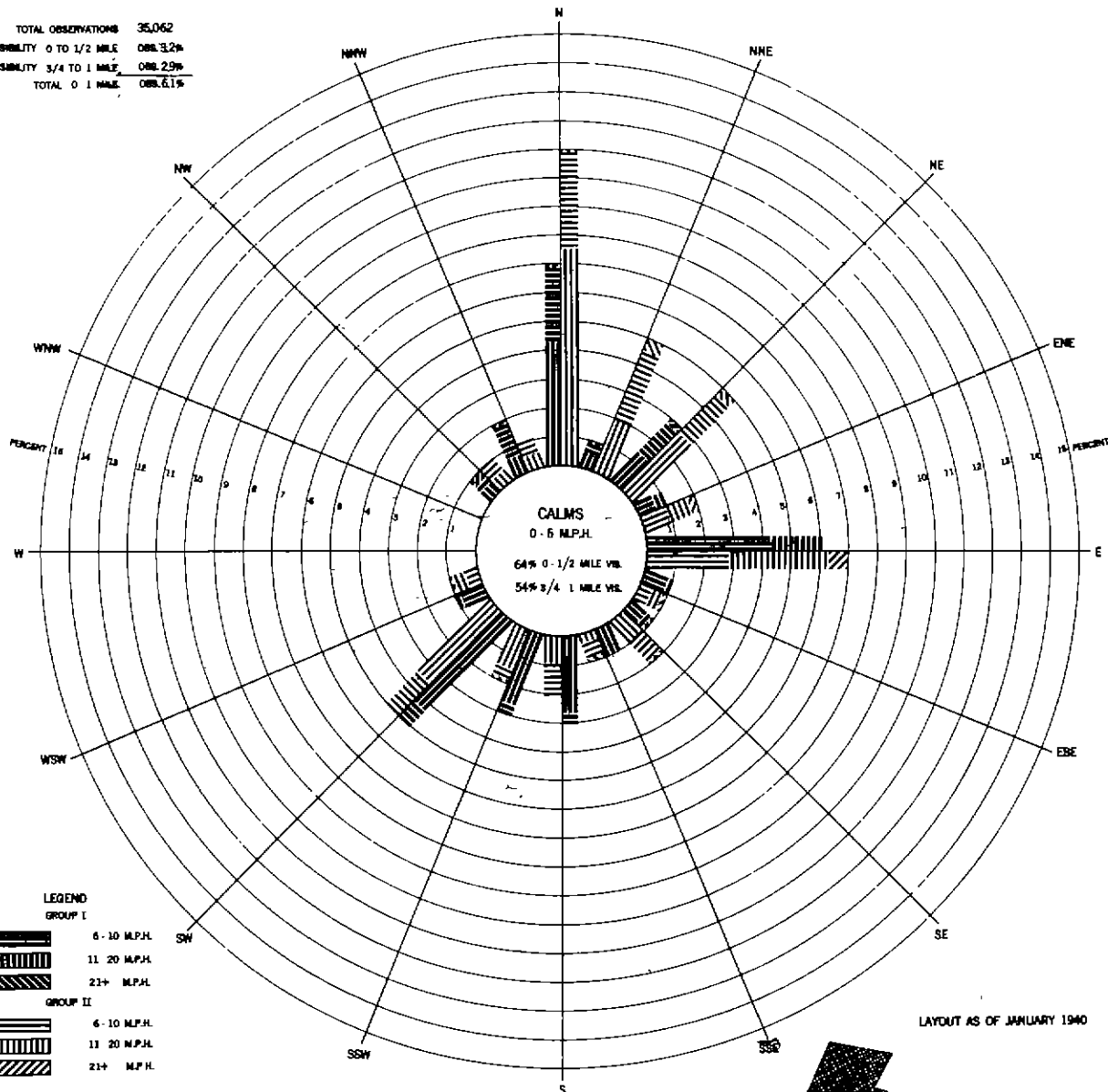


SUMMARY OF 8 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

NEW HAVEN, CONN.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 35,062
VISIBILITY 0 TO 1/2 MILE OBS. 3.2%
VISIBILITY 3/4 TO 1 MILE OBS. 2.9%
TOTAL 0 1 MILE OBS. 6.1%



LEGEND

GROUP I
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	94	60
SMOKE		12
RAIN	2	3
DUST		2
SNOW	4	7
TOTALS	100	70

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	81	44
SMOKE	2	22
RAIN	3	6
DUST	6	2
SNOW	8	5
TOTALS	100	67

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

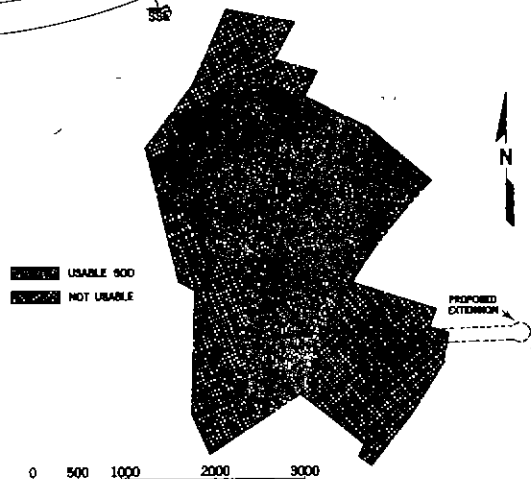
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	67	150	152	50	74	118	55	53	105	114	114	72	1122
SMOKE	4		3	2			1					3	13
RAIN	4	3	3	7	2	2			1			9	31
DUST		11	2						1	3	1	4	33
SNOW	12	30	15	9								3	74
TOTALS	87	194	175	68	76	118	56	54	109	115	121	100	1273

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.
Example: 94 indicates the percentage of calms in Group I or Group II, depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT AS OF JANUARY 1940



DISTRICT OF COLUMBIA

Washington

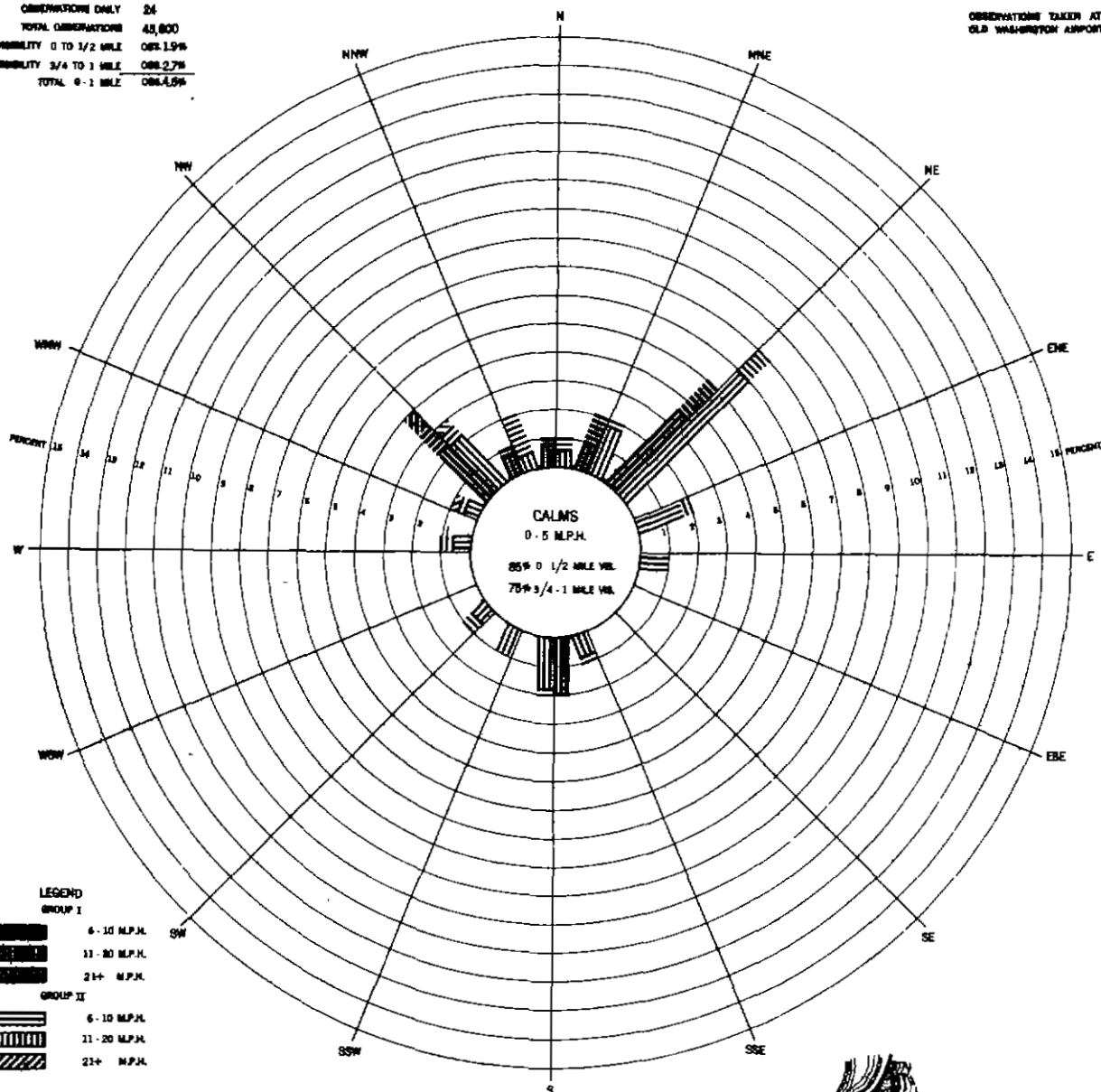
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,800
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 2.7%
TOTAL 0 - 1 MILE OBS. 4.2%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

WASHINGTON, D. C.
NATIONAL AIRPORT

OBSERVATIONS TAKEN AT
OLD WASHINGTON AIRPORT



LEGEND

GROUP I

6 - 10 M.P.H.
11 - 20 M.P.H.
21+ M.P.H.

GROUP II

6 - 10 M.P.H.
11 - 20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	96	47
SMOKE	2	1
RAIN	1	1
DUST		1
SNOW	1	19
TOTALS	100	68

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	80	12
SMOKE	16	5
RAIN	1	1
DUST		7
SNOW	3	20
TOTALS	100	79

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 - 5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	341	184	167	46	51	7	19	33	139	94	127	165	1346
SMOKE	18	65	17	2	4			1	1		13	36	159
RAIN	7	1											8
DUST													
SNOW	14	10	5									7	36
TOTALS	380	260	179	55	66	7	19	34	140	94	140	210	1549

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.

Example: For instance, the percentage of wind in other than Group I, or Group II, depending upon the visibility classification.

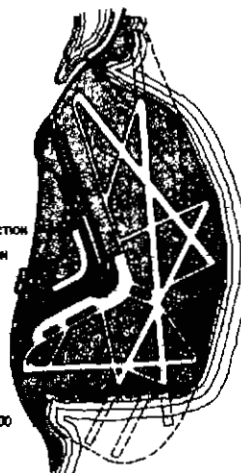
This data furnished through the cooperation of the U. S. Weather Service and the Marine Program Administration.

PROPOSED LAYOUT OF RUNWAYS AS OF MAY 1940

HARD SURFACE
SOIL
UNDER CONSTRUCTION
FUTURE EXPANSION

ENTIRE FIELD
UNDER CONSTRUCTION

0 1000 2000 4000
SCALE IN FEET



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

FLORIDA

Daytona Beach

Jacksonville

Key West

Lakeland

Miami

Orlando

Pensacola

Tampa

Vero Beach

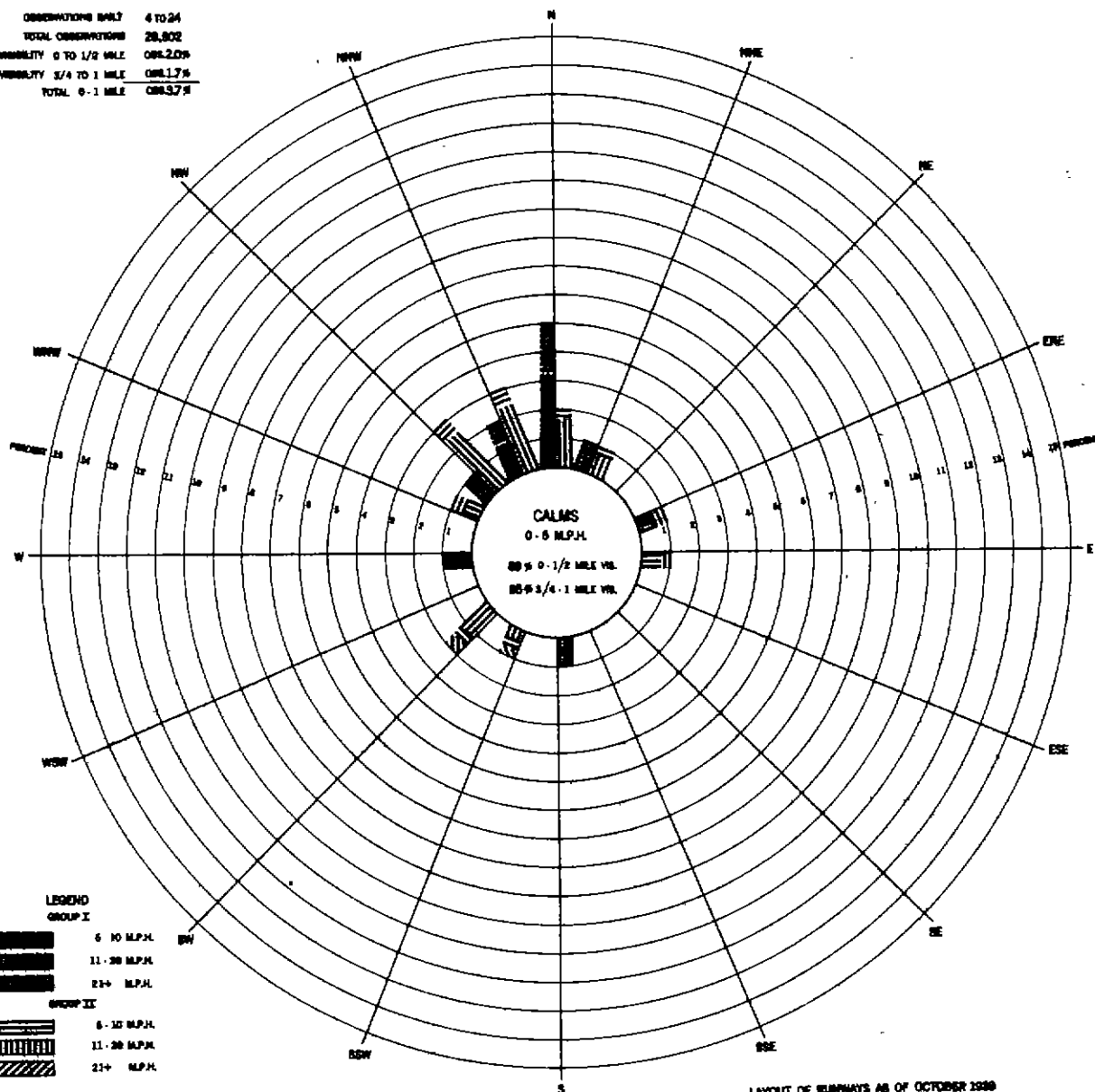
West Palm Beach

SUMMARY OF 4 YEAR PERIOD
1936 TO 1939 INCLUSIVE

OBSERVATIONS MADE 4 TO 24
TOTAL OBSERVATIONS 28,802
VISIBILITY 5 TO 1 1/2 MILE OBS. 2.0%
VISIBILITY 1/4 TO 1 MILE OBS. 1.7%
TOTAL 5-1 MILE OBS. 3.7%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DAYTONA BEACH, FLA.
MUNICIPAL AIRPORT



LEGEND
GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	88	77	21	1
SMOKE	1	1		
RAIN				
CLUST				
SNOW				
TOTALS	100	79	21	1

(Figures indicate percentage)

GROUP II
1/4 TO 1 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	88	61	22	1
SMOKE	4	8		
RAIN		1	8	1
CLUST			1	
SNOW				
TOTALS	100	70	29	2

(Figures indicate percentage)

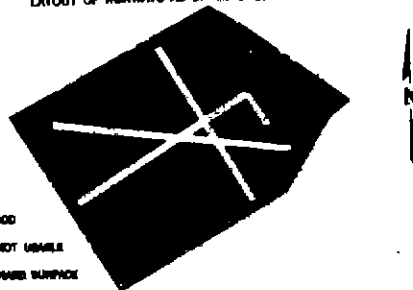
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTH

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	183	104	114	40	61	21	21	67	33	35	94	101	876
SMOKE					10				1		2		22
RAIN					1								1
CLUST													
SNOW													
TOTALS	183	104	114	40	61	21	21	67	34	36	96	101	899

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of total in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824

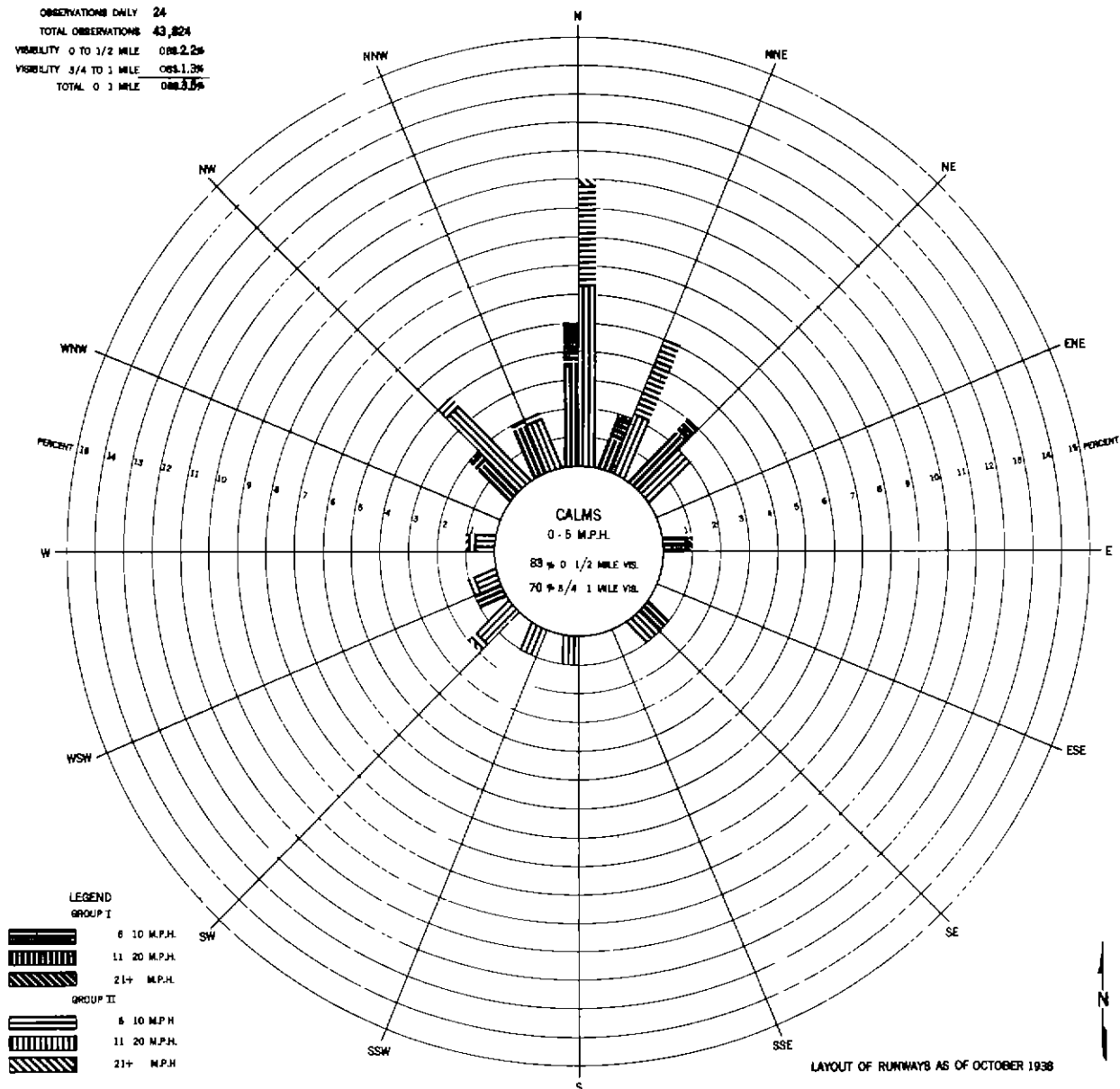
VISIBILITY 0 TO 1/2 MILE OBS. 2.2%

VISIBILITY 3/4 TO 1 MILE OBS. 1.3%

TOTAL 0 1 MILE OBS. 3.5%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

JACKSONVILLE, FLA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	75 18
SMOKE	1	2
RAIN		1 2 2
DUST		
SNOW		
TOTALS	100	78 20 2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	88	58 25 1
SMOKE	12	6 1
RAIN		4 4 1
DUST		
SNOW		
TOTALS	100	68 30 2

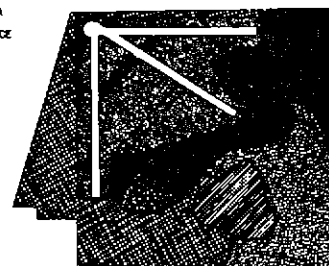
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	246	138	114	81	59	18	3	40	33	92	119	179	1122
SMOKE	2	18		1							7	24	52
RAIN	1							1		1			3
DUST													
SNOW													
TOTALS	249	156	114	82	59	18	3	41	33	93	126	203	1177

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 83% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

USABLE AREA
HARD SURFACE
NOT USABLE
GRADED
TREES
LAKE
LOW
SOD



0 1000 2000 4000
SCALE IN FEET

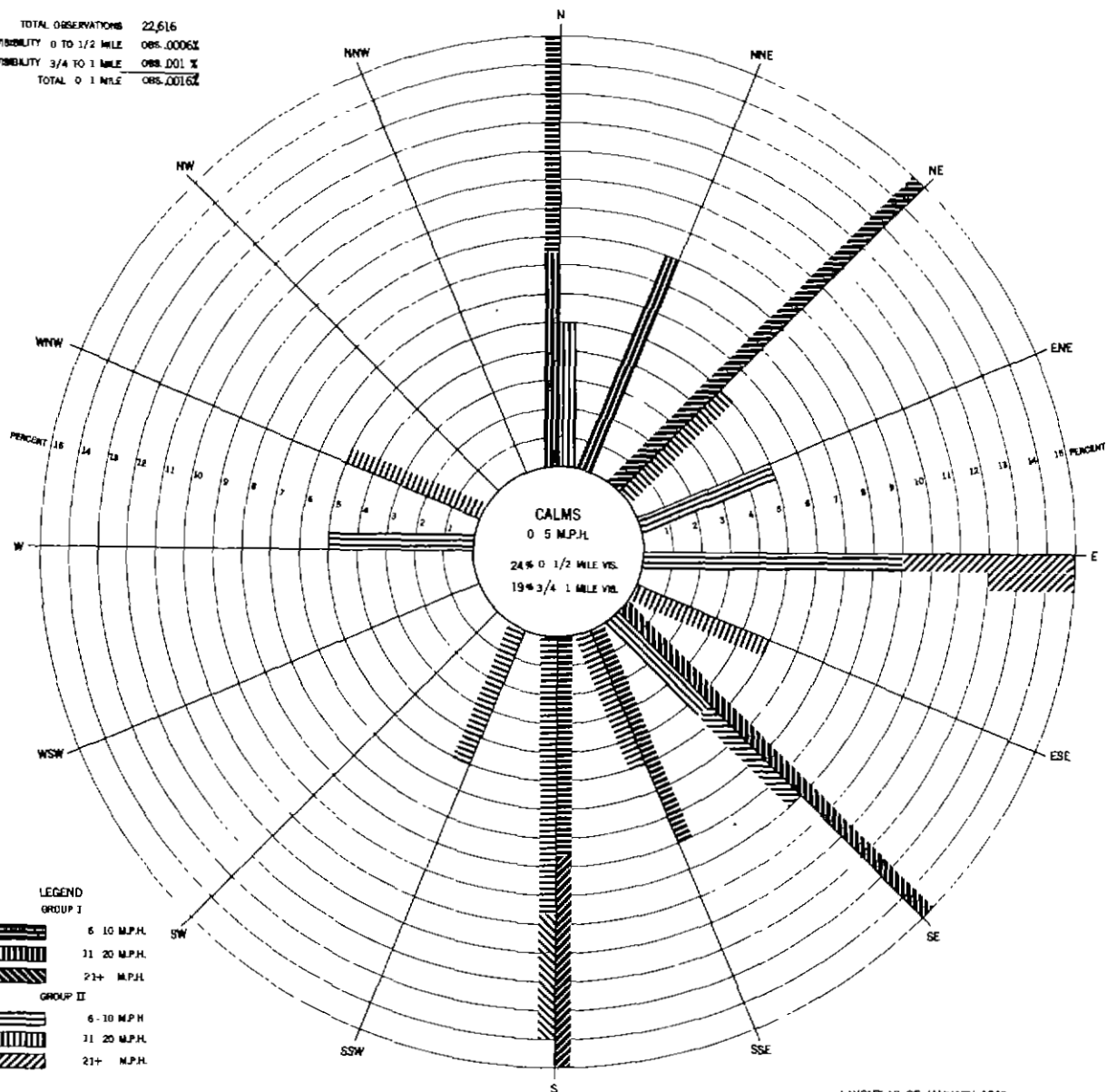
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

KEY WEST, FLA.
MEACHAM FIELD

TOTAL OBSERVATIONS 22,616
VISIBILITY 0 TO 1/2 MILE OBS. .0006%
VISIBILITY 3/4 TO 1 MILE OBS. .001 %
TOTAL 0 1 MILE OBS. .0016%



LEGEND

GROUP I	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

LAYOUT AS OF JANUARY 1940

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	67	10
SMOKE		
RAIN	33	10 30 50
DUST		
SNOW		
TOTALS	100	20 30 50

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

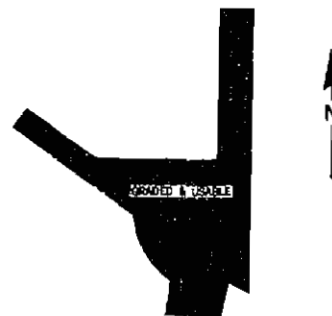
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	60	5
SMOKE		
RAIN	40	29 41 24
DUST		
SNOW		
TOTALS	100	35 41 24

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG			1	2									3
SMOKE													
RAIN								1	1	1			3
DUST													
SNOW													
TOTALS		1	2					1	1	1		2	8

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.



0 500 1000 2000
SCALE IN FEET

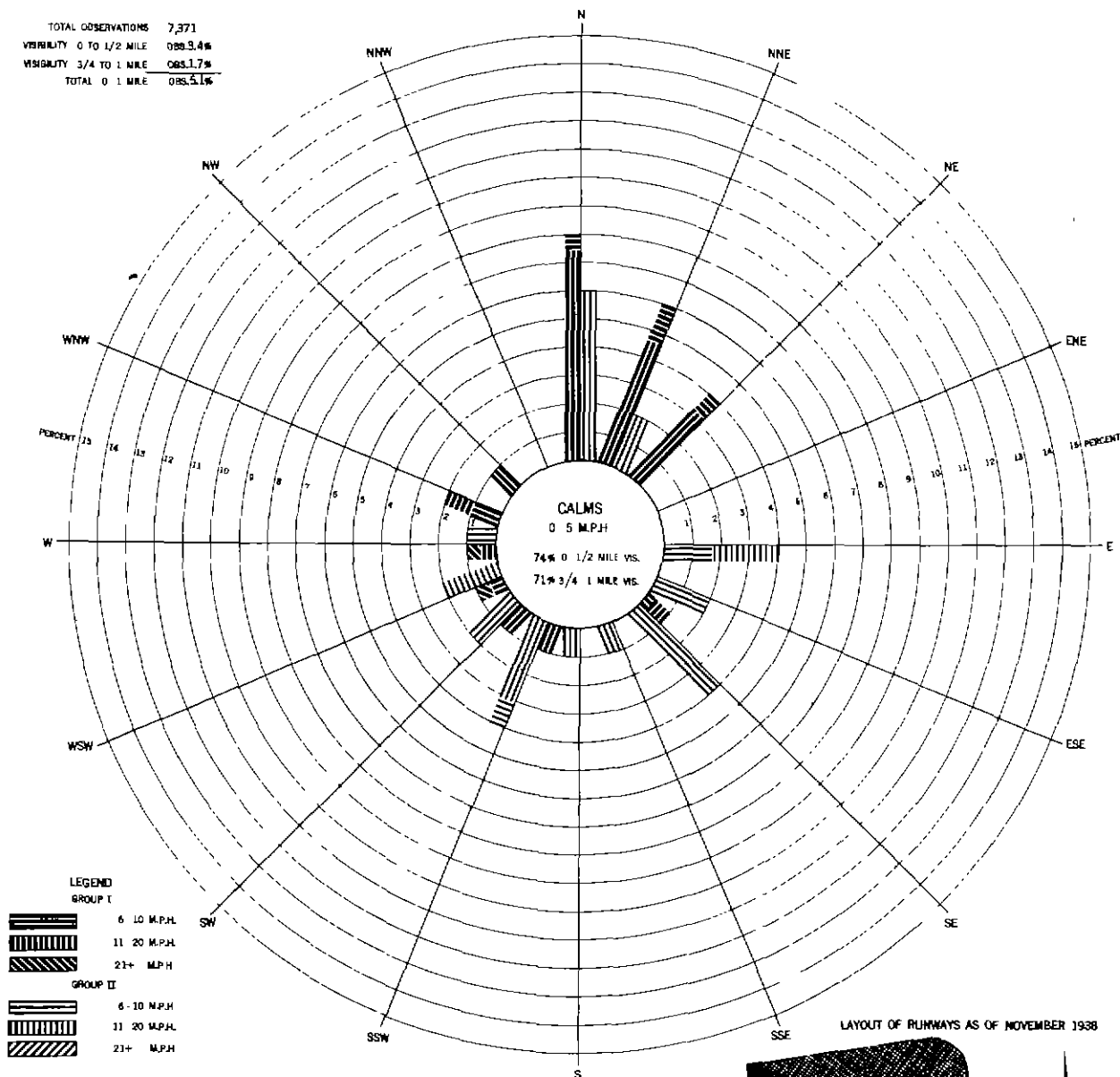
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

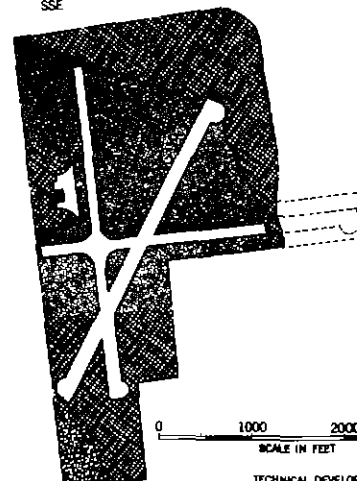
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LAKELAND, FLA.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 7,371
VISIBILITY 0 TO 1/2 MILE 089.3.4%
VISIBILITY 3/4 TO 1 MILE 083.1.7%
TOTAL 0 1 MILE 085.5.1%



LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	96	74
SMOKE	2	
RAIN		6
DUST		6
SNOW		3
TOTALS	100	80

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	71	59
SMOKE	25	17
RAIN	3	6
DUST	1	13
SNOW		
TOTALS	100	72

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	52	29	26	4	18		6	6	7	21	32	50	250
SMOKE	1	1			19							6	26
RAIN		1			1					1		1	3
DUST												1	1
SNOW													
TOTALS	53	31	25	4	38		6	6	7	22	32	56	280

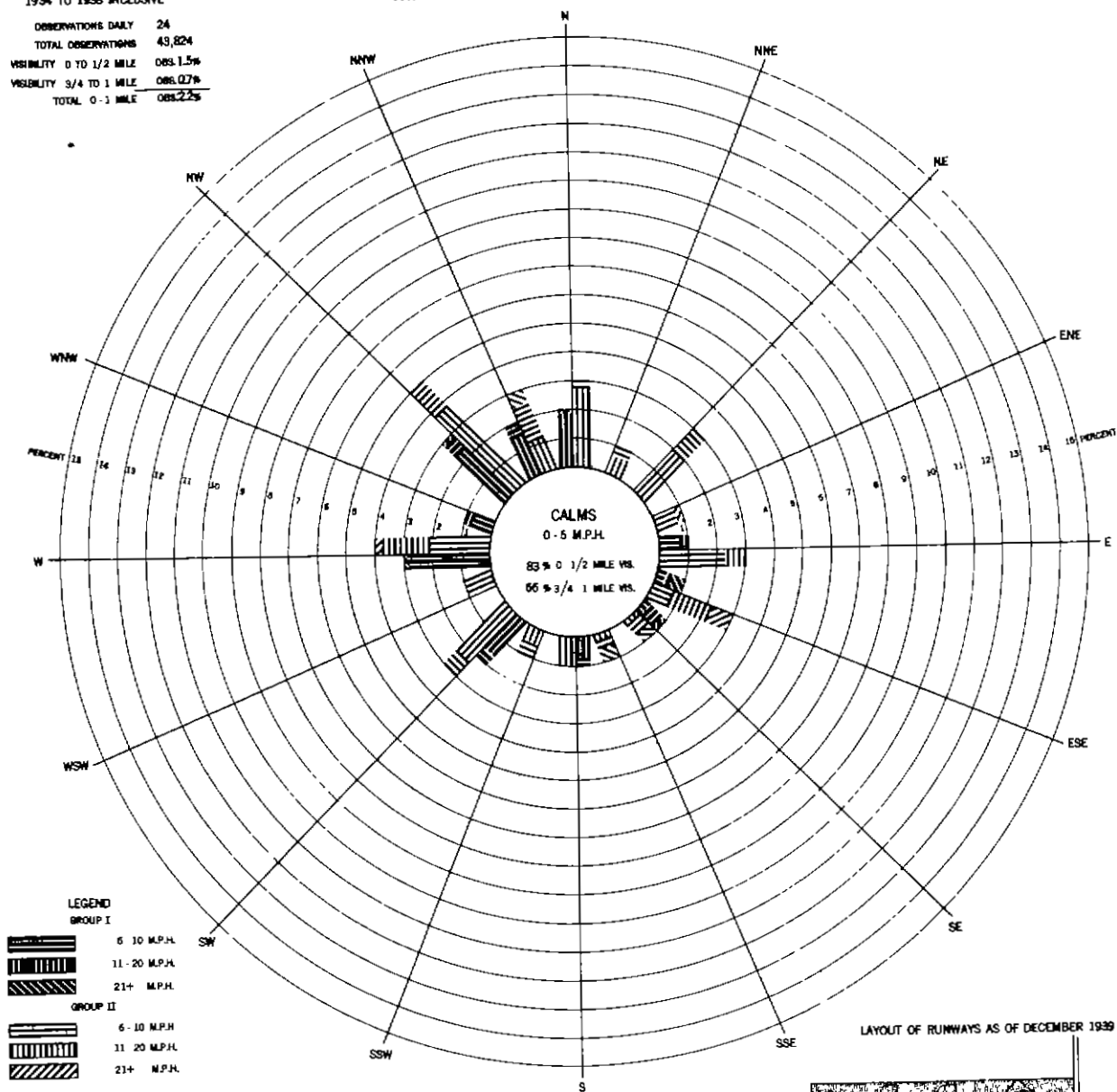
NOTE.
Percentages in tables are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II exceeding upon the specified identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

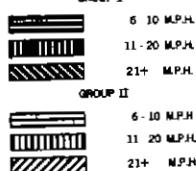
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 0.07%
TOTAL 0 - 1 MILE OBS. 2.2%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MIAMI, FLA.
NEW MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	74	44 3
SMOKE	26	21 1
RAIN		11 14 6
DUST		
SNOW		
TOTALS	100	76 18 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	71	21 5 1
SMOKE	25	19 4 1
RAIN	4	21 21 7
DUST		
SNOW		
TOTALS	100	61 30 9

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

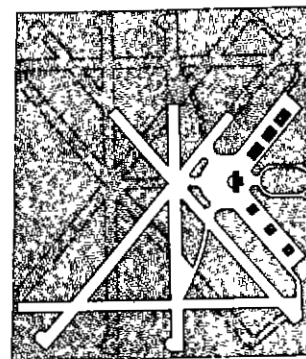
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	TOTAL
FOG	134	46	145	39	8	11	3	5	12	25	36	73	537
SMOKE	3	30	44	70	24	5	2			3		8	189
RAIN	1	6		1					1				10
DUST													
SNOW													
TOTALS	138	82	189	110	32	17	5	5	13	28	36	81	796

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939

ENTIRE FIELD UNDER CONSTRUCTION
— UNDER CONSTR.
--- PROPOSED



0 1000 2000 4000
SCALE IN FEET

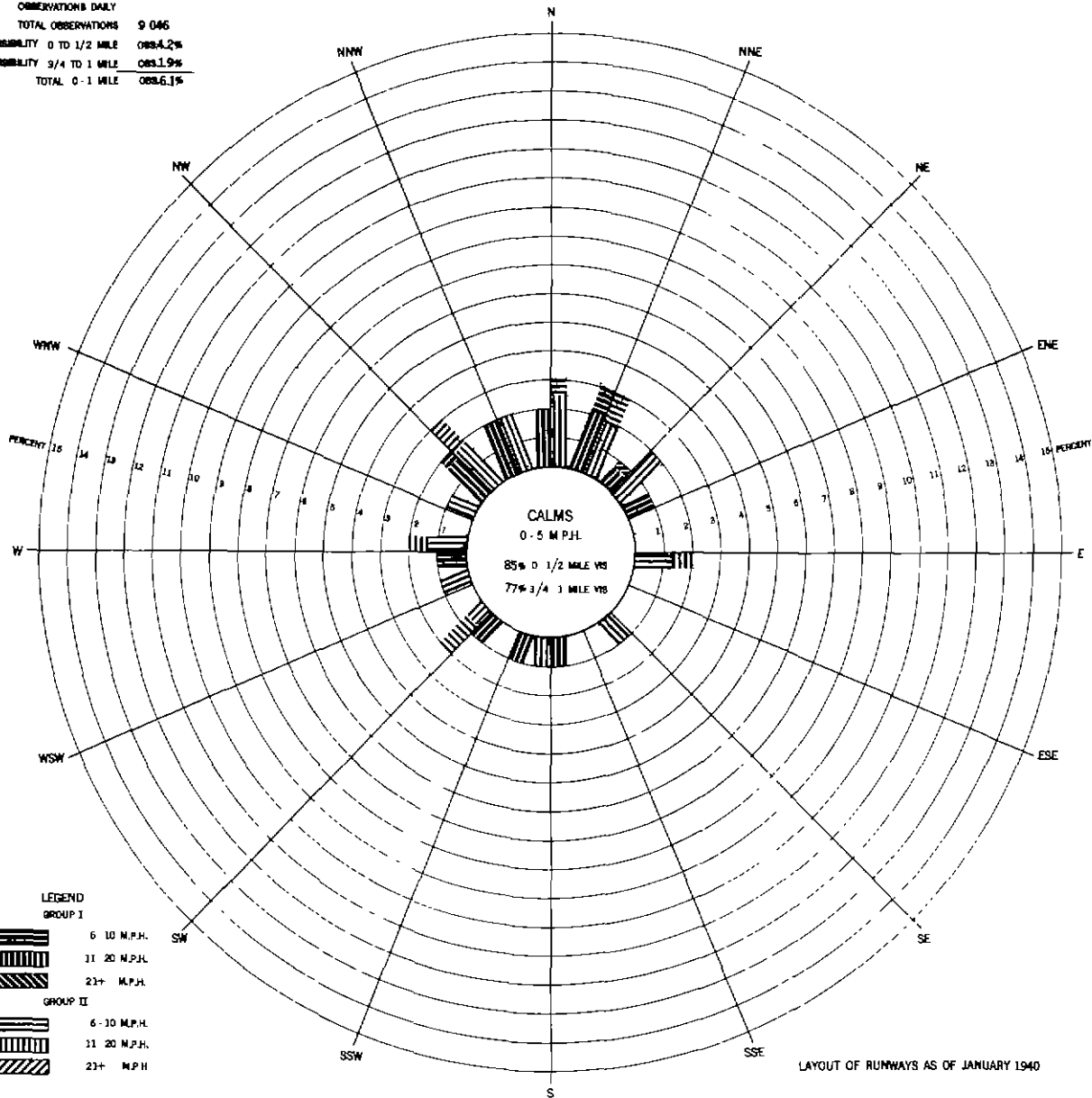
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 9 046
VISIBILITY 0 TO 1/2 MILE OBS. 4.2%
VISIBILITY 3/4 TO 1 MILE OBS. 1.9%
TOTAL 0-1 MILE OBS. 6.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ORLANDO FLA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
		6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	89 7
SMOKE	1	
RAIN		2 2
DUST		
SNOW		
TOTALS	100	91 7 2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

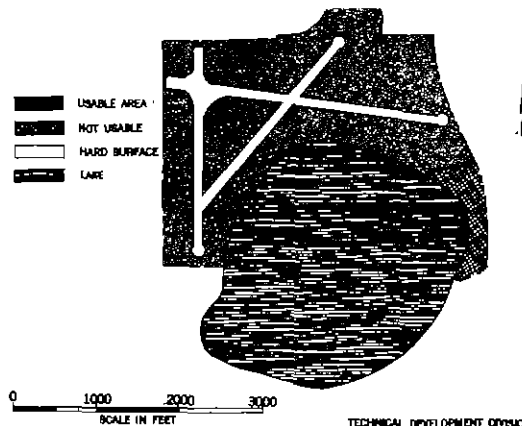
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
		6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	49 16
SMOKE	4	8
RAIN	2	19 8
DUST		
SNOW		
TOTALS	100	76 24

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II (continued)

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	59	58	48	22	21	2	5	45	17	26	60	85	449
SMOKE					7								7
RAIN	1				1	1		1					4
DUST													
SNOW													
TOTALS	60	58	48	22	29	3	5	46	17	26	60	85	460

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% represents the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Program Administration.



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

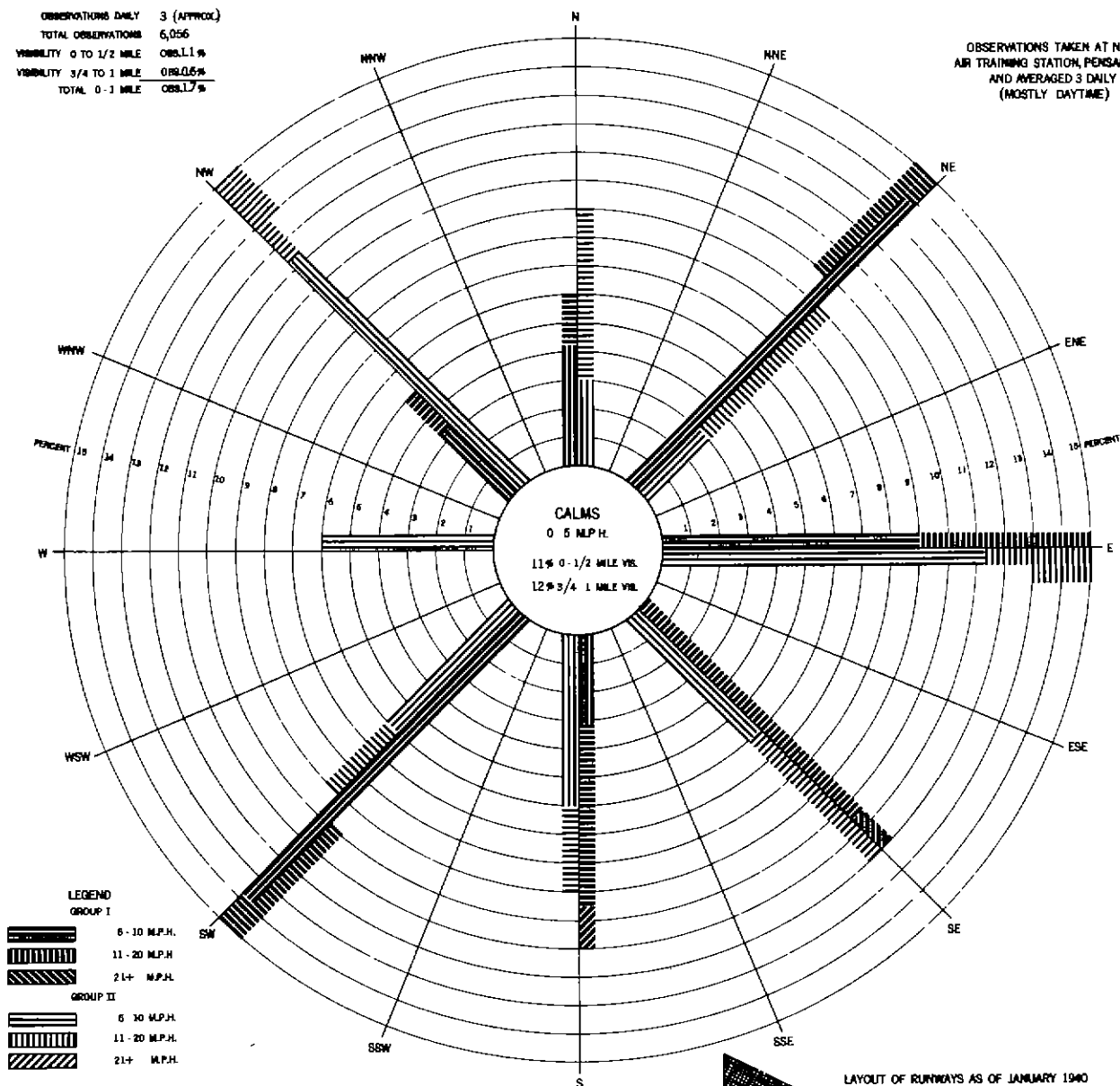
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 3 (APPROX.)
TOTAL OBSERVATIONS 6,056
VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
VISIBILITY 3/4 TO 1 MILE OBS. 0.6%
TOTAL 0-1 MILE OBS. 1.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

PENSACOLA FLA.
MUNICIPAL AIRPORT

OBSERVATIONS TAKEN AT NAVAL
AIR TRAINING STATION, PENSACOLA
AND AVERAGED 3 DAILY
(MOSTLY DAYTIME)



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	51 39 2
SMOKE		2 2 2
RAIN		2 2
DUST		
SNOW		
TOTALS	100	53 43 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	75	53 20
SMOKE	25	7 7
RAIN		13
DUST		
SNOW		
TOTALS	100	60 40

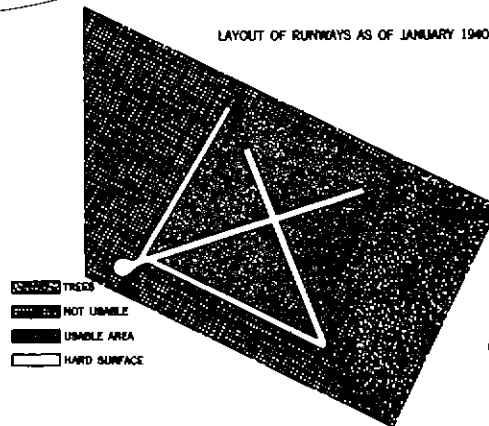
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	3	1	1	3						1		1	10
SMOKE			1										1
RAIN													
DUST													
SNOW													
TOTALS	3	2	1	3						1		1	11

NOTE:
Percentages in which are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of what is either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



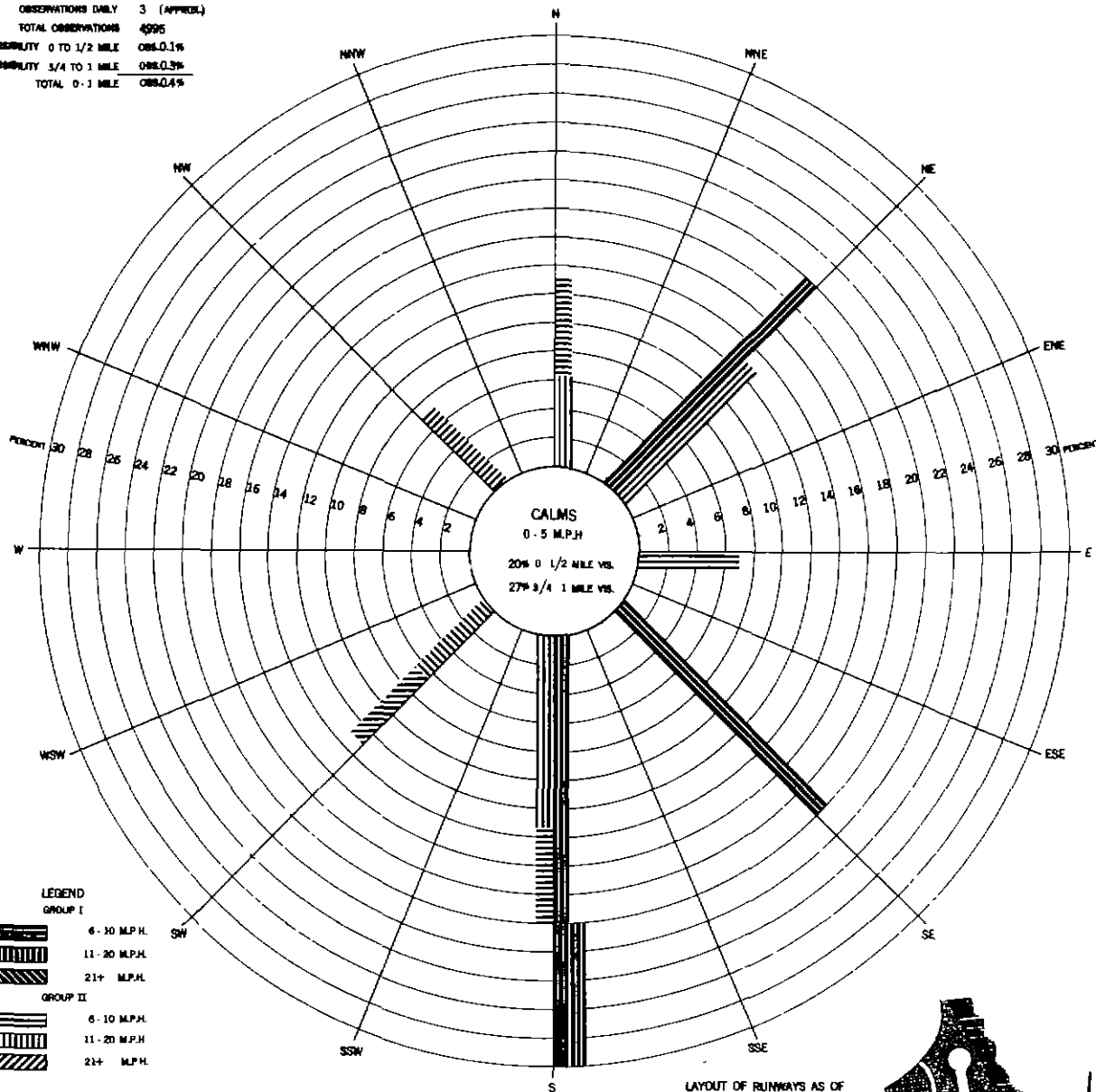
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 4 YEAR PERIOD
1934 TO 1937 INCLUSIVE

OBSERVATIONS DAILY 3 (APPROX.)
TOTAL OBSERVATIONS 4995
VISIBILITY 0 TO 1/2 MILE 086.01%
VISIBILITY 1/4 TO 1 MILE 096.03%
TOTAL 0-1 MILE 096.04%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

TAMPA, FLORIDA
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY				
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.		
FOG		100		
SMOKE				
RAIN	100			
DUST				
SNOW				
TOTALS	100	100		

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY				
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.		
FOG	100	55	9	
SMOKE				
RAIN			18	18
DUST				
SNOW				
TOTALS	100	55	27	18

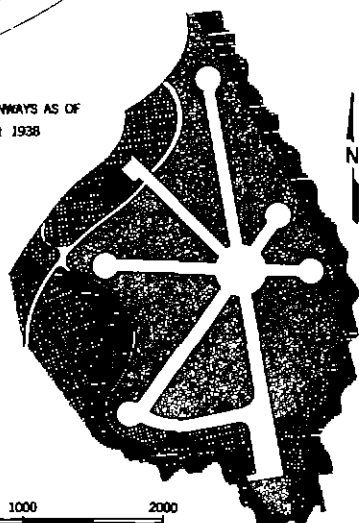
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS (GROUPS I & II COMBINED)												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	1		2									1
SMOKE												4
RAIN			1									1
DUST												
SNOW												
TOTALS	1		3									5

NOTE:
Percentage is based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

LAYOUT OF RUNWAYS AS OF
NOVEMBER 1938

HARD SURFACE
 USABLE
 NOT USABLE
 WATER



0 1000 2000
SCALE IN FEET

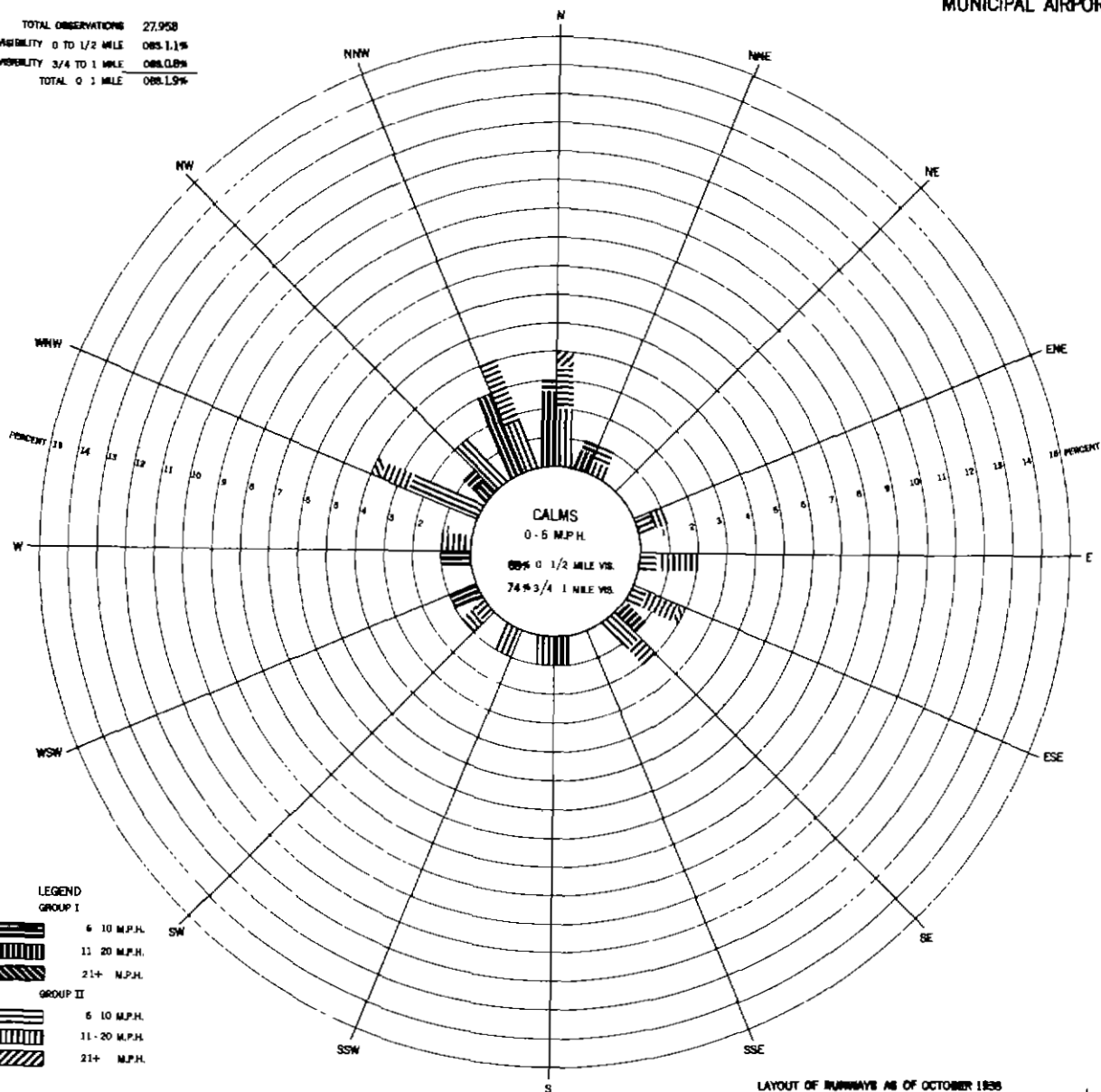
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

VERO BEACH, FLA.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 27,958
VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
VISIBILITY 3/4 TO 1 MILE OBS. 0.8%
TOTAL 0 TO 1 MILE OBS. 1.9%



LAYOUT OF RUNWAYS AS OF OCTOBER 1935

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	99	76 5
SMOKE	1	3
RAIN		5 11
DUST		
SNOW		
TOTALS	100	84 16

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	97	44 21 2
SMOKE	2	2
RAIN	1	7 21 3
DUST		
SNOW		
TOTALS	100	53 42 5

(Figures indicate percentage)

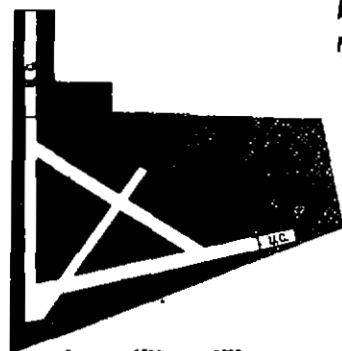
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	79	39	104	35	40	11	9	25	10	4	28	68	454
SMOKE					6								6
RAIN				1	1		1						3
DUST													
SNOW													
TOTALS	79	39	104	36	47	11	10	25	10	4	28	68	463

NOTE.
Percentages in windrose are based on the number of observations in each visibility group.
Similarly, % indicates the percentage of wind in either Group I or Group II depending upon the visibility identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Marine Program Administration.

USABLE
NOT USABLE
HARD SURFACE



0 1000 2000
SCALE IN FEET

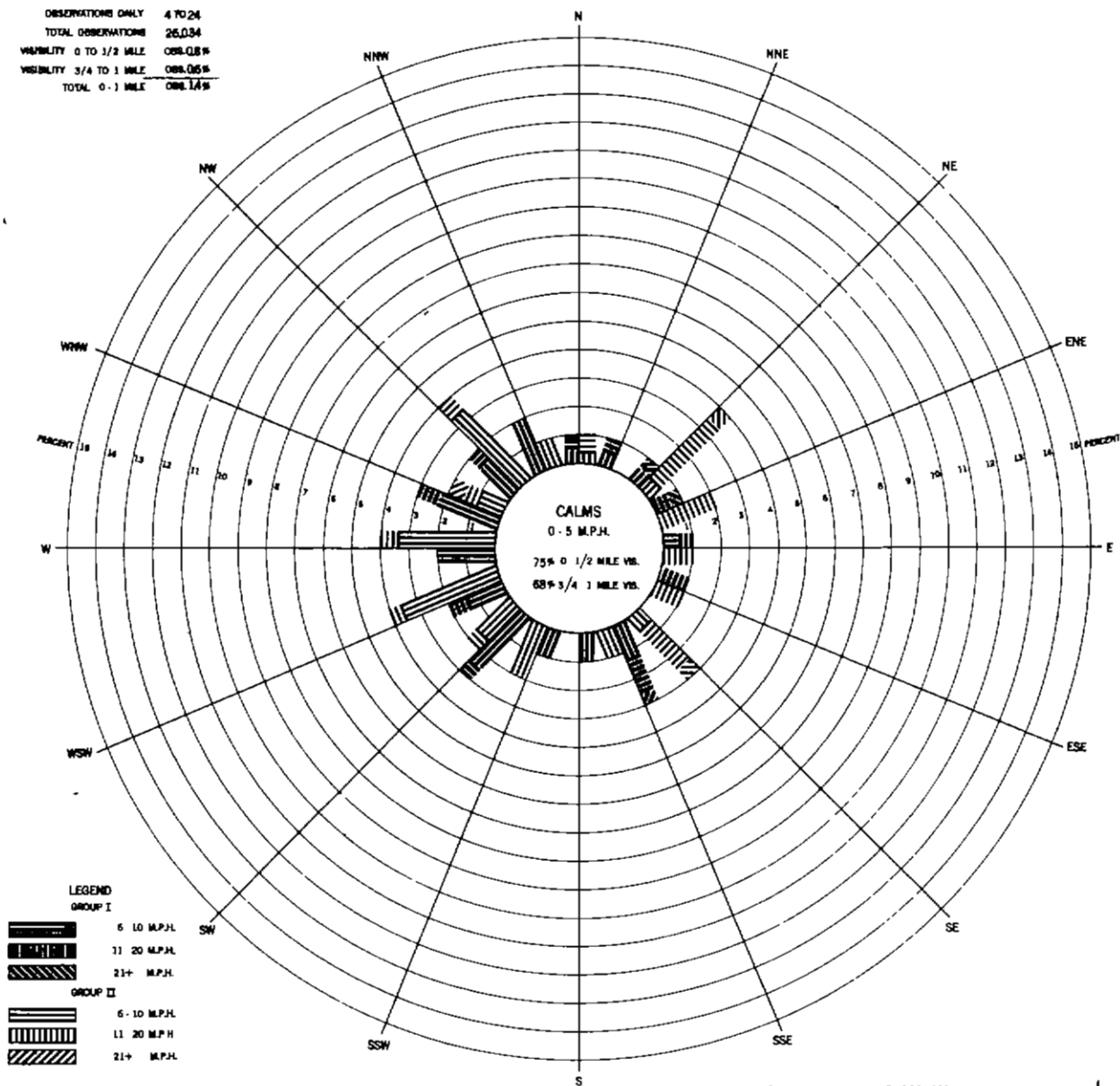
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 4 TO 24
TOTAL OBSERVATIONS 26,034
VISIBILITY 0 TO 1/2 MILE OBS. 0.8%
VISIBILITY 3/4 TO 1 MILE OBS. 0.6%
TOTAL 0-1 MILE OBS. 1.4%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WEST PALM BEACH, FLA.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.	SW
6-10 M.P.H.	
11-20 M.P.H.	
21+ M.P.H.	

GROUP II

6-10 M.P.H.	
11-20 M.P.H.	
21+ M.P.H.	

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	83	41 7 7
SMOKE	11	7
RAIN	6	19 19 7
DUST		
SNOW		
TOTALS	100	67 26 7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	65	20 9 4
SMOKE	14	7
RAIN	19	26 22 2
DUST	2	4 6
SNOW		
TOTALS	100	67 37 6

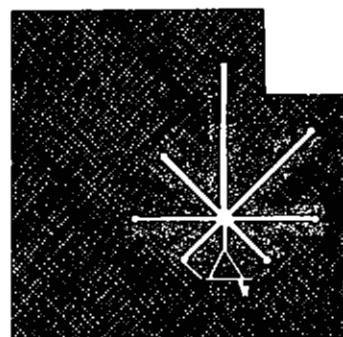
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	32	6	56	8	12	7	2	11	9	10	15	36	204
SMOKE	1	1	2	6	18	3					1	1	33
RAIN	7	3	3	6	3	2		2		4		2	31
DUST	1	1											2
SNOW													
TOTALS	41	11	61	19	33	12	2	13	9	14	16	39	270

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 83 indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Marine Program Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



0 500 1000 2000 4000
SCALE IN FEET

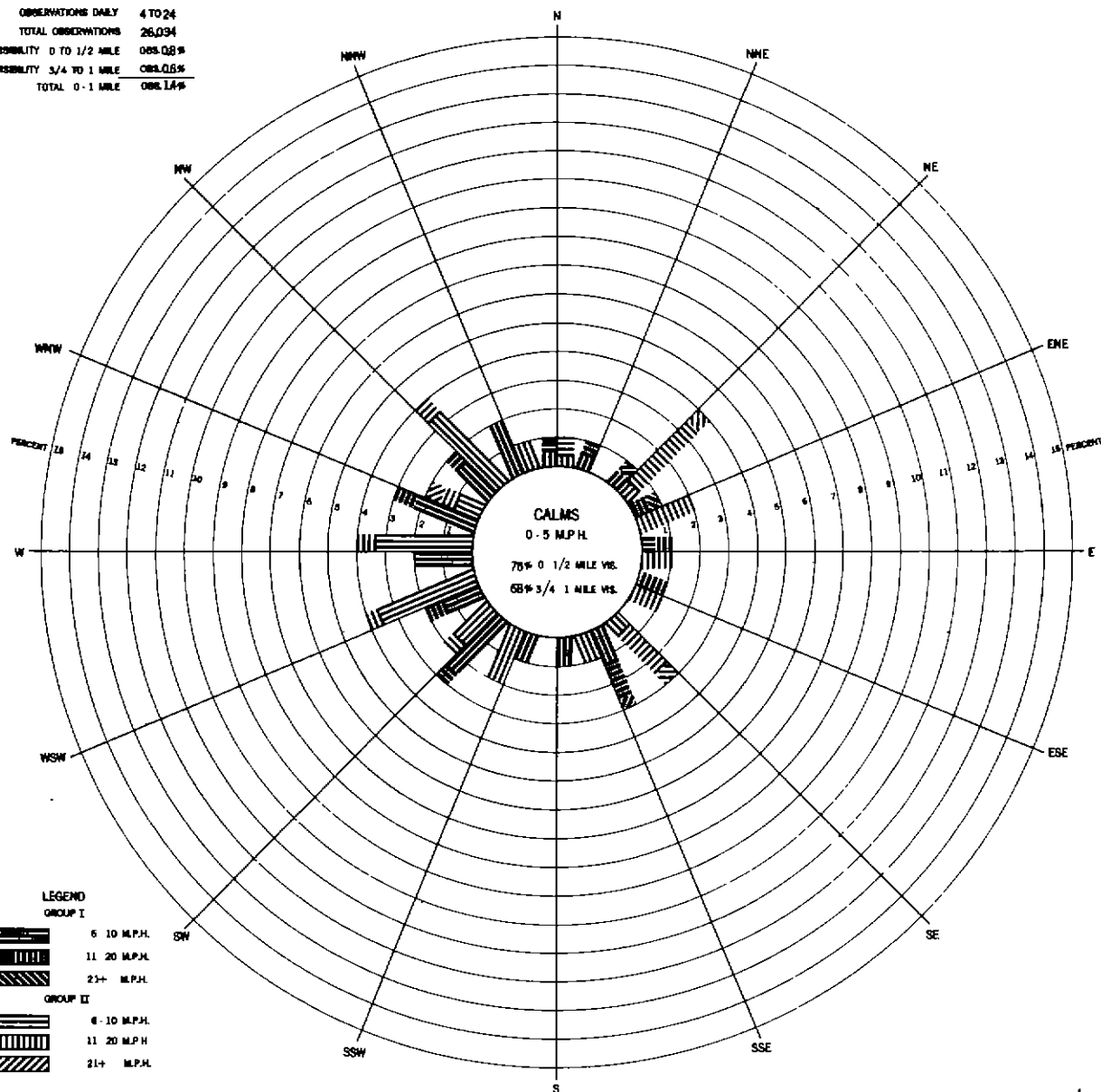
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 4 TO 24
TOTAL OBSERVATIONS 26,034
VISIBILITY 0 TO 1/2 MILE 08.08%
VISIBILITY 3/4 TO 1 MILE 08.06%
TOTAL 0-1 MILE 08.14%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

WEST PALM BEACH, FLA.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CALMS	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	21+ M.P.H.
FOG	83	41	7	
SMOKE	11	7		
RAIN	6	19	19	7
DUST				
SNOW				
TOTALS	100	67	26	7

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CALMS	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	21+ M.P.H.
FOG	68	20	9	4
SMOKE	14	7		
RAIN	19	26	22	2
DUST	2	4	6	
SNOW				
TOTALS	100	57	37	6

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUPS I & II COMBINED

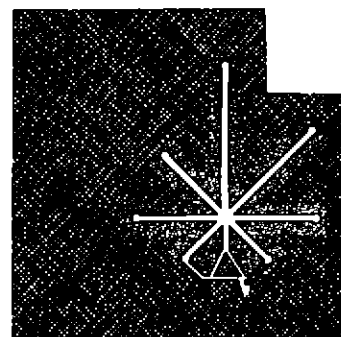
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	32	6	56	8	12	7	2	11	9	10	15	36	204
SMOKE	1	1	2	6	16	3					1	1	33
RAIN	7	3	3	5	3	2		2		4		2	31
DUST	1	1											2
SNOW													
TOTALS	41	11	61	19	33	12	2	13	9	14	16	39	270

NOTE:

Percentages of weather are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in excess of 5 M.P.H. or Group II depending upon the weather identifier.

This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



0 500 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

GEORGIA

Atlanta

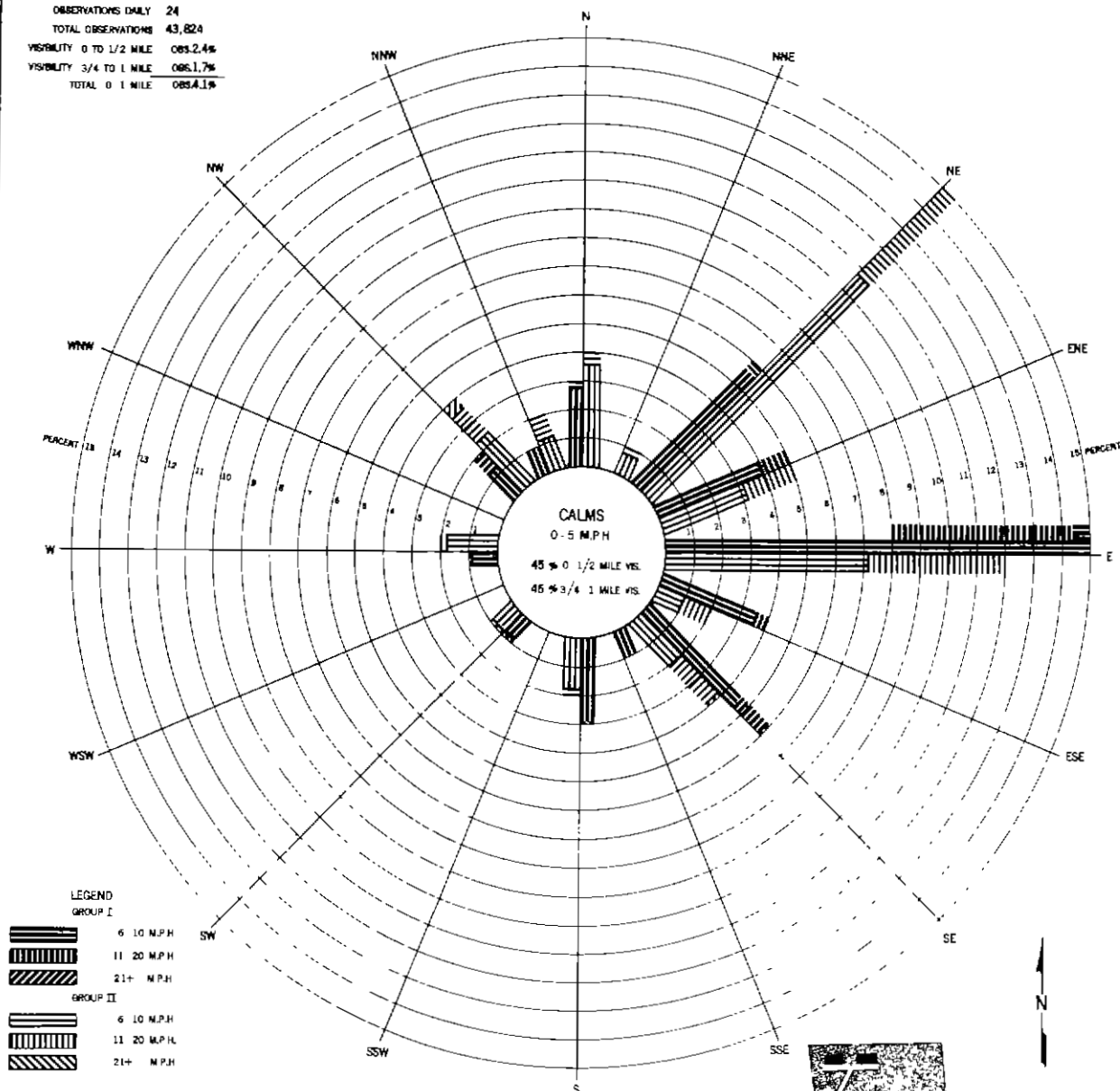
Savannah

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 083.24%
VISIBILITY 3/4 TO 1 MILE 086.17%
TOTAL 0 1 MILE 089.41%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ATLANTA, GEORGIA
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	90	78
SMOKE	8	1
RAIN		1
DUST		1
SNOW	2	
TOTALS	100	79

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

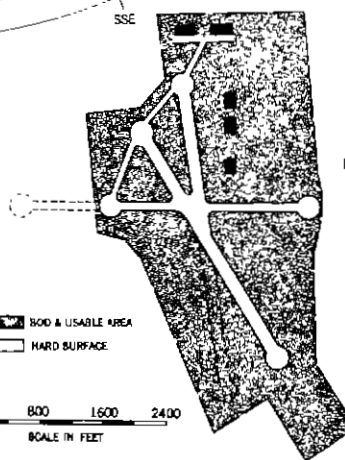
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	58	62
SMOKE	37	3
RAIN	3	2
DUST		3
SNOW	2	1
TOTALS	100	68

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	158	70	37	49	14	12	15	30	23	29	74	117	628
SMOKE	32	32	15							7	40	39	166
RAIN			2		1	1		3		1	1	1	10
DUST													
SNOW	13	1											16
TOTALS	203	103	54	49	15	13	15	33	23	37	115	169	819

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



LAYOUT OF RUNWAYS
AS OF JULY 1939

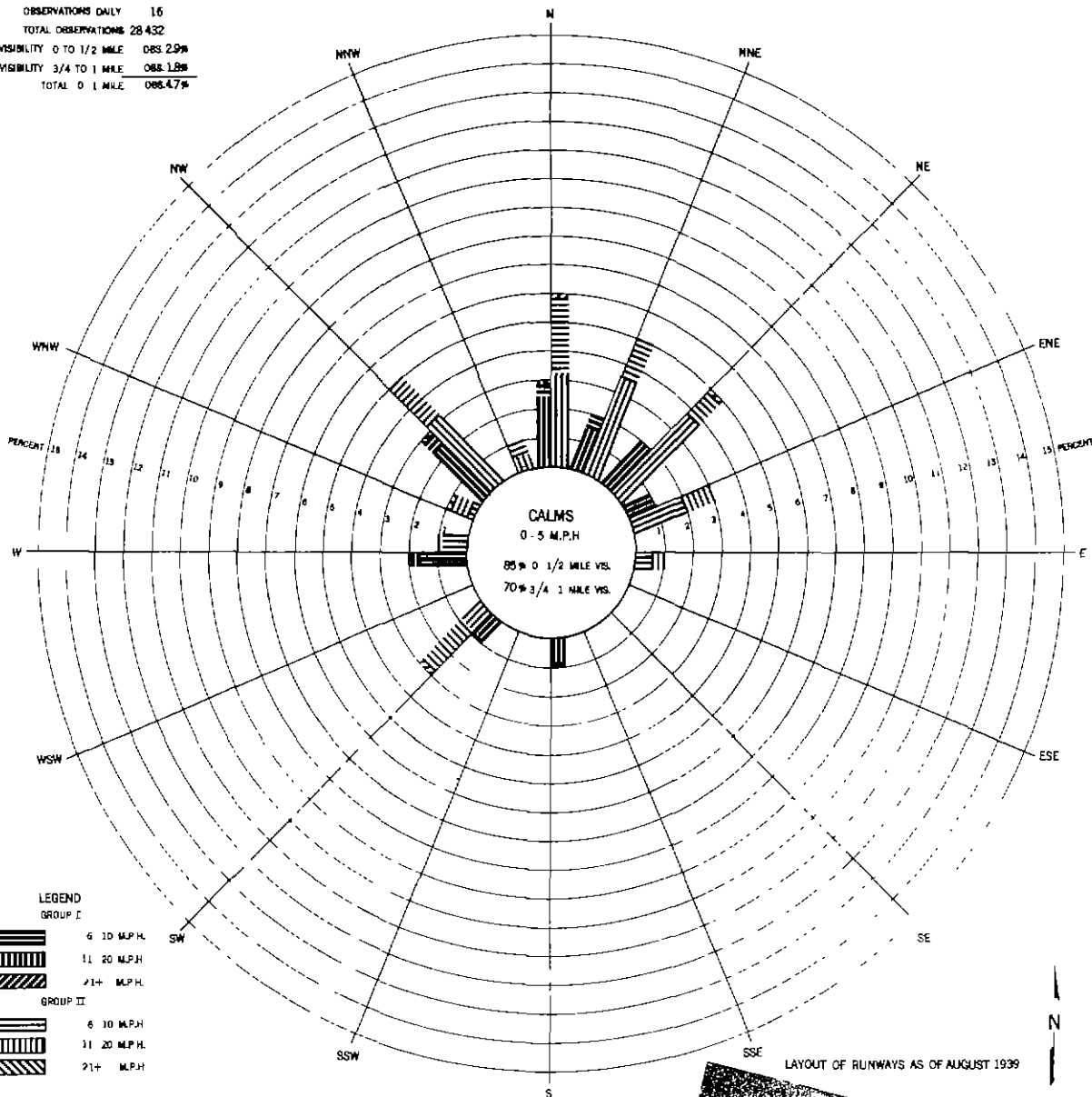
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 16
TOTAL OBSERVATIONS 28 432
VISIBILITY 0 TO 1/2 MILE OBS. 2.9%
VISIBILITY 3/4 TO 1 MILE OBS. 1.8%
TOTAL 0 1 MILE OBS. 4.7%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SAVANNAH, GA.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	71 10 2
SMOKE		10 2
RAIN		2 3
DUST		
SNOW		
TOTALS	100	81 14 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

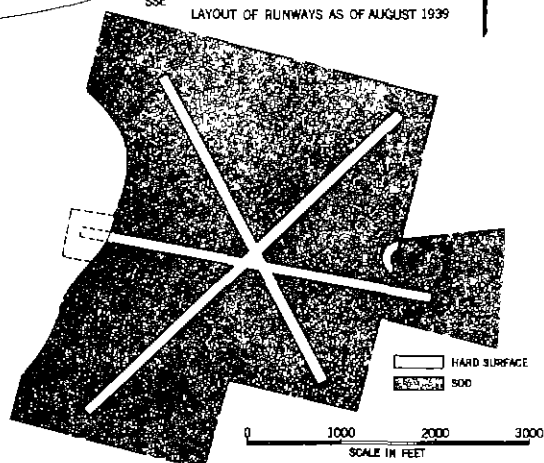
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	96	69 25 1
SMOKE	4	2 6 1
RAIN		2 2 1
DUST		1
SNOW		
TOTALS	100	63 34 3

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	137	42	93	76	102	30	13	67	51	149	162	131	1053
SMOKE	3	1		1	1						2	8	15
RAIN										1			1
DUST													
SNOW													
TOTALS	140	43	93	77	103	30	13	67	51	150	164	139	1070

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the actual classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



IDAHO

Boise

Burley

Idaho Falls

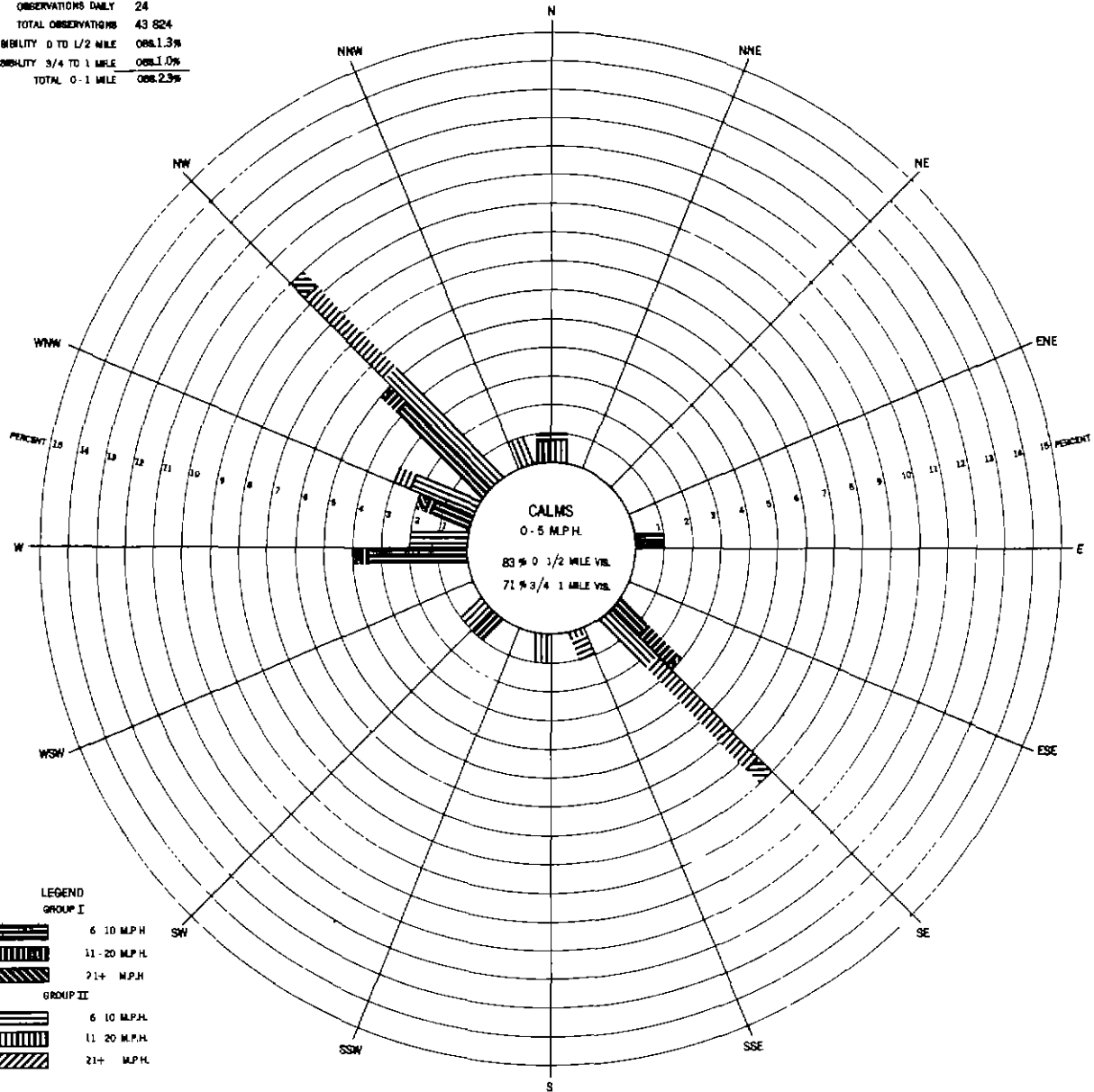
Pocatello

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 088.13%
VISIBILITY 3/4 TO 1 MILE 088.10%
TOTAL 0-1 MILE 088.23%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BOISE, IDAHO
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	63 8 1
SMOKE	2	
RAIN		
DUST		
SNOW	1	15 9 3
TOTALS	100	78 17 5

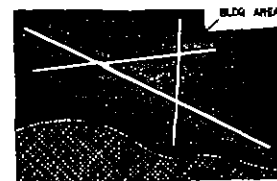
(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	81	41 11 1
SMOKE	7	1
RAIN	1	
DUST		
SNOW	11	17 24 5
TOTALS	100	59 35 6

(Figures indicate percentage)

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	171	80	17	3	4	1				9	71	364
SMOKE	13	8									8	34
RAIN	2											2
DUST												
SNOW	25	2	1			1					5	43
TOTALS	211	87	18	3	4	2				9	84	797

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.
Example: 95 indicates the percentage of wind in above Group I or Group II depend upon the symbol identification.

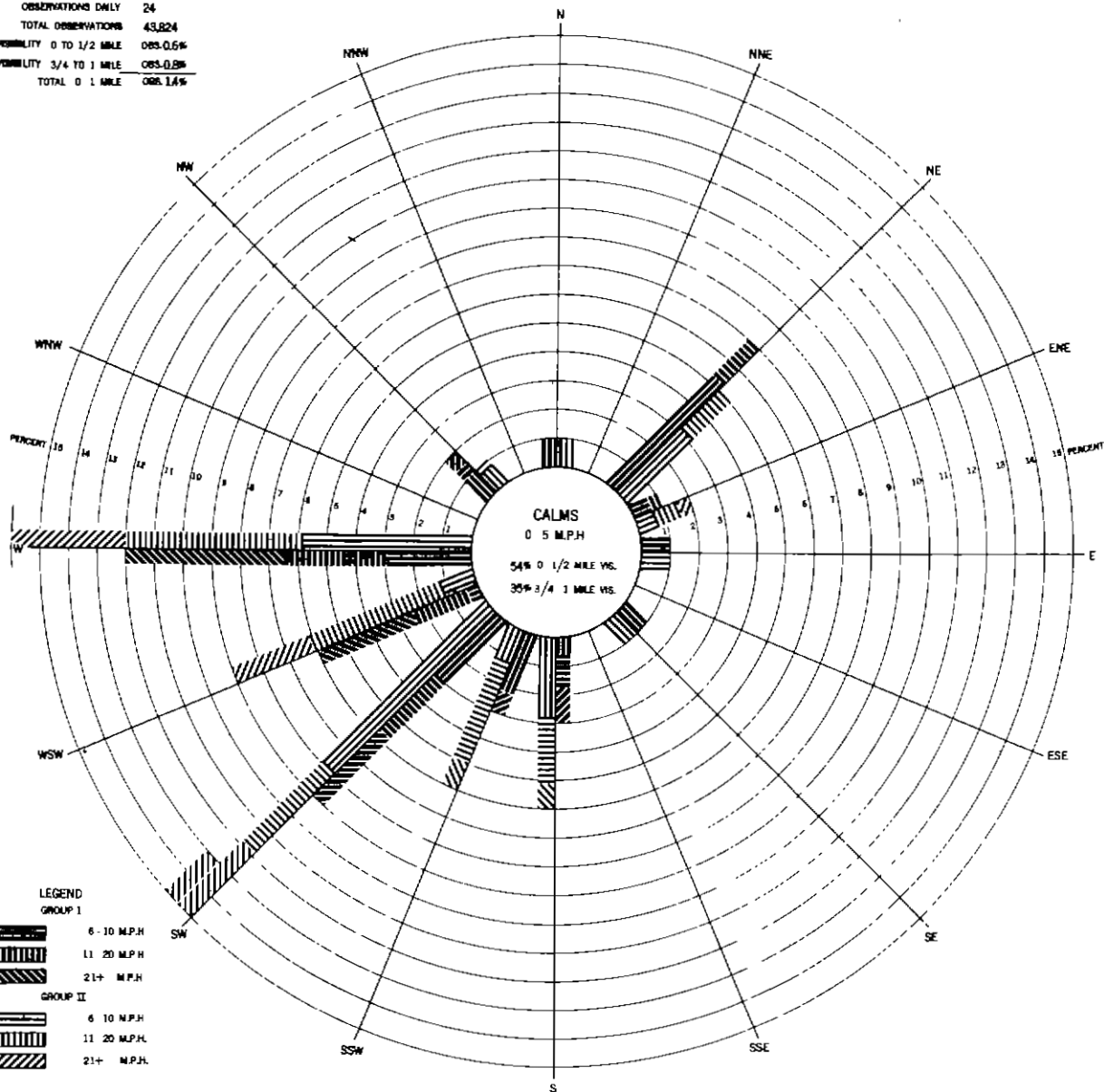
This data furnished through the cooperation of the U. S. Weather Bureau and the Civil Aeronautics Administration.

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 0.5%
VISIBILITY 3/4 TO 1 MILE OBS. 0.28%
TOTAL 0 1 MILE OBS. 1.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BURLEY, IDAHO
MUNICIPAL AIRPORT



LEGEND

GROUP I



GROUP II



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	27 13 4
SMOKE		
RAIN		
DUST		
SNOW	4	7 20 25
TOTALS	100	34 33 33

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	75	27 17 8
SMOKE		
RAIN		
DUST		
SNOW	25	14 19 11
TOTALS	100	41 37 22

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	65	45	10	1					1	3	31	56	212
SMOKE													
RAIN													
DUST													
SNOW	17	4	3	3	2						1	4	34
TOTALS	82	49	13	4	2				1	3	32	60	246

NOTE.

Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in either Group I or Group II depending upon the specific identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1938



NOT USABLE
USABLE AREA
HARD SURFACE

0 1000 2000 4000
SCALE IN FEET

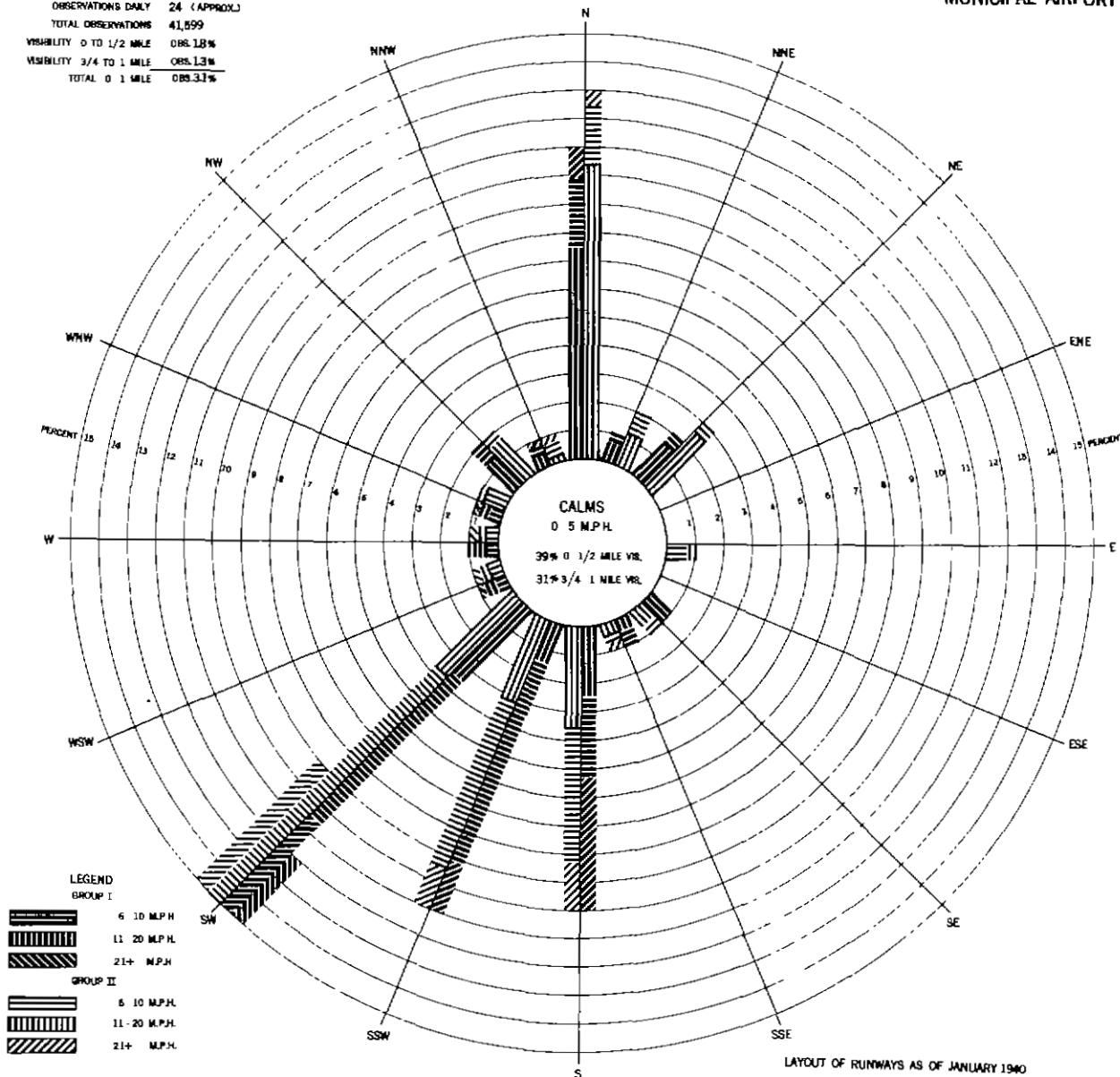
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24 (APPROX.)
TOTAL OBSERVATIONS 41,899
VISIBILITY 0 TO 1/2 MILE OBS. 1.8%
VISIBILITY 3/4 TO 1 MILE OBS. 1.3%
TOTAL 0 TO 1 MILE OBS. 3.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

IDAHO FALLS, IDAHO
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP II

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	34 28 18
SMOKE		
RAIN		
DUST		
SNOW	5	4 8 7
TOTALS	100	38 36 26

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

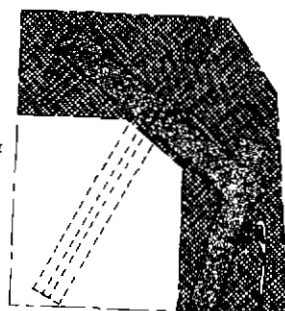
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	89	37 33 8
SMOKE	1	1
RAIN		
DUST		
SNOW	10	3 9 7
TOTALS	100	41 43 16

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	120	69	48	10	2					4	74	112	439
SMOKE								1					1
RAIN													
DUST													
SNOW	7	9	2	2						2	9	31	
TOTALS	127	78	50	12	2			1		4	76	121	471

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



SCALE IN FEET

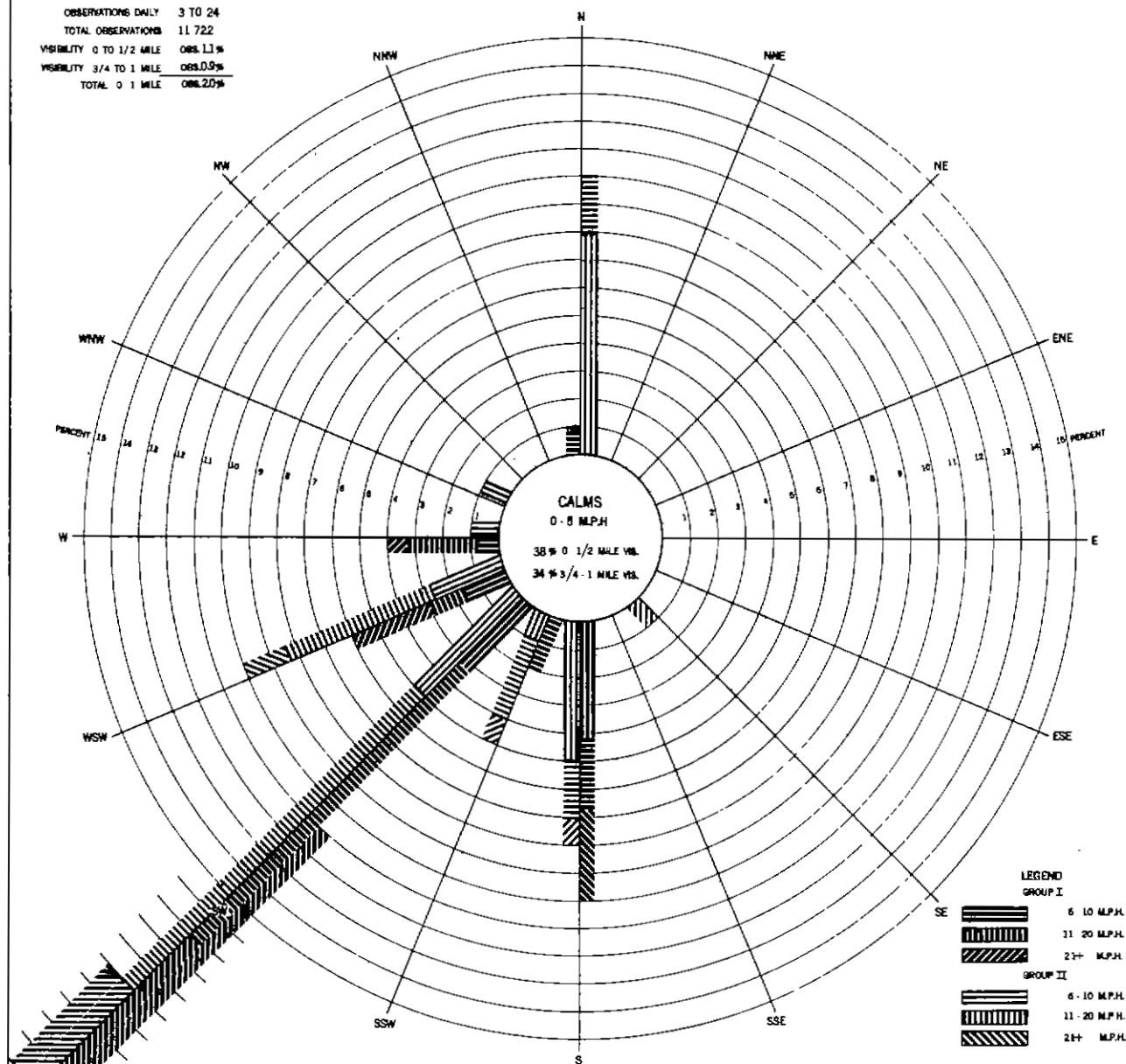
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 3 TO 24
TOTAL OBSERVATIONS 11 722
VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
VISIBILITY 3/4 TO 1 MILE OBS. 0.9%
TOTAL 0 1 MILE OBS. 2.0%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

POCATELLO, IDAHO
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSE	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	87	3
SMOKE		10
RAIN		8
DUST		1
SNOW	13	27
TOTALS	100	47

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSE	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	70	15
SMOKE		21
RAIN		10
DUST		1
SNOW	30	23
TOTALS	100	44

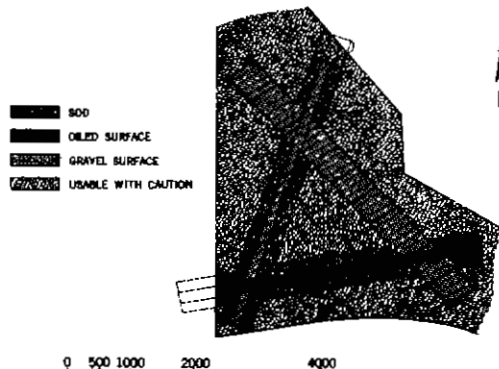
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	4	12	4	2						7	6	32	67
SMOKE													
RAIN													
DUST													
SNOW	2	5	1	2							4	3	17
TOTALS	6	17	5	4						7	10	35	84

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 87 indicates the percentage of wind in other Group I or Group II depending upon the visibility identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938



ILLINOIS

Chicago

Effingham

Moline

Rockford

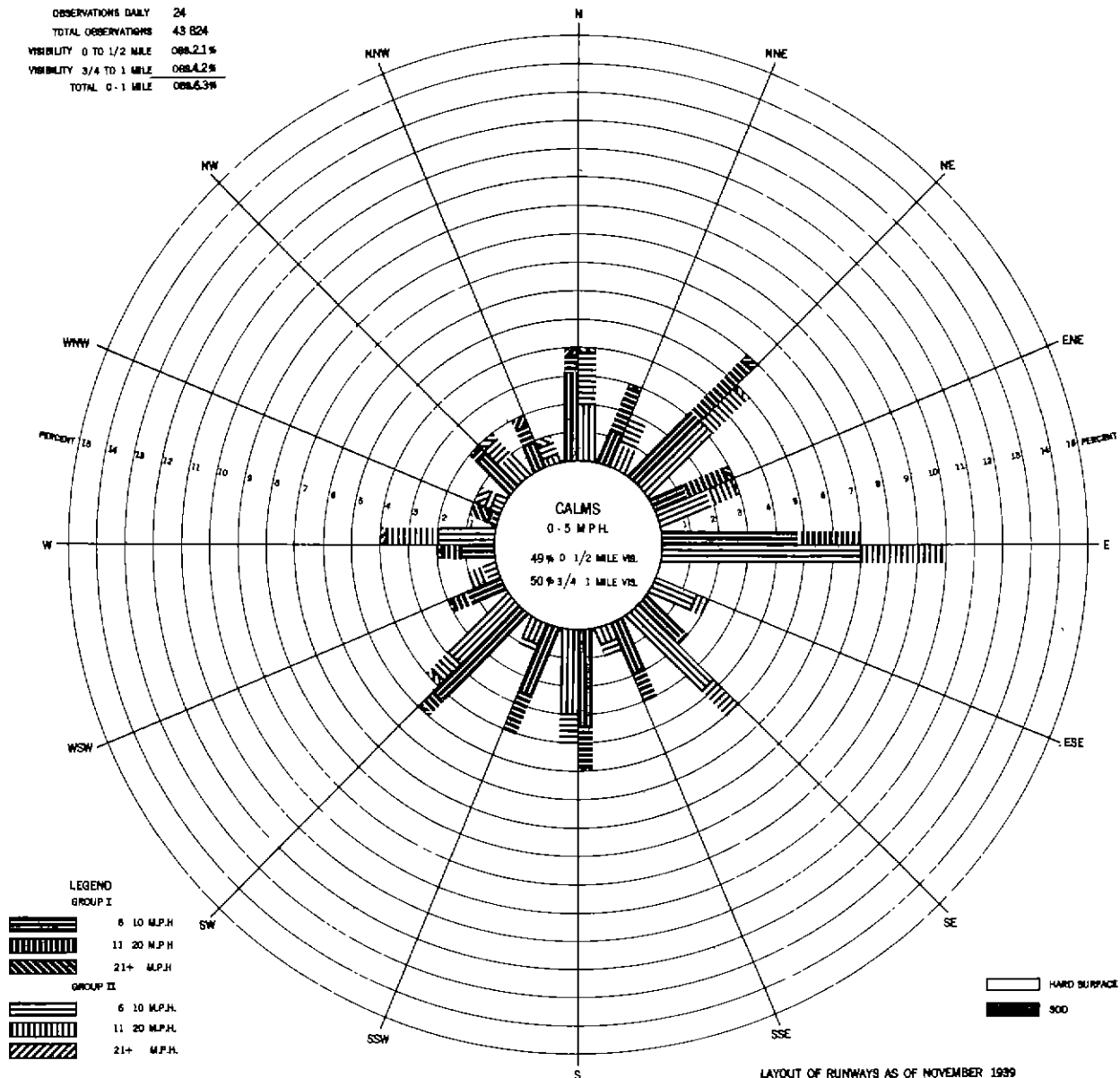
Springfield

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 0.6% 2.1%
VISIBILITY 3/4 TO 1 MILE 0.6% 4.2%
TOTAL 0-1 MILE 0.6% 6.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CHICAGO, ILLINOIS
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	78	58 17
SMOKE	20	3 1
RAIN		
DUST		
SNOW	2	5 11 5
TOTALS	100	56 29 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	42	33 21 1
SMOKE	57	25 4
RAIN		
DUST		
SNOW	1	4 8 2
TOTALS	100	62 33 5

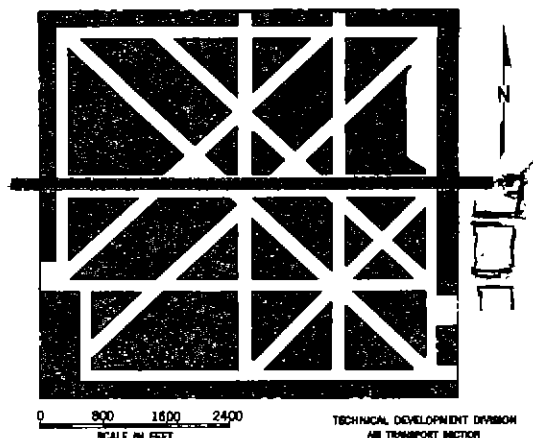
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	111	44	28	17	47	65	41	91	73	106	41	60	724
SMOKE	100	89	41	58	26	29	39	25	22	43	20	91	585
RAIN					1								1
DUST													
SNOW	4	4	4									10	22
TOTALS	216	137	73	75	75	95	80	116	95	149	61	161	1332

NOTE:
Percentages in numbers are based on the number of observations in each visibility group.
Example: 78% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

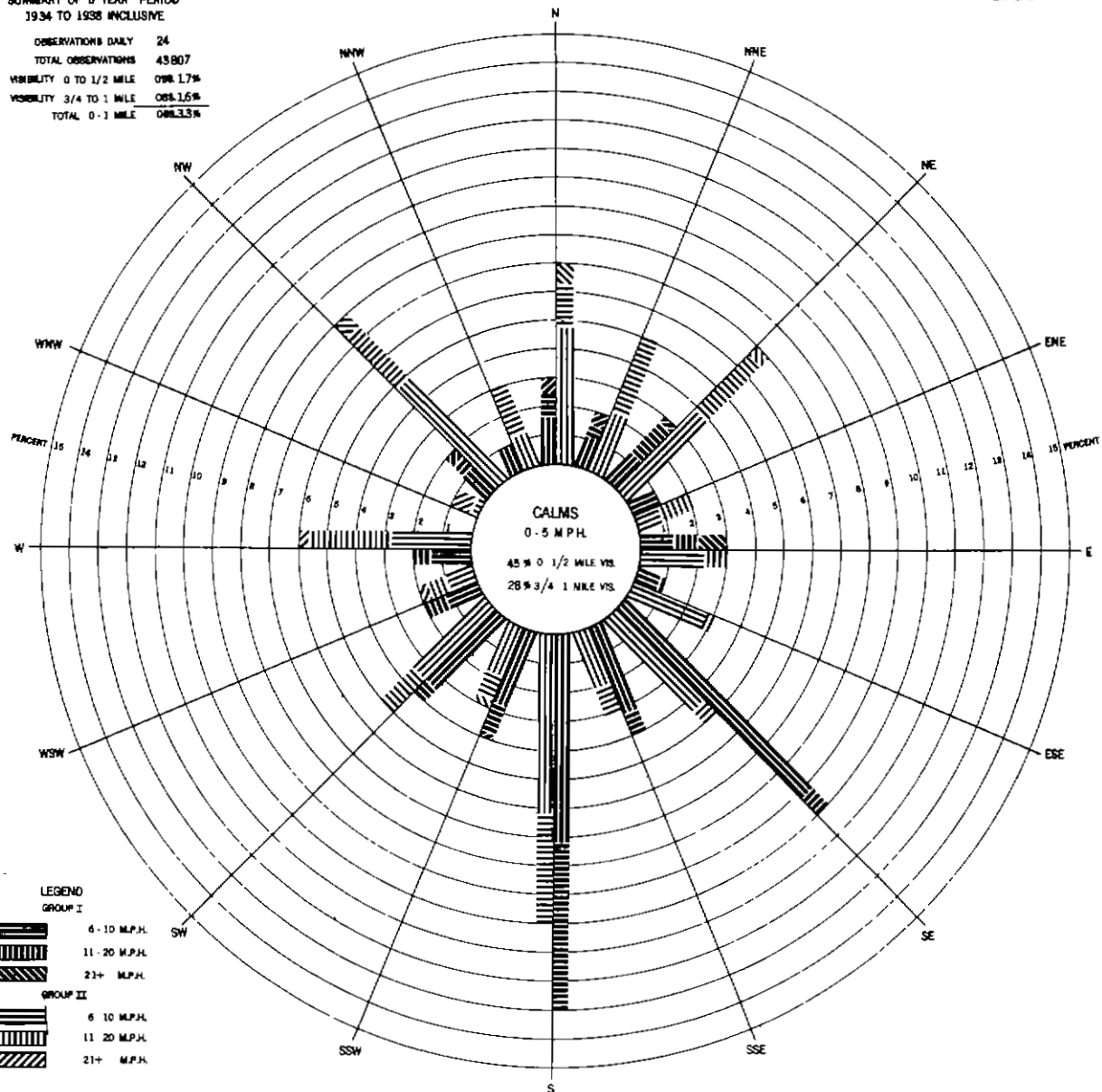


CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

EFFINGHAM, ILL.
INTERMEDIATE FIELD
C.A.A.

SUMMARY OF 8 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43807
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.6%
TOTAL 0-1 MILE OBS. 3.3%



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY				
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.
FOG	100	69	22	2
SMOKE				
RAIN		1		
DUST				
SNOW		2	2	2
TOTALS	100	72	24	4

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY				
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.
FOG	95	57	25	3
SMOKE				
RAIN	1	1		
DUST	1	1	3	1
SNOW	3	2	4	2
TOTALS	100	61	33	6

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	136	42	37	22	14	11	9	37	29	36	19	120
SMOKE												
RAIN			2									2
DUST												1
SNOW	4	1										7
TOTALS	140	43	39	22	14	11	9	37	29	36	19	123

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the typical identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



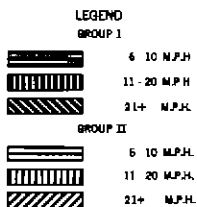
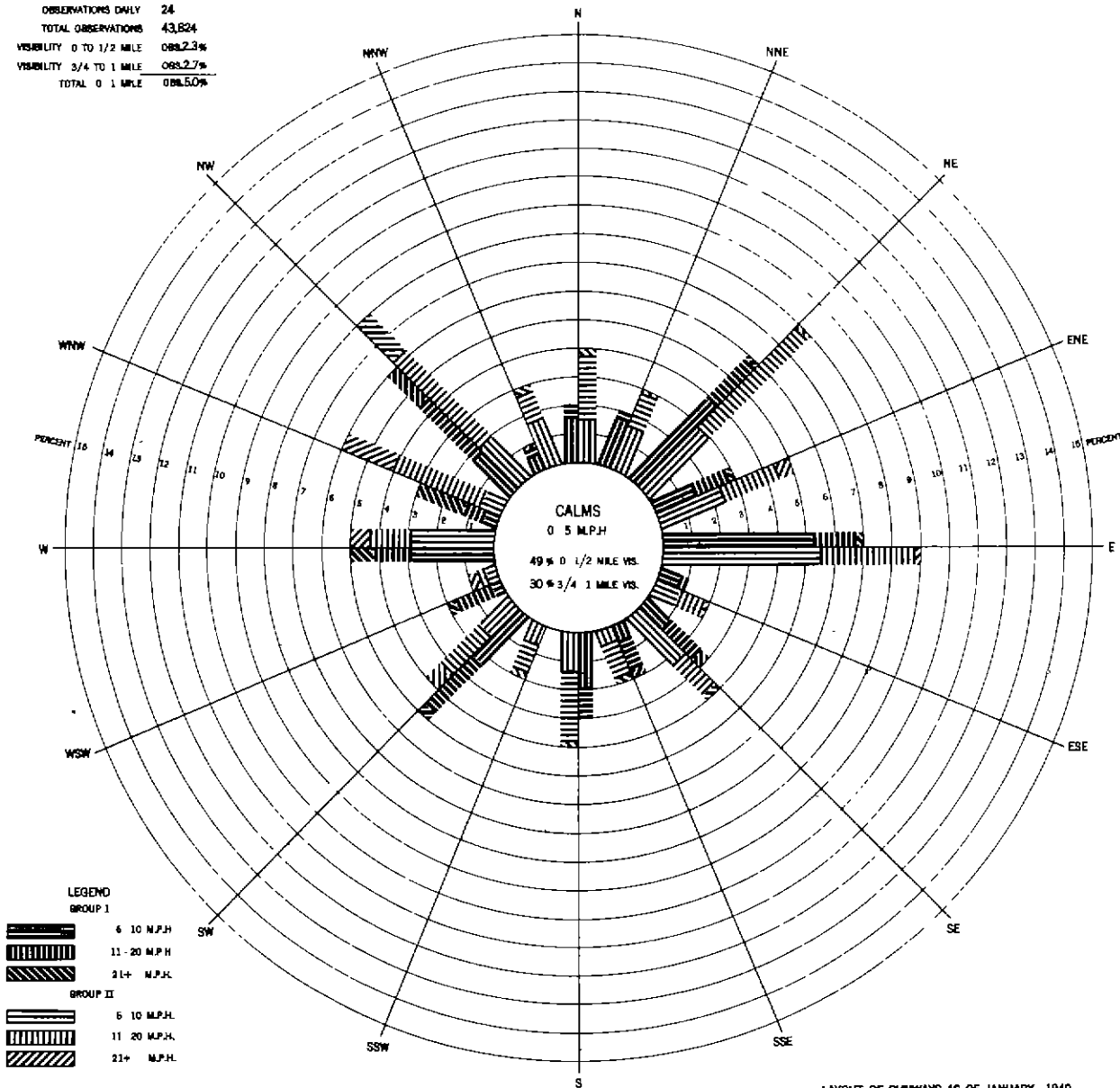
0 500 1000 2500
SCALE IN FEET

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,624
VISIBILITY 0 TO 1/2 MILE 088.23%
VISIBILITY 3/4 TO 1 MILE 088.27%
TOTAL 0 1 MILE 088.50%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MOLINE, ILL.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	39 28 1
SMOKE		
RAIN	2	4 2
DUST		
SNOW	3	7 9 8
TOTALS	100	50 30 11

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	82	29 25 2
SMOKE	3	
RAIN	7	5 8 2
DUST	2	1 3 2
SNOW	6	5 12 6
TOTALS	100	40 48 12

(Figures indicate percentage)

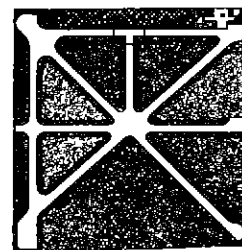
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	136	56	43	22	53	36	14	75	91	68	36	121	751
SMOKE	7	1											5
RAIN	1	2		3			1	4	11	3	6	2	33
DUST	2	3	1										6
SNOW	7	5	3								7	15	37
TOTALS	153	62	51	23	56	36	15	79	102	71	49	143	840

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



SOOT
GRAVEL
NOT USABLE
HARD SURFACE

0 1000 2000 3000
SCALE IN FEET

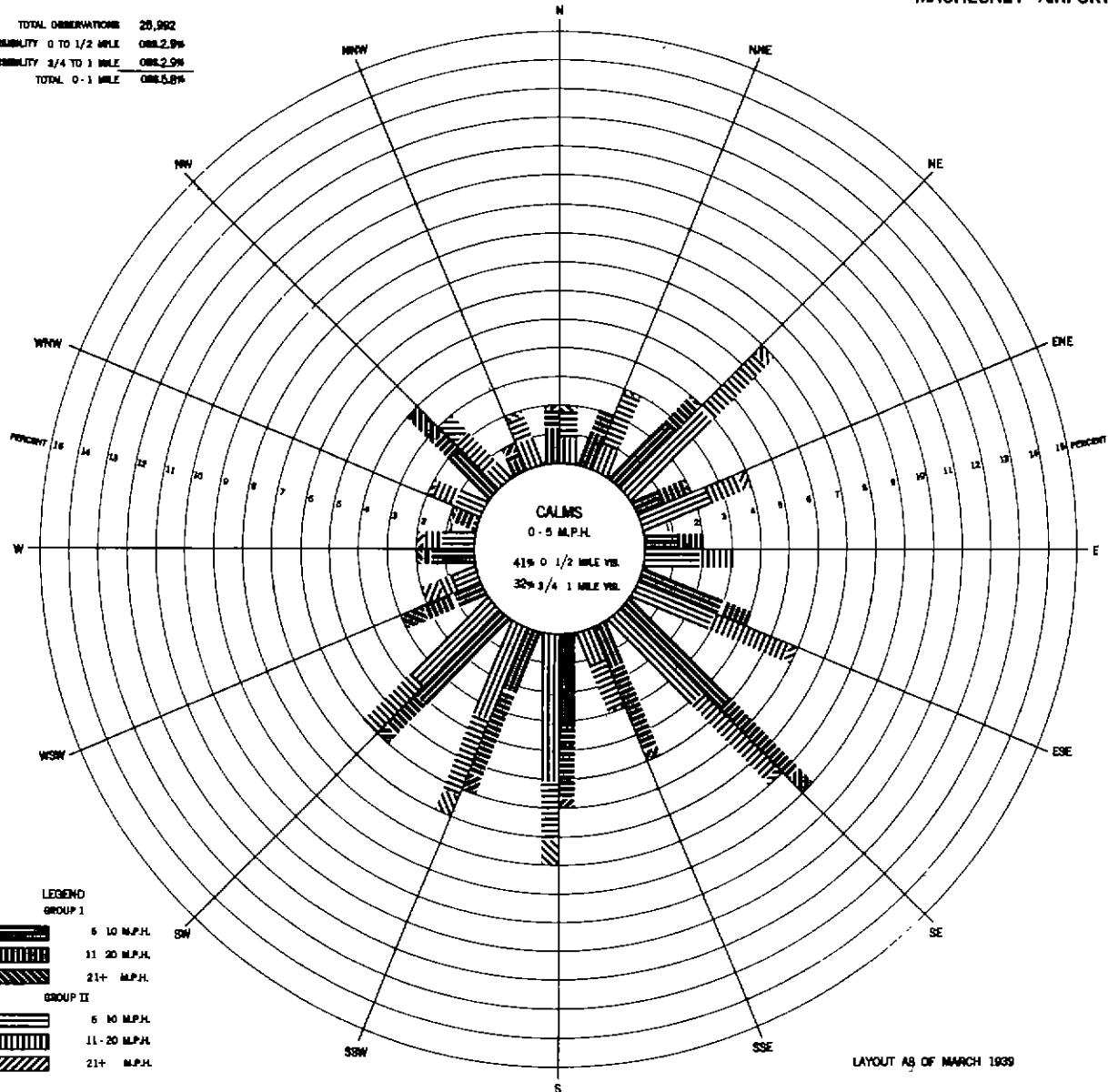
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 20,992
VISIBILITY 0 TO 1/2 MILE 0.82.9%
VISIBILITY 3/4 TO 1 MILE 0.82.9%
TOTAL 0-1 MILE 0.82.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ROCKFORD, ILL.
MACHESNEY AIRPORT



LAYOUT AS OF MARCH 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 10 M.P.H.	WINDS IN EXCESS OF 15 M.P.H.	WINDS IN EXCESS OF 20 M.P.H.
FOG	100	53	28	1	
SMOKE					
RAIN			1	1	
DUST				1	
SNOW		2	4	9	
TOTALS	100	56	33	12	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 10 M.P.H.	WINDS IN EXCESS OF 15 M.P.H.	WINDS IN EXCESS OF 20 M.P.H.
FOG	97	48	33	2	
SMOKE	3	2	1		
RAIN			1	1	
DUST		1			
SNOW		2	5	4	
TOTALS	100	53	40	7	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

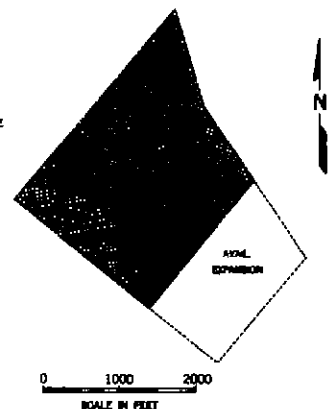
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	59	44	34	36	40	9	19	62	47	108	25	67	560
SMOKE	1		1						3			4	9
RAIN						1							1
DUST											1		1
SNOW		1											1
TOTALS	60	45	35	36	40	10	19	62	50	108	25	72	562

NOTE:
Percentages in tables are based on the number of observations in each visibility group.

Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the weather identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the State Progress Administration.

USABLE
NOT USABLE



SCALE IN FEET

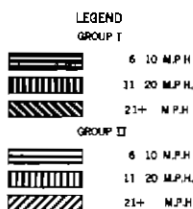
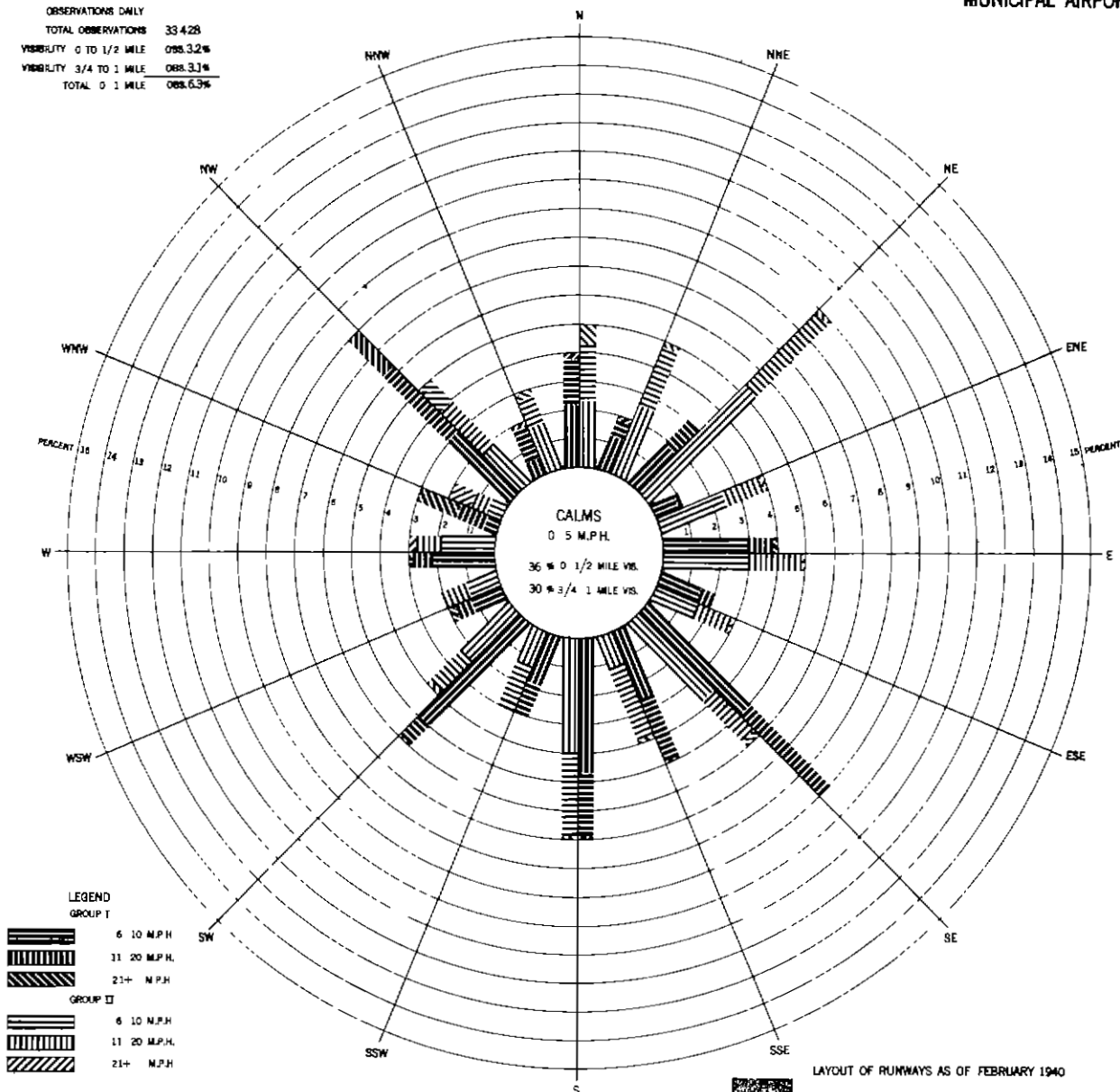
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY
TOTAL OBSERVATIONS 33 428
VISIBILITY 0 TO 1/2 MILE OBS. 3.2%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0 1 MILE OBS. 6.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SPRINGFIELD, ILL.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	90	49 25 1
SMOKE	7	3 1
RAIN	3	3 2 1
DUST		1 1
SNOW		2 6 5
TOTALS	100	57 35 8

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

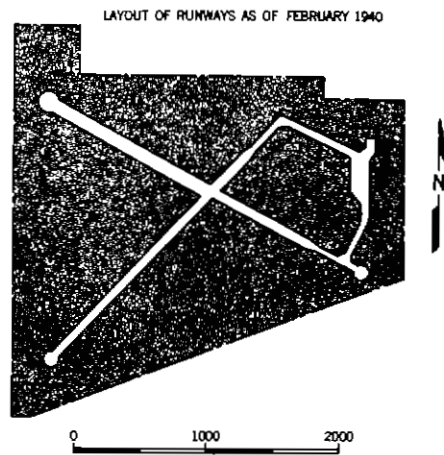
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	61	37 28 2
SMOKE	33	8 3
RAIN	1	2 3 1
DUST	2	2 3 1
SNOW	3	3 4 3
TOTALS	100	52 41 7

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	84	52	11	11	23	3	51	100	12	63	19	101	530
SMOKE	7	14	8	4	1				3	29	37	22	125
RAIN	10	1	1				1		2	1			16
DUST	2	4			1								7
SNOW	4	1	1							2	2		10
TOTALS	107	72	21	15	25	3	52	100	17	93	58	125	688

NOTE:
Percentages in brackets are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Aeronautics Administration.



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

INDIANA

Fort Wayne

Indianapolis

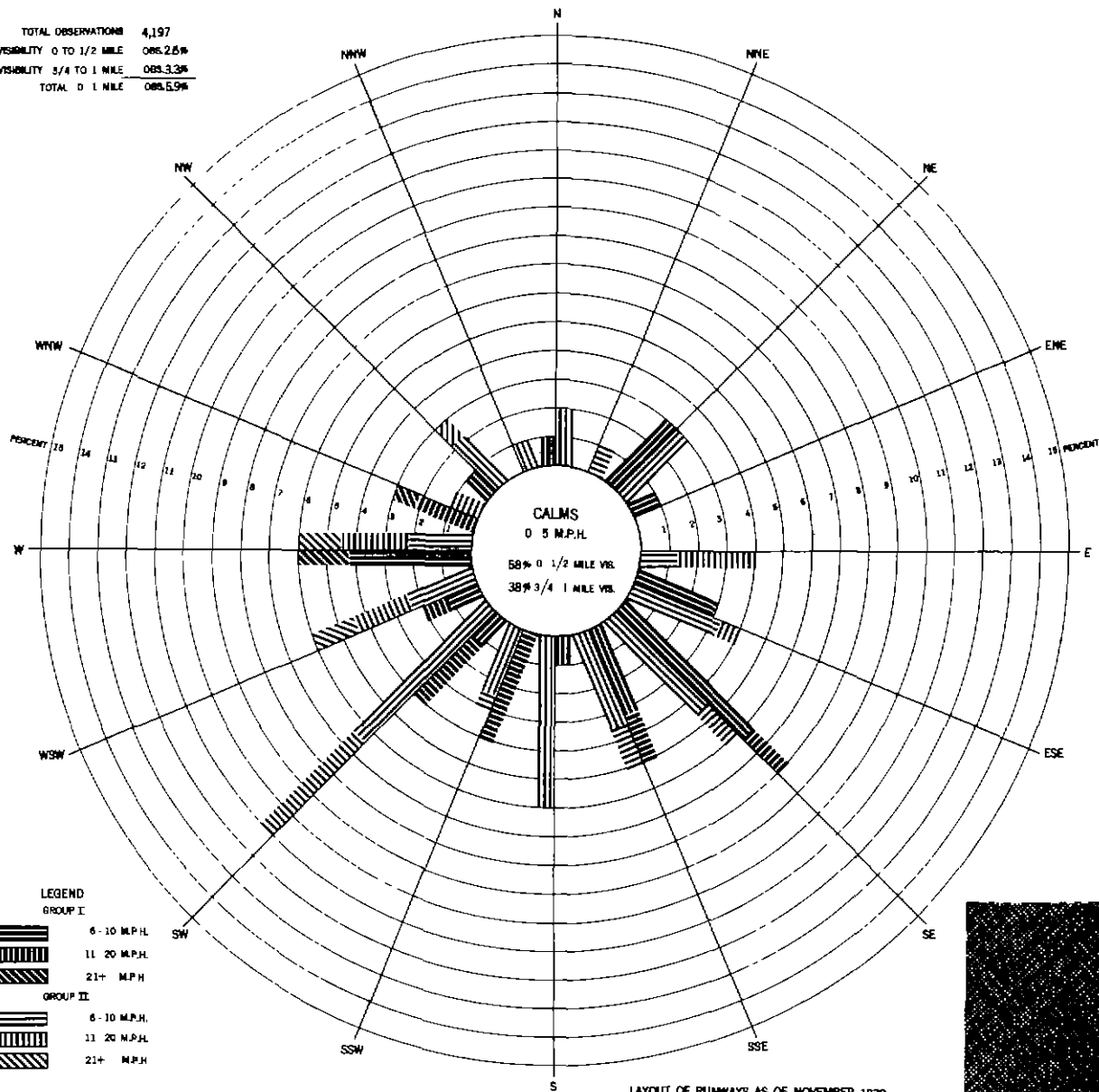
South Bend

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

FT. WAYNE, IND.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 4,197
VISIBILITY 0 TO 1/2 MILE OBS. 2.5%
VISIBILITY 3/4 TO 1 MILE OBS. 3.3%
TOTAL 0 1 MILE OBS. 5.9%



LEGEND

GROUP I
6-10 M.P.H. SW
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0 5 M.P.H.	6 10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	100	56	23	
SMOKE				
RAIN				
DUST				
SNOW		5	9	7
TOTALS	100	62	32	7

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0 5 M.P.H.	6-10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	88	56	17	2
SMOKE	10			
RAIN				
DUST				
SNOW	2	8	14	3
TOTALS	100	64	31	5

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	25	13	6	1	5	2		7	2	16	8	26	111
SMOKE			1									4	5
RAIN													
DUST													
SNOW	1												1
TOTALS	26	14	6	1	5	2		7	2	16	8	30	117

NOTE.
Percentages in windrose are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

NOT USABLE
USABLE AREA
HARD SURFACE



0 500 1000 1500

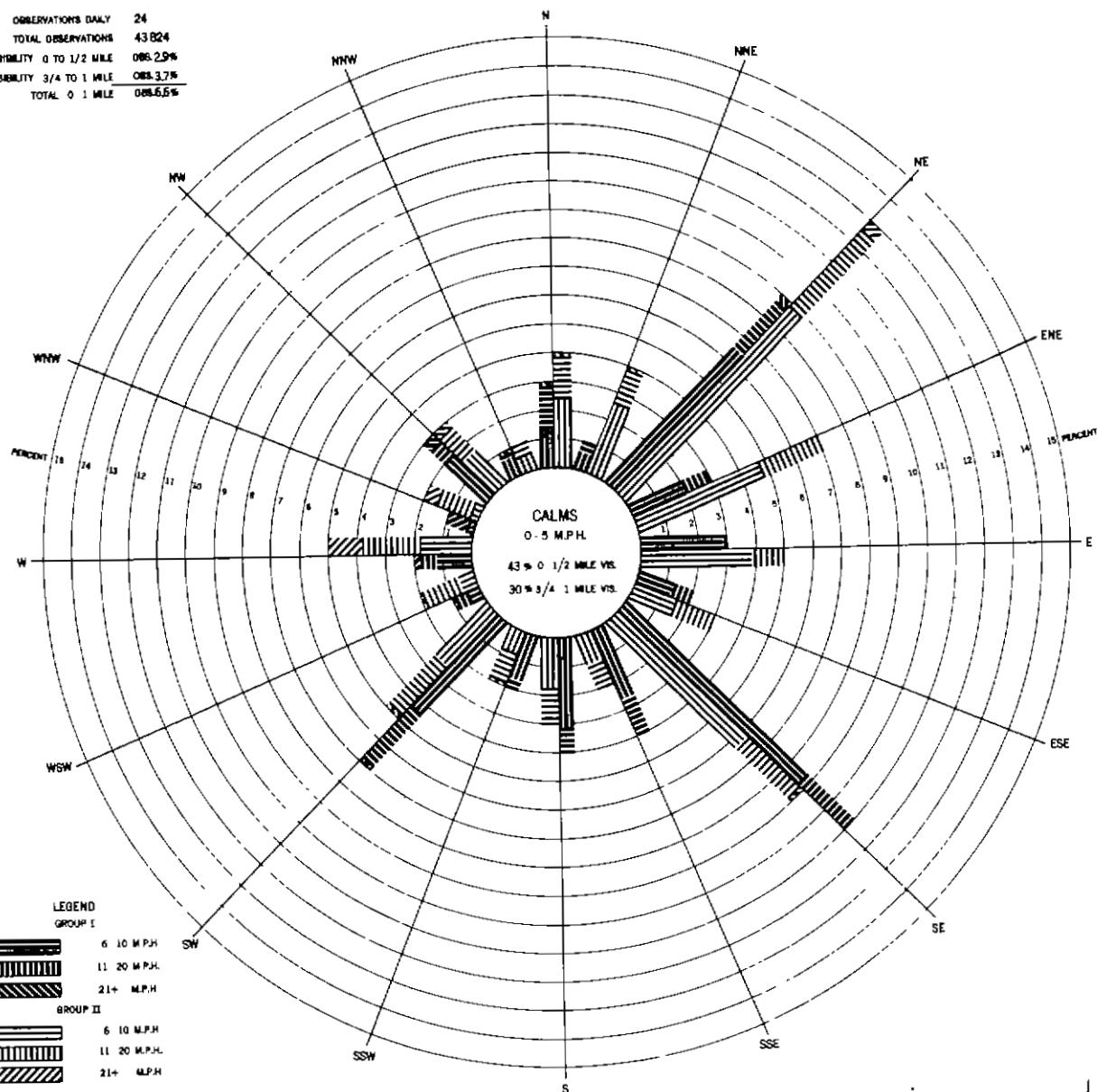
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

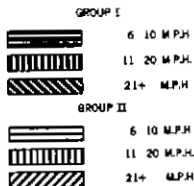
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43824
VISIBILITY 0 TO 1/2 MILE 086.25%
VISIBILITY 3/4 TO 1 MILE 088.37%
TOTAL 0 1 MILE 088.65%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

INDIANAPOLIS, IND.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	82	59 22
SMOKE	17	8 1
RAIN		
DUST		1
SNOW	1	2 4 3
TOTALS	100	69 28 3

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	48	33 24 1
SMOKE	48	22 5
RAIN		1
DUST	1	1 1
SNOW	3	3 6 3
TOTALS	100	59 37 4

(Figures indicate percentages)

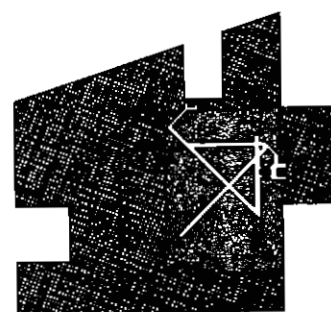
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	132	38	42	55	40	24	25	34	71	72	29	108	670
SMOKE	45	36	34	32	11	4	7	8	13	48	41	49	330
RAIN						2							5
DUST	1	1						3					5
SNOW	2	6										12	22
TOTALS	180	85	76	87	51	29	32	45	84	120	70	169	1028

NOTE:
Percentages in abstracts are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF APRIL 1939

BOO
NOT USABLE
HARD SURFACE



0 1000 2000 4000
SCALE IN FEET

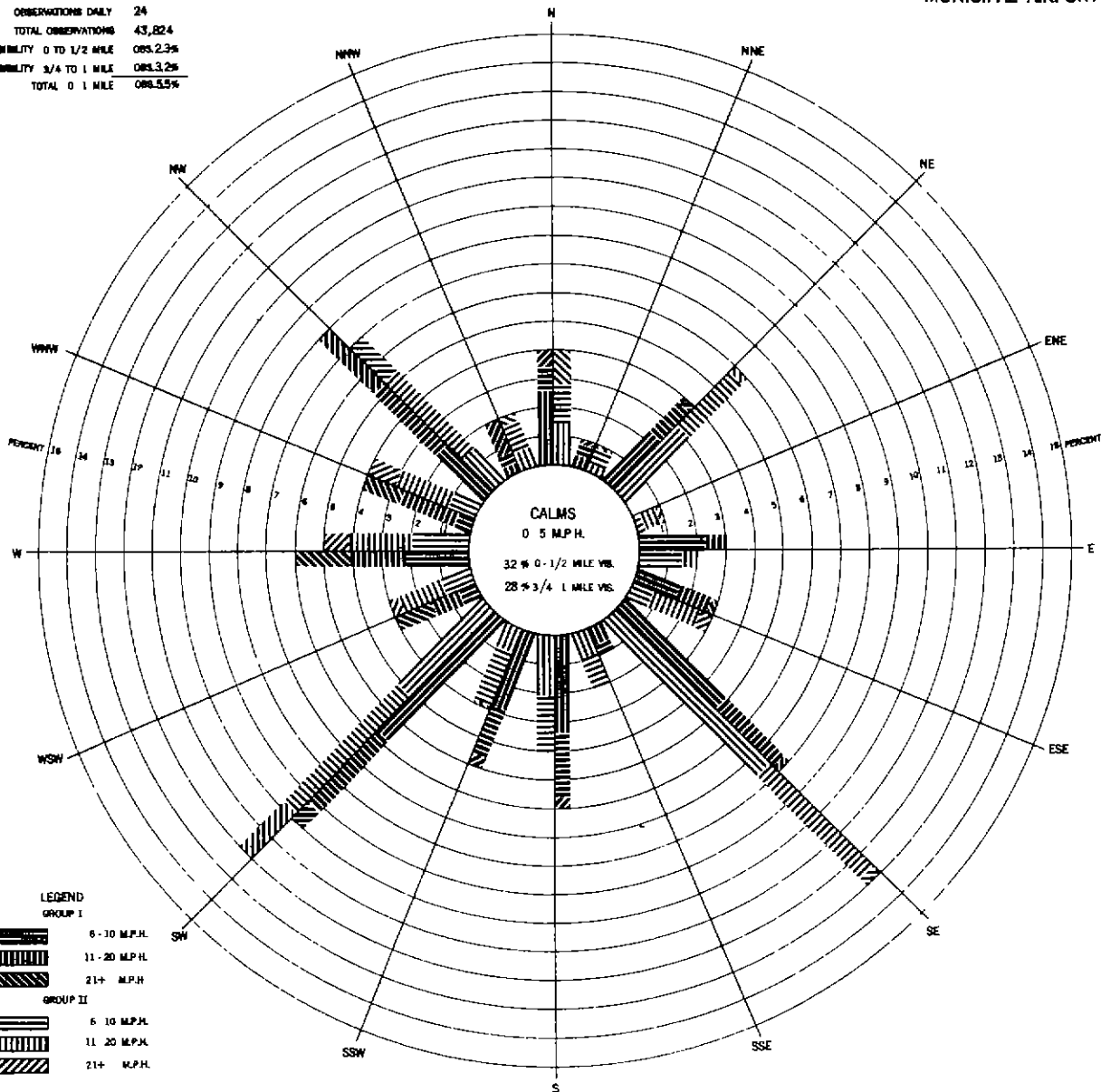
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 3.2%
TOTAL 0 1 MILE OBS. 5.5%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SOUTH BEND, IND.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	97	46	18	1
SMOKE	1			
RAIN	1	1	2	
DUST				
SNOW	1	2	14	16
TOTALS	100	49	34	17

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	77	31	24	2
SMOKE	16	4	1	
RAIN	2	1	3	
DUST	1		1	1
SNOW	4	7	17	8
TOTALS	100	43	46	11

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

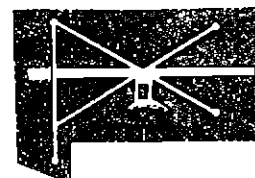
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	51	6	32	9	20	24	21	17	60	41	7	38	326
SMOKE	1									1	3		5
RAIN					1								2
DUST													
SNOW		3										2	5
TOTALS	56	9	32	9	21	24	21	17	60	42	8	43	338

NOTE:
Percentages in winds are based on the number of observations in each visibility group.

Example: 34 indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



0 1000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

IOWA

Burlington

Des Moines

Iowa City

**BURLINGTON, IOWA
MUNICIPAL AIRPORT**

OBSERVATIONS ONLY 24
 TOTAL OBSERVATIONS 43 824
 VISIBILITY 0 TO 1/2 MILE OBS. 2.5%
 VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
 TOTAL 0-1 MILE OBS. 5.6%

CALMS
 0-5 M.P.H.
 30% 0 1/2 MILE VIS.
 27% 3/4 1 MILE VIS.

LEGEND
 GROUP I
 6-10 M.P.H.
 11-20 M.P.H.
 21+ M.P.H.
 GROUP II
 6-10 M.P.H.
 11-20 M.P.H.
 21+ M.P.H.

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	74	43	27	1	
SMOKE	17	3	1		
RAIN	4	5	3	1	
DUST	2	1	1	1	
SNOW	3	3	7	3	
TOTALS	100	55	39	6	

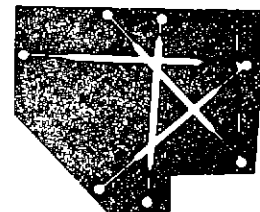
(Figures indicate percentage)

NOTE.
Percentages in winstate are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wins in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the World Progress Administration.

Percentages in windrose are based on the number of observations in each velocity group.

Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 500 1000 2000 3000
SCALE IN FEET

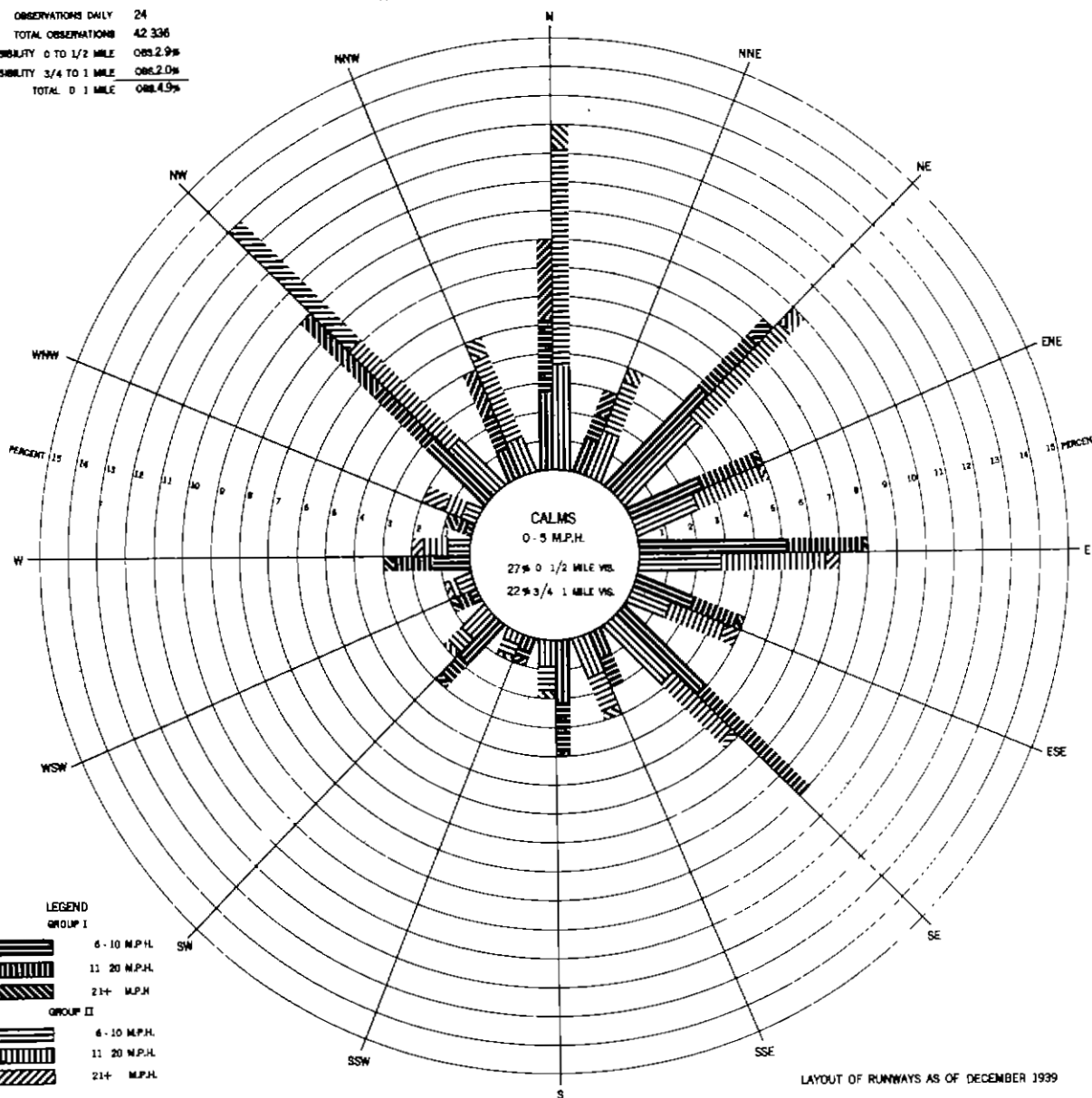
TECHNICAL DEVELOPMENT DIVISION (6)
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 42 336
VISIBILITY 0 TO 1/2 MILE 085.2.9%
VISIBILITY 3/4 TO 1 MILE 086.2.0%
TOTAL 0 1 MILE 088.4.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DES MOINES, IOWA
MUNICIPAL AIRPORT



LEGEND
GROUP I
6-10 M.P.H. SW
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	87	43 29 5
SMOKE	12	2
RAIN		
DUST		1 2
SNOW	1	1 7 10
TOTALS	100	48 37 17

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	53	26 34 8
SMOKE	41	8 4
RAIN		1 1
DUST	1	1 2 2
SNOW	5	1 7 5
TOTALS	100	36 48 16

(Figures indicate percentage)

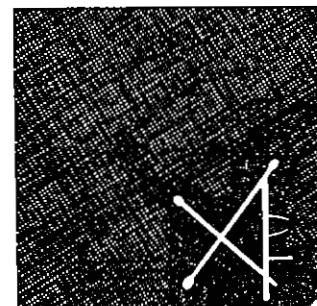
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	142	37	22	17	21	6		26	30	30	22	77	430
SMOKE	40	32	28	6	4				4	10	15	15	164
RAIN													5
DUST	1			1	3								5
SNOW	4	3									11	1	19
TOTALS	187	72	50	24	28	6		26	34	40	48	93	608

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 87% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



0 1000 2000 3000
SCALE IN FEET

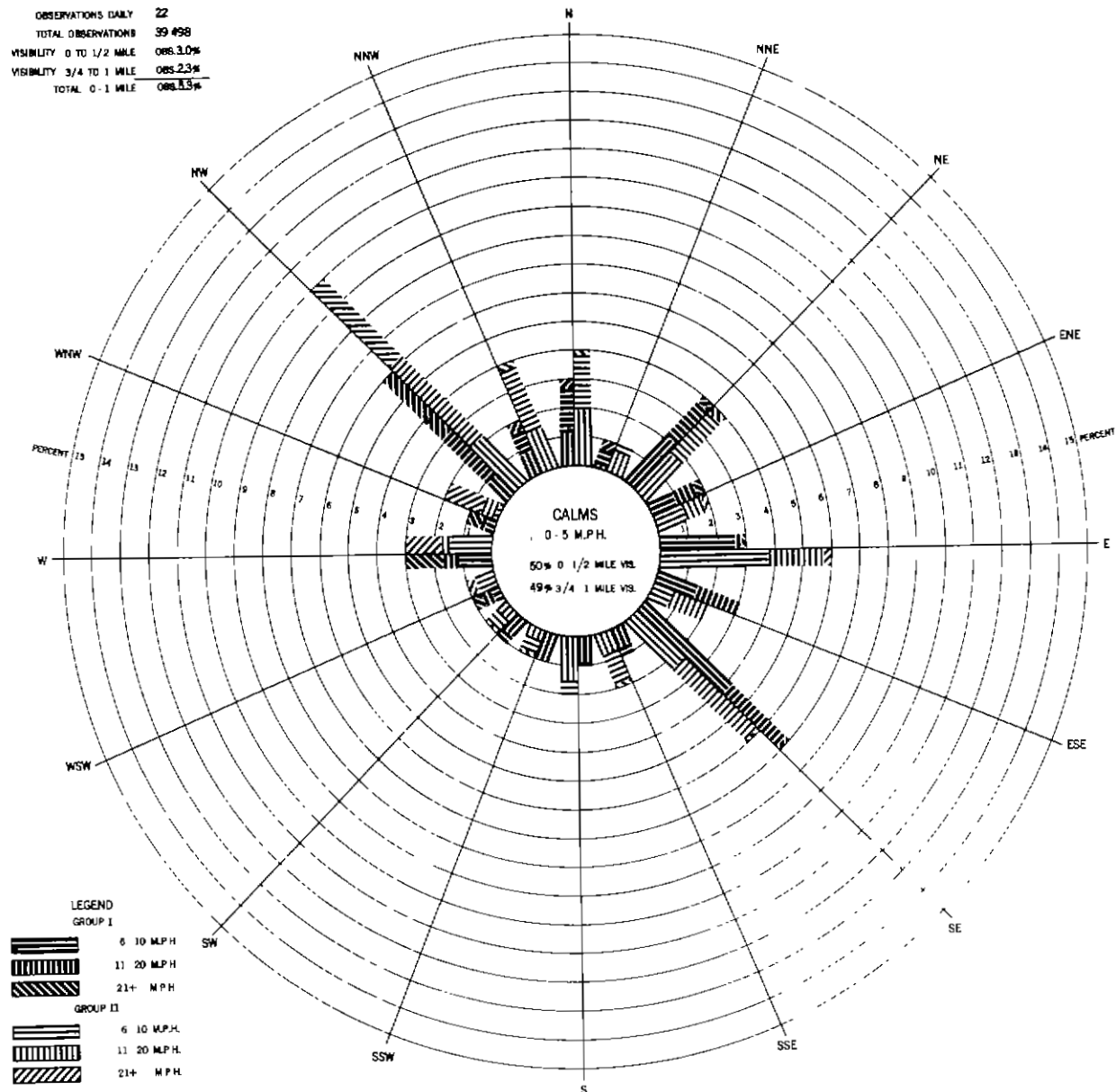
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 22
TOTAL OBSERVATIONS 39 498
VISIBILITY 0 TO 1/2 MILE OBS. 3.0%
VISIBILITY 3/4 TO 1 MILE OBS. 2.3%
TOTAL 0-1 MILE OBS. 5.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

IOWA CITY, IOWA
MUNICIPAL AIRPORT



LEGEND
GROUP I
0-5 M.P.H.
6-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	98	43
SMOKE		20
RAIN		1
DUST		2
SNOW	2	10
TOTALS	100	49

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	91	36
SMOKE	2	31
RAIN	1	3
DUST	2	1
SNOW	6	7
TOTALS	100	43

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	192	95	61	30	43	42	13	97	137	135	68	385	1098
SMOKE	1									2			10
RAIN					1	3							4
DUST												7	17
SNOW	10	2	3	2									41
TOTALS	203	97	64	32	44	45	13	97	137	137	75	209	1153

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

800 & USABLE AREA
NOT USABLE
HARD SURFACE



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

KANSAS

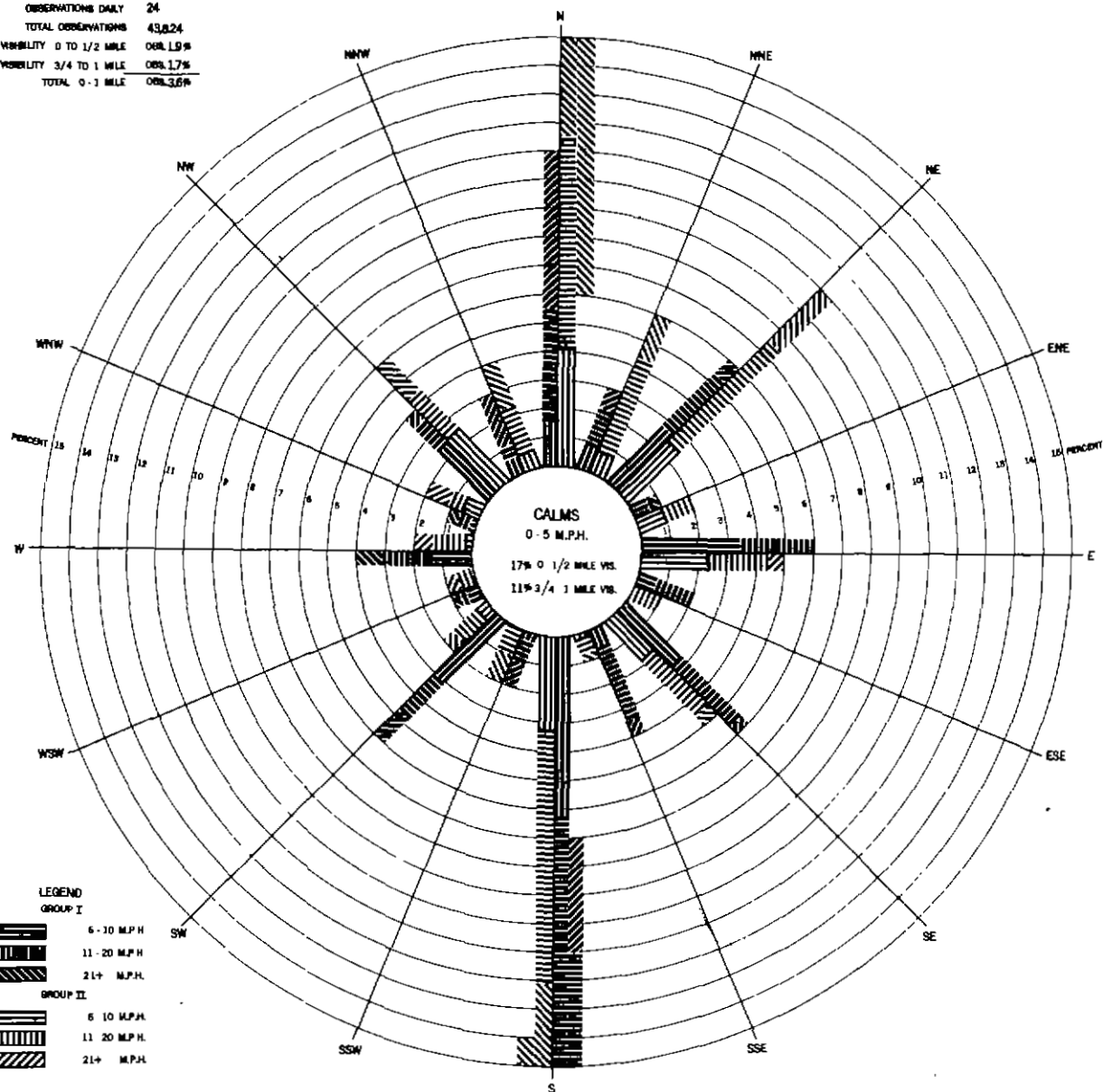
Wichita

SUMMARY OF 3 YEAR PERIOD
1934 TO 1936 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.9%
VISIBILITY 3/4 TO 1 MILE OBS. 1.7%
TOTAL 0-1 MILE OBS. 3.6%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WICHITA, KANS.
MUNICIPAL AIRPORT



LEGEND

GROUP I
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	31 39 10
SMOKE		
RAIN		
DUST	2	2 5 7
SNOW	1	1 1 4
TOTALS	100	34 45 21

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	83	32 21 18
SMOKE	5	1
RAIN		2 2
DUST	8	2 7 12
SNOW	1	2 1
TOTALS	100	35 32 33

(Figures indicate percentage)

TOTAL OCCURRENCES (DURING CALMS 0-5 M.P.H.) BY MONTHS												
GROUP I & II COMBINED												
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
FOG	31	33	28	5	4	4	3	13	7	21	56	205
SMOKE	5									1		1
RAIN												
DUST				7	1						2	10
SNOW	2											2
TOTALS	98	93	95	6	4	4	3	13	8	23	57	224

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: FOG indicates the percentage of fogs in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Wichita Program Administration.

LAYOUT AS OF NOVEMBER 1938



0 1000 2000 4000
SCALE IN FEET

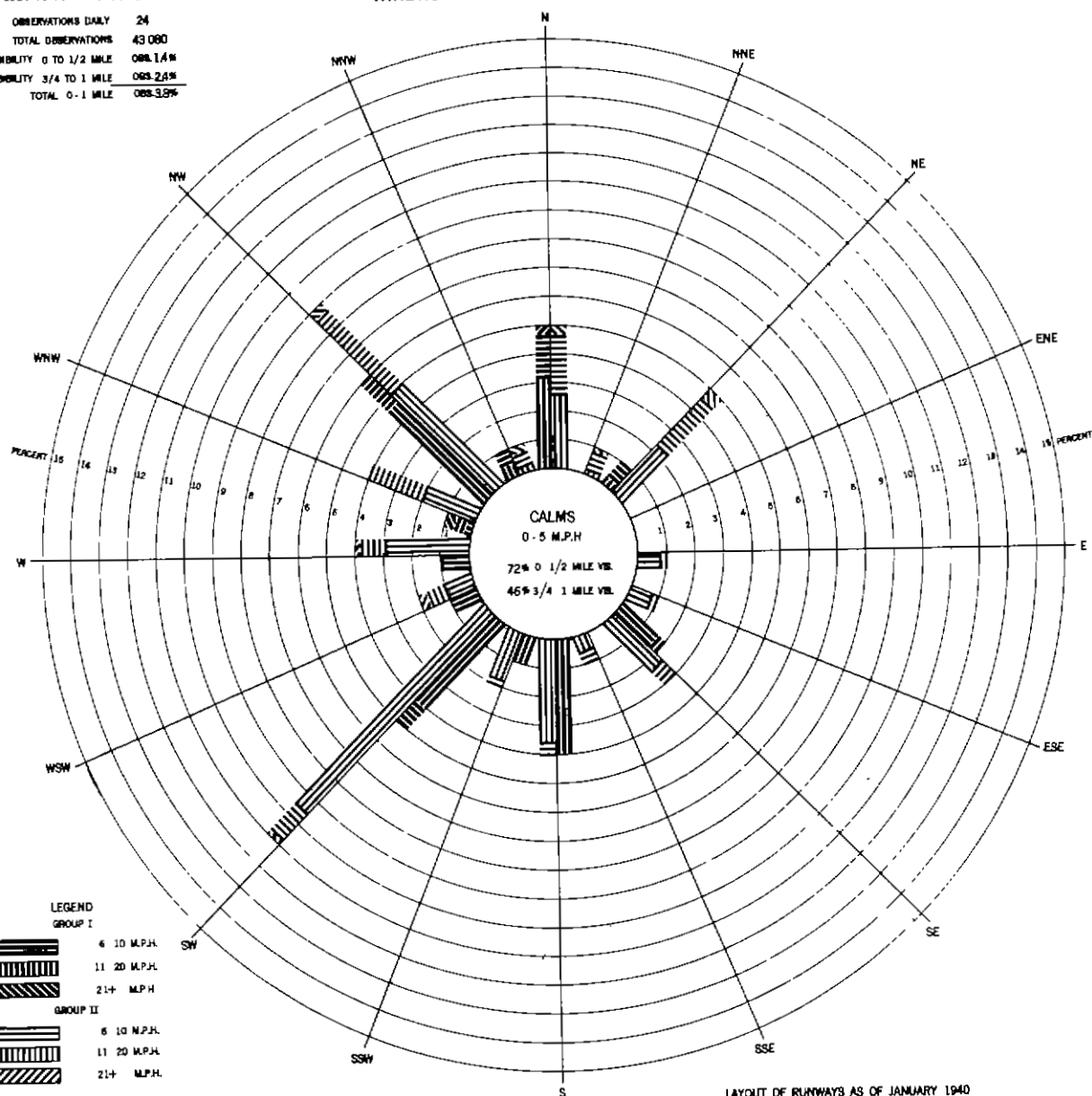
KENTUCKY

Louisville

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 080
VISIBILITY 0 TO 1/2 MILE OBS. 1.4%
VISIBILITY 3/4 TO 1 MILE OBS. 2.4%
TOTAL 0-1 MILE OBS. 3.8%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY



LEGEND
GROUP I
0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSE	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	93	61
SMOKE	4	7
RAIN	1	3
DUST	2	1
SNOW		2
TOTALS	100	74

GROUP II
1/4 TO 1 MILE VISIBILITY

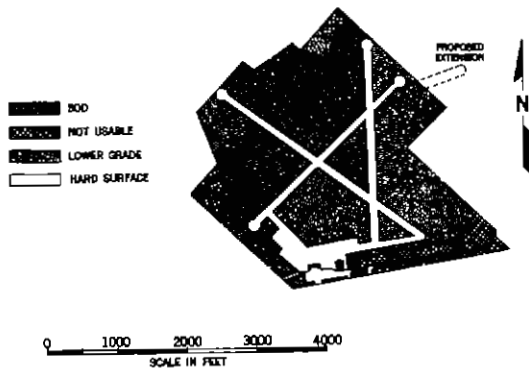
CAUSE	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	58	43
SMOKE	38	21
RAIN		1
DUST	3	1
SNOW	1	2
TOTALS	100	67

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	97	65	34	12	20	22	37	57	55	77	87	123	686
SMOKE	18	23	18	4						16	41	81	201
RAIN	5	1									1	1	6
DUST		1	20										23
SNOW		3											7
TOTALS	120	92	73	16	20	22	37	57	56	93	129	209	923

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Source: 1% indicates the percentage of total in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



LOUISIANA

Baton Rouge

Monroe

New Orleans

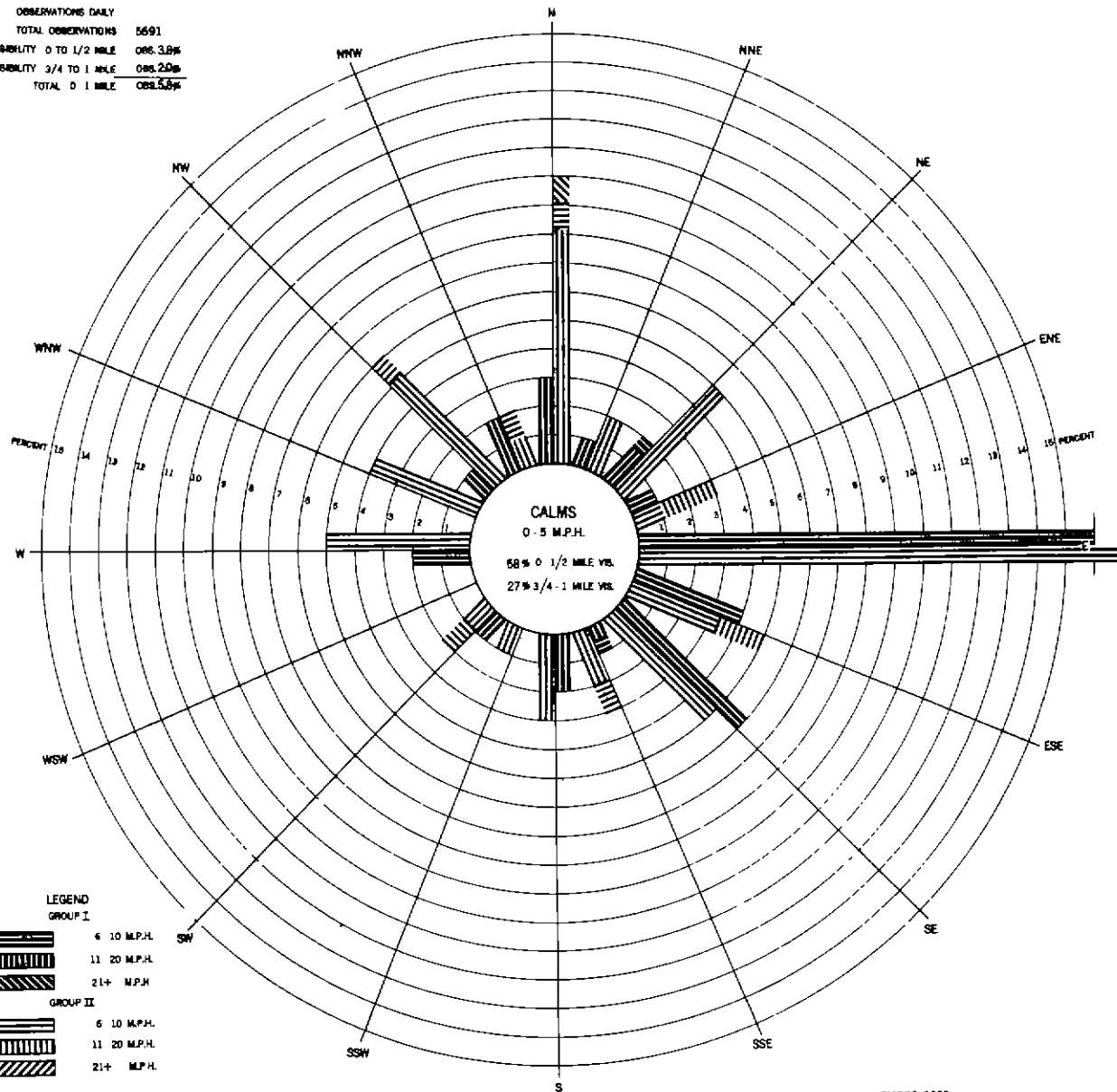
Shreveport

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BATON ROUGE, LA.
MUNICIPAL AIRPORT

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 5691
VISIBILITY 0 TO 1/2 MILE OBS. 3.2%
VISIBILITY 3/4 TO 1 MILE OBS. 2.0%
TOTAL 0 1 MILE OBS. 5.2%



LEGEND
GROUP I
0-5 M.P.H.
6-21+ M.P.H.
GROUP II
6-21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	98	90
SMOKE		
RAIN	2	5
DUST		1
SNOW		1
TOTALS	100	97

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	97	55
SMOKE		12
RAIN	3	22
DUST		1
SNOW		1
TOTALS	100	89

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	13	14	12	16	8		14	4	14	20	13	25	153
SMOKE													
RAIN			1	1							1		3
DUST													
SNOW													
TOTALS	13	15	13	16	8		14	4	14	20	14	25	156

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT AS OF DECEMBER 1939



0 1000 3000
SCALE IN FEET

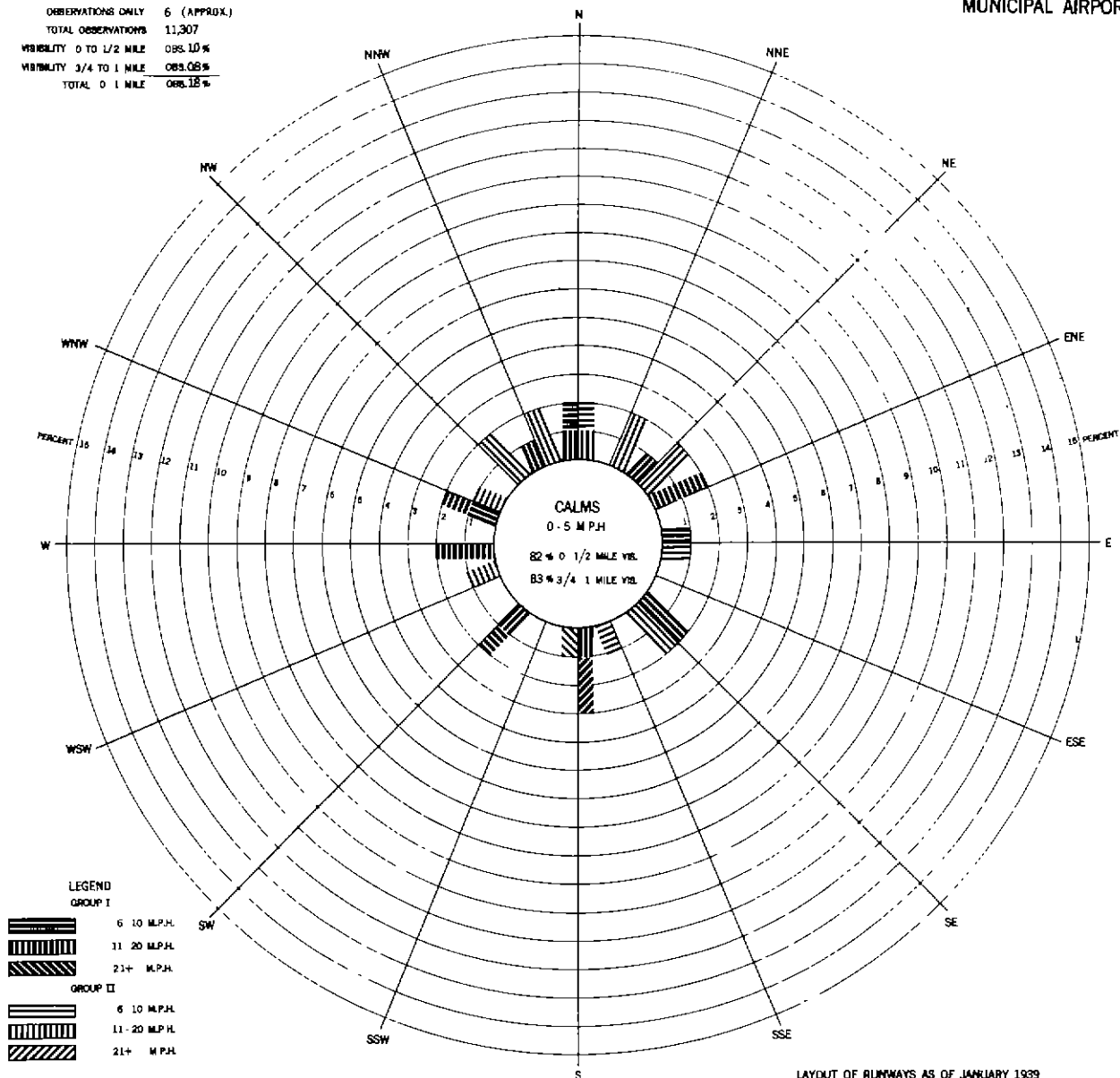
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

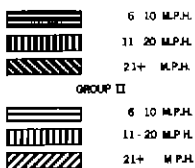
OBSERVATIONS ONLY 6 (APPROX.)
TOTAL OBSERVATIONS 11,307
VISIBILITY 0 TO 1/2 MILE OBS. 1.0 %
VISIBILITY 3/4 TO 1 MILE OBS. 0.8 %
TOTAL 0 1 MILE OBS. 1.8 %

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MONROE, LA.
MUNICIPAL AIRPORT



LEGEND
GROUP I



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	39 6
SMOKE	4	
RAIN	1	11 22 11
DUST		
SNOW		11
TOTALS	100	50 39 11

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	83	64 6
SMOKE	13	6
RAIN	4	6 6
DUST		6
SNOW		6
TOTALS	100	70 24 6

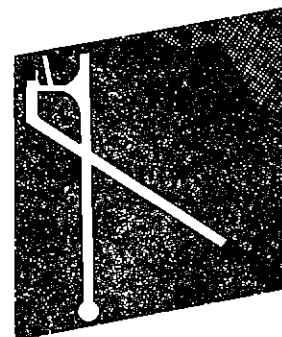
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	22	10	6	20	2	7	7	6	3	25	21	18	147
SMOKE								1	5	1	5	1	13
RAIN				1								1	4
DUST													
SNOW													
TOTALS	22	10	6	21	2	7	7	7	8	26	27	21	164

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Program Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1939



0 1000 2000
SCALE IN FEET

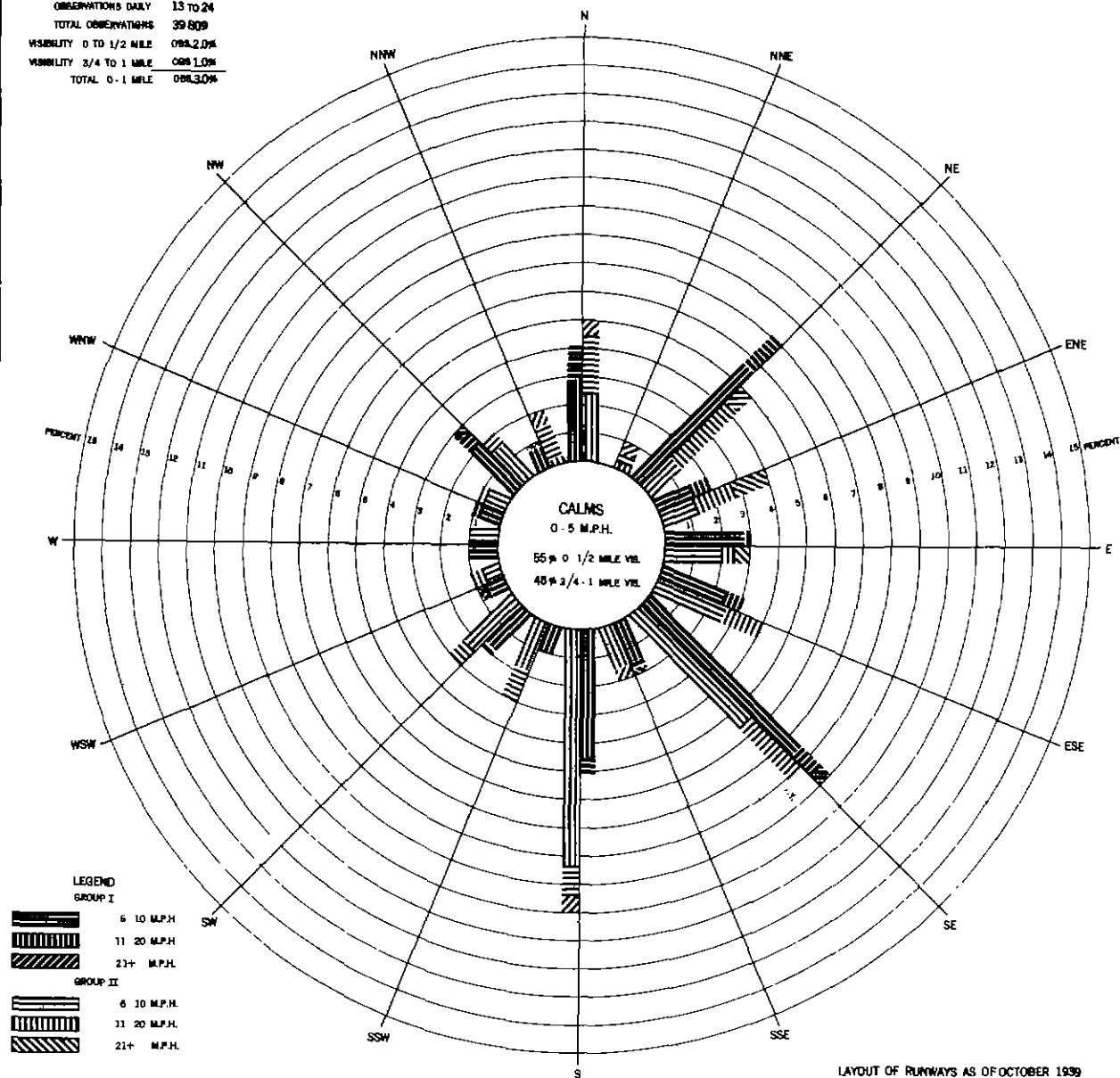
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 13 TO 24
TOTAL OBSERVATIONS 39 809
VISIBILITY 0 TO 1/2 MILE 098.20%
VISIBILITY 3/4 TO 1 MILE 008.10%
TOTAL 0-1 MILE 096.30%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

NEW ORLEANS, LA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	78 14
SMOKE	6	4
RAIN		1 2
DUST		
SNOW		
TOTALS	100	83 15 2

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	74	46 29 6
SMOKE	26	15 1
RAIN		1 1 1
DUST		
SNOW		
TOTALS	100	62 31 7

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	73	75	55	68	19	5	1	7	6	57	52	121	539
SMOKE	5	5	1						6	17	25	14	73
RAIN													
DUST													
SNOW													
TOTALS	78	80	56	68	19	5	1	7	12	74	77	135	612

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

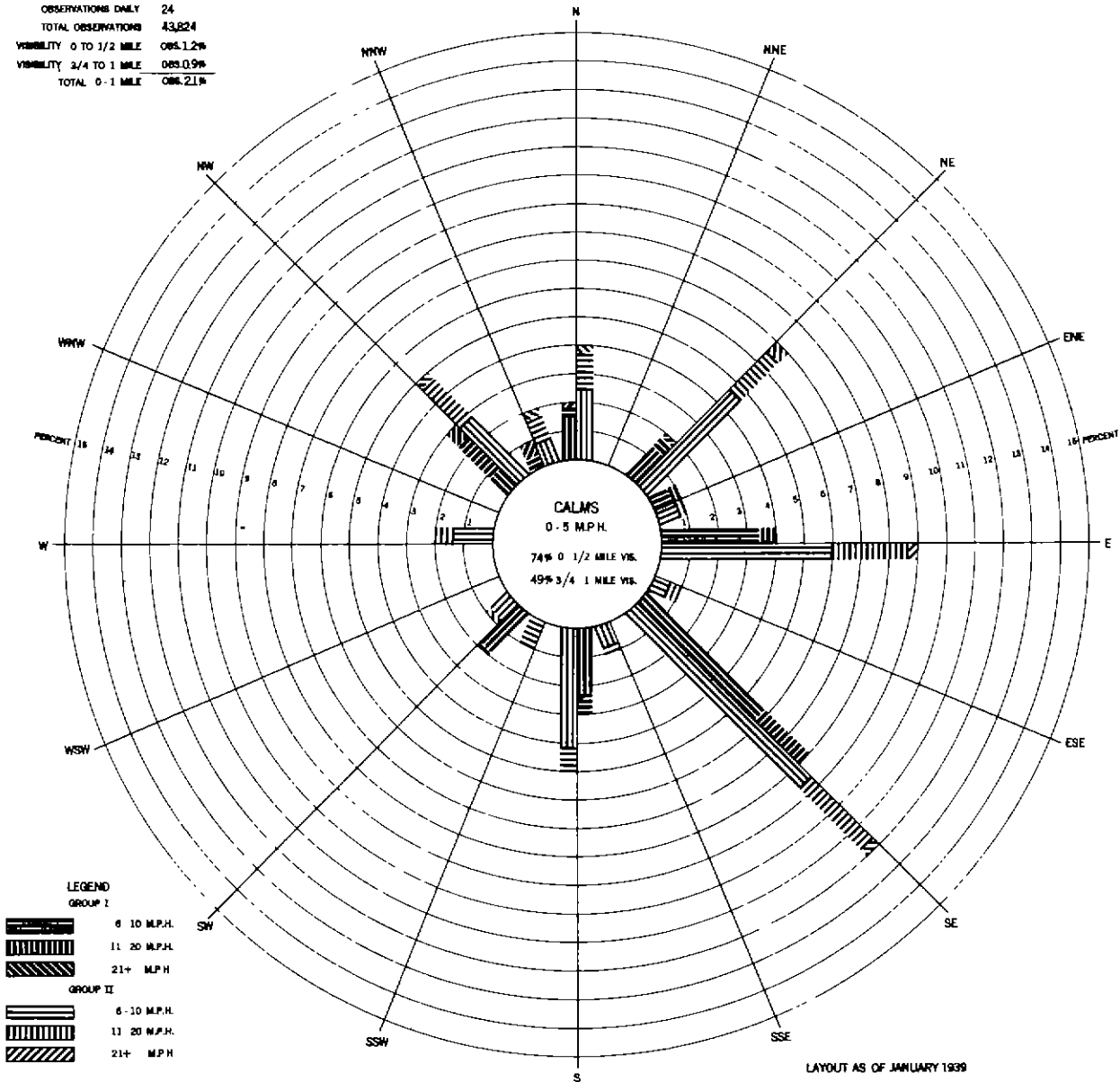
4

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.2%
VISIBILITY 3/4 TO 1 MILE OBS. 0.9%
TOTAL 0-1 MILE OBS. 2.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SHREVEPORT, LA.
MUNICIPAL AIRPORT



LAYOUT AS OF JANUARY 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	68 17 1
SMOKE		
RAIN	1	3 1 1
DUST		6 2
SNOW		1 2 1
TOTALS	100	69 26 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	61 25
SMOKE	4	1
RAIN	2	3 2 2
DUST		3 2
SNOW	1	1
TOTALS	100	68 30 2

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	123	27	18	50	18	6	2	14	9	83	83	130	563
SMOKE	1	1								7			9
RAIN	1	1										3	5
DUST													
SNOW												1	1
TOTALS	125	29	18	50	18	6	2	14	9	90	83	134	578

NOTE:
Percentages in handout are based on the number of observations in each visibility group.
Dashes indicate the percentage of wind in either Group I or Group II depending upon the symbol used.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

USABLE BOG
NOT USABLE
HARD SURFACE

0 500 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MASSACHUSETTS

Boston

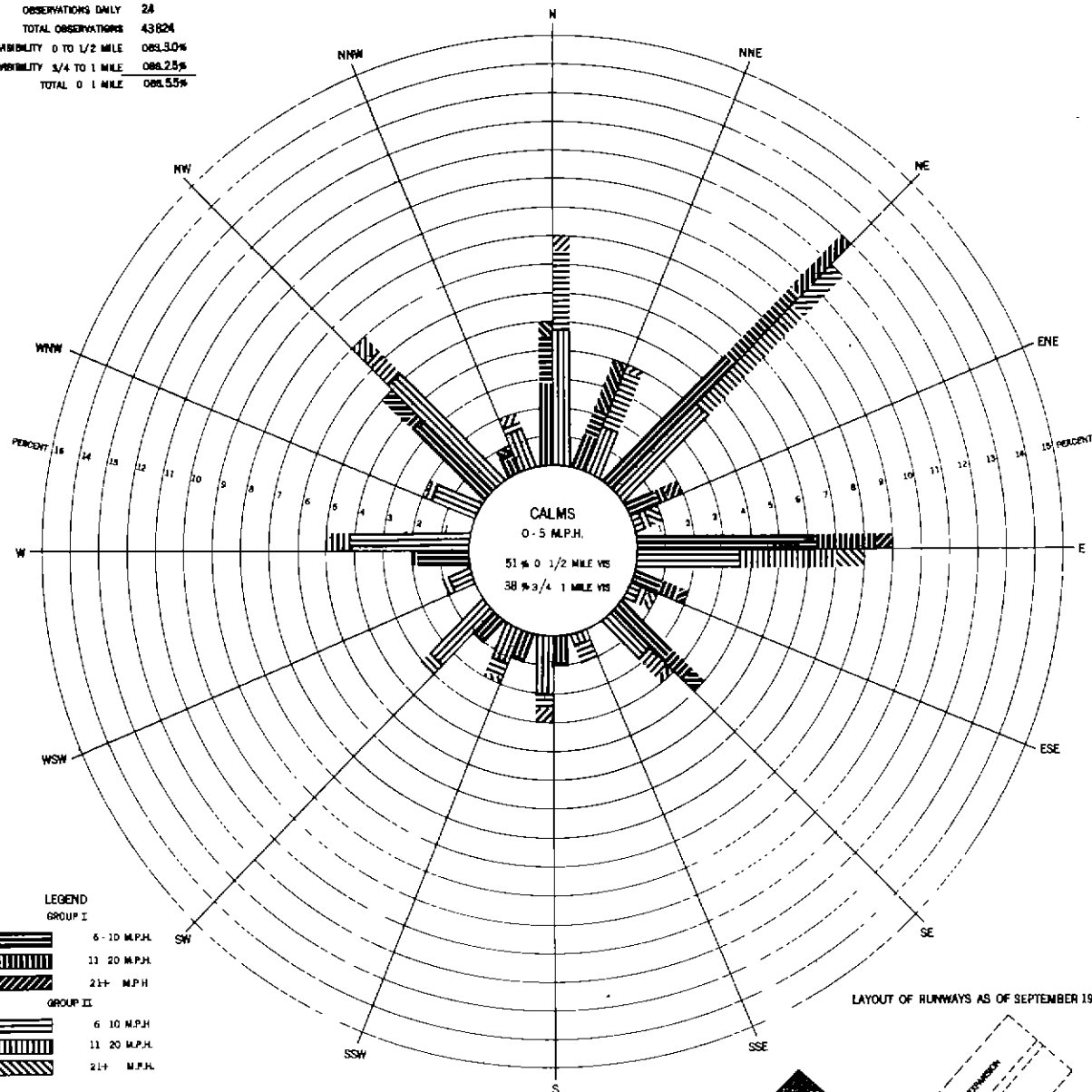
Springfield

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43824
VISIBILITY 0 TO 1/2 MILE 088.30%
VISIBILITY 3/4 TO 1 MILE 089.25%
TOTAL 0 1 MILE 088.55%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

BOSTON, MASS.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	89	57	17	6	
SMOKE	10	1			
RAIN					
DUST					
SNOW	1	2	6	11	
TOTALS	100	60	23	17	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	62	43	23	6	
SMOKE	36	14	2		
RAIN				1	
DUST					
SNOW	2	3	5	3	
TOTALS	100	60	30	10	

(Figures indicate percentage)

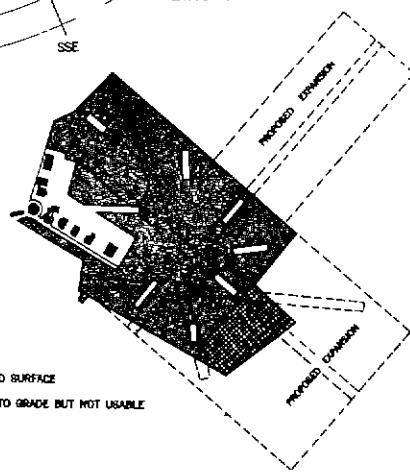
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	125	66	68	11	73	61	82	56	68	74	76	64	841
SMOKE	25	55	17	5	3	8	2	7	12	21	33	17	209
RAIN													
DUST													
SNOW	5	5	2										12
TOTALS	155	130	87	16	76	69	84	63	97	95	109	81	1062

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1939



SCALE IN FEET

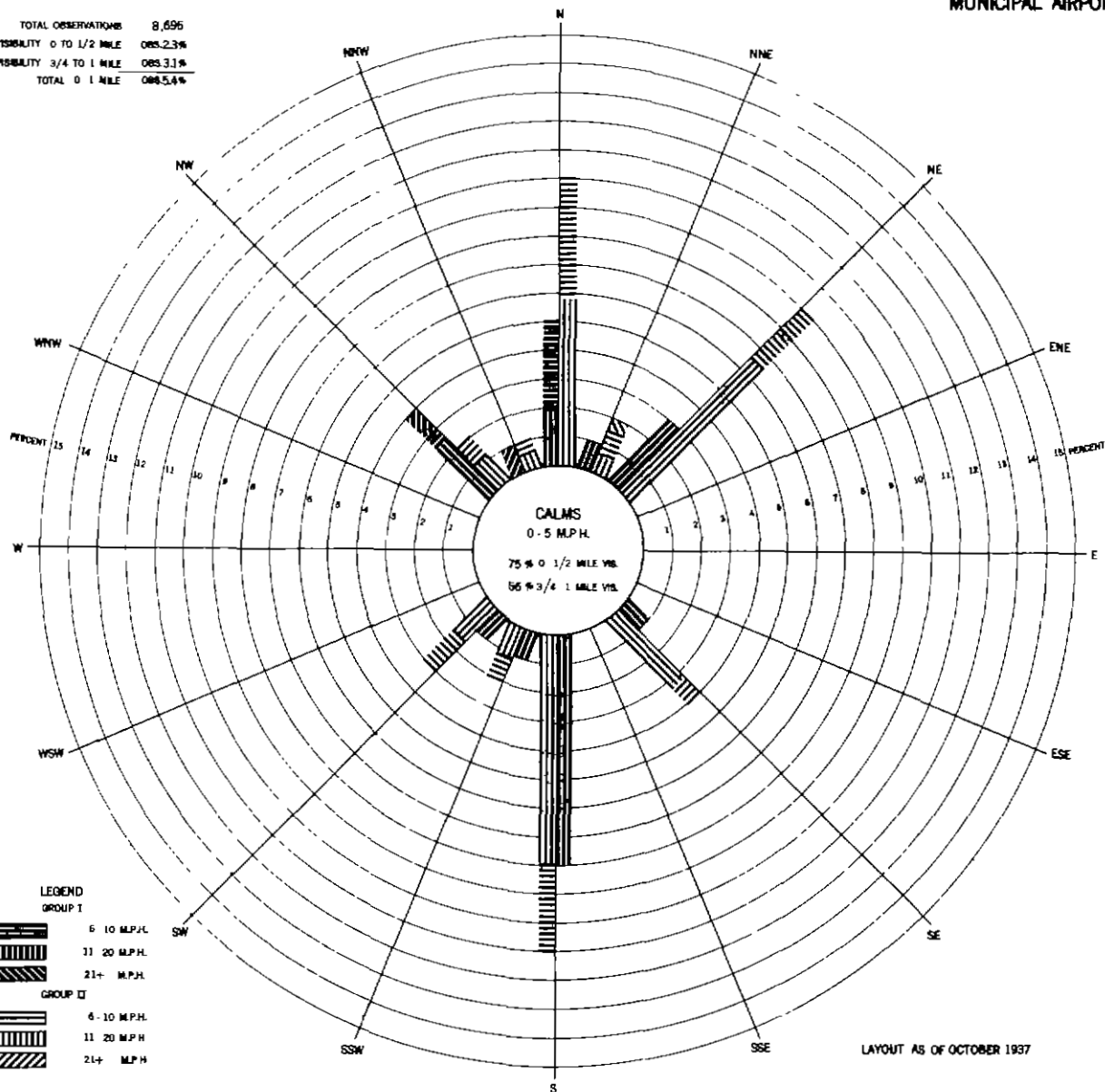
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

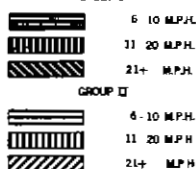
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SPRINGFIELD, MASS.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 8,696
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0 1 MILE OBS. 5.4%



LEGEND



LAYOUT AS OF OCTOBER 1937

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	92	52		
SMOKE				
RAIN	1			
DUST				
SNOW	7	26	16	6
TOTALS	100	78	16	6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	76	51	23	
SMOKE	1			
RAIN	1	2	3	
DUST	11	3		
SNOW	11	8	9	1
TOTALS	100	64	35	1

(Figures indicate percentage)

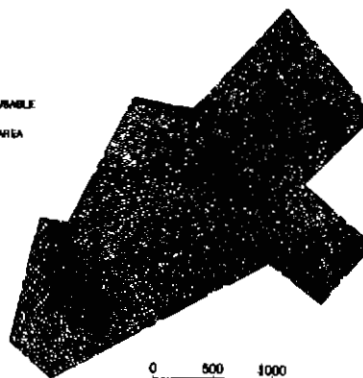
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II Combined)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	49	24	42	6	5	4	11	10	16	34	17	33	251
SMOKE												2	2
RAIN									1			2	3
DUST		7	3		1						1	4	16
SNOW	3	13	3	1							2	6	28
TOTALS	52	44	48	7	6	4	11	10	17	34	20	47	300

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Storm Program Administration.

NOT USABLE
LOW AREA
SOD



0 500 1000 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MARYLAND

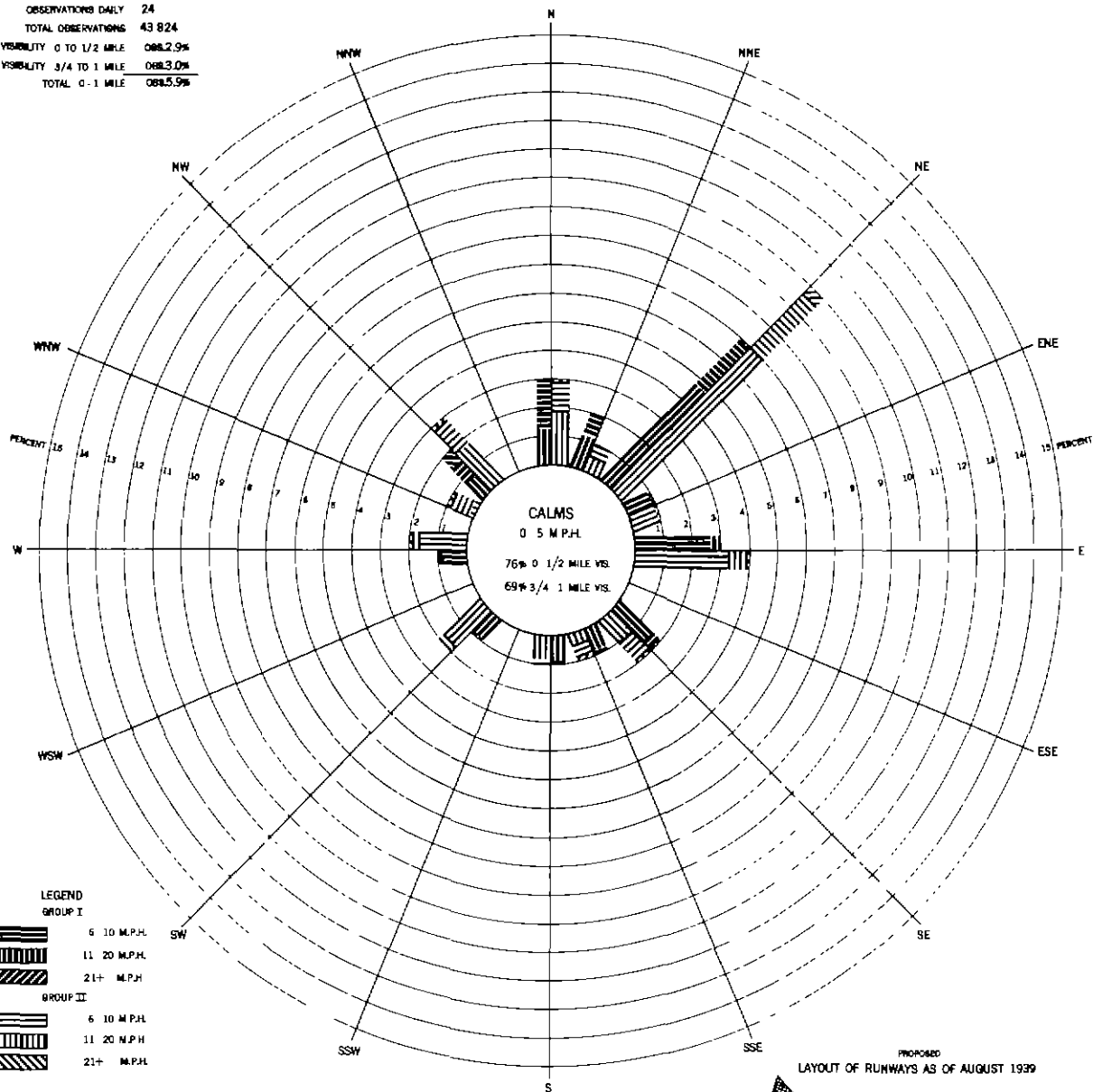
Baltimore

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 088.2.9%
VISIBILITY 3/4 TO 1 MILE 088.3.0%
TOTAL 0-1 MILE 088.5.9%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

BALTIMORE, MD.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I		WINDS IN EXCESS OF 5 M.P.H.			
0 TO 1/2 MILE VISIBILITY		0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
CAUSES					
FOG	99	68	20	3	
SMOKE					
RAIN		1		1	
DUST					
SNOW	1	2	3	2	
TOTALS	100	71	23	6	

(Figures indicate percentage)

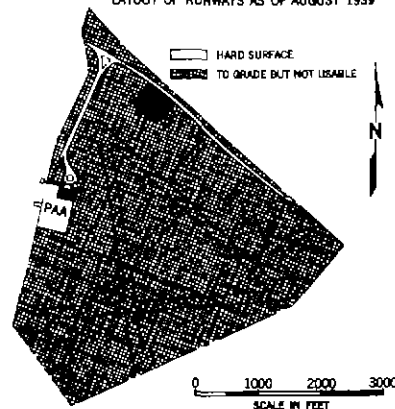
GROUP II		WINDS IN EXCESS OF 5 M.P.H.			
3/4 TO 1 MILE VISIBILITY		0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
CAUSES					
FOG	90	61	23	3	
SMOKE	9	4	1		
RAIN	1				
DUST			1		
SNOW		3	3	1	
TOTALS	100	68	28	4	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
GROUP I & II COMBINED												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	423	207	229	61	48	34	25	58	174	114	83	148
SMOKE	11	12	9	6	2		2			6	16	20
RAIN						1	2					4
DUST												6
SNOW			4	4								9
TOTALS	434	223	242	67	50	35	29	58	174	120	99	176

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 76% indicates two percentages of wind in either Group I or Group II depending upon the visibility classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

PROPOSED LAYOUT OF RUNWAYS AS OF AUGUST 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MAINE

Augusta

Bangor

Caribou

Portland

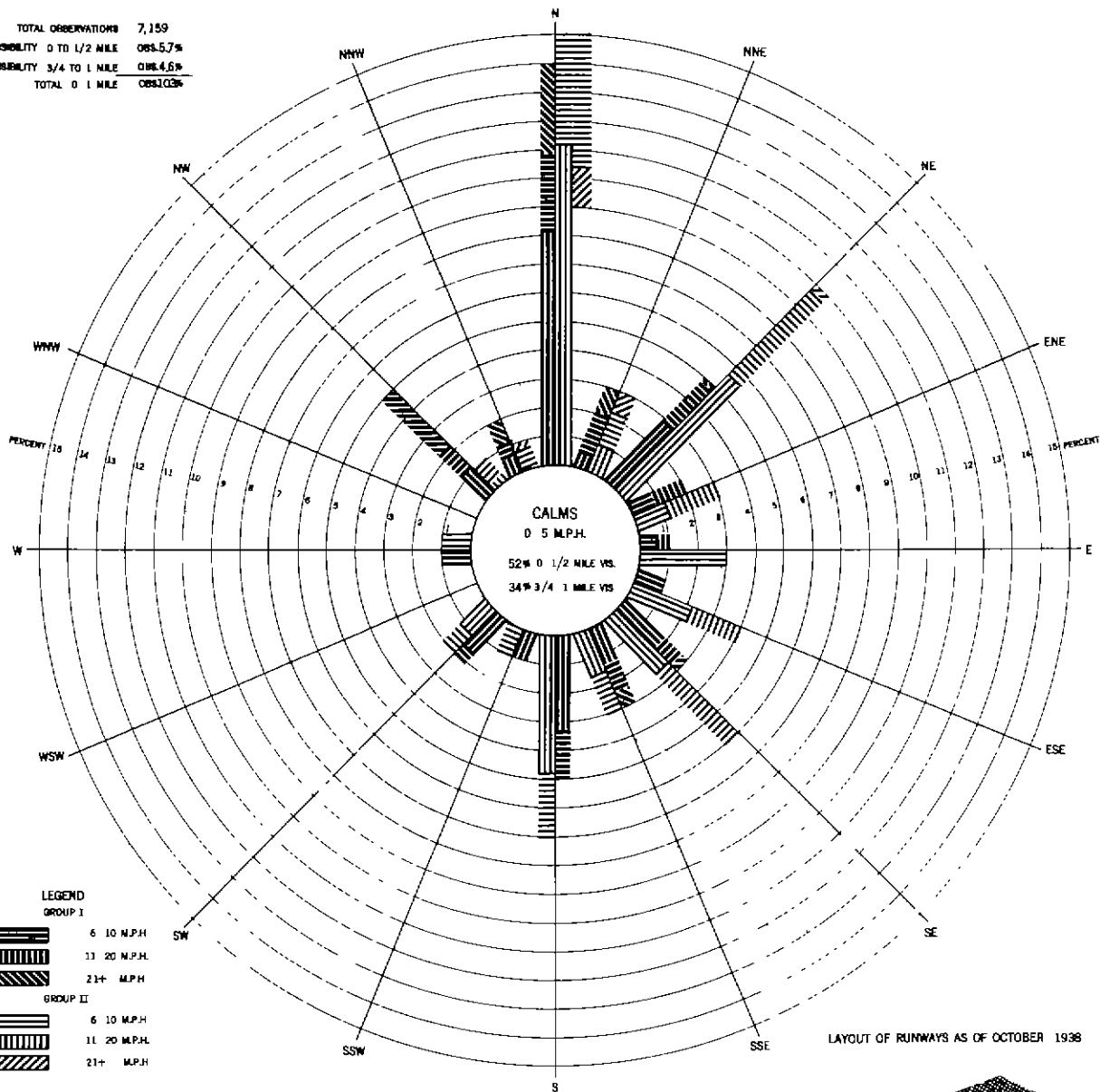
Waterville

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

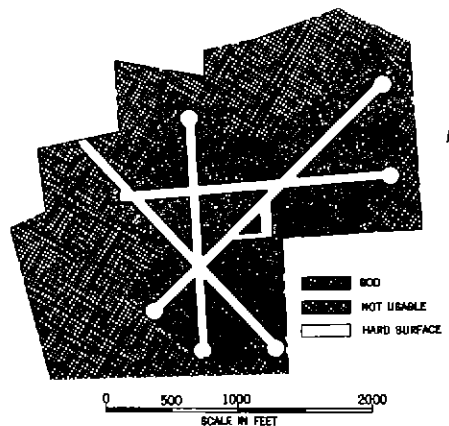
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

AUGUSTA, ME
STATE AIRPORT

TOTAL OBSERVATIONS 7,159
VISIBILITY 0 TO 1/2 MILE OBS. 5.7%
VISIBILITY 3/4 TO 1 MILE OBS. 4.6%
TOTAL 0 1 MILE OBS. 10.3%



LAYOUT OF RUNWAYS AS OF OCTOBER 1938



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	93	45 16 7
SMOKE		
RAIN		
DUST		
SNOW	7	7 14 11
TOTALS	100	62 30 18

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	84	45 29 3
SMOKE		
RAIN		1
DUST		
SNOW	16	9 13
TOTALS	100	54 43 3

(Figures indicate percentage)

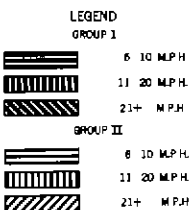
TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	28	32	46	43	3	12	13	4	30	26	36	17	290
SMOKE													
RAIN													
DUST													
SNOW	3	3	13	1							1	12	33
TOTALS	31	35	59	44	3	12	13	4	30	26	37	29	323

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

BANGOR, ME.
MUNICIPAL AIRPORT

OBSERVATIONS DAILY	1 TO 12
TOTAL OBSERVATIONS	5821
ABILITY 0 TO 1/2 MILE	082.32
ABILITY 3/4 TO 1 MILE	085.33
TOTAL 0 1 MILE	086.5



GROUP I 0 TO 1/2 MILE VISIBILITY				
CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0-8 M.P.H.	9-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	86	32	15	4
SMOKE				
RAIN	2	3		
DUST				
SNOW	12	13	25	8
TOTALS	100	48	40	12

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	76	29	32	12	
SMOKE	4				
RAIN	5	4	1		
DUST	1				
SNOW	14	8	13	1	
TOTALS	100	41	46	13	

NOTE
Percentages in *italics* are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind is either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

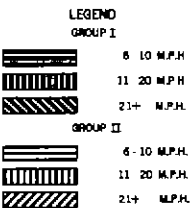
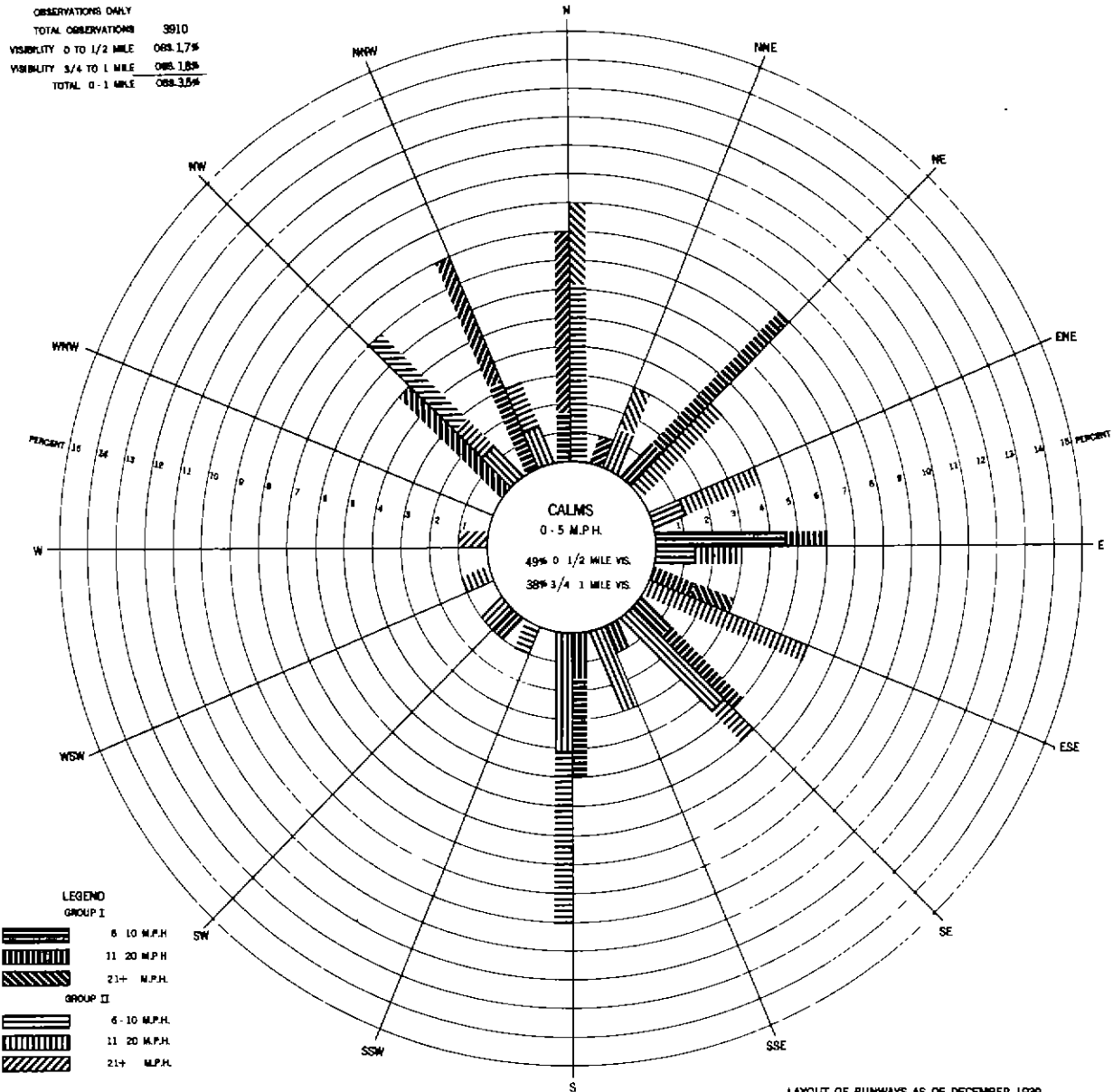


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 3910
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.8%
TOTAL 0 - 1 MILE OBS. 3.5%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CARIBOU, ME.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	85	21 6 9
SMOKE		
RAIN	3	3
DUST		
SNOW	12	3 31 27
TOTALS	100	24 40 36

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	58	18 25
SMOKE	11	
RAIN		
DUST	4	
SNOW	27	14 25 18
TOTALS	100	32 50 18

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	2	10		4				3	8	12	3	1	43
SMOKE	2												3
RAIN									1				1
DUST										1			1
SNOW	2	2	2	1							3	1	11
TOTALS	6	12	2	5				3	9	13	6	3	59

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 85% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939

800 & USABLE AREA
NOT USABLE



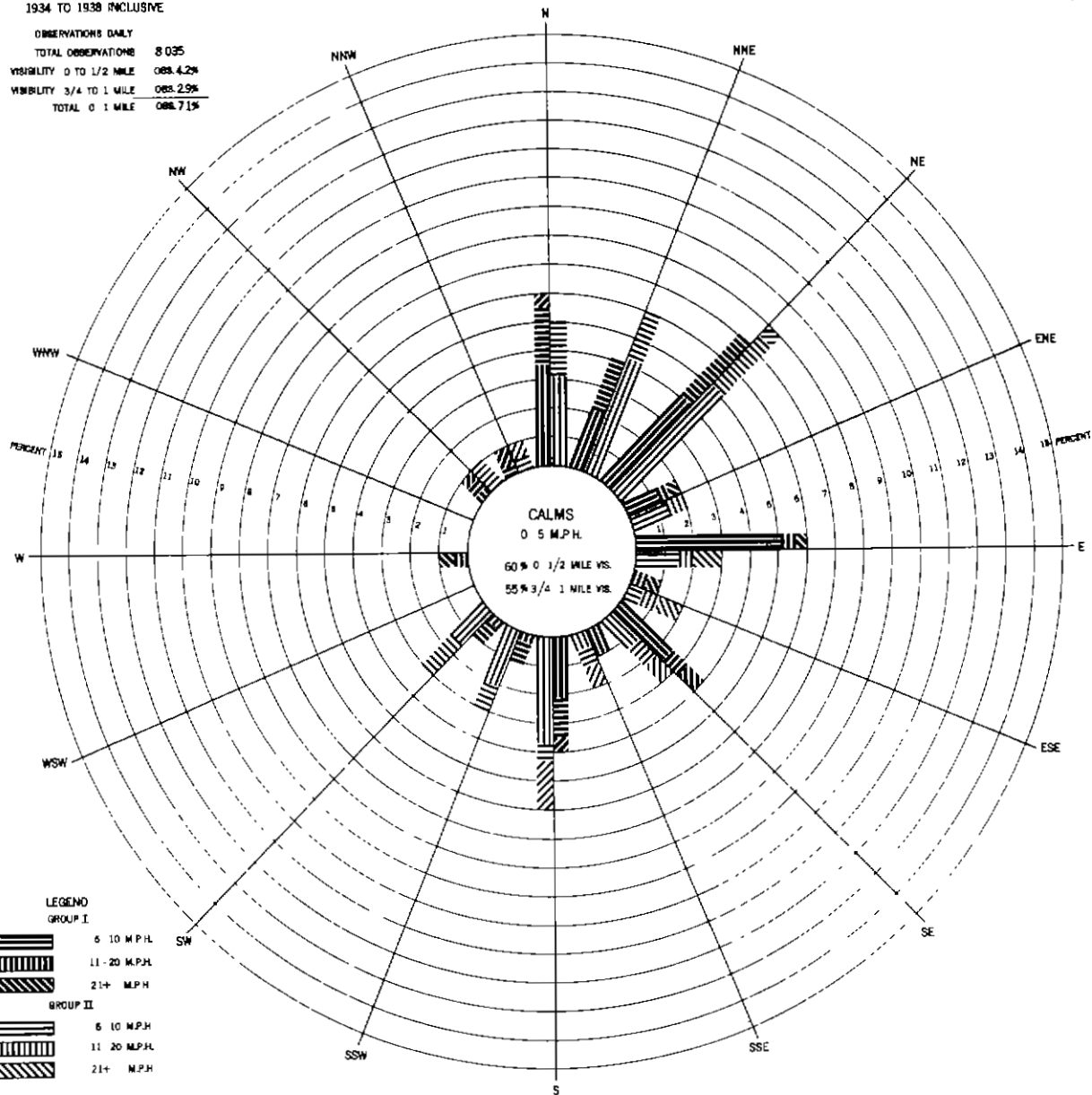
0 500 1000 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 8 035
VISIBILITY 0 TO 1/2 MILE OBS. 4.2%
VISIBILITY 3/4 TO 1 MILE OBS. 2.9%
TOTAL 0 TO 1 MILE OBS. 7.1%



LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	94	51 20 6
SMOKE		
RAIN	1	
DUST		
SNOW	5	5 15 3
TOTALS	100	56 35 9

GROUP II
3/4 TO 1 MILE VISIBILITY

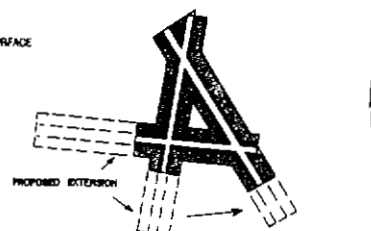
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	86	51 27 12
SMOKE	4	
RAIN		1 1
DUST	5	2
SNOW	5	4 1 1
TOTALS	100	57 29 14

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	19	15	16	11	8	18	43	4	46	58	27	38	303
SMOKE	1	1								1		2	5
RAIN												1	1
DUST	1	1					1			2	1		6
SNOW	3	2	5	1								3	16
TOTALS	24	19	21	12	8	18	44	4	46	61	30	44	331

NOTE.
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Maine Progress Administration.

SOO
HARD SURFACE



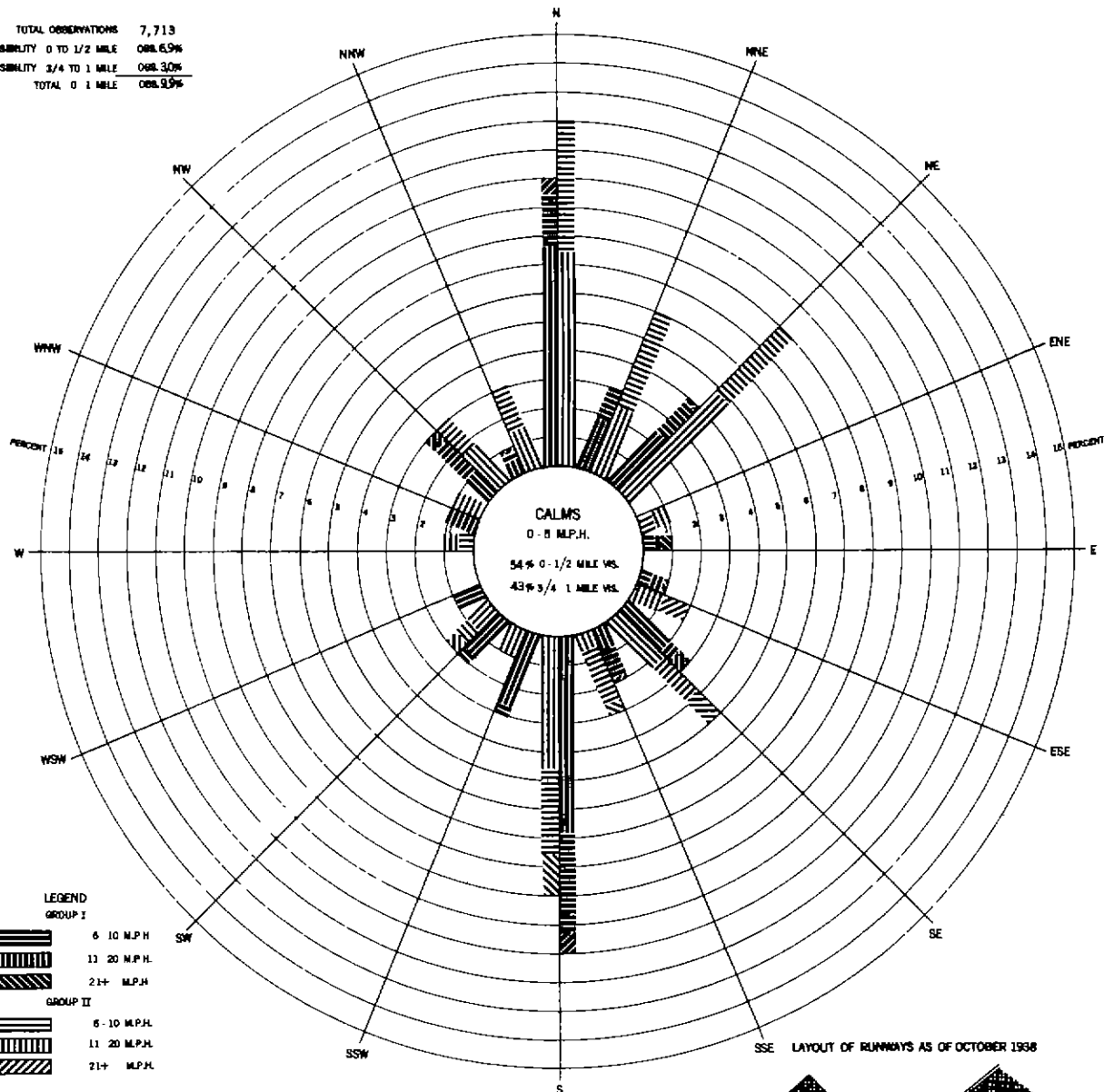
0 1000 2000 3000
SCALE IN FEET

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

WATERVILLE, ME.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 7,713
VISIBILITY 0 TO 1/2 MILE OBS. 6.9%
VISIBILITY 3/4 TO 1 MILE OBS. 3.0%
TOTAL 0 1 MILE OBS. 9.9%



LEGEND

GROUP I

	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP II

	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	85	52 17 5
SMOKE		
RAIN	1	
DUST	1	
SNOW	13	12 10 3
TOTALS	100	64 27 9

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

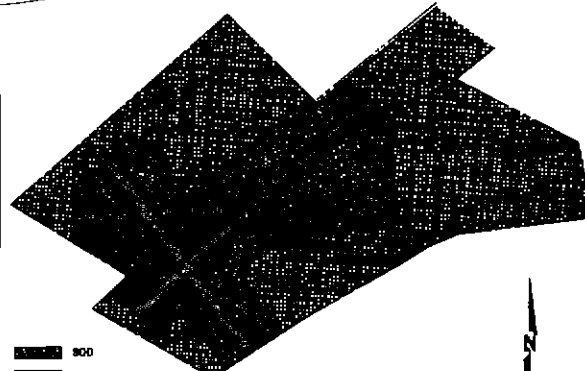
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	72	42 24 6
SMOKE		
RAIN	3	
DUST	6	
SNOW	19	11 15
TOTALS	100	53 40 7

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	30	25	17	19	9	22	19	11	45	42	47	34	320
SMOKE													
RAIN			1	1	1	1	1			1	1	6	
DUST			3	2						2	1	8	
SNOW	18	8	4	4						2	23	59	
TOTALS	48	37	23	24	9	23	20	11	45	46	49	59	393

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of total in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MICHIGAN

Detroit (City Airport)

Detroit (Wayne County Airport)

Flint

Grand Rapids

Lansing

Muskegon

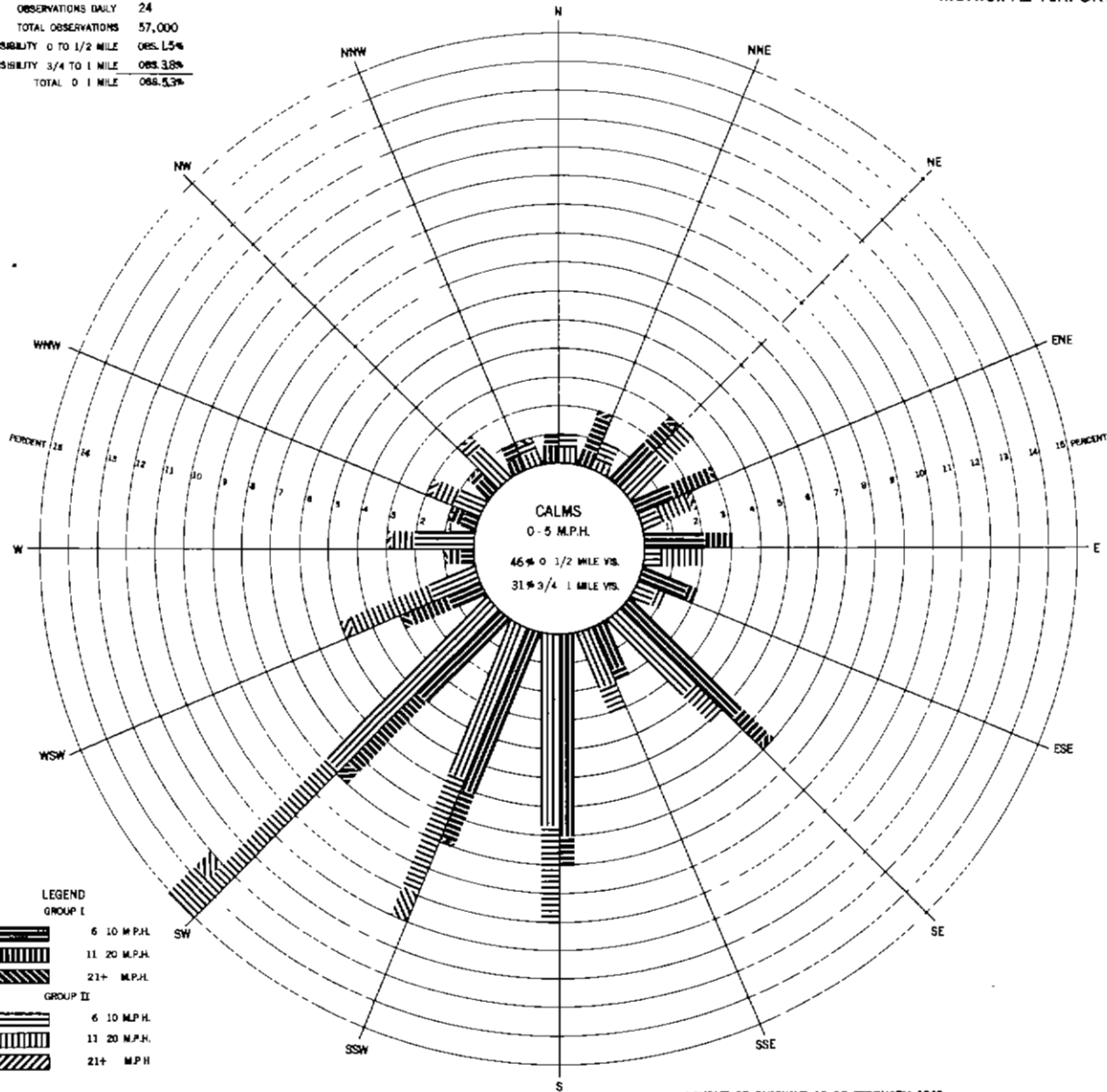
Sault Ste. Marie

SUMMARY OF 7 YEAR PERIOD
1932 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 57,000
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 3.8%
TOTAL 0 1 MILE OBS. 5.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DETROIT, MICH.
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF FEBRUARY 1940

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	CALMS 0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	87	60	19	
SMOKE	12	5	1	
RAIN				
DUST				
SNOW	1	3	8	4
TOTALS	100	68	28	4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	CALMS 0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	53	30	20	
SMOKE	45	24	15	
RAIN				
DUST	1	1	1	
SNOW	1	2	5	2
TOTALS	100	67	41	2

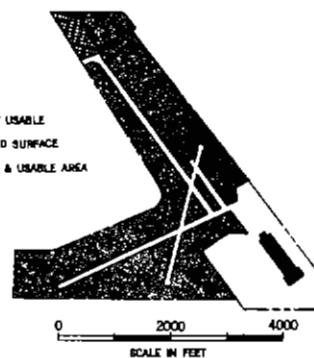
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	83	63	38	37	26	15	8	19	61	121	78	154	703
SMOKE	37	35	55	21	10	14		2	2	54	53	60	343
RAIN					1		1						2
DUST					1		1						3
SNOW	3	4											7
TOTALS	123	102	93	58	37	30	9	22	63	175	131	219	1062

NOTE
Percentages in windrose are based on the number of observations at each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the reported visibility.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

NOT USABLE
HARD SURFACE
SOD & USABLE AREA



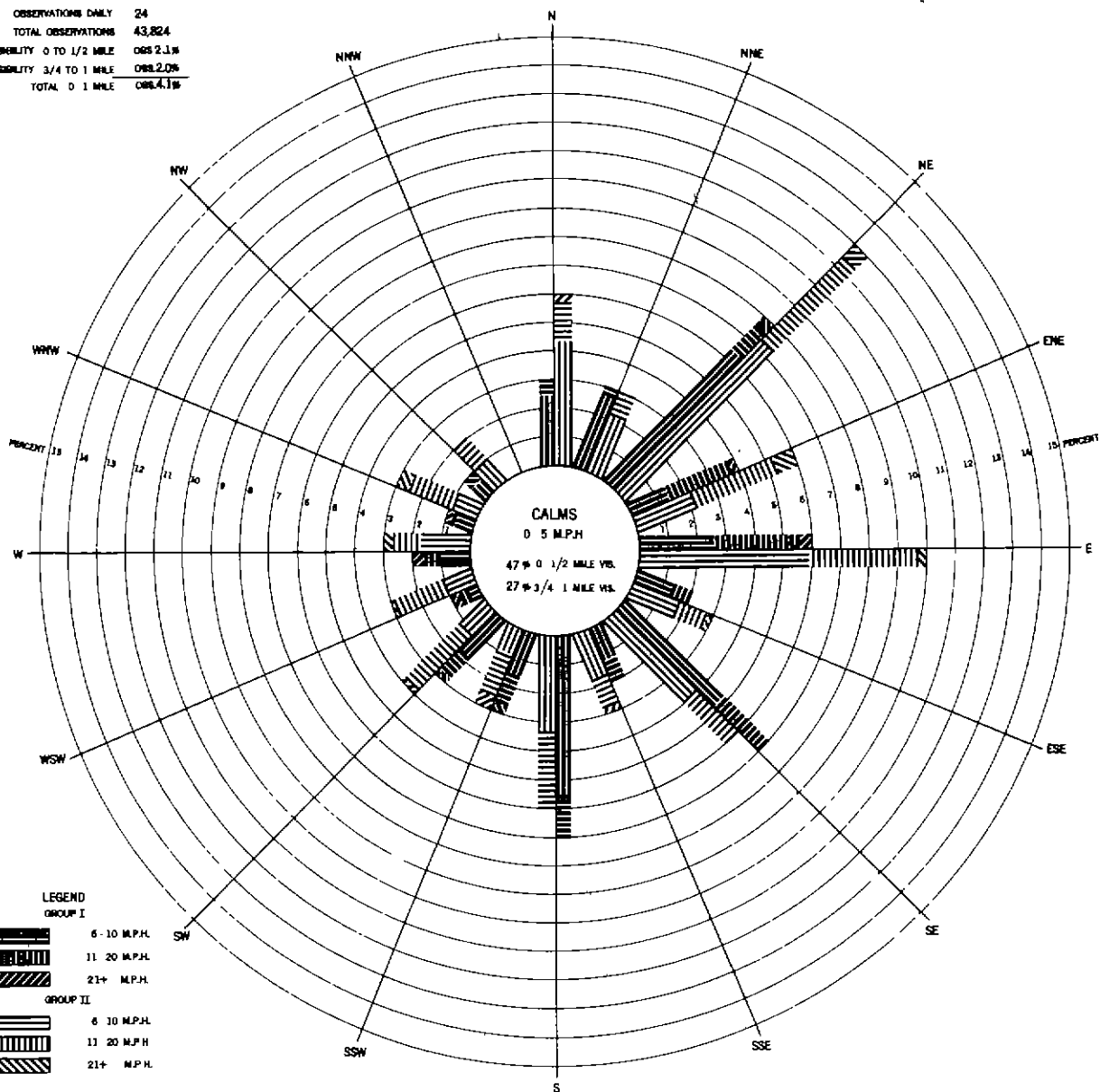
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS 2.1%
VISIBILITY 3/4 TO 1 MILE OBS 2.0%
TOTAL 0 1 MILE OBS 4.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DETROIT, MICH.
WAYNE COUNTY



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	60
SMOKE	1	2
RAIN		
DUST		
SNOW	1	2 8 5
TOTALS	100	64 31 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	80	36 25 1
SMOKE	14	10 5
RAIN		1 1
DUST	1	1
SNOW	5	6 11 3
TOTALS	100	54 42 4

(Figures indicate percentage)

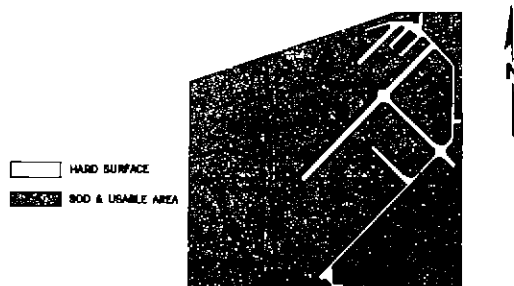
TOTAL OCCURRENCES DURING CALMS 0 5 M.P.H. BY MONTHS
GROUP I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	63	34	14	26	18	16	14	38	70	91	42	46	462
SMOKE	4	7	8	1	1			1		1	3	2	28
RAIN										1			2
DUST				1									13
SNOW	5	6	2										13
TOTALS	62	47	25	27	19	16	14	39	70	93	45	48	505

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 98 indicates the percentage of wind in other Group I or Group II clearing upon the specified identification.

This data furnished through the cooperation of the U. S. Weather Service and the Works Program Administration

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



0 1000 2000 4000
SCALE IN FEET

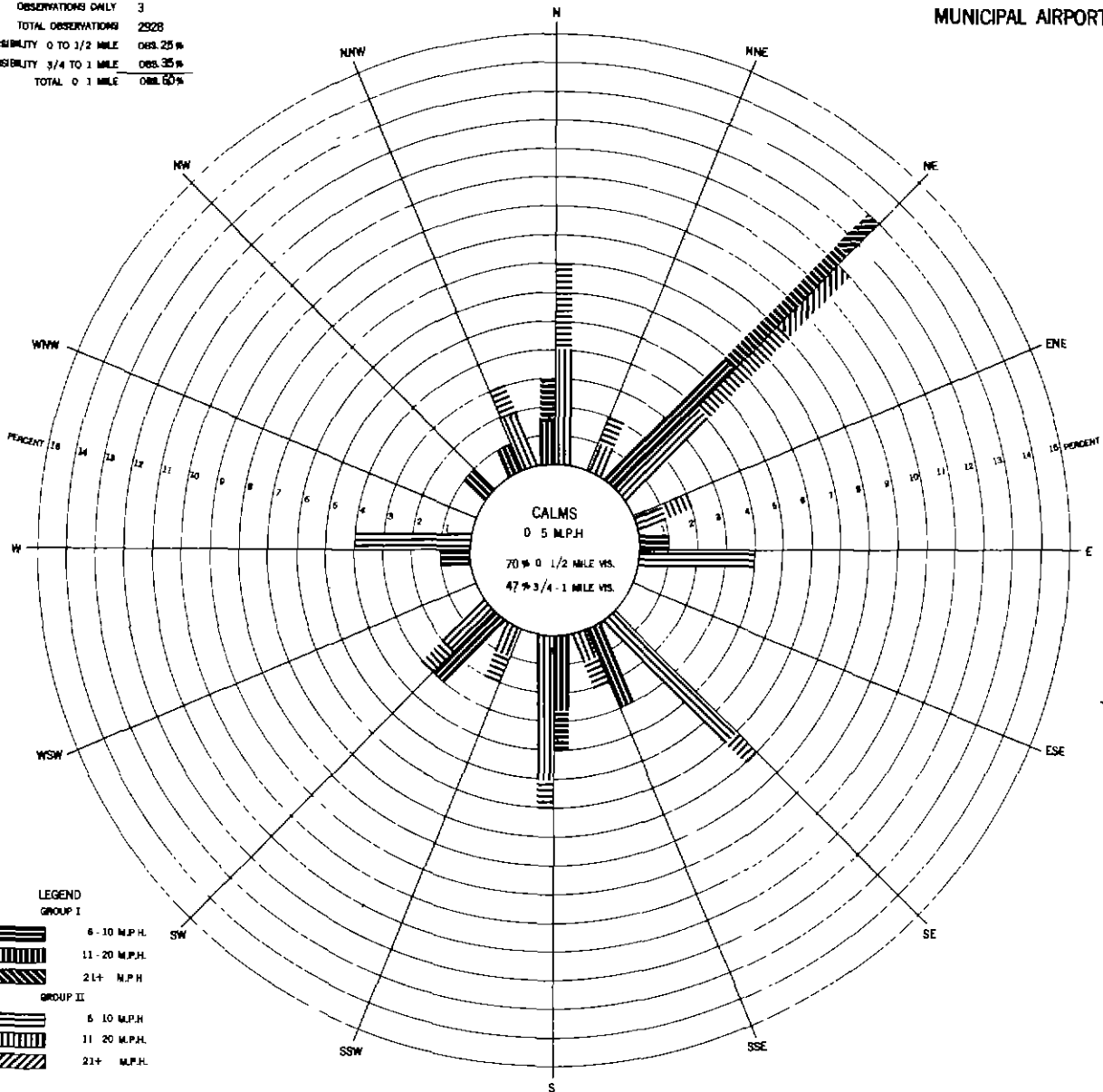
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 3 YEAR PERIOD
1937 TO 1939 INCLUSIVE

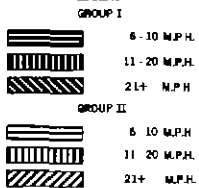
OBSERVATIONS ONLY 3
TOTAL OBSERVATIONS 2928
VISIBILITY 0 TO 1/2 MILE OBS. 25%
VISIBILITY 3/4 TO 1 MILE OBS. 35%
TOTAL 0 1 MILE OBS. 60%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

FLINT, MICH.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	7 13
SMOKE		
RAIN		7
DUST		13
SNOW		33 20 7
TOTALS	100	53 40 7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	89	32 13
SMOKE		
RAIN	2	
DUST	3	5
SNOW	6	18 24 8
TOTALS	100	60 42 8

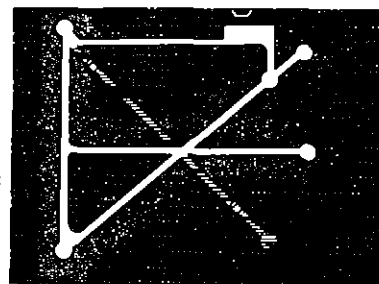
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	12	10	14	5	4	1	10	15	6	18	8	11	114
SMOKE													
RAIN					1								1
DUST					1					3			2
SNOW	1											3	4
TOTALS	13	10	14	5	6	1	10	15	6	18	9	14	121

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1938



0 1000 2000
SCALE IN FEET

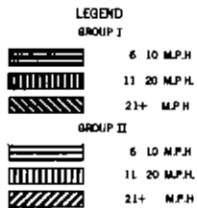
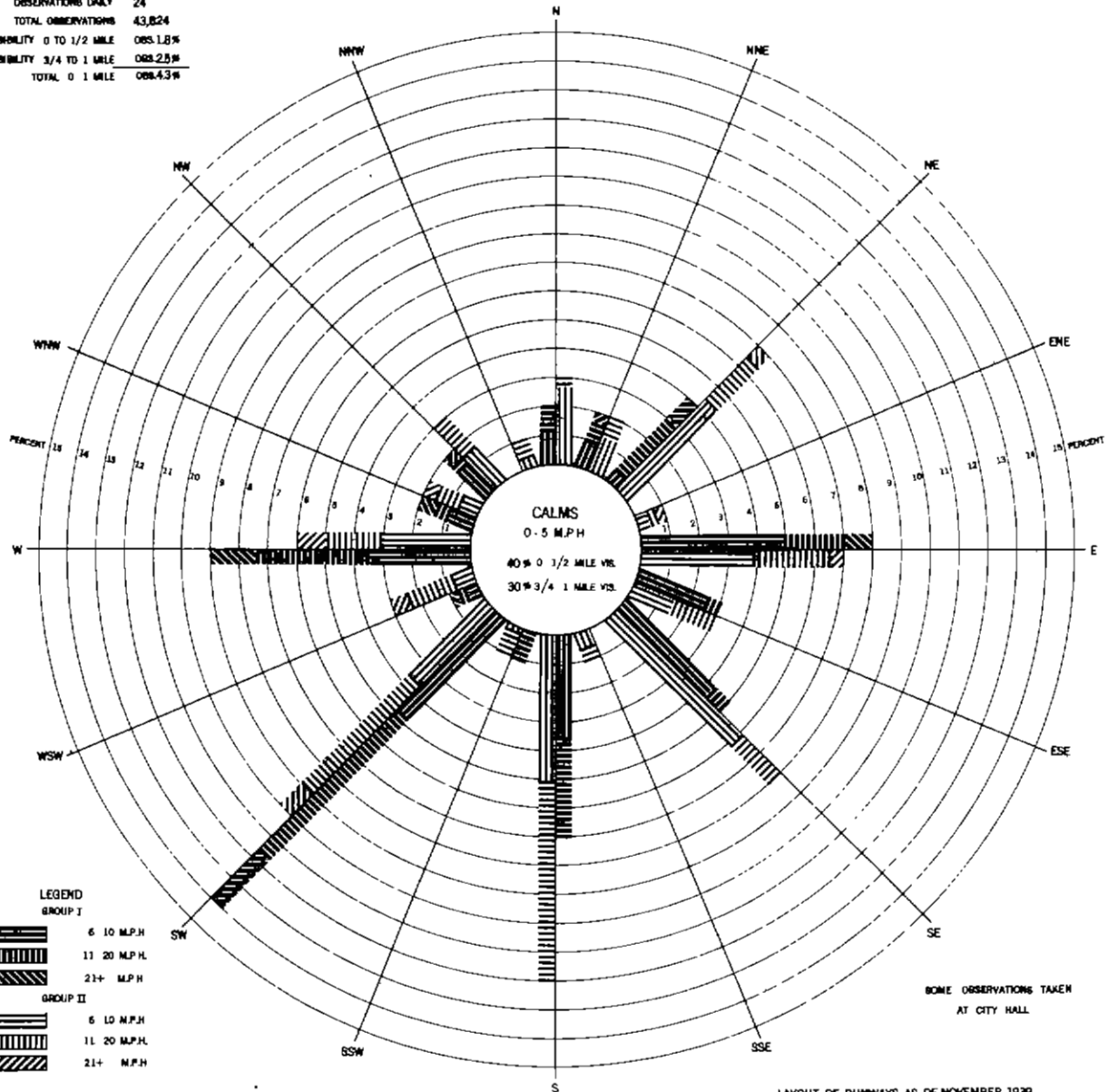
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 8 YEAR PERIOD
1934 TO 1939 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.8%
VISIBILITY 3/4 TO 1 MILE OBS. 2.5%
TOTAL 0 1 MILE OBS. 4.3%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

GRAND RAPIDS, MICH.
MUNICIPAL AIRPORT



SOME OBSERVATIONS TAKEN
AT CITY HALL

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	CALMS 0 5 M.P.H.	6 10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	87	35	19	1
SMOKE	11	4	2	
RAIN		1	1	1
DUST				1
SNOW	2	6	18	11
TOTALS	100	45	40	14

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	CALMS 0 5 M.P.H.	6 10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	62	28	25	
SMOKE	36	16	8	1
RAIN		2	1	
DUST				1
SNOW	2	4	9	4
TOTALS	100	50	44	5

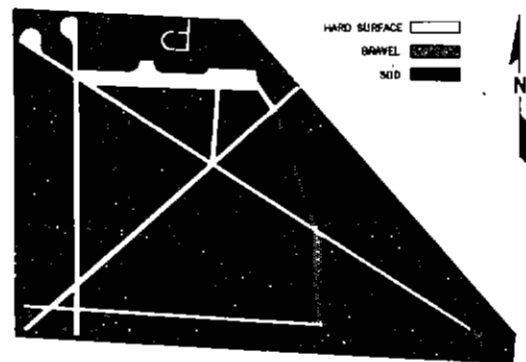
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS 0 5 M.P.H. BY MONTHS

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	11	31	23	10	13	7	11	18	20	21	6	11	182
SMOKE	5	17	13	6	2				1	4	6	2	59
RAIN													
DUST													
SNOW		1		1							3		5
TOTALS	16	49	36	17	15	7	11	19	24	27	11	14	246

NOTE
Percentages in windrosettes are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of obs. in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



0 1000 2000
SCALE IN FEET

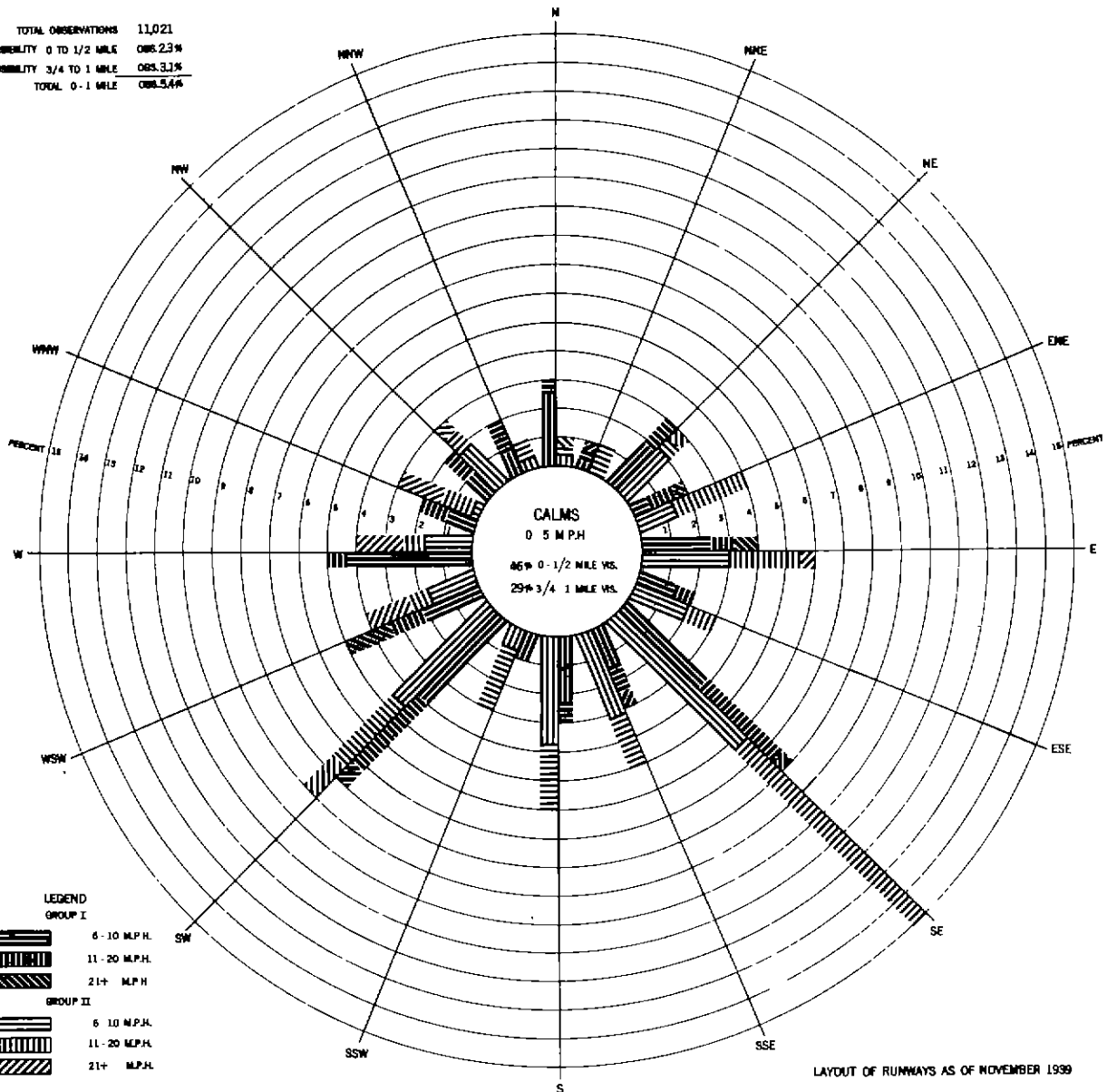
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LANSING, MICH.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 11,021
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0-1 MILE OBS. 5.4%



LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	99	46
SMOKE		19
RAIN		1
DUST		5
SNOW	1	4
TOTALS	100	51

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	91	40
SMOKE	2	2
RAIN	1	1
DUST		1
SNOW	6	3
TOTALS	100	46

(Figures indicate percentage)

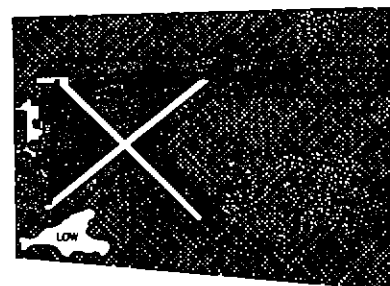
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	10	19	16	3	8	6	4	24	25	44	11	38	208
SMOKE		1							1				2
RAIN			1										1
DUST													
SNOW	2	1		1						2	1		7
TOTALS	12	22	16	4	8	6	4	24	26	44	13	39	218

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 46 indicates the percentage of wind in excess of 5 M.P.H. in Group I or Group II, depending upon the symbol used.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LEGEND
FOG
SMOKE
RAIN
DUST
SNOW
HARD SURFACE
GRAVEL SURFACE



0 1000 2000 3000 4000
SCALE IN FEET

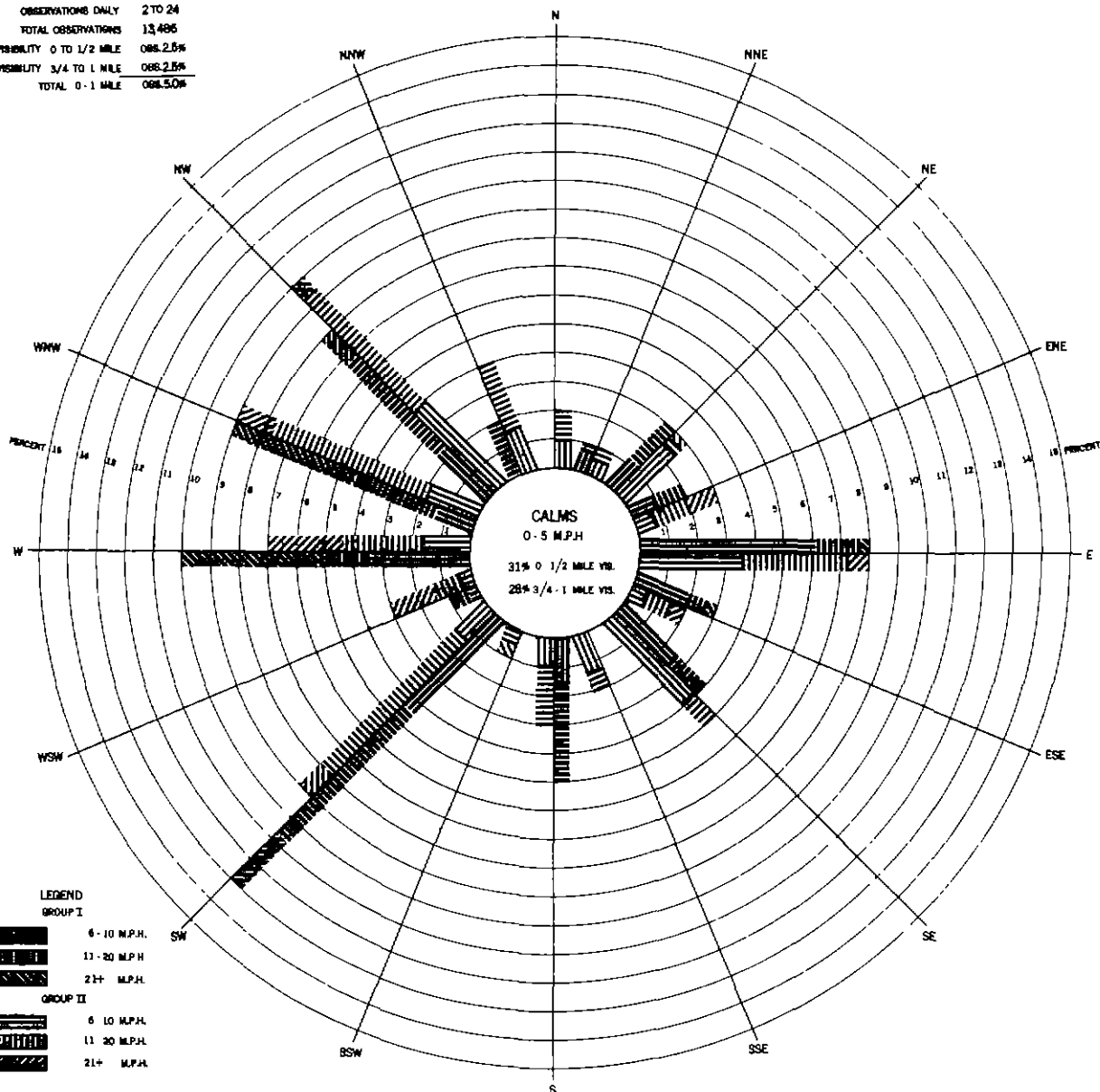
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 2 TO 24
TOTAL OBSERVATIONS 13,486
VISIBILITY 0 TO 1/2 MILE 086.25%
VISIBILITY 3/4 TO 1 MILE 086.25%
TOTAL 0 - 1 MILE 086.50%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MUSKEGON, MICH.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
[Solid black bar]	6-10 M.P.H.
[Horizontal lines]	11-20 M.P.H.
[Diagonal lines \]	21+ M.P.H.
GROUP II	
[Solid black bar]	6-10 M.P.H.
[Horizontal lines]	11-20 M.P.H.
[Diagonal lines \]	21+ M.P.H.

CAUSES	GROUP I 0 TO 1/2 MILE VISIBILITY			
	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.
FOG	92	34	21	2
SMOKE				
RAIN				
DUST				
SNOW	8	6	19	18
TOTALS	100	40	40	20

(Figures indicate percentage)

CAUSES	GROUP II 3/4 TO 1 MILE VISIBILITY			
	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.
FOG	92	23	24	2
SMOKE				
RAIN			3	
DUST				
SNOW	8	12	24	12
TOTALS	100	35	51	14

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS (GROUPS I & II COMBINED)												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	36	25	26	5	8	7	11	8	11	17	13	10
SMOKE												
RAIN												
DUST												
SNOW	3	5		3							2	3
TOTALS	39	30	26	8	8	7	11	8	11	17	15	13

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

[White line] HARD SURFACE
[Black area] BOG



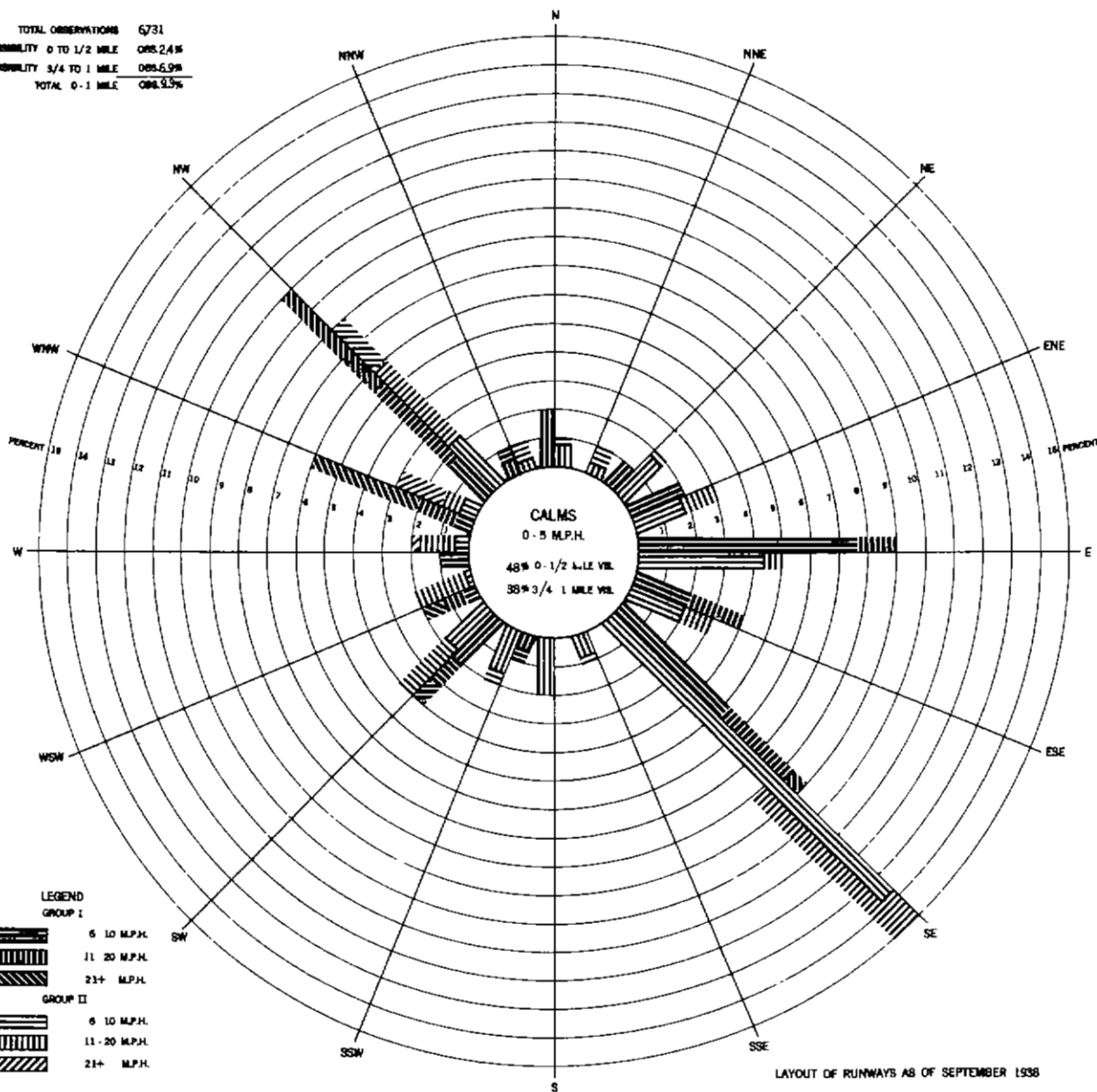
0 1000 2000 4000
SCALE IN FEET

SUMMARY OF 3 YEAR PERIOD
1932 TO 1934 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SAULT STE. MARIE, MICH.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 6731
VISIBILITY 0 TO 1/2 MILE OBS. 2.4%
VISIBILITY 3/4 TO 1 MILE OBS. 5.9%
TOTAL 0-1 MILE OBS. 8.3%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H.
FOG	83	18
SMOKE	1	
RAIN		2
DUST		
SNOW	16	31
TOTALS	100	49

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H.
FOG	60	20
SMOKE	12	3
RAIN	4	5
DUST	2	1
SNOW	22	26
TOTALS	100	58

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUP I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	3	26	11	8	7	15	13	16	22	14	18	21	171
SMOKE	2	1	1	3	2	2		5		7			23
RAIN	1				2	1	1	1					6
DUST								2	1				3
SNOW	14	8	4	1							8	16	51
TOTALS	20	35	16	12	11	18	14	23	24	21	23	37	254

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Service and the Works Progress Administration.

GRAVEL
USABLE BUT ROUGH



MINNESOTA

Minneapolis

Rochester

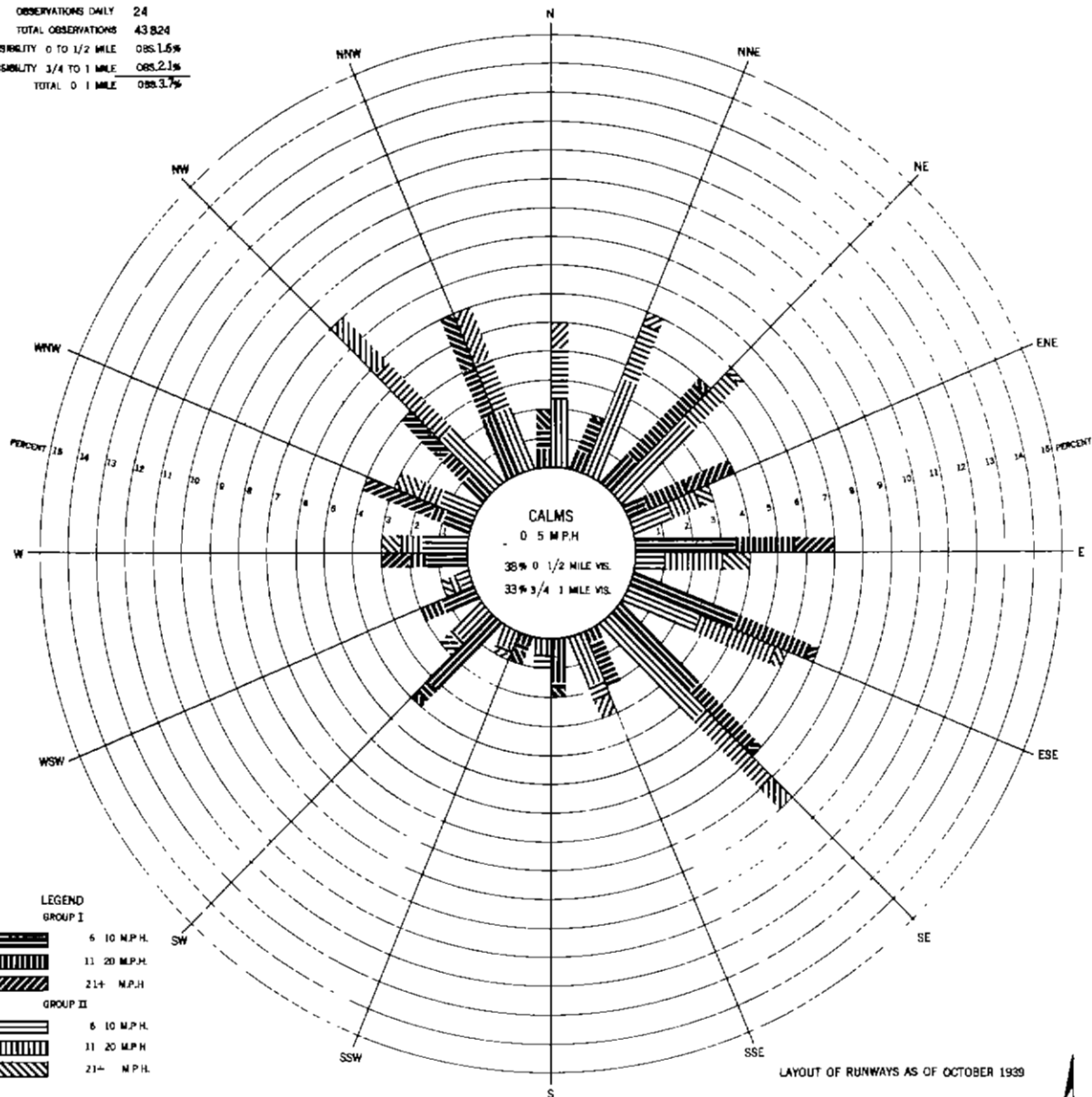
St. Paul

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 1/4 TO 1 MILE OBS. 2.1%
TOTAL 0 1 MILE OBS. 3.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MINNEAPOLIS, MINN.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	36 16 3
SMOKE	1	1
RAIN		
DUST		7
SNOW	6	6 18 13
TOTALS	100	43 34 23

(Figures indicate percentage)

GROUP II
1/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	71	29 14 6
SMOKE	21	5 2
RAIN		1
DUST		1 3
SNOW	8	12 17 10
TOTALS	100	46 35 19

(Figures indicate percentage)

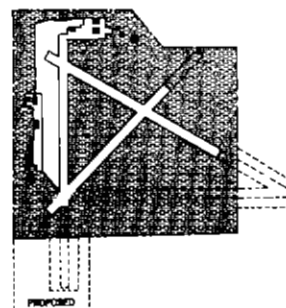
TOTAL OCCURRENCES DURING CALMS 0-5 M.P.H. BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	90	43	50	24	15	9	8	20	59	22	37	85	462
SMOKE	11	11	5	2	1	2	2		4	6	10	11	65
RAIN													
DUST													
SNOW	15	9	5								4	7	40
TOTALS	116	63	60	26	16	11	10	20	63	28	51	103	667

NOTE.
Percentages in brackets are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

HARD SURFACE
800 & USABLE AREA



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

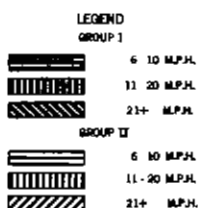
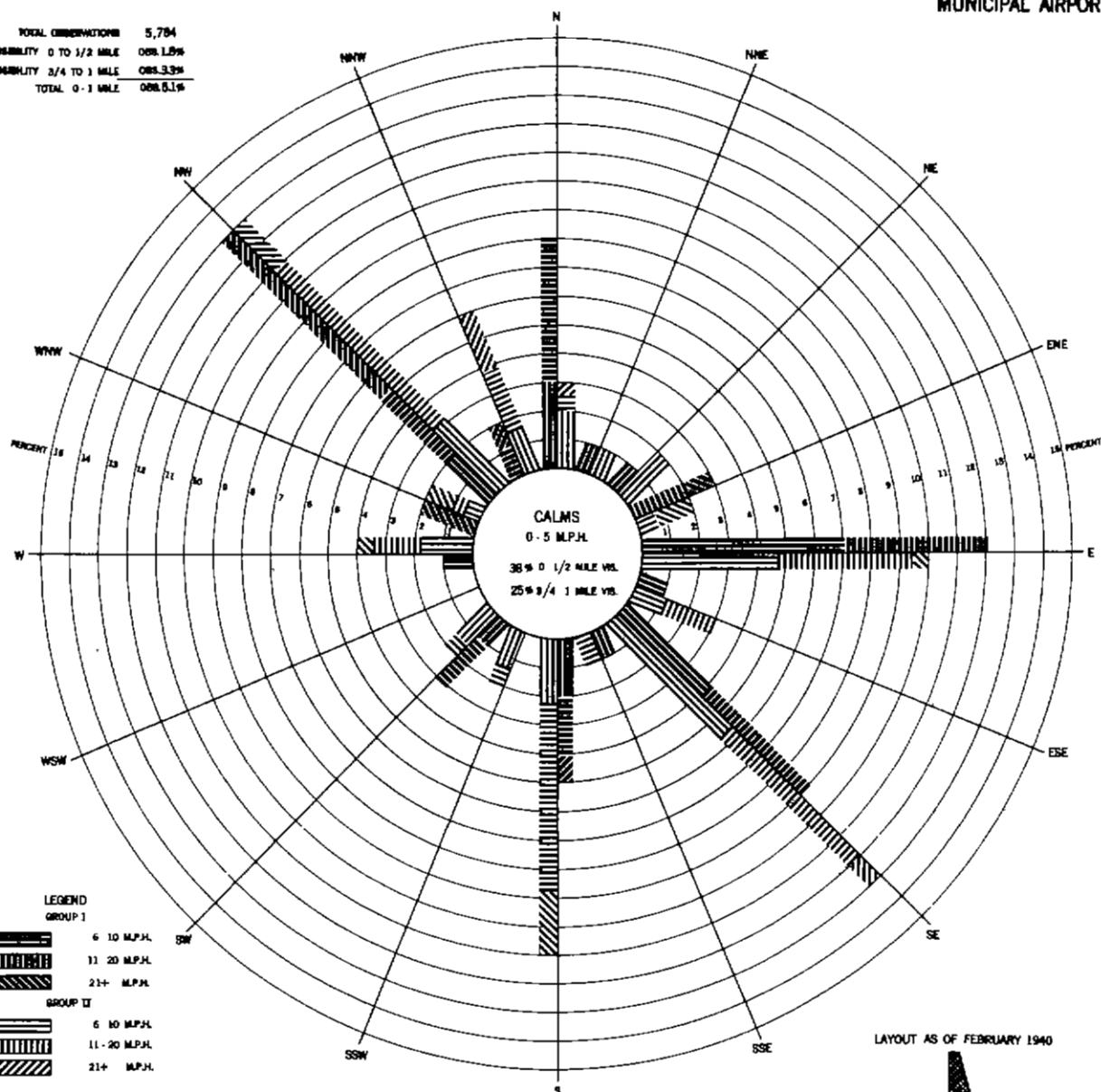
3

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ROCHESTER, MINN.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 5,704
VISIBILITY 0 TO 1/2 MILE OBS. 1.8%
VISIBILITY 3/4 TO 1 MILE OBS. 3.3%
TOTAL 0-1 MILE OBS. 5.1%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	32 21
SMOKE		
RAIN		2
DUST		2 6
SNOW	5	6 16 16
TOTALS	100	38 41 21

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSE	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	90	34 32 5
SMOKE		
RAIN	2	1 1
DUST		1 1
SNOW	8	4 12 9
TOTALS	100	39 46 16

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	18	17	6	3	2	5	3	1	6	4	6	14	85
SMOKE													
RAIN								1					1
DUST													
SNOW	2	1										3	6
TOTALS	20	18	6	3	2	5	3	2	6	4	6	17	92

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT AS OF FEBRUARY 1940



0 1200 2400 3600
SCALE IN FEET

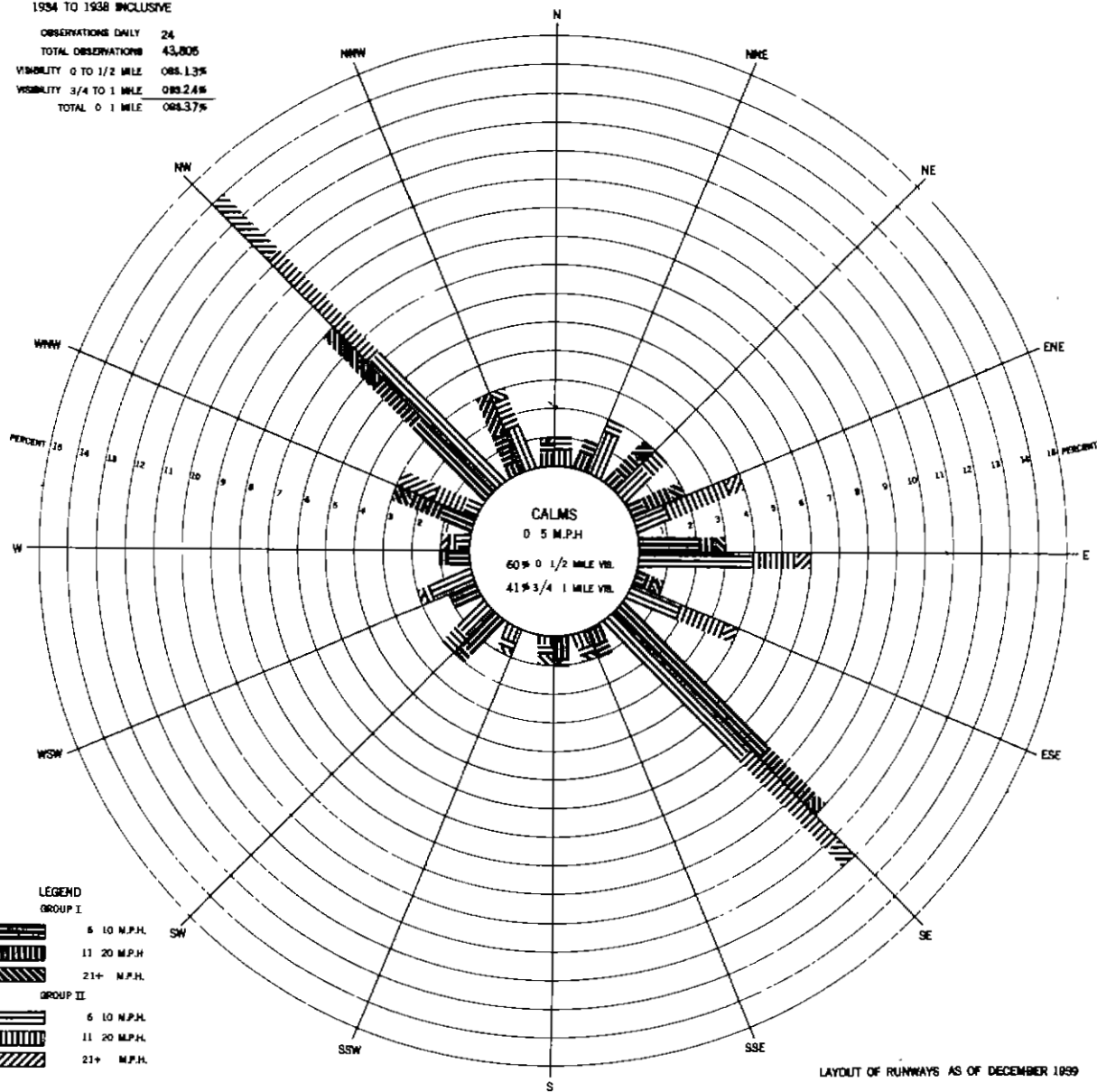
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ST. PAUL, MINN.
MUNICIPAL AIRPORT

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,805
VISIBILITY 0 TO 1/2 MILE OBS. 1.3%
VISIBILITY 3/4 TO 1 MILE OBS. 2.4%
TOTAL 0 1 MILE OBS. 3.7%



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY				
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	97	46	12	1
SMOKE	2	1		
RAIN				2
DUST				5
SNOW	1	5	17	12
TOTALS	100	52	29	19

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY				
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	89	31	17	1
SMOKE	25	8	2	
RAIN				
DUST			1	3
SNOW	6	13	16	8
TOTALS	100	52	36	12

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS														
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	
FOG	97	66	58	18	20	21	7	17	90	50	61	108	612	
SMOKE	19	22	16	9	1	3	2	4	7	11	15	6	116	
RAIN	1												1	
DUST														
SNOW	12	5	3	1							2	8	31	
TOTALS	129	93	77	28	21	24	9	21	97	61	76	122	760	

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



MISSISSIPPI

Jackson

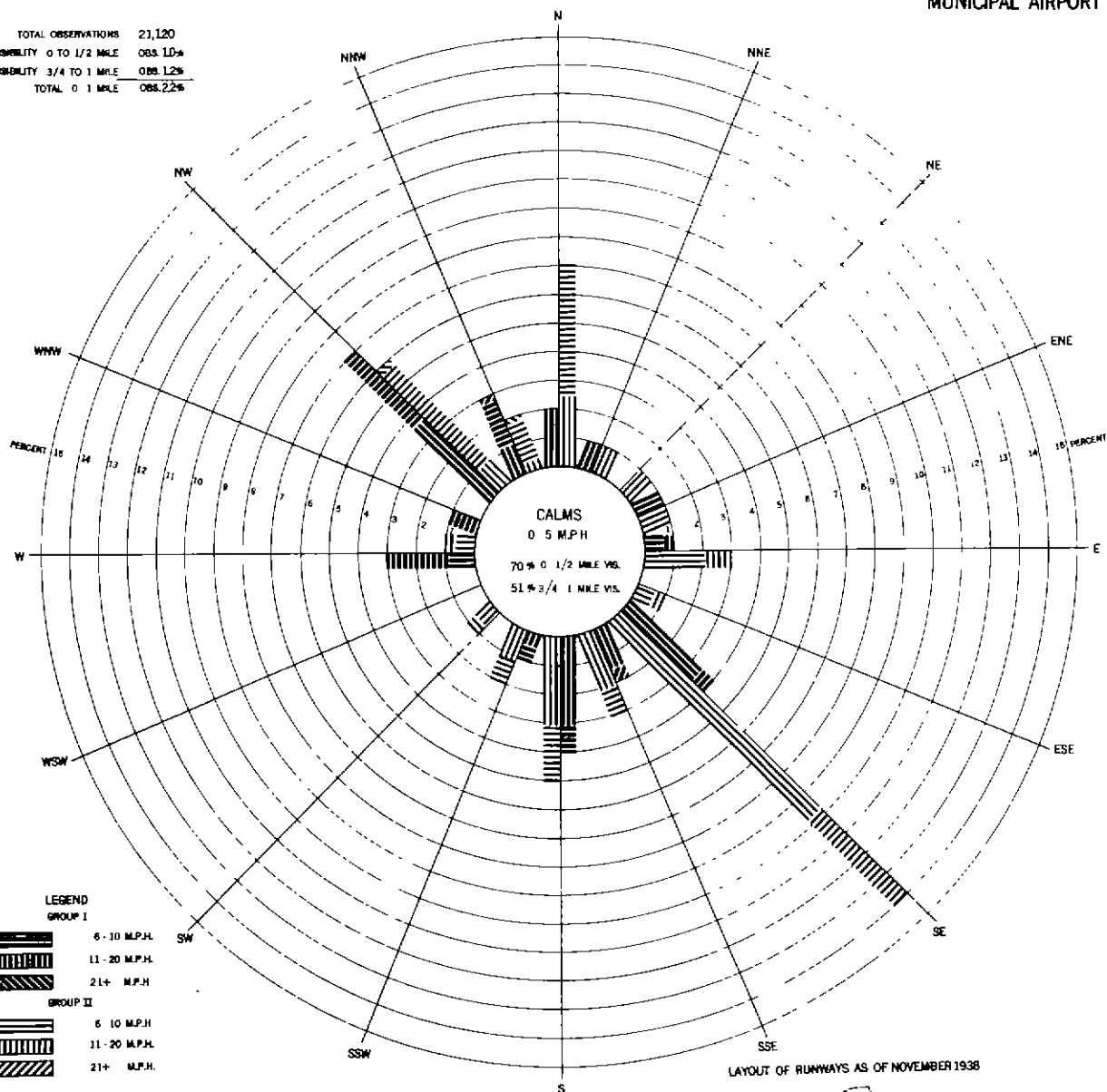
Meridian

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 21,120
VISIBILITY 0 TO 1/2 MILE OBS. 1.0%
VISIBILITY 3/4 TO 1 MILE OBS. 1.2%
TOTAL 0 1 MILE OBS. 2.2%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

JACKSON, MISS.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	60 9 2
SMOKE	3	2
RAIN	1	6
DUST		13
SNOW	1	6 2
TOTALS	100	62 34 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	62	47 32 1
SMOKE	37	6 4
RAIN	1	1 3 1
DUST		3 1
SNOW		1
TOTALS	100	57 41 2

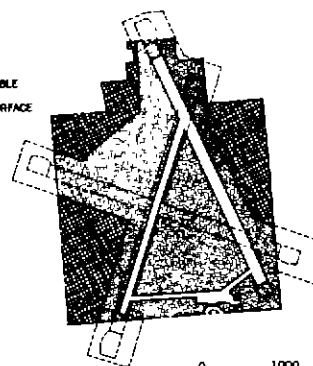
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	42	15	5	27	21	10	11	9	9	16	15	44	224
SMOKE	4	15	10	9			3				7	7	56
RAIN			2	1									3
DUST													
SNOW	1												1
TOTALS	47	30	17	37	21	10	14	9	9	16	22	51	283

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Cause: 5% indicates the percentage of cases in which Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Service Administration.

NOT USABLE
HARD SURFACE
SOIL



0 1000 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MERIDIAN, MISS.
 MUNICIPAL AIRPORT







7 (APPROX)
 TOTAL OBSERVATIONS 13,201
 VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
 VISIBILITY 3/4 TO 1 MILE OBS. 0.9%
 TOTAL 0 1 MILE OBS. 2.0%

CALMS
 0.5 M.P.H.
 89% 0 1/2 MILE VIS.
 82% 3/4 - 1 MILE VIS.

LEGEND
 GROUP I
 6-10 M.P.H.
 11-20 M.P.H.
 21+ M.P.H.
 GROUP II
 6-10 M.P.H.
 11-20 M.P.H.
 21+ M.P.H.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

GROUP I





	6 10 M.P.H.
	11 20 M.P.H.
	21+ M.P.H.
GROUP II	
	6 - 10 M.P.H.
	11 20 M.P.H.
	21+ M.P.H.

CAUSES	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	97	72	7	
SMOKE	2			
RAIN	1	7	7	7
DUST				
SHOW				
TOTALS	100	79	14	7

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	77	58	11	
SMOKE	20			
RAIN	3	21	5	
DUST			5	
SNOW				
TOTALS	100	79	21	

TOTAL OCCURRENCES DURING CALMS (0.5 M.P.H.) BY MONTHS GROUPS 1 & 2 COMBINED													
	JAN	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT	NOV	DEC.	TOTAL
FOG	5	27	6	16	12	1	8	17	33	34	5	48	231
SMOKE	6								1	10	2	6	25
RAIN	2			1									4
DUST													
SNOW													
TOTALS	13	27	6	16	12	1	9	17	34	44	7	54	240

NOTE.
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Wapsi Program Administration.

 U.C.
 NOT USABLE
 USABLE AREA
 HARD SURFACE

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

MISSOURI

Columbia

Kansas City

Springfield

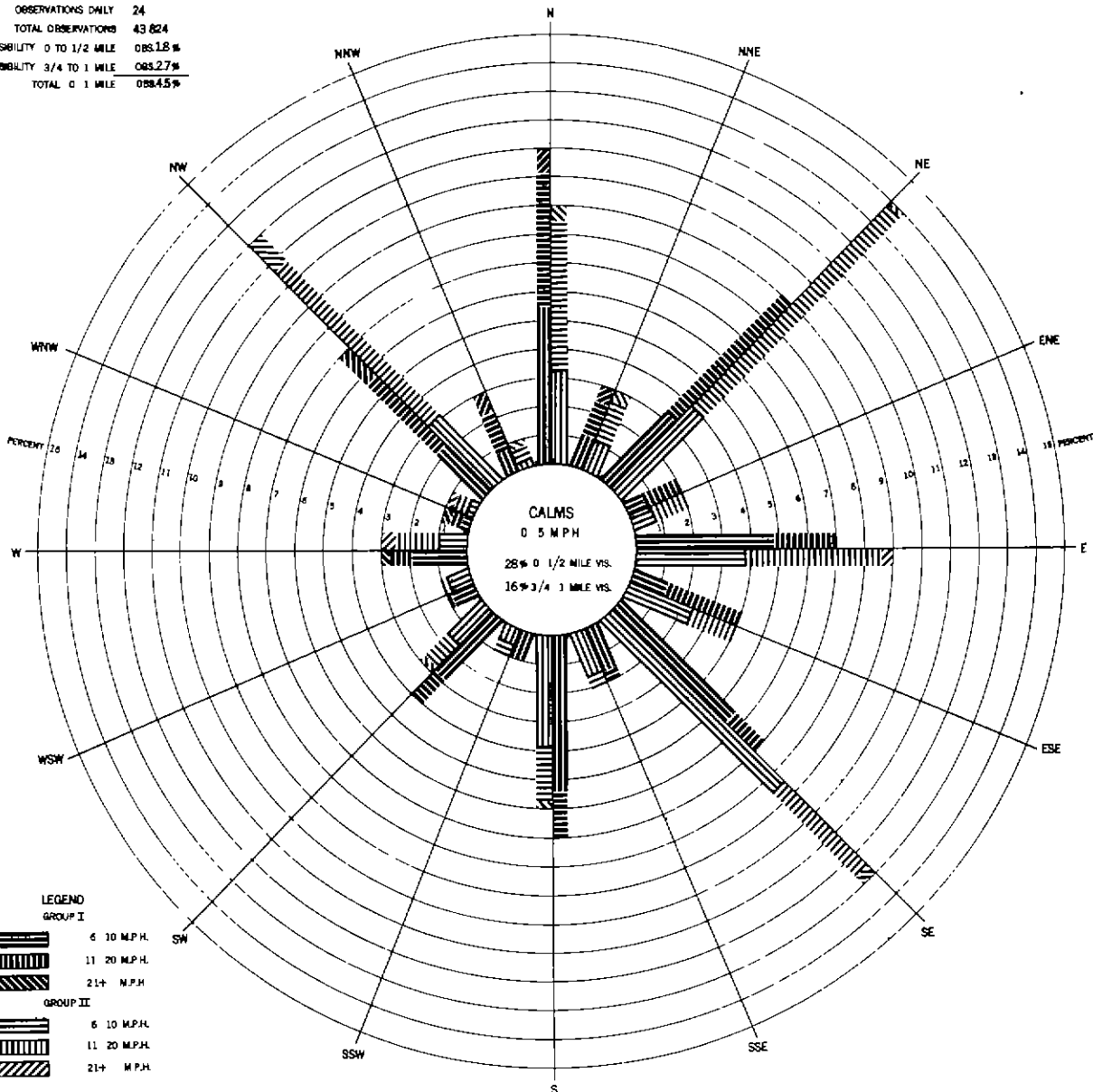
St. Louis

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 085.18 %
VISIBILITY 3/4 TO 1 MILE 085.27 %
TOTAL 0 1 MILE 088.45 %

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

COLUMBIA, MO.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	97	54
SMOKE	3	1
RAIN		
DUST		
SNOW		
TOTALS	100	56

GROUP II
3/4 TO 1 MILE VISIBILITY

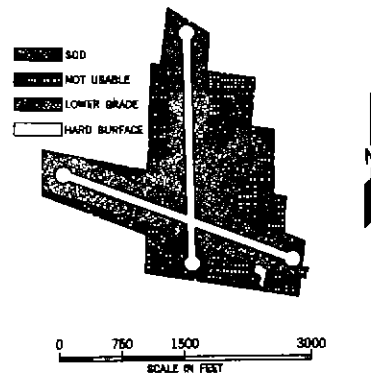
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	88	38
SMOKE	6	3
RAIN	1	1
DUST	1	1
SNOW	4	1
TOTALS	100	44

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	131	30	26	11	12	7	3	9	20	31	17	97	394
SMOKE	5	2	4	2							1	3	17
RAIN													1
DUST													2
SNOW											2	3	9
TOTALS	136	36	32	13	13	7	3	9	20	31	20	103	423

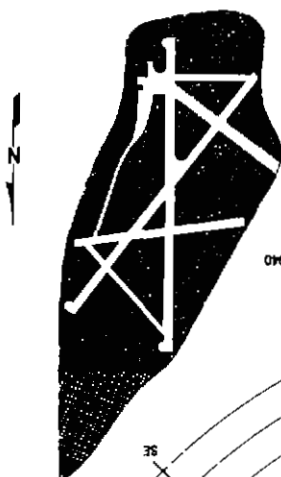
NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 97% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Mokey Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SCALE IN FEET
3600
1800
900



NOT USABLE
USABLE AREA
HARD SURFACE

GROUP I
0 TO 1/2 MILE VISIBILITY

(Figures indicate percentages)

WIND DIRECTION	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
TOTAL	100	66	28	6
SW	2	4	8	2
SWW	1	3	3	4
WSW	61	21	3	
W	36	41	14	
WSW	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
CALMS	WINDS IN EXCESS OF 5 M.P.H.			

GROUP II
1/2 TO 1 MILE VISIBILITY

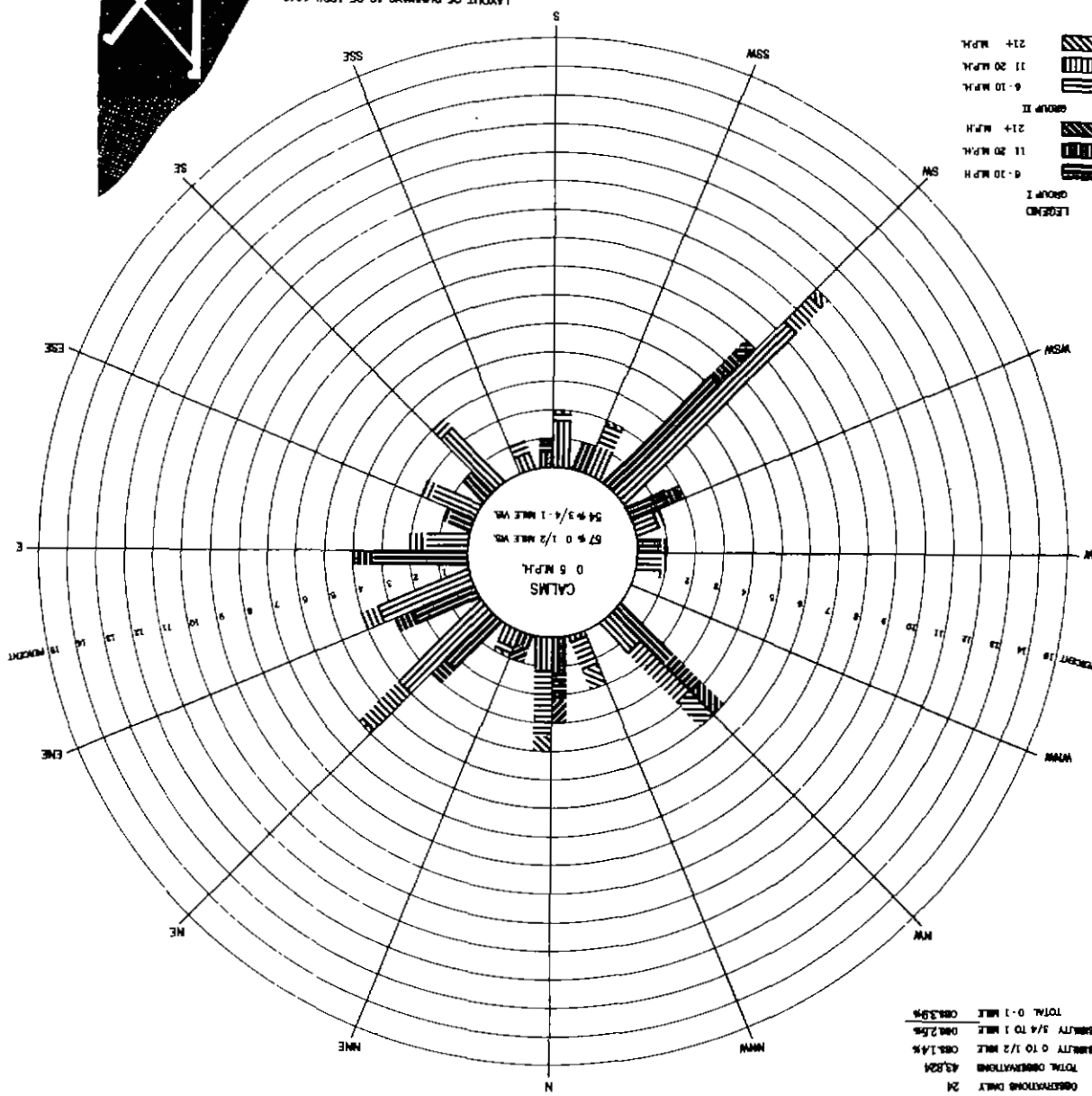
(Figures indicate percentages)

WIND DIRECTION	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
TOTAL	100	60	21	10
SW	1	4	8	6
SWW	4	4	4	
WSW	23	8		
W	76	67	9	
WSW	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
CALMS	WINDS IN EXCESS OF 5 M.P.H.			

TOTAL OCCURRENCES DURING CALMS 0-5 M.P.H. BY MONTHS

MONTH	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
NO.	113	56	31	19	30	17	2	4	56	73	42	106	830
PERCENT	7.2	3.6	2.0	1.2	2.0	1.1	0.1	0.3	3.8	4.8	2.8	6.5	55.0
WIND DIRECTION	SW	SWW	WSW	W	WSW	W	WSW	W	WSW	W	WSW	W	WSW
NO.	3	3	2	2	2	2	2	2	2	2	2	2	10
PERCENT	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.2

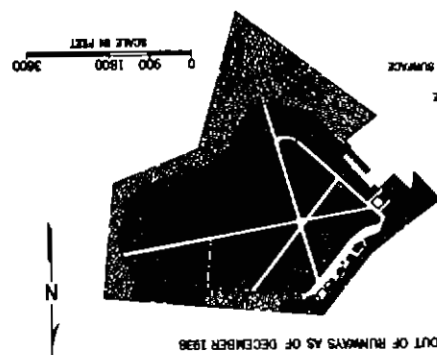
NOTE:
This data is based on the
report of the U. S. Weather Bureau
and the Kansas State Department of
Transportation.



KANSAS CITY, MO.
MUNICIPAL AIRPORT

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.14%
VISIBILITY 1/2 TO 1 MILE 0.25%
TOTAL 0-1 MILE 0.39%



LAYOUT OF RUNWAYS AS OF DECEMBER 1938

TOTAL PERCENT OF STUDENTS DURING JULY 6 TO 8 IN P.M. BY MONTHS												
PERCENT	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL	PERCENT	JULY	AUG.	SEPT.	OCT.
137	63	44	26	21	37	39	51	18	16	17	21	129
107	62	47	35	8	1	10	8	16	37	39	51	131
92	63	44	26	21	37	39	51	18	16	17	21	126
59	63	44	26	21	37	39	51	18	16	17	21	126
107	62	47	35	8	1	10	8	16	37	39	51	131
704												
2												
8												
1												
245	125	94	56	34	22	18	53	60	180	159	261	1306
TOTALS												

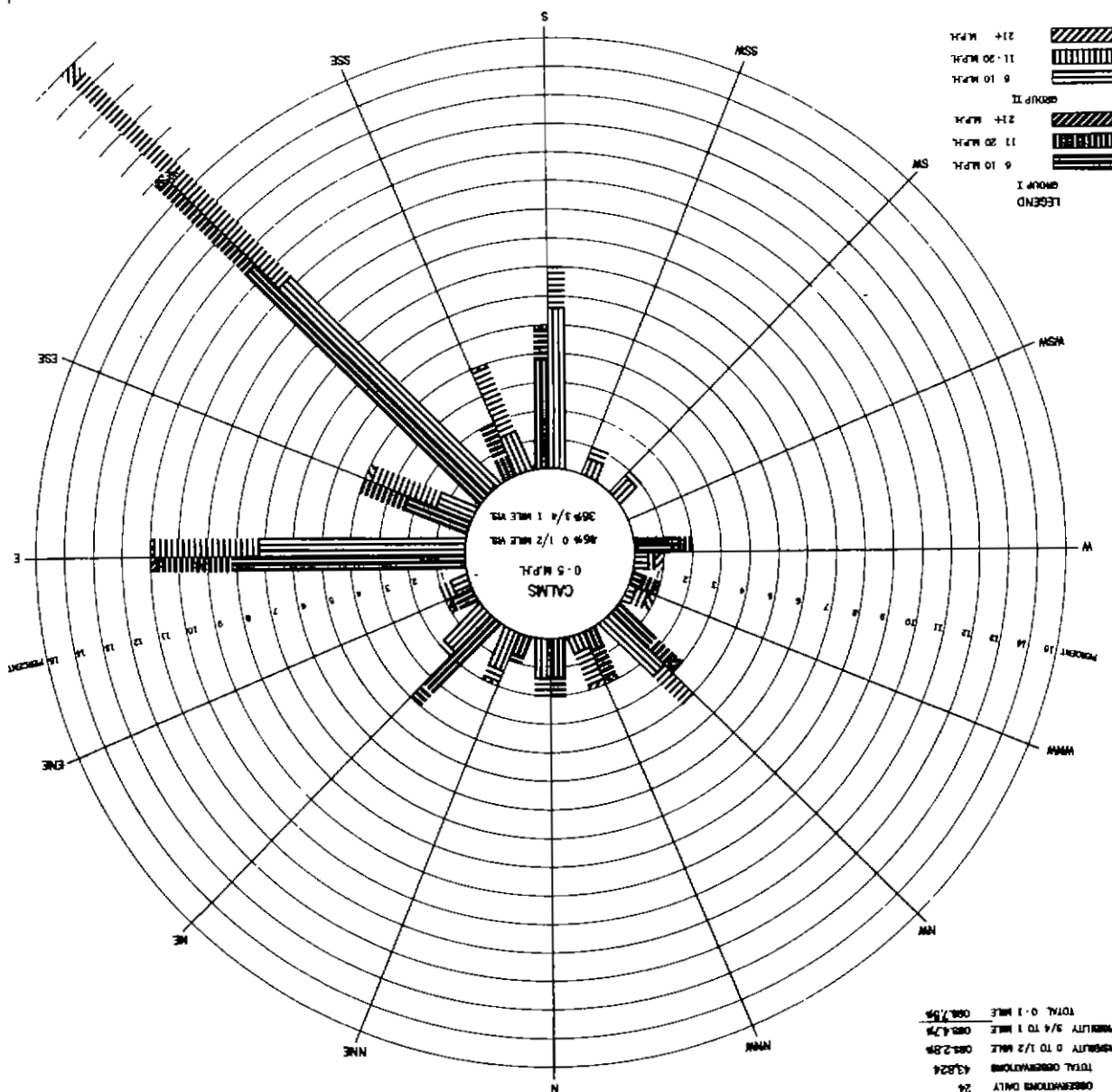
(This data furnished through the cooperation of the U. S. Weather Bureau and the World Program Association.)

WINDS IN EXCESS OF 5 MPH		10 MPH LI 20 MPH		21+ MPH	
22	17	1			
32	21	1			
1					
1					
1					
96	41				

CLASSSES		DAYS		IN PROCESS OF M.P.H		ZTH M.P.H	
FOOD	60	42	20				
SHOKE	40	22	4				
RAIN							
PIST		1	1				
SHOW		4	5				
TOTALS	100	69	30				

(figures indicate percentage)

CALIBRES		COLLARS		8.5 MM. 11.20 MM. 12.70 MM. 21+ MM.	
FOO	34	22	17	1	
BARREL	65	32	21	1	
RAM					
DRUM				1	
SHOUL	1	1	2	2	1
TOTALS	100	96	41	3	

[illegible]

SUMMARY OF 5 YEAR PERIOD 1934 TO 1938 INCLUSIVE	
24	OBSERVATIONS DAILY
43,824	TOTAL OBSERVATIONS
082-28%	VELOCITY 0 TO 1/2 MILE
082-4.7%	VELOCITY 3/4 TO 1 MILE
082-7.0%	TOTAL 0-1 MILE

Civil Aeronautics Authority
WINDROSE FOR RESTRICTED VISIBILITY

ST. LOUIS, MO.
MUNICIPAL AIRPORT

MONTANA

Billings

Butte

Great Falls

Helena

Lewistown

Miles City

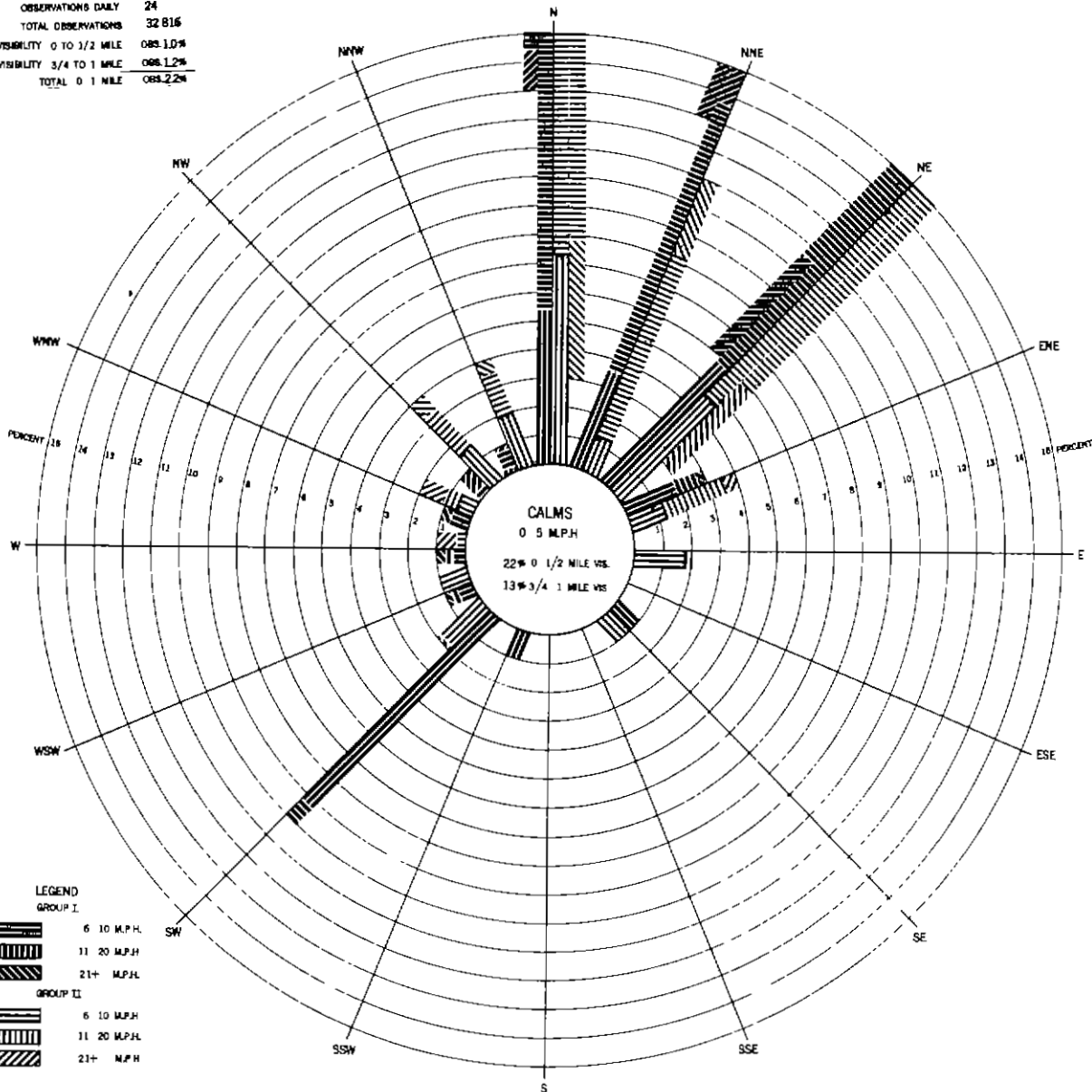
Missoula

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 32 816
VISIBILITY 0 TO 1/2 MILE OBS 1.0%
VISIBILITY 3/4 TO 1 MILE OBS 1.2%
TOTAL 0 1 MILE OBS 2.2%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BILLINGS, MONTANA
MUNICIPAL AIRPORT



LEGEND
GROUP I

6 10 M.P.H.
11 20 M.P.H.
21+ M.P.H.

GROUP II

6 10 M.P.H.
11 20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	5 TO 10 M.P.H.	11 TO 20 M.P.H.	21+ M.P.H.
FOG	86	34	40	10
SMOKE				
RAIN	4	1	1	1
DUST			1	2
SNOW	10	2	5	3
TOTALS	100	37	47	16

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	5 TO 10 M.P.H.	11 TO 20 M.P.H.	21+ M.P.H.
FOG	88	22	40	6
SMOKE				
RAIN				
DUST				1
SNOW	12	6	16	9
TOTALS	100	28	56	16

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS												
GROUP I & II COMBINED												
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT	NOV	DEC.
FOG	6	19	5	3	6	1	3	0	4	8	33	21
SMOKE												
RAIN										2	1	
DUST												
SNOW	2	4	7									
TOTALS	8	23	12	3	6	1	3	0	4	10	34	21
												109

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1939

500
TREES
NOT USABLE
GRADED ONLY
HARD SURFACE



0 1000 2000 4000
SCALE IN FEET

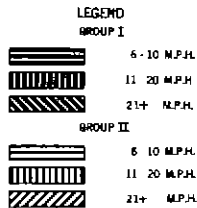
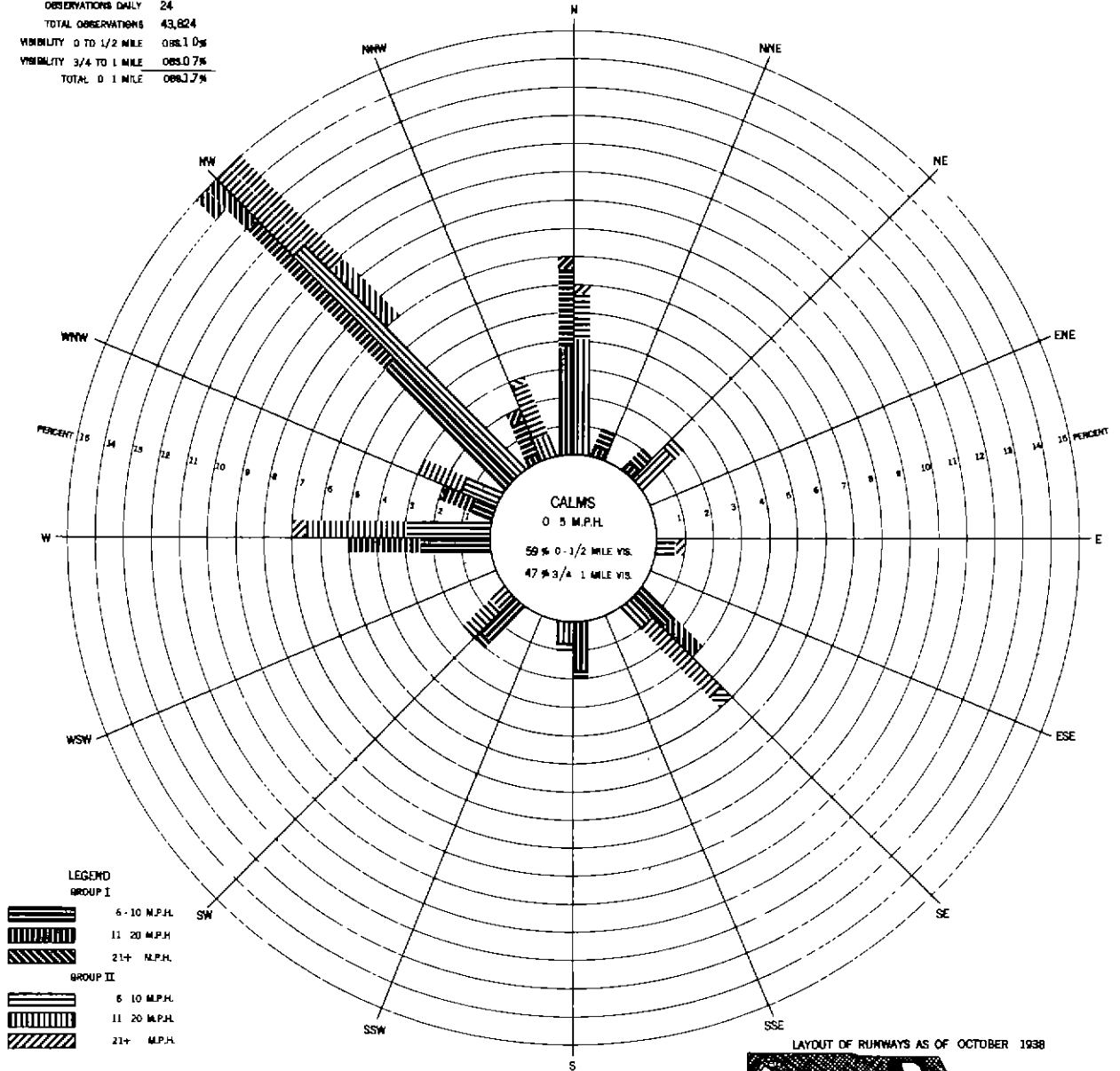
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 088.1 0%
VISIBILITY 3/4 TO 1 MILE 088.0 7%
TOTAL 0 1 MILE 088.1 7%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BUTTE, MONT.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	77	23 9 2
SMOKE	3	1
RAIN		
DUST		
SNOW	20	22 30 12
TOTALS	100	46 39 15

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	66	28 19 1
SMOKE	2	2
RAIN		1 1
DUST	1	1 1
SNOW	34	16 21 6
TOTALS	100	47 44 9

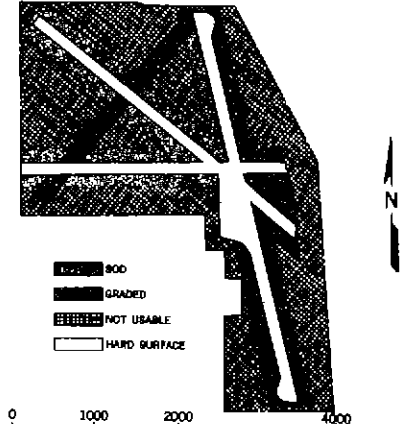
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUP I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	25	46	18	19	15	17		4	4	33	31	90	302
SMOKE													4
RAIN										1			1
DUST													
SNOW	26	19	17	8	10				1	1	4	18	104
TOTALS	51	65	35	27	25	17		6	5	38	35	108	411

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938

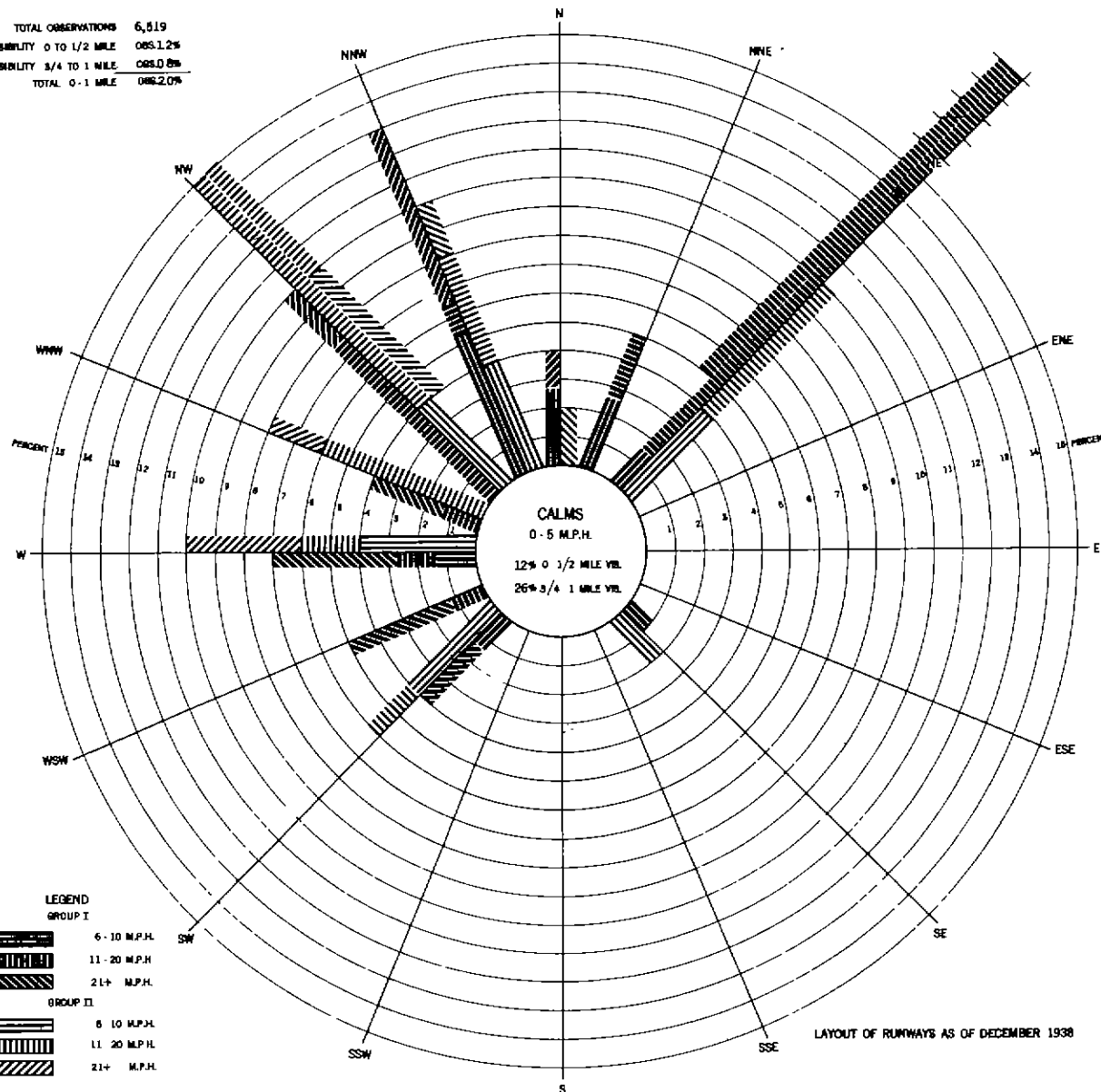


SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

GREAT FALLS, MONT.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 6,519
VISIBILITY 0 TO 1/2 MILE 085.12%
VISIBILITY 3/4 TO 1 MILE 088.08%
TOTAL 0-1 MILE 086.20%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	79	18
SMOKE		52
RAIN		1
DUST		12
SNOW	22	4
TOTALS	100	86

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-21+ M.P.H.
FOG	69	27
SMOKE		46
RAIN		3
DUST		3
SNOW	31	5
TOTALS	100	58

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG			1	1		3				3	5	3	16
SMOKE													
RAIN													
DUST													
SNOW					1					2	3		6
TOTALS			1	1	1	3				3	7	6	22

NOTE:
Percentages to winds are based on the number of observations in each visibility group.
Example: 79% indicates the percentage of wind in either Group I or Group II depending upon the visibility identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

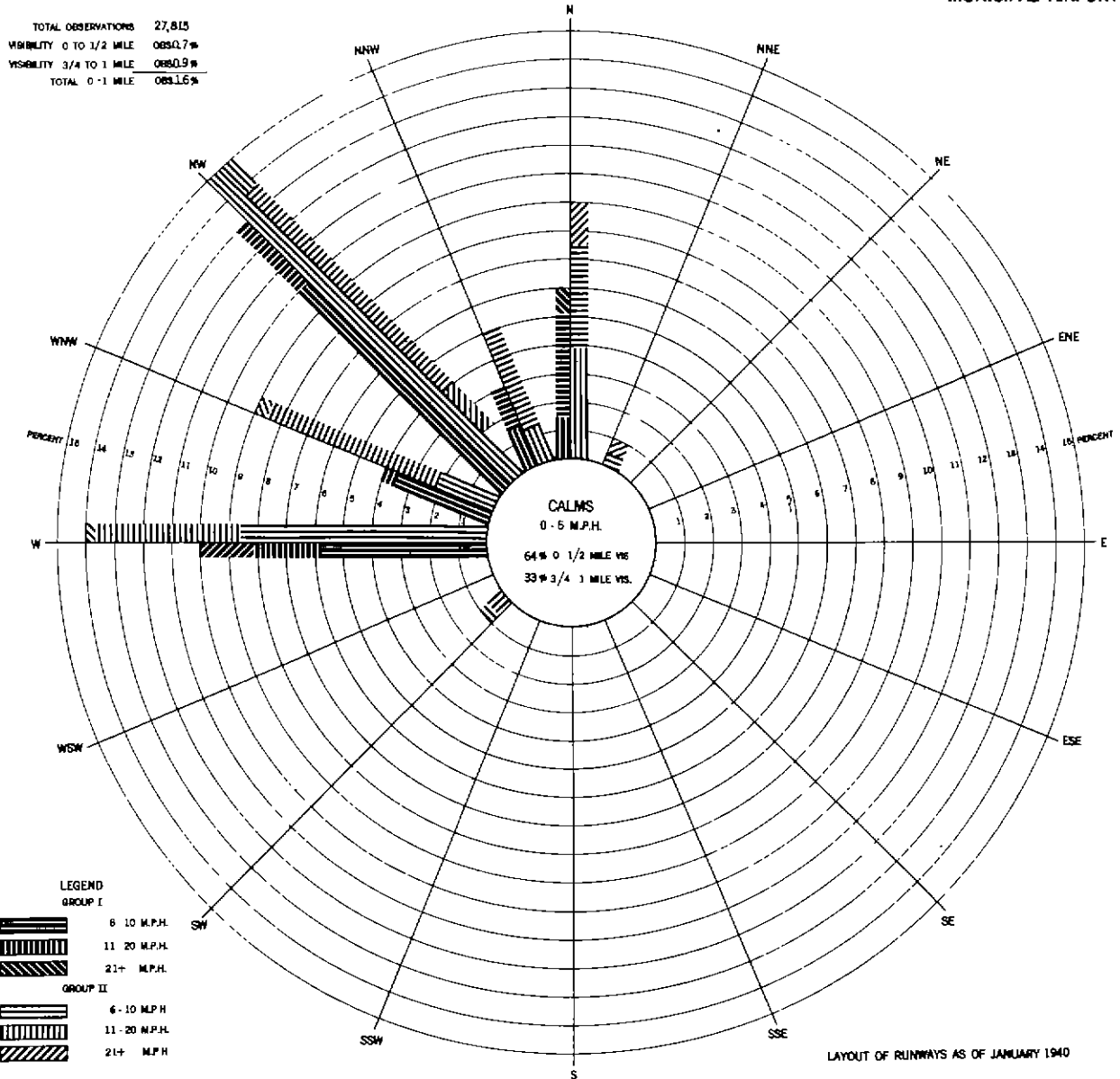


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

HELENA, MONT.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 27,815
VISIBILITY 0 TO 1/2 MILE 0890.7%
VISIBILITY 3/4 TO 1 MILE 0890.9%
TOTAL 0-1 MILE 0891.6%



LAYOUT OF RUNWAYS AS OF JANUARY 1940

GROUP I
0 TO 1/2 MILE VISIBILITY

	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	29 14
SMOKE		
RAIN		
DUST		1 1
SNOW	6	32 15 8
TOTALS	100	62 30 8

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	59	13 19 2
SMOKE		
RAIN		
DUST		1 1
SNOW	41	35 25 4
TOTALS	100	49 44 7

(Figures indicate percentages)

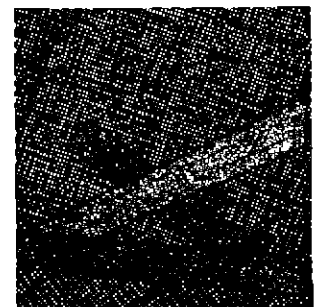
USABLE AREA
NOT USABLE

OBSERVATIONS TAKEN AT
CITY OFFICE UNTIL JAN 5, 1936

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	14	17	10	4	2				2	34	38	46	167
SMOKE													
RAIN													
DUST													
SNOW	10	11	8	2						2	1	7	41
TOTALS	24	28	18	6	2				2	36	39	53	208

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identified.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 4000
SCALE IN FEET

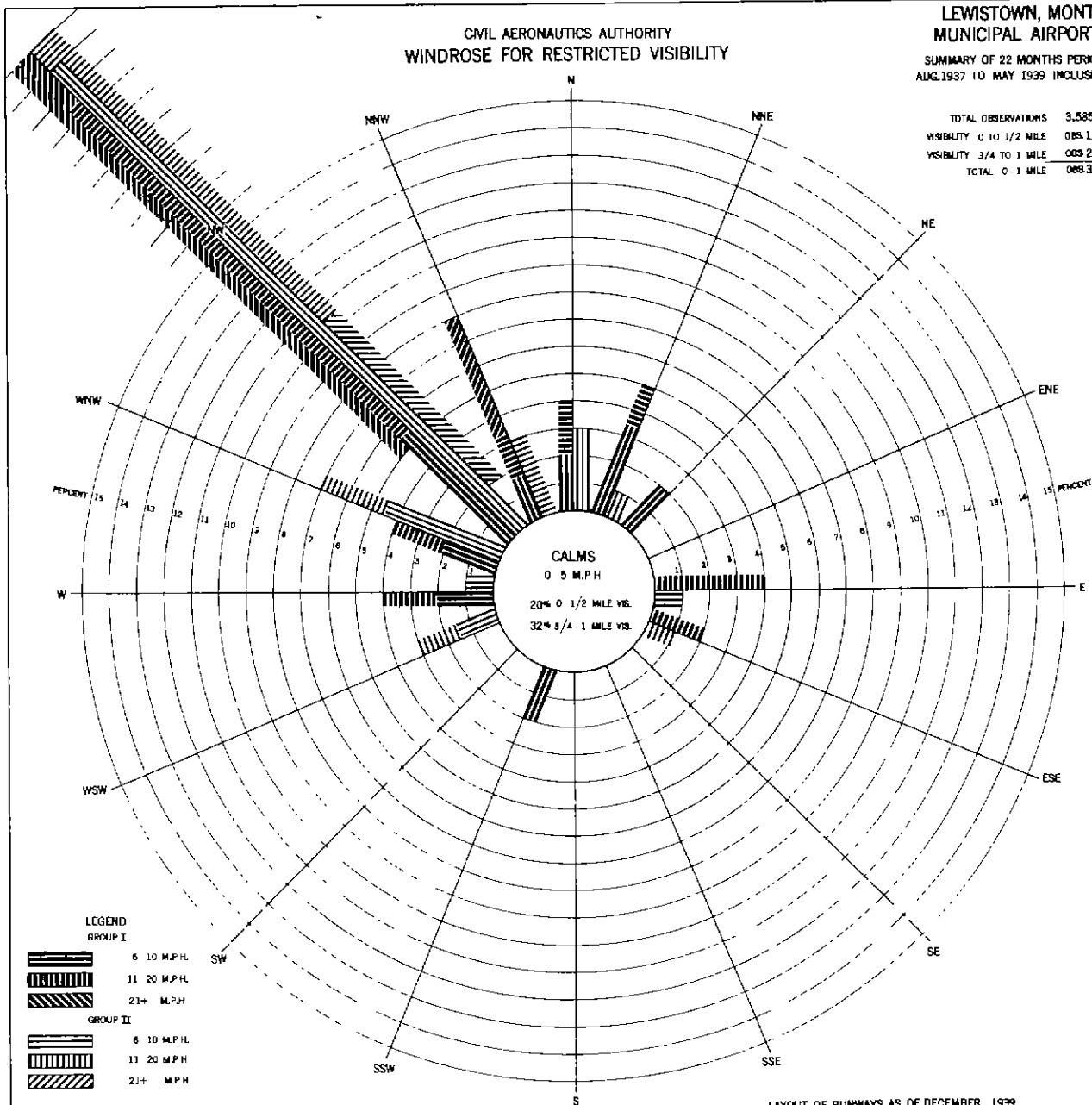
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LEWISTOWN, MONT.
MUNICIPAL AIRPORT

SUMMARY OF 22 MONTHS PERIOD
AUG. 1937 TO MAY 1939 INCLUSIVE

TOTAL OBSERVATIONS 3,585
VISIBILITY 0 TO 1/2 MILE OBS. 1.6%
VISIBILITY 3/4 TO 1 MILE OBS. 2.3%
TOTAL 0-1 MILE OBS. 3.9%



LAYOUT OF RUNWAYS AS OF DECEMBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-20 M.P.H.
FOG	100	22
SMOKE		38
RAIN		16
DUST		4
SNOW		2
TOTALS	100	24

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

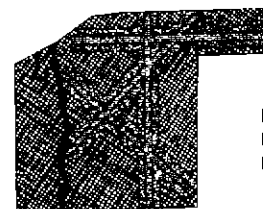
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-20 M.P.H.
FOG	100	53
SMOKE		32
RAIN		11
DUST		2
SNOW		2
TOTALS	100	54

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	3	6	3	6					1	10	5	5	39
SMOKE													
RAIN													
DUST													
SNOW													
TOTALS	3	6	3	6					1	10	5	5	39

NOTE:
Percentages in windrosettes are based on the number of observations in each visibility group.
Example: 38 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



GRAVEL
NOT USABLE
USABLE AREA

0 1000 2000 4000

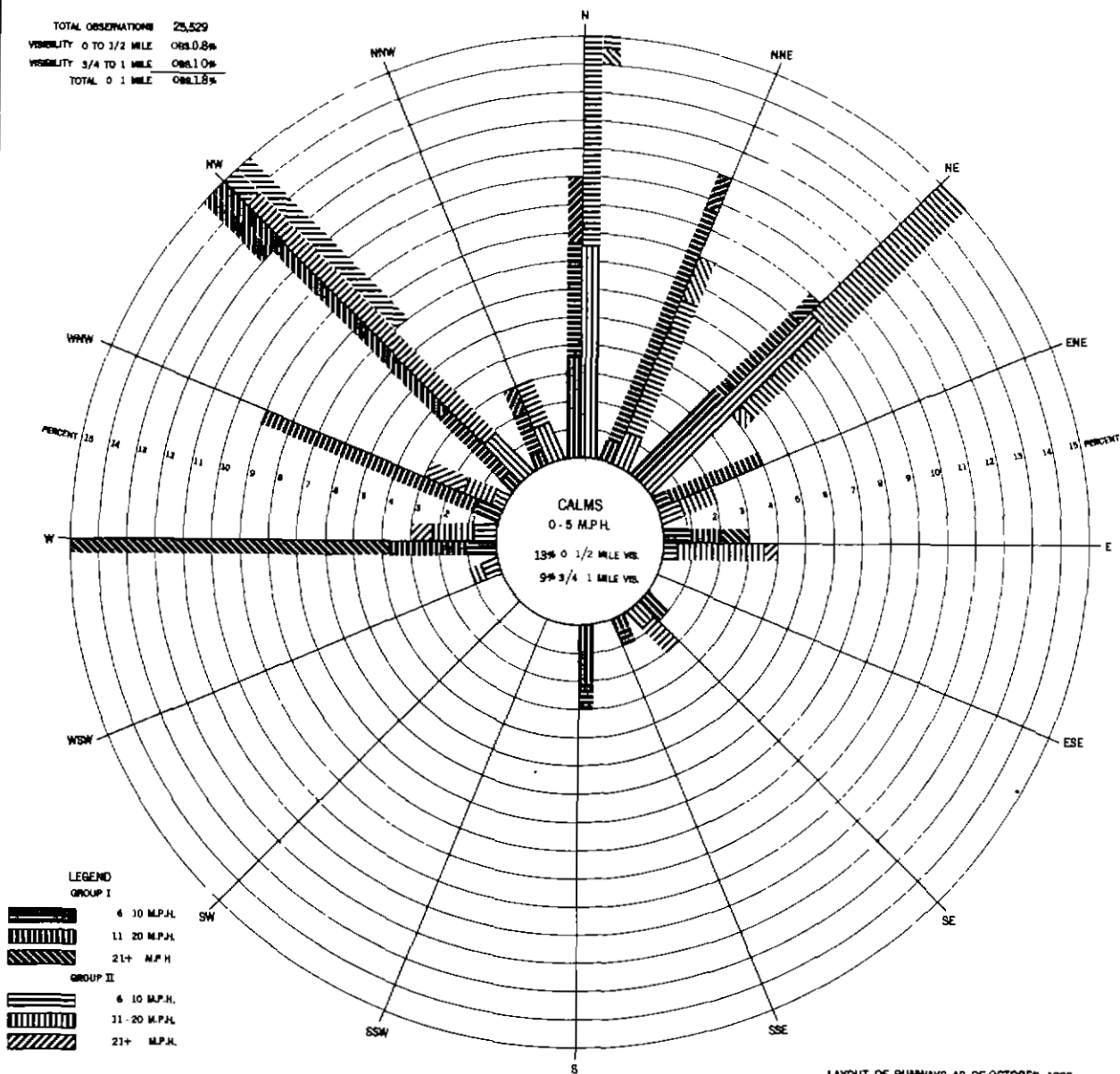
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MILES CITY, MONT.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 25,529
VISIBILITY 0 TO 1/2 MILE OBS. 0.8%
VISIBILITY 3/4 TO 1 MILE OBS. 1.0%
TOTAL 0 1 MILE OBS. 1.8%



LEGEND

GROUP I

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP II

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	15 20 3
SMOKE		
RAIN		
DUST		
SNOW	7	6 15 39
TOTALS	100	20 35 46

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	57	14 30 3
SMOKE		
RAIN		
DUST		
SNOW	43	13 28 9
TOTALS	100	27 58 15

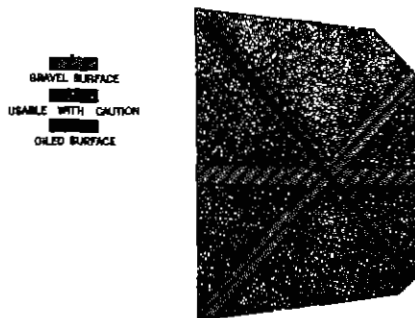
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	9	7	5	1		1	1					14	38
SMOKE													
RAIN													
DUST													
SNOW	3	3	1							2	3	12	
TOTALS	12	10	6	1		1	1			2	17	50	

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Service and the Vortex Program Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938

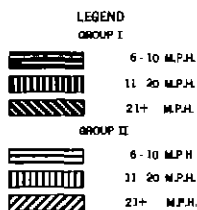
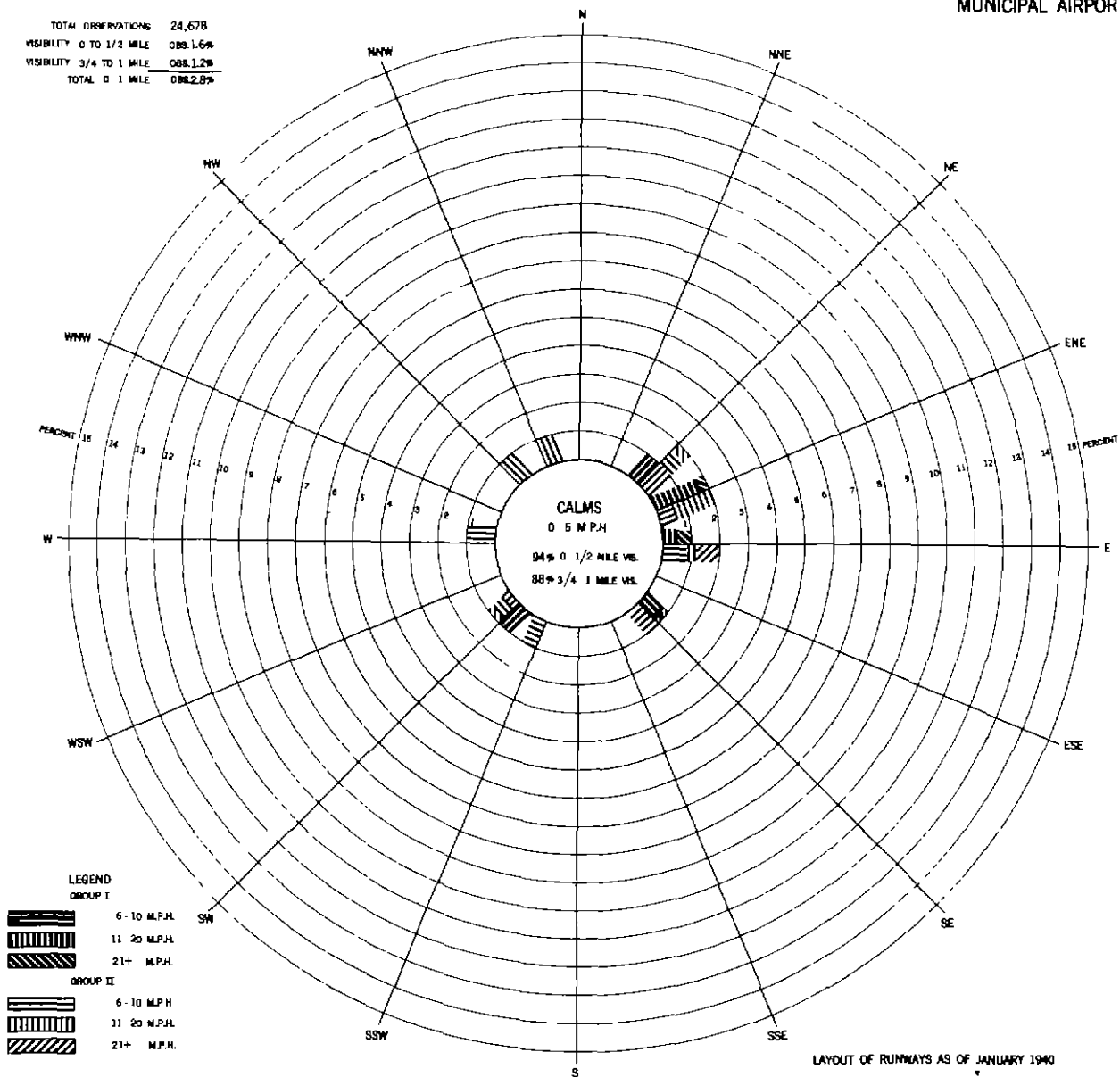


SUMMARY OF 3 YEAR PERIOD
1935 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 24,678
VISIBILITY 0 TO 1/2 MILE OBS. 1.6%
VISIBILITY 3/4 TO 1 MILE OBS. 1.2%
TOTAL 0 1 MILE OBS. 2.8%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MISSOULA, MONT.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	17
SMOKE		
RAIN		
DUST		
SNOW	7	14 45 20
TOTALS	100	31 45 23

(Figures indicate percentage)

GROUP II
1/4 TO 1 MILE VISIBILITY

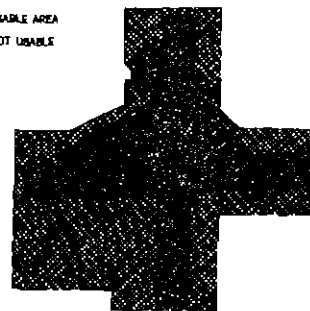
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	81	19 5 2
SMOKE		5
RAIN		
DUST		2
SNOW	19	16 38 13
TOTALS	100	37 48 15

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS TO 5 M.P.H. BY MONTHS													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	130	87	31			2		1	57	162	83	553	
SMOKE	1											1	
RAIN											2	2	
DUST													
SNOW	18	29	2							4	23	76	
TOTALS	149	116	33			2		1	57	166	108	632	

NOTE:
Percentages in which are based on the number of observations in each visibility group.
Example: 94% indicates the percentage of wind in either Group I or Group II during calm or light wind conditions.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

USABLE AREA
NOT USABLE



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NORTH CAROLINA

Charlotte

Greensboro

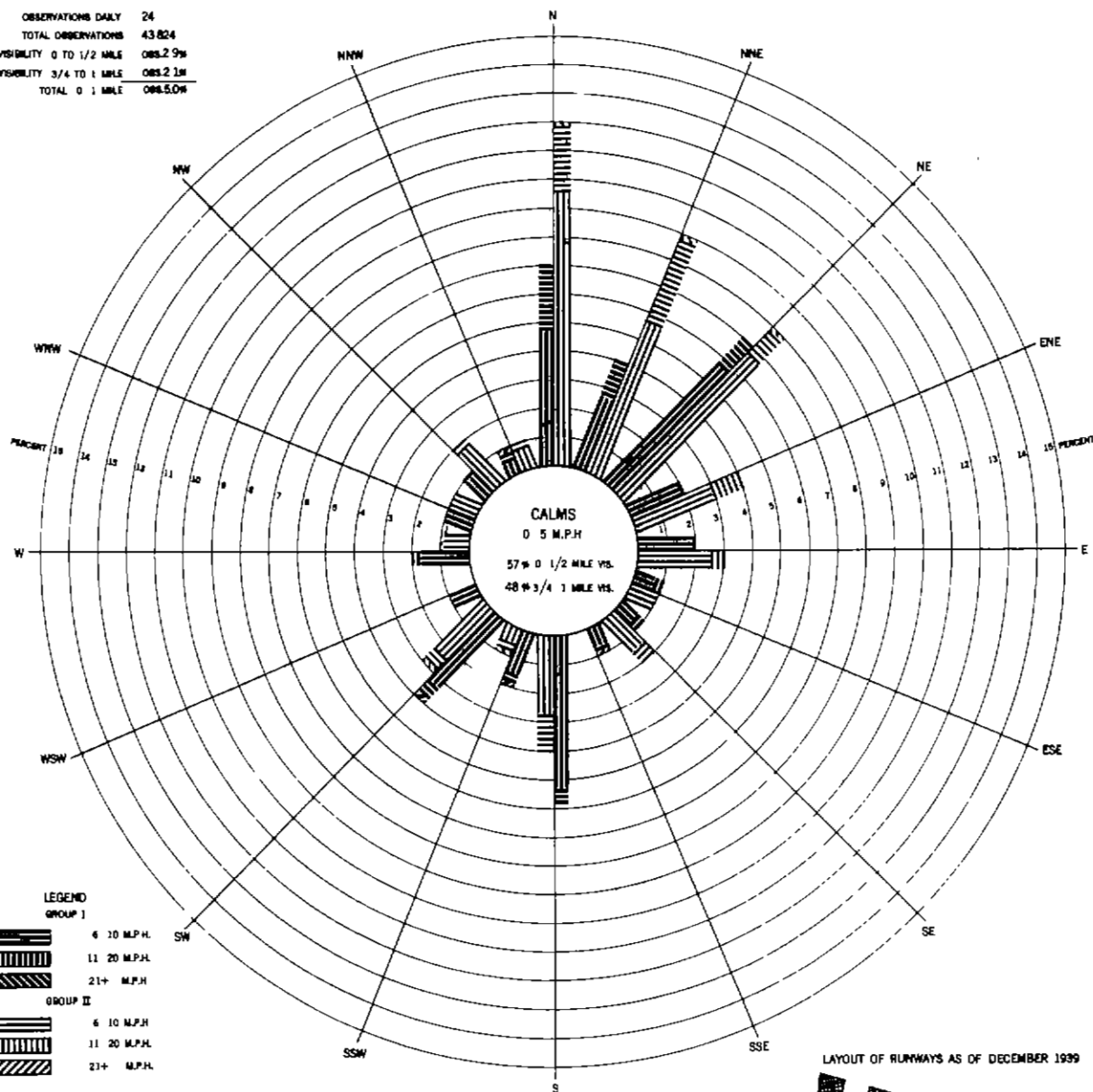
Raleigh

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.9%
VISIBILITY 3/4 TO 1 MILE OBS. 2.1%
TOTAL 0 1 MILE OBS. 5.0%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

CHARLOTTE, N. C.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	97	81 15
SMOKE	2	
RAIN		1
DUST		
SNOW	1	2 1
TOTALS	100	83 16 1

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	74	66 22 1
SMOKE	23	3
RAIN	1	4 2 1
DUST	1	
SNOW	1	1
TOTALS	100	74 24 2

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	343	129	71	63	17	11	32	38	101	29	83	143	1060
SMOKE	20	39	5	1	1					9	14	35	124
RAIN	1	3		4	1		1						7
DUST													3
SNOW	2	4										4	10
TOTALS	366	175	76	68	19	11	33	38	101	38	97	162	1204

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 81% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



LOW AREA
NOT USABLE
ROD & USABLE AREA
HARD SURFACE

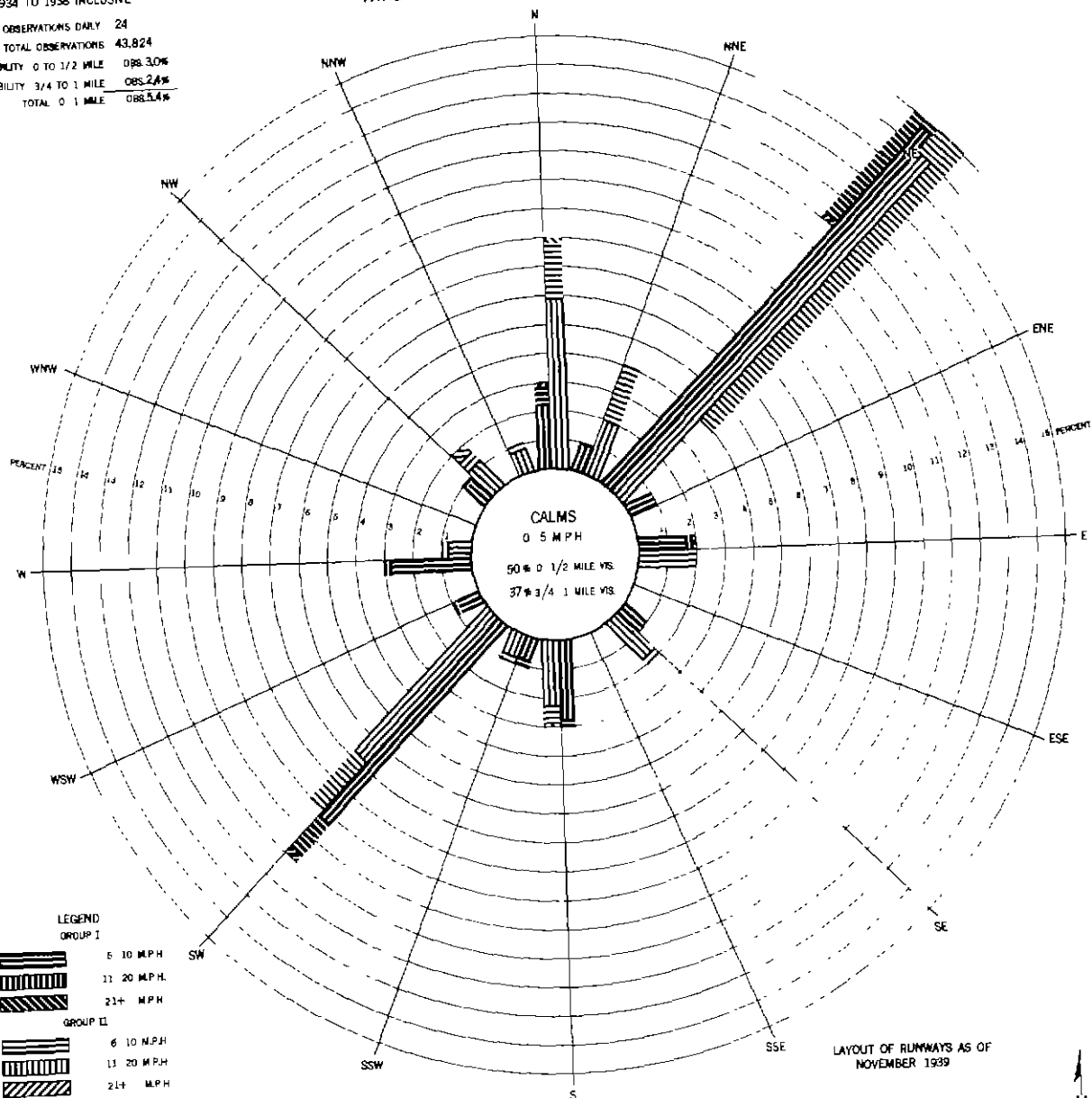
0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

GREENSBORO, N.C.

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 3.0%
VISIBILITY 3/4 TO 1 MILE OBS. 2.6%
TOTAL 0 1 MILE OBS. 5.6%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	99	79 14
SMOKE		
RAIN		1
DUST		
SNOW	1	2 3
TOTALS	100	82 17 1

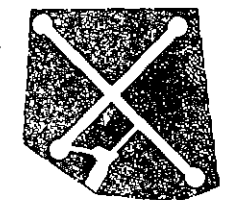
GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	91	56 26
SMOKE	5	1
RAIN	1	5 7 1
DUST		
SNOW	3	2 2
TOTALS	100	64 35 1

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	264	130	68	33	26	13	27	34	101	44	71	151	962
SMOKE	4	2	14										21
RAIN	1	1	1										3
DUST													1
SNOW	11	5	1										17
TOTALS	281	138	84	33	26	13	27	34	102	44	71	156	1008

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 84% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the North Carolina Department of Transportation.



0 750 1500 3000
SCALE IN FEET

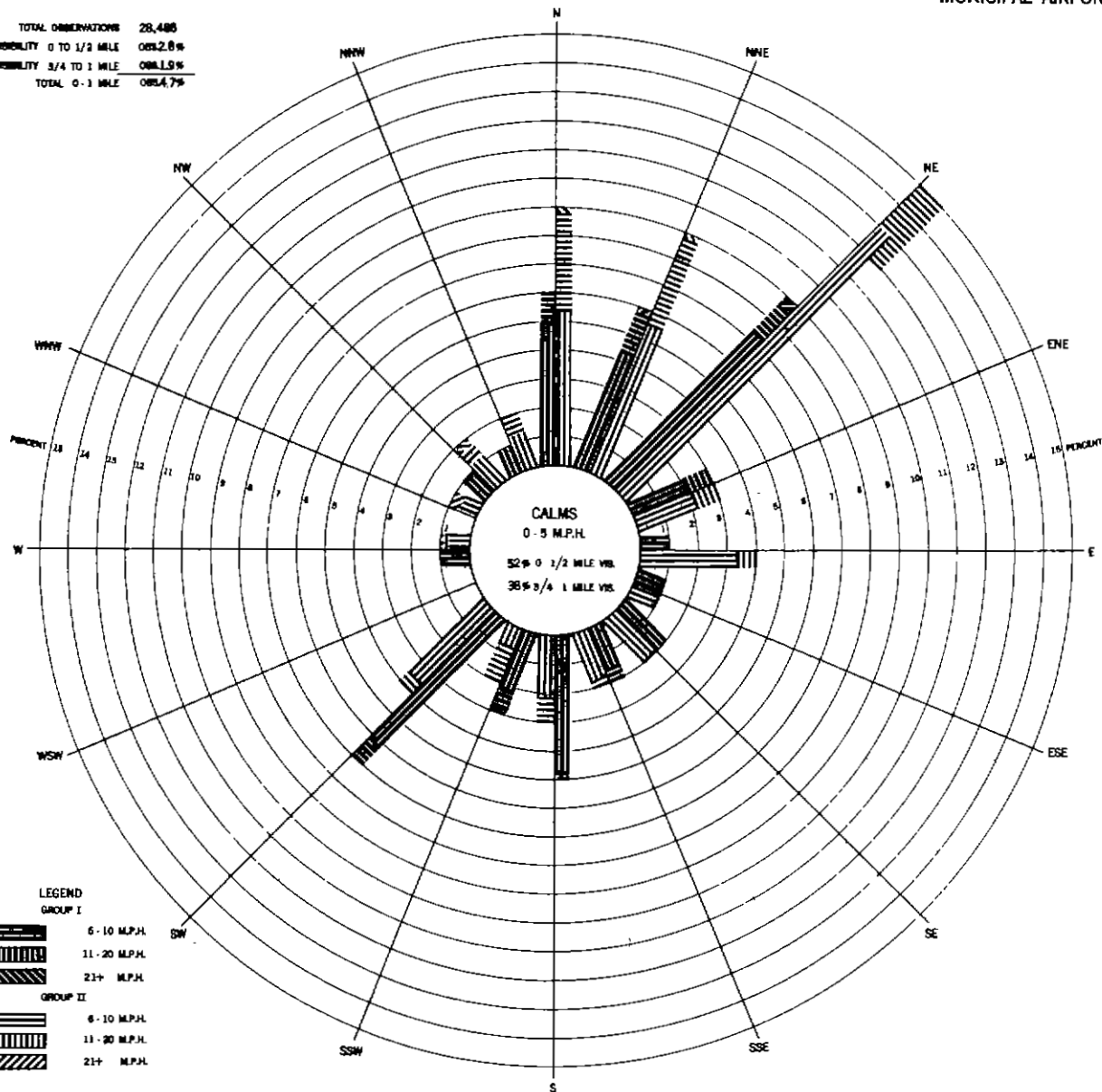
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

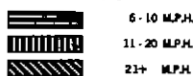
RALEIGH, N. C.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 28,486
VISIBILITY 0 TO 1/2 MILE OBS. 2.8%
VISIBILITY 3/4 TO 1 MILE OBS. 1.9%
TOTAL 0-1 MILE OBS. 4.7%

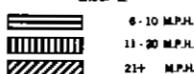


LEGEND

GROUP I



GROUP II



GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	96	81
SMOKE		
RAIN	1	
DUST		
SNOW	1	2
TOTALS	100	83

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	85	64
SMOKE	15	2
RAIN		2
DUST		1
SNOW		1
TOTALS	100	67

(Figures indicate percentage)

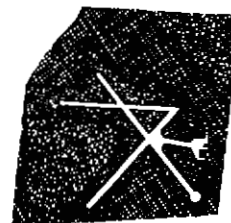
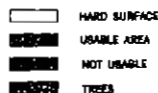
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	161	64	19	27	27	18	17	73	38	38	95	78	585
SMOKE		3	1	2				1		4	4	16	31
RAIN				2									2
DUST													
SNOW		3											4
TOTALS	161	60	20	31	27	18	17	74	38	42	99	95	622

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the speed classification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NORTH DAKOTA

Bismarek

Fargo

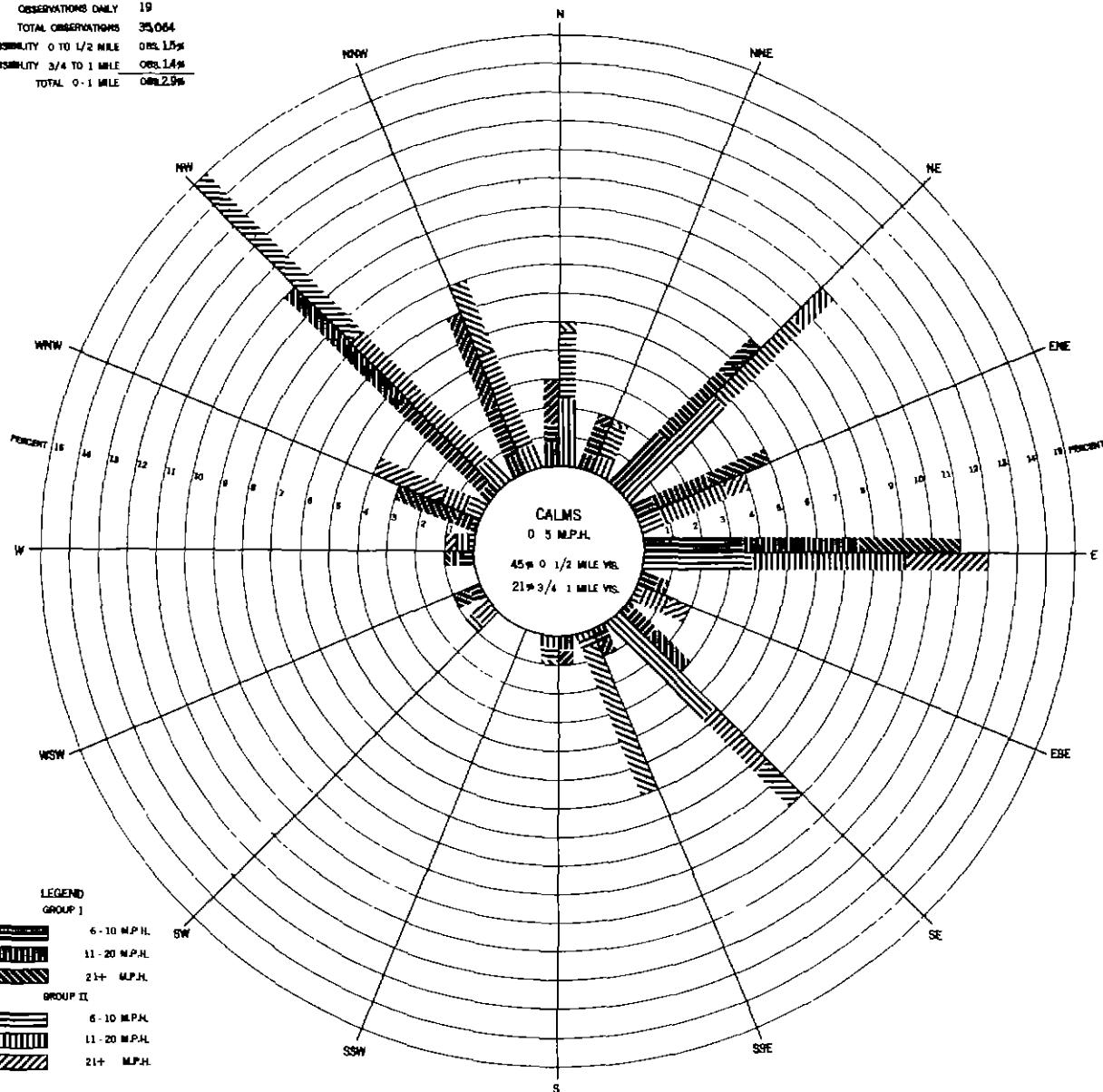
Grand Forks

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 19
TOTAL OBSERVATIONS 35,064
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 1.4%
TOTAL 0-1 MILE OBS. 2.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BISMARCK, N.D.
MUNICIPAL AIRPORT



LEGEND

GROUP I
0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	92	13	6		
SMOKE	3	2	1		
RAIN					1
DUST			1	19	
SNOW	5	9	25	23	
TOTALS	100	24	33	43	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	73	10	10	1	
SMOKE	7		4		
RAIN			1	1	
DUST			1	21	
SNOW	20	14	24	11	
TOTALS	100	24	40	34	

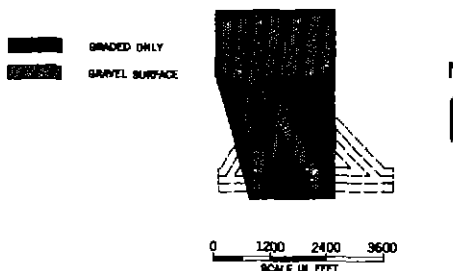
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	40	52	20		3	5	2	12	9	14	40	82	289
SMOKE									7				7
RAIN													
DUST													
SNOW	13	8	1							7	3	32	
TOTALS	53	70	21		3	5	2	12	16	14	47	86	328

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 45% indicates the percentage of wind in excess of 5 M.P.H. of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Service and the State Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

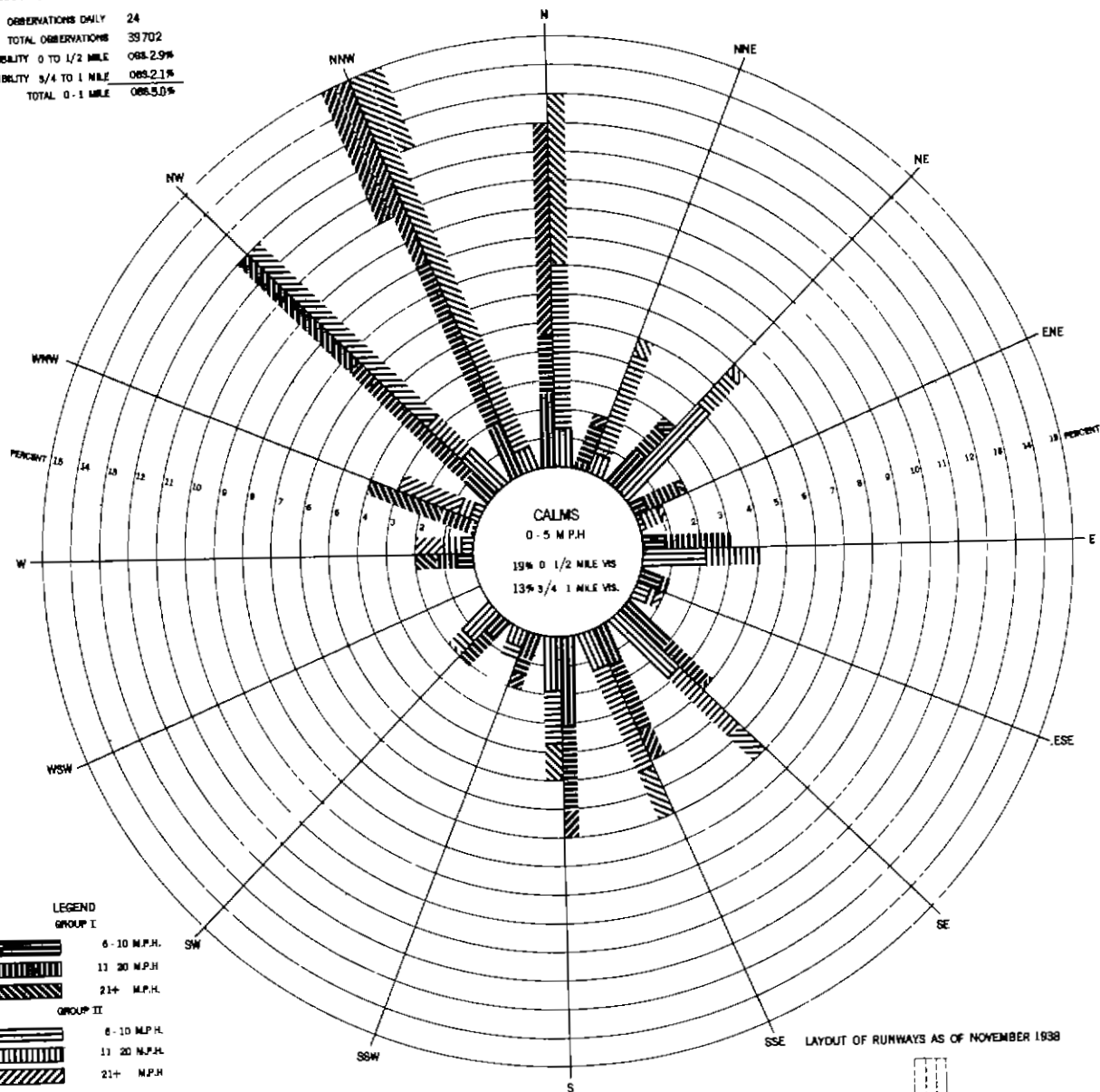


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

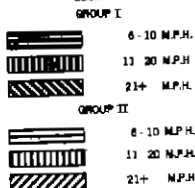
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 39702
VISIBILITY 0 TO 1/2 MILE 088.29%
VISIBILITY 3/4 TO 1 MILE 089.21%
TOTAL 0-1 MILE 088.50%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

FARGO, N.D.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	93	17	12	1
SMOKE	2	1		
RAIN				
DUST			2	5
SNOW	5	4	14	44
TOTALS	100	22	28	80

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	69	14	16	2
SMOKE	12	2	2	
RAIN	3		1	
DUST	1		4	9
SNOW	15	8	21	21
TOTALS	100	24	44	32

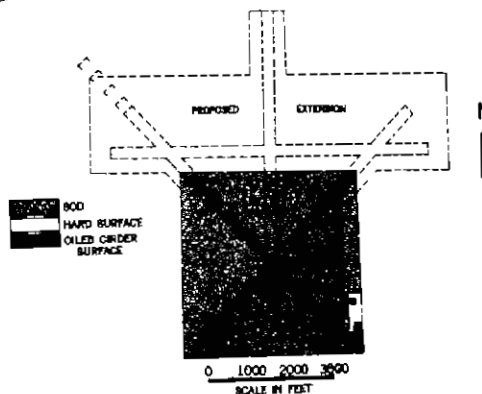
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	27	39	13	19	1	2	18	4	26	22	26	76	273
SMOKE	1	2							3		1	3	17
RAIN													3
DUST					1								1
SNOW	10	2	1							6	8	27	54
TOTALS	38	43	14	19	2	2	18	5	31	29	33	87	321

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Variable: See indexes the percentage of wind in either Group I, or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

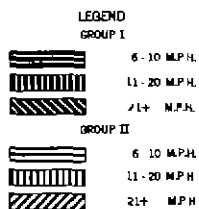
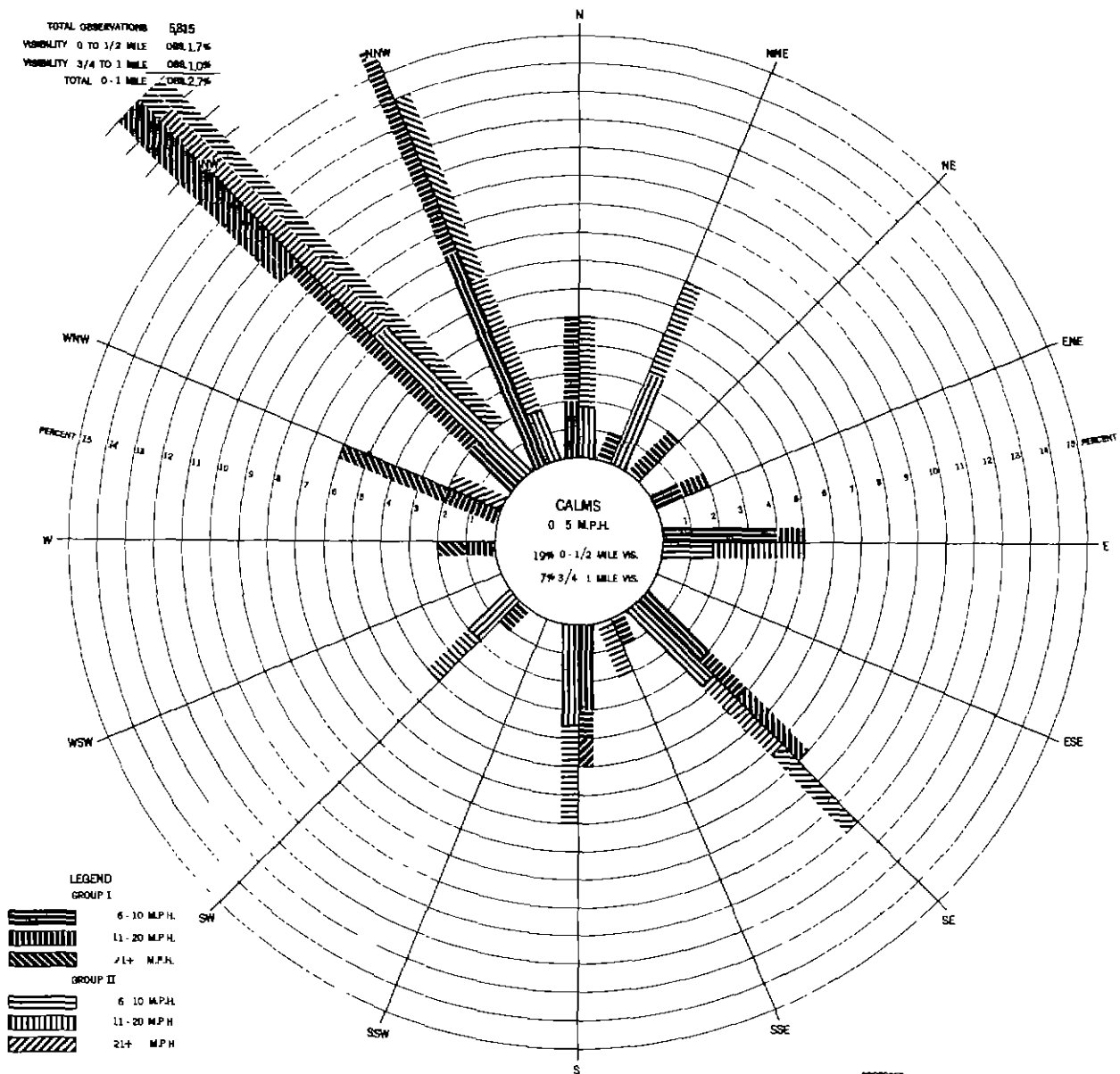


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

GRAND FORKS, N.D.

TOTAL OBSERVATIONS 5815
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 1.0%
TOTAL 0-1 MILE OBS. 2.7%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	47	9
SMOKE	16	1
RAIN		
DUST	6	5
SNOW	32	28
TOTALS	100	41

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	75	13
SMOKE		2
RAIN		2
DUST		12
SNOW	25	21
TOTALS	100	37

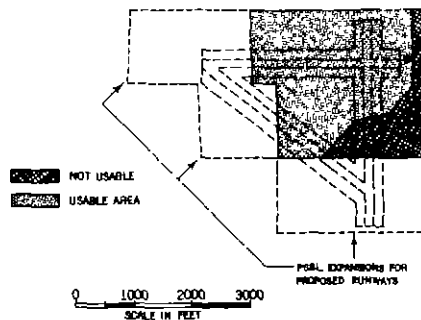
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG		6		1			1		1		2	1	12
SMOKE										3			3
RAIN													
DUST			1										1
SNOW			1							4	2		7
TOTALS		6	2	1			1		1	3	6	3	23

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the actual classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

PROPOSED
LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NEBRASKA

Grand Island

North Platte

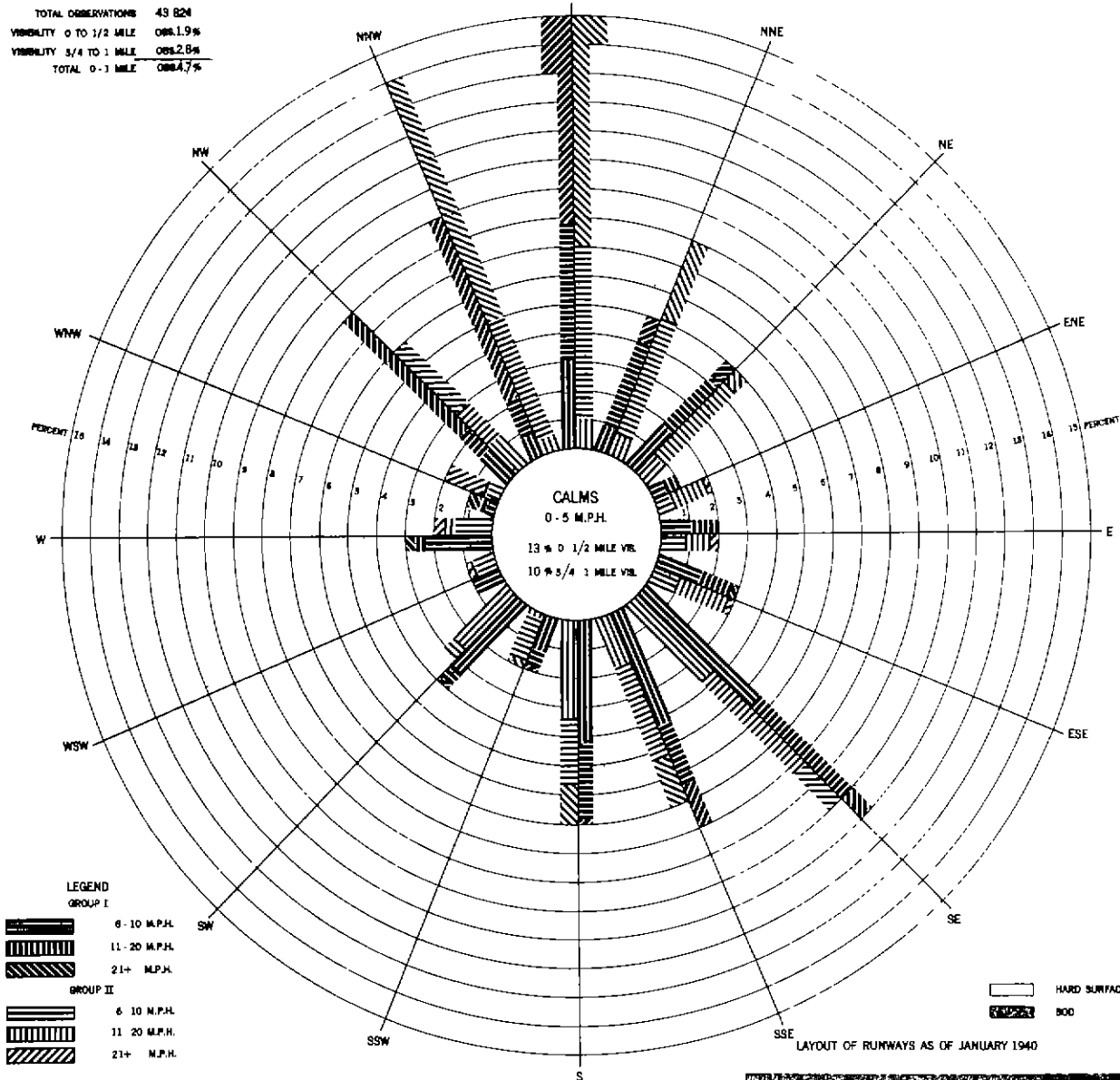
Omaha

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.9%
VISIBILITY 3/4 TO 1 MILE OBS. 2.8%
TOTAL 0-1 MILE OBS. 4.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

GRAND ISLAND NEB.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	35 26 4
SMOKE	4	
RAIN	1	1 1 1
DUST	1	2 13
SNOW	1	3 14
TOTALS	100	36 32 32

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

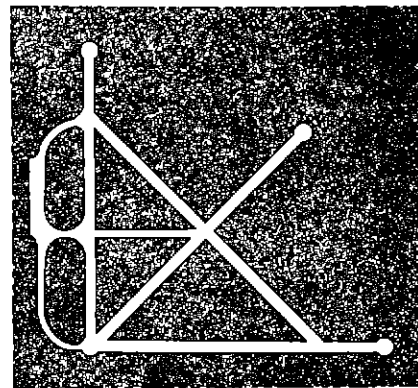
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	57	17 30 9
SMOKE	39	4
RAIN	1	1 1
DUST	2	2 5 16
SNOW	1	1 5 9
TOTALS	100	24 41 35

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	34	29	5	2	7	2	1	10	11	16	14	32	163
SMOKE	21	17	1							1	8		48
RAIN	1				1								2
DUST		1	2	1									4
SNOW	1	1											2
TOTALS	57	48	8	3	8	2	1	10	11	17	14	40	219

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 4000
SCALE IN FEET

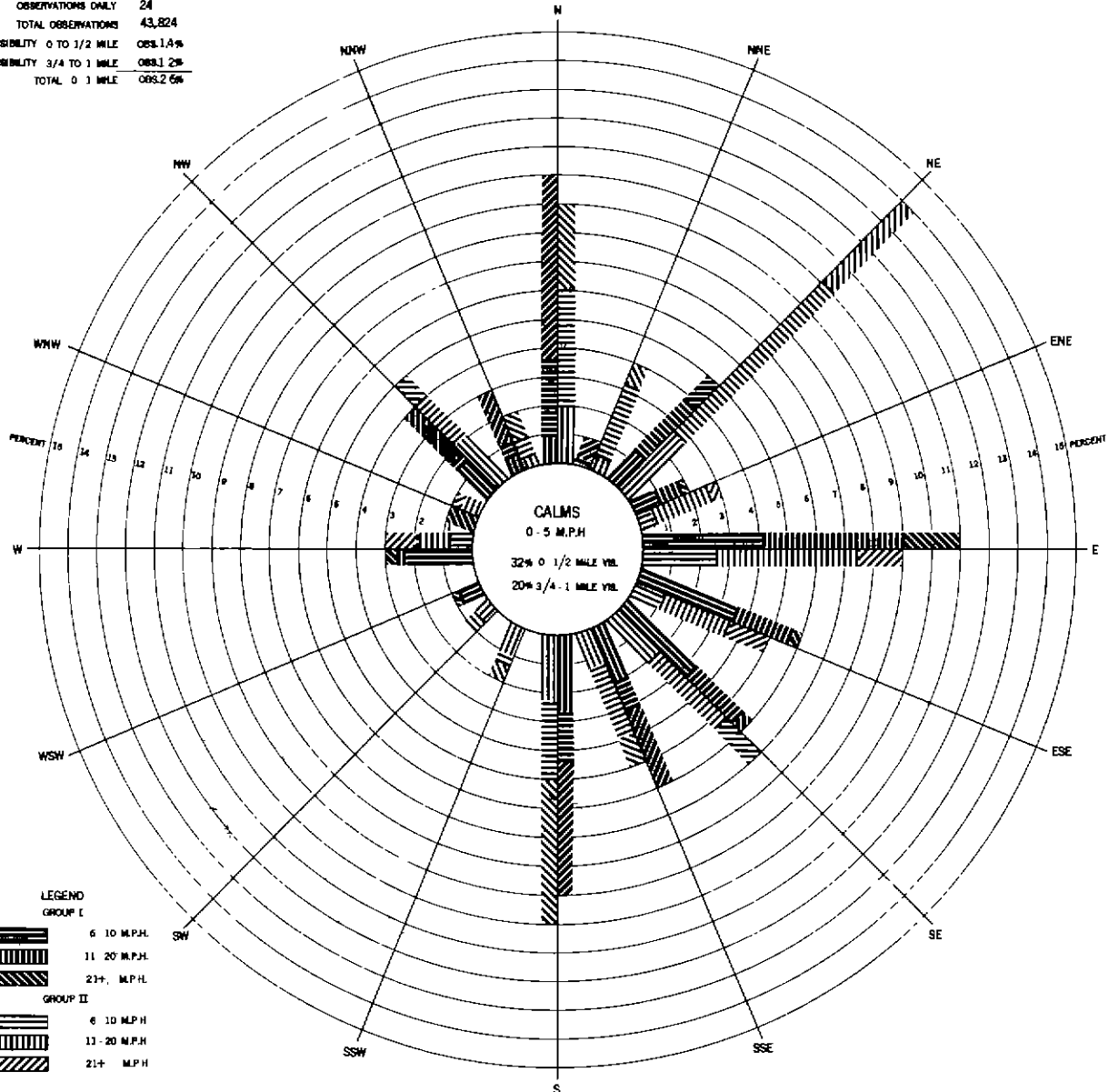
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.4%
VISIBILITY 3/4 TO 1 MILE OBS. 1.2%
TOTAL 0 1 MILE OBS. 2.6%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

NORTH PLATTE, NEB.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

CAUSES	GROUP I 0 TO 1/2 MILE VISIBILITY			
	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
FOG	98	31	22	6
SMOKE				
RAIN				
DUST	2	3	5	14
SNOW		1	3	15
TOTALS	100	35	30	35

(Figures indicate percentage)

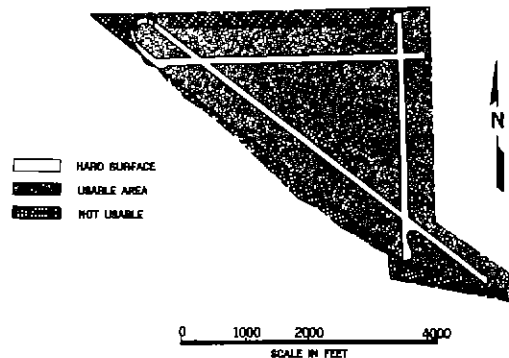
CAUSES	GROUP II 3/4 TO 1 MILE VISIBILITY			
	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
FOG	87	17	30	7
SMOKE	1			
RAIN			1	1
DUST	10	5	9	14
SNOW	2	2	8	6
TOTALS	100	24	48	28

(Figures indicate percentage)

	TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUPS I & II COMBINED												TOTAL
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	
FOG	51	33	5	12	6	8		13	19	42	41	57	287
SMOKE	1												1
RAIN													
DUST		12	1	2		1							16
SNOW		2											2
TOTALS	52	47	6	14	6	9		13	19	42	41	57	306

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the typical identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940

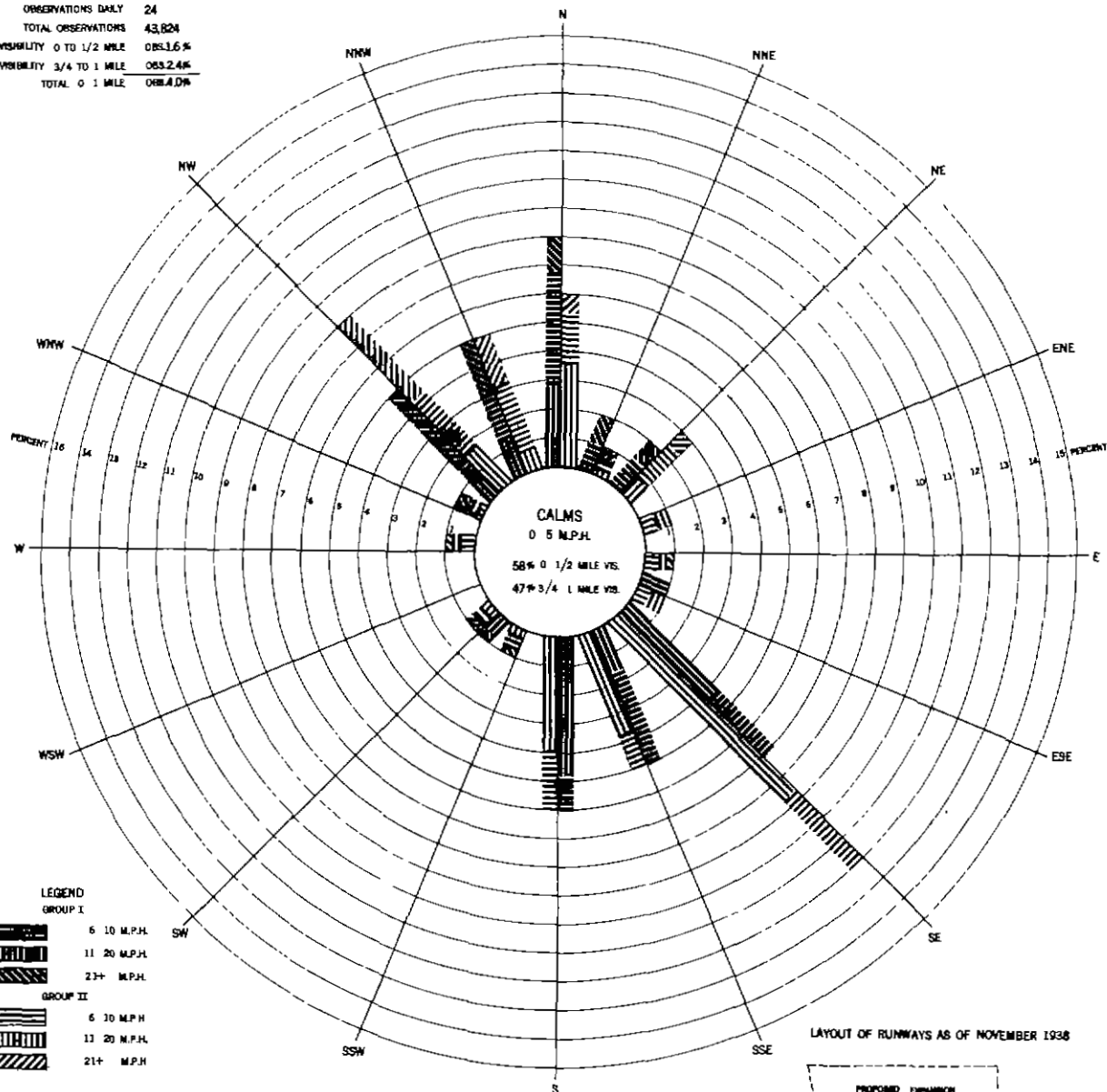


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.651.6 %
VISIBILITY 3/4 TO 1 MILE 0.652.4 %
TOTAL 0 1 MILE 0.654.0 %

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

OMAHA, NEB.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOR	85	41
SMOKE	14	3
RAIN		1
DUST		5
SNOW	1	11
TOTALS	100	44

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

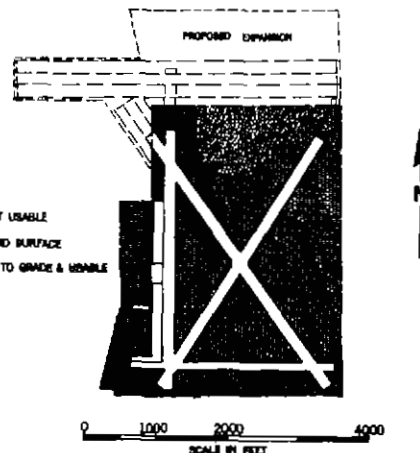
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOR	38	26
SMOKE	59	15
RAIN		1
DUST	2	4
SNOW	1	10
TOTALS	100	49

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS 10-5 M.P.H. BY MONTHS	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	120	60	47	10	25	6	9	11	48	36	36	114	519
SMOKE	68	44	60	6	1			3	9	43	56	85	365
RAIN						1							1
DUST		4	5					1					11
SNOW	7										1		8
TOTALS	195	108	112	16	26	7	9	15	56	78	103	149	894

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Contrails: 8% indicates the percentage of total in either Group I or Group II, depending upon the visibility classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NEW HAMPSHIRE

Concord

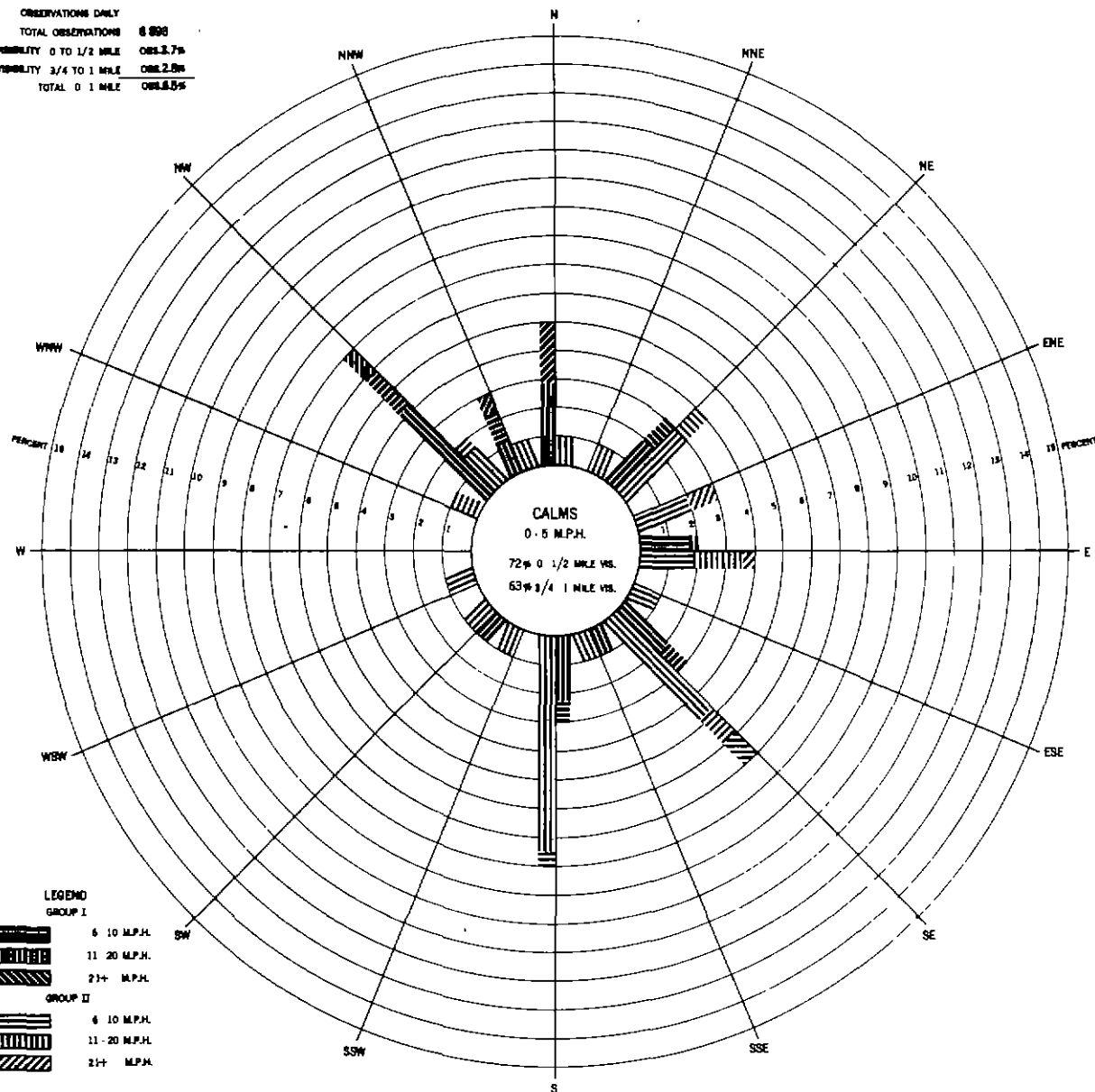
Manchester

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 8 896
VISIBILITY 0 TO 1/2 MILE OBS. 2.7%
VISIBILITY 3/4 TO 1 MILE OBS. 2.8%
TOTAL 0 1 MILE OBS. 5.5%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

CONCORD, N. H.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	5-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	88	25
SMOKE		
RAIN	1	1
DUST		
SNOW	11	38
TOTALS	100	65

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	5-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	88	54
SMOKE		
RAIN		1
DUST	1	
SNOW	11	22
TOTALS	100	77

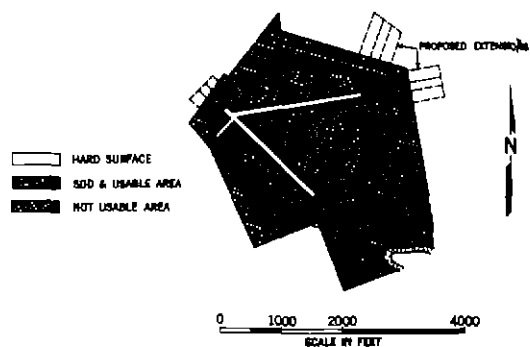
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	20	19	15	11	7	9	14	23	49	24	34	44	267
SMOKE													
RAIN	1												1
DUST								1					1
SNOW	9	1	3	6							8	6	33
TOTALS	30	20	16	17	7	9	14	24	49	24	42	50	302

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



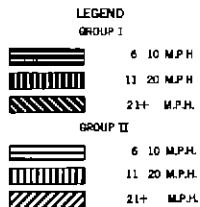
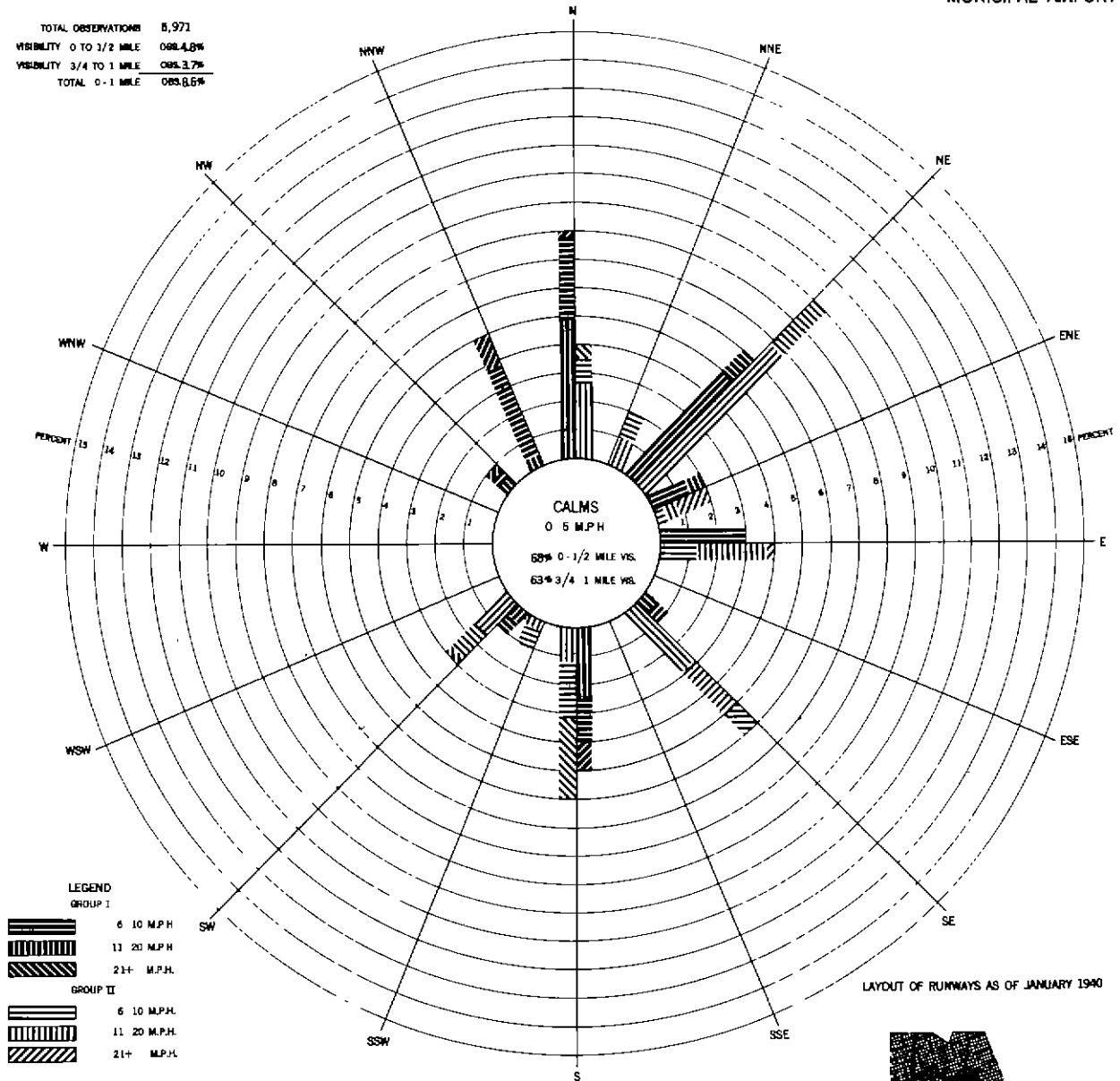
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

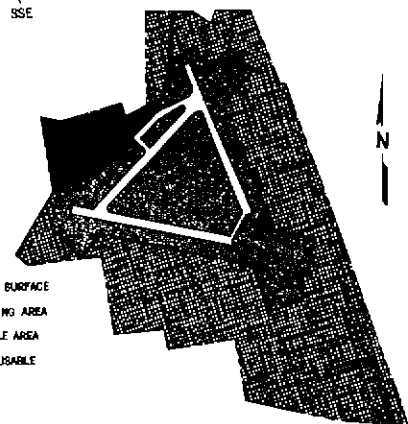
CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MANCHESTER, N. H.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 5,971
VISIBILITY 0 TO 3/4 MILE 088.48%
VISIBILITY 3/4 TO 1 MILE 085.37%
TOTAL 0-1 MILE 085.85%



LAYOUT OF RUNWAYS AS OF JANUARY 1940



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	37 20 2
SMOKE		
RAIN		1 1
DUST		
SNOW	4	19 12 8
TOTALS	100	57 33 10

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	39 27 14
SMOKE	1	
RAIN	1	
DUST		
SNOW	6	10 8 2
TOTALS	100	49 35 16

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	33	67	29	30	4	5	11	13	25	17	35	48	317
SMOKE	1										1		2
RAIN				1									1
DUST													
SNOW	5		8								3		16
TOTALS	39	67	37	31	4	5	11	13	25	17	39	48	336

NOTE:
Percentages in each case are based on the number of observations in each visibility group.
Example: This indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NEW JERSEY

Camden

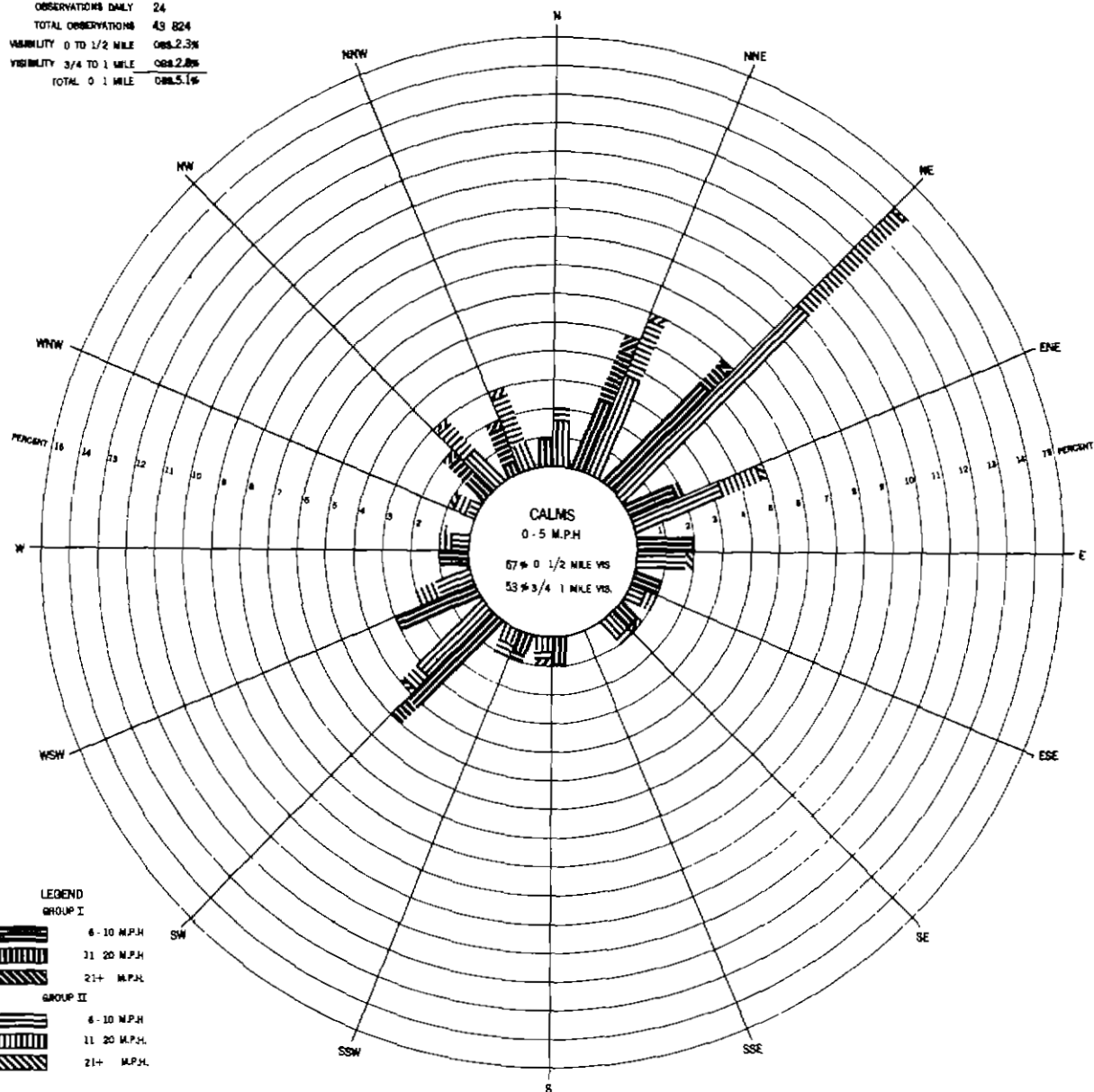
Newark

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 2.8%
TOTAL 0 1 MILE OBS. 5.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CAMDEN, N. J.
CENTRAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	63 19 2
SMOKE	3	
RAIN		1
DUST		
SNOW	3	5 8 2
TOTALS	100	69 27 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

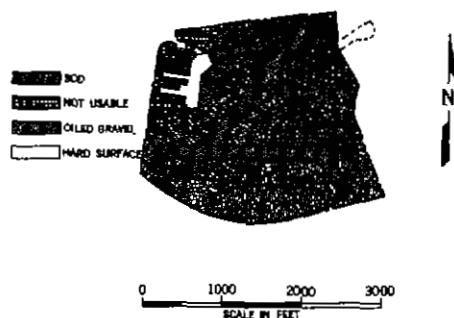
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	73	56 28 1
SMOKE	22	3 1
RAIN		
DUST	3	1 1
SNOW	2	3 6
TOTALS	100	63 35 1

(Figures indicate percentage)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	110	62	40	6	6	6	32	33	69	26	44	436	
SMOKE	1	4	4	2	3	3	2	3	9	42	2	72	
RAIN								1				1	
DUST		2	1				2	1	1		3	10	
SNOW		6	6									13	
TOTALS	111	74	51	8	9	9	35	37	75	68	50	532	

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 54 indicates the percentage of wind in either Group I or Group II depending upon the reported observation.
This data furnished through the cooperation of the U. S. Weather Bureau and the Woods Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



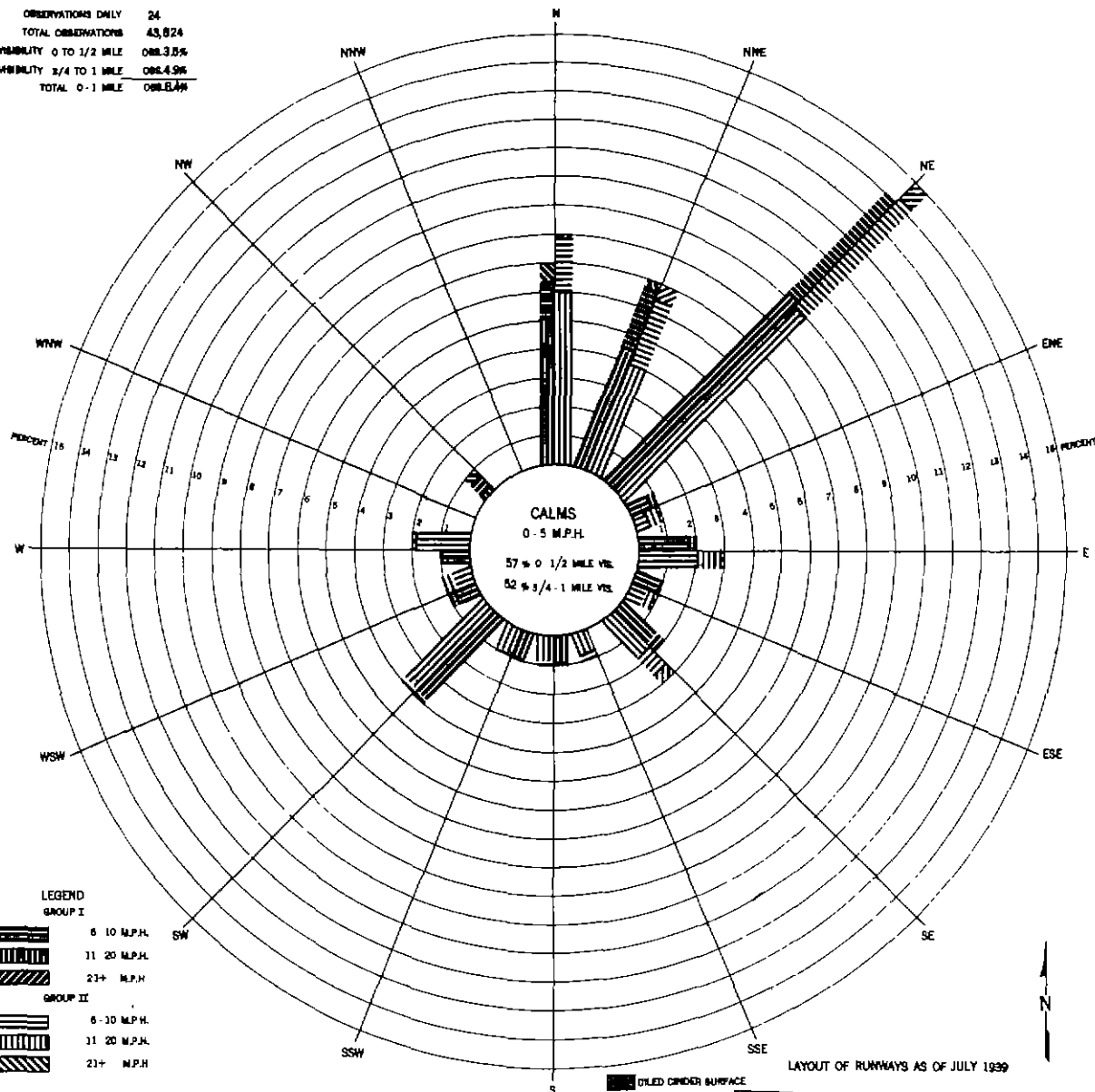
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 3.8%
VISIBILITY 3/4 TO 1 MILE OBS. 4.9%
TOTAL 0-1 MILE OBS. 8.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

NEWARK, N.J.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
[Pattern]	6-10 M.P.H.
[Pattern]	11-20 M.P.H.
[Pattern]	21+ M.P.H.
GROUP II	
[Pattern]	6-10 M.P.H.
[Pattern]	11-20 M.P.H.
[Pattern]	21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	90	67 21 1
SMOKE	10	2
RAIN		1
DUST		1
SNOW		4 2
TOTALS	100	71 26 4

(Figures indicate percentages)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	51	51 21 2
SMOKE	48	16 2
RAIN		1 1
DUST		1
SNOW	1	1 4 1
TOTALS	100	68 28 4

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS 0-5 M.P.H. BY MONTHS

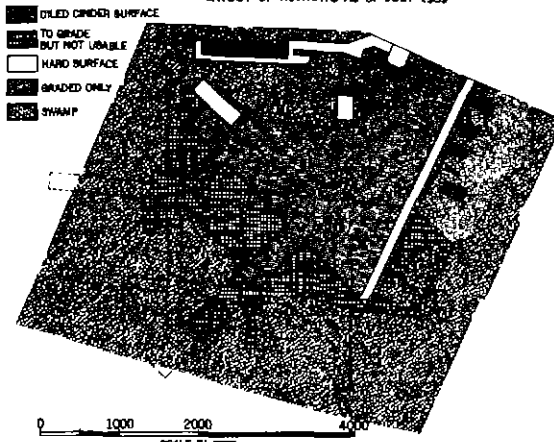
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	216	110	143	46	52	108	76	118	97	142	99	118	1322
SMOKE	96	93	54	23	42	23	38	16	43	64	60	56	608
RAIN									2				2
DUST				3									3
SNOW	2	2	1								1	4	10
TOTALS	314	204	201	69	94	131	114	134	142	206	160	175	1945

NOTE:

Percentages in abstracts are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of total in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JULY 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NEW MEXICO

Albuquerque

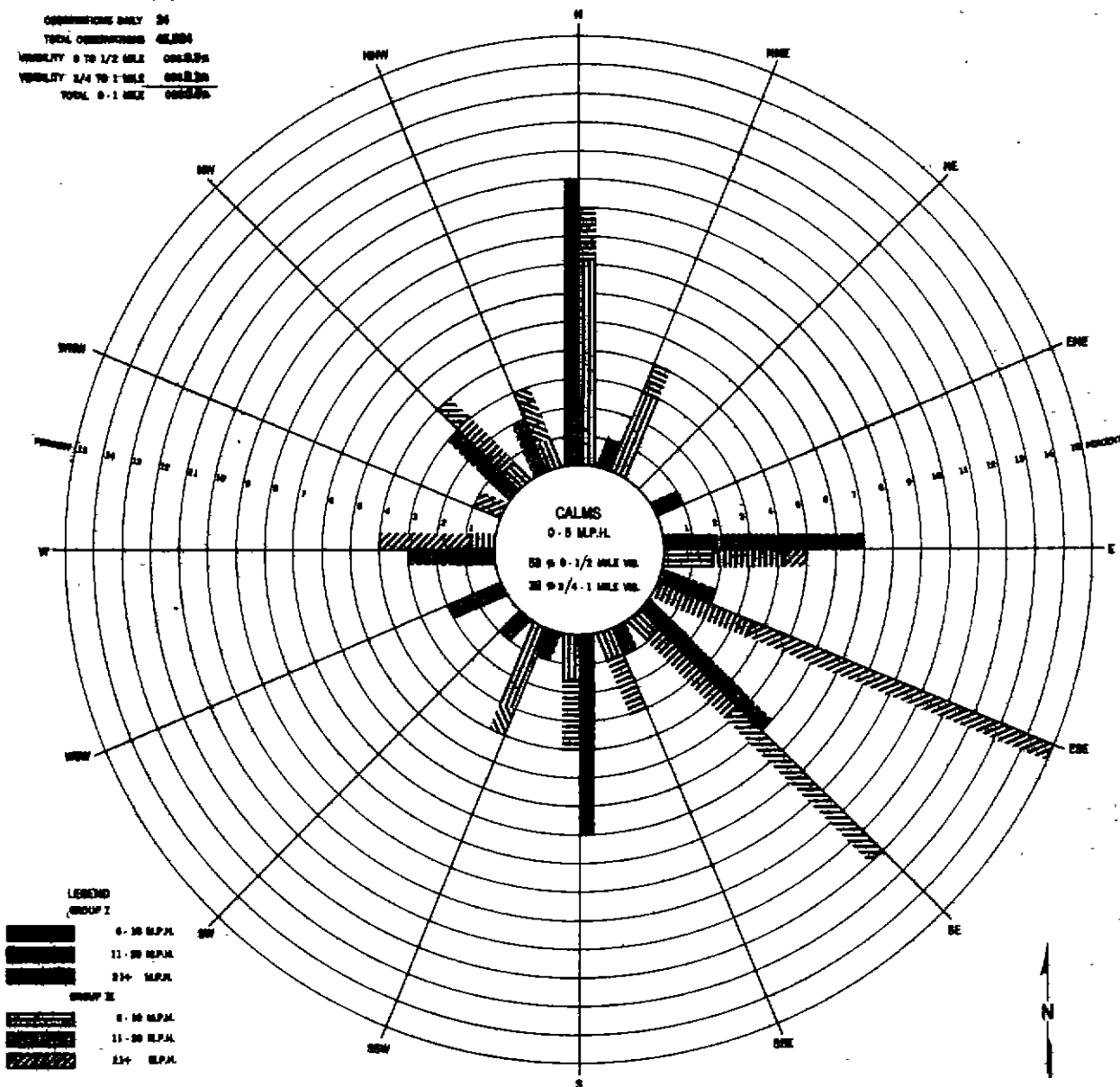
Santa Fe

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 34
TOTAL OBSERVATIONS 45,804
VISIBILITY 0 TO 1/2 MILE 608,836
VISIBILITY 1/4 TO 1 MILE 608,836
TOTAL 0-1 MILE 608,836

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ALBUQUERQUE, NEW MEXICO
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I

0 TO 1/2 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	70	20		
SEAS				
SW	9	3	6	17
SWW	12	3	20	9
TOTAL	180	42	32	26

(Figures indicate percentage)

GROUP II

1/4 TO 1 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	30	4		
SEAS				
SW	80	20	12	22
SWW	11	4	18	9
TOTAL	108	28	30	41

(Figures indicate percentage)

WIND OCCURRENCE IN EXCESS OF 10 M.P.H. BY MONTHS

(Figures indicate percentage)

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOR	15	13	5						1	3	1	25	61
SEAS													
SW													
SWW													
TOTAL	15	13	5						1	3	1	25	61

NOTE.

Percentages in windrose are based on the number of observations in each visibility group.
Group I is indicated the percentage of wind in excess of 10 M.P.H. in Group I or Group II depending upon the specified identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



LAYOUT OF RUNWAYS AS OF
APRIL 1940

OBSERVATIONS TAKEN AT
T.B.A. AIRPORT

0 1000 2000 4000
SCALE IN FEET

— HARD SURFACE
— GRAVEL
— GRAVEL ONLY BUT NO VEHICLE
— GRAVEL BUT NO VEHICLE
— SOIL & VEHICLE
— UNDER CONSTRUCTION

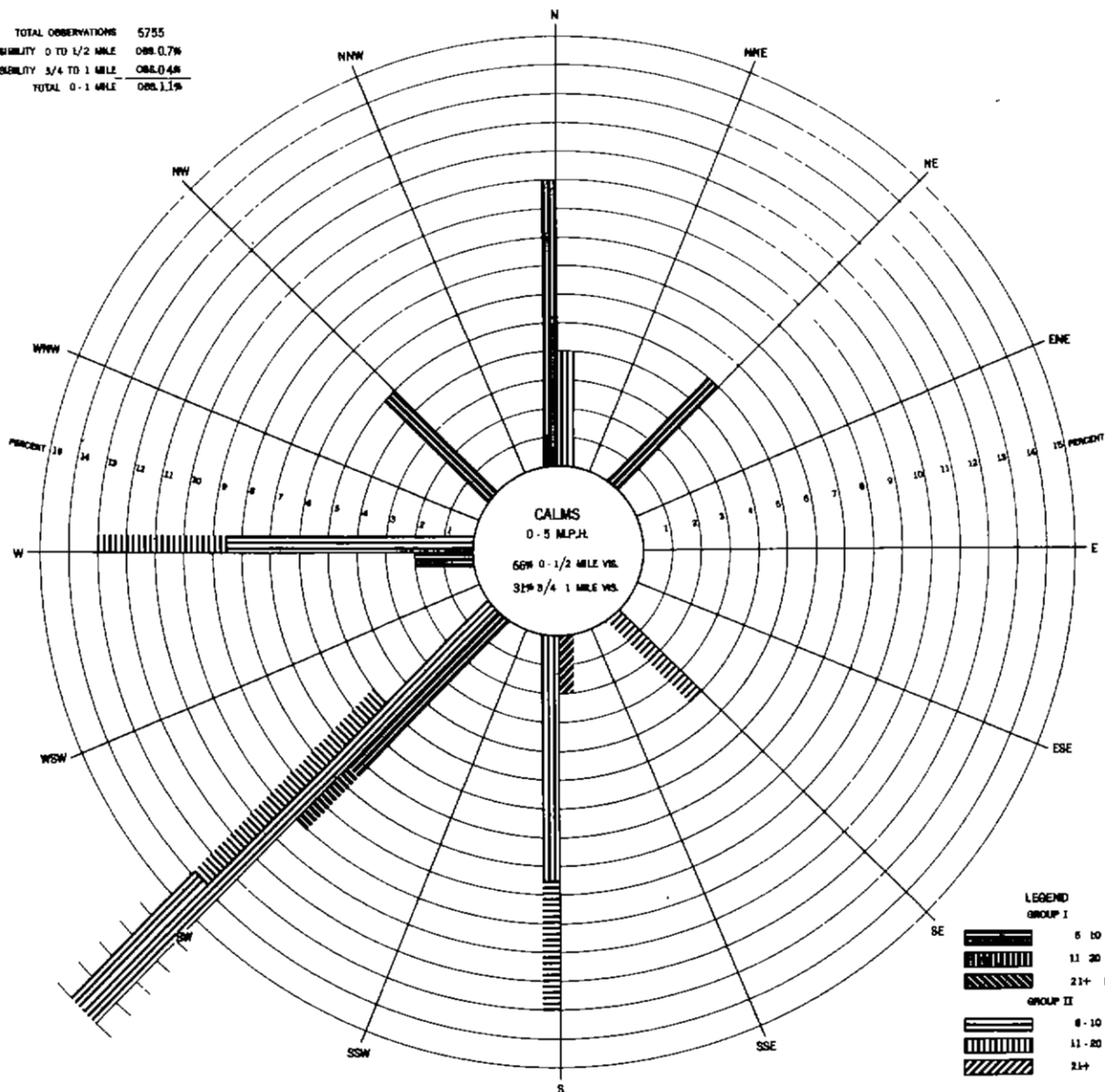
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SANTA FE, N. MEX.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 5755
VISIBILITY 0 TO 1/2 MILE OBS. 0.7%
VISIBILITY 3/4 TO 1 MILE OBS. 0.4%
TOTAL 0 - 1 MILE OBS. 1.1%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-20 M.P.H.
FOG	52	29
SMOG	7	
RAIN	4	
DUST	37	7
SNOW	100	86
TOTALS		7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-20 M.P.H.
FOG	14	19
SMOG		6
RAIN		14
DUST	72	43
SNOW	100	68
TOTALS		32

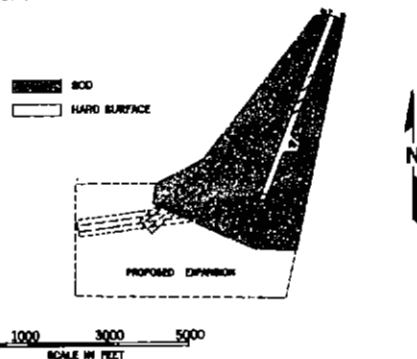
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
GROUPS I & II COMBINED												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG		2	3	1					2		2	5
SMOG												
RAIN		2										2
DUST		1		1								2
SNOW	2	5	1	2	1				1	1	2	15
TOTALS	2	10	4	4	1				3	3	7	34

NOTE

Percentages in windrose are based on the number of observations in each visibility group. Because 9% indicates the percentage of wind in other Group I or Group II depending upon the spatial identification. This data furnished through the cooperation of the U. S. Weather Service and the Storm Program Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

NEVADA

Boulder City

Elko

Las Vegas

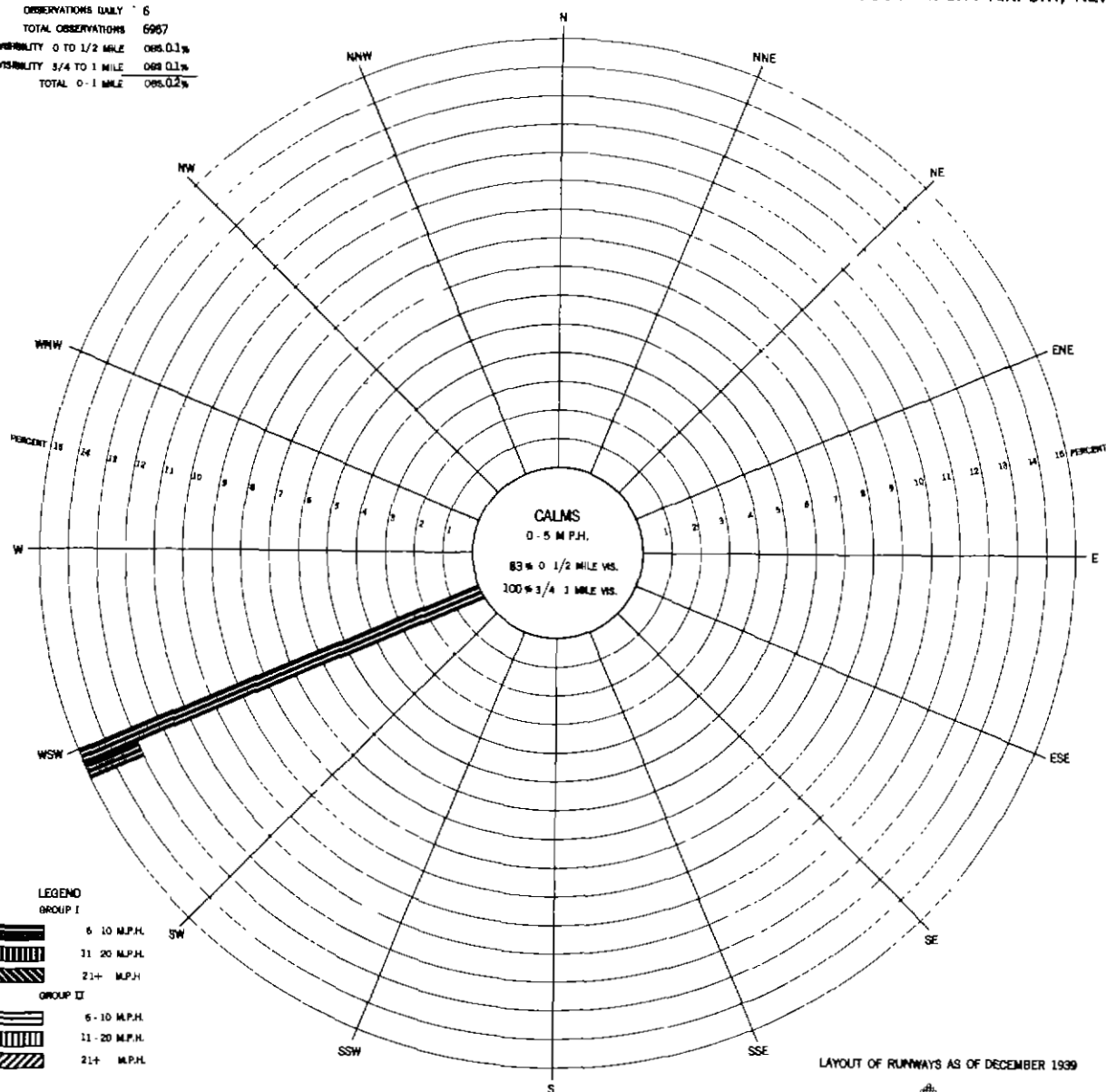
Reno

SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 6
TOTAL OBSERVATIONS 6967
VISIBILITY 0 TO 1/2 MILE 0.01%
VISIBILITY 3/4 TO 1 MILE 0.01%
TOTAL 0-1 MILE 0.02%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

BOULDER CITY AIRPORT, NEV.



LEGEND

GROUP I	
[Symbol]	6-10 M.P.H.
[Symbol]	11-20 M.P.H.
[Symbol]	21+ M.P.H.
GROUP II	
[Symbol]	6-10 M.P.H.
[Symbol]	11-20 M.P.H.
[Symbol]	21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	100
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	100

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	75	
SMOKE		
RAIN	25	
DUST		
SNOW		
TOTALS	100	

(Figures indicate percentage)

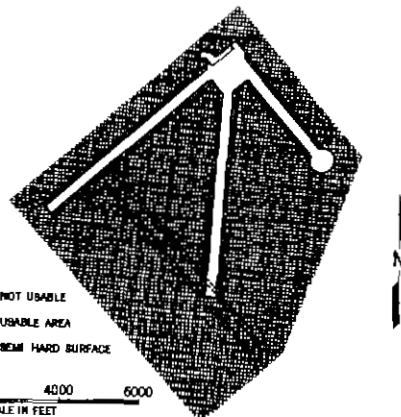
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG												8	8
SMOKE													
RAIN			1										1
DUST													
SNOW													
TOTALS			1									8	9

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



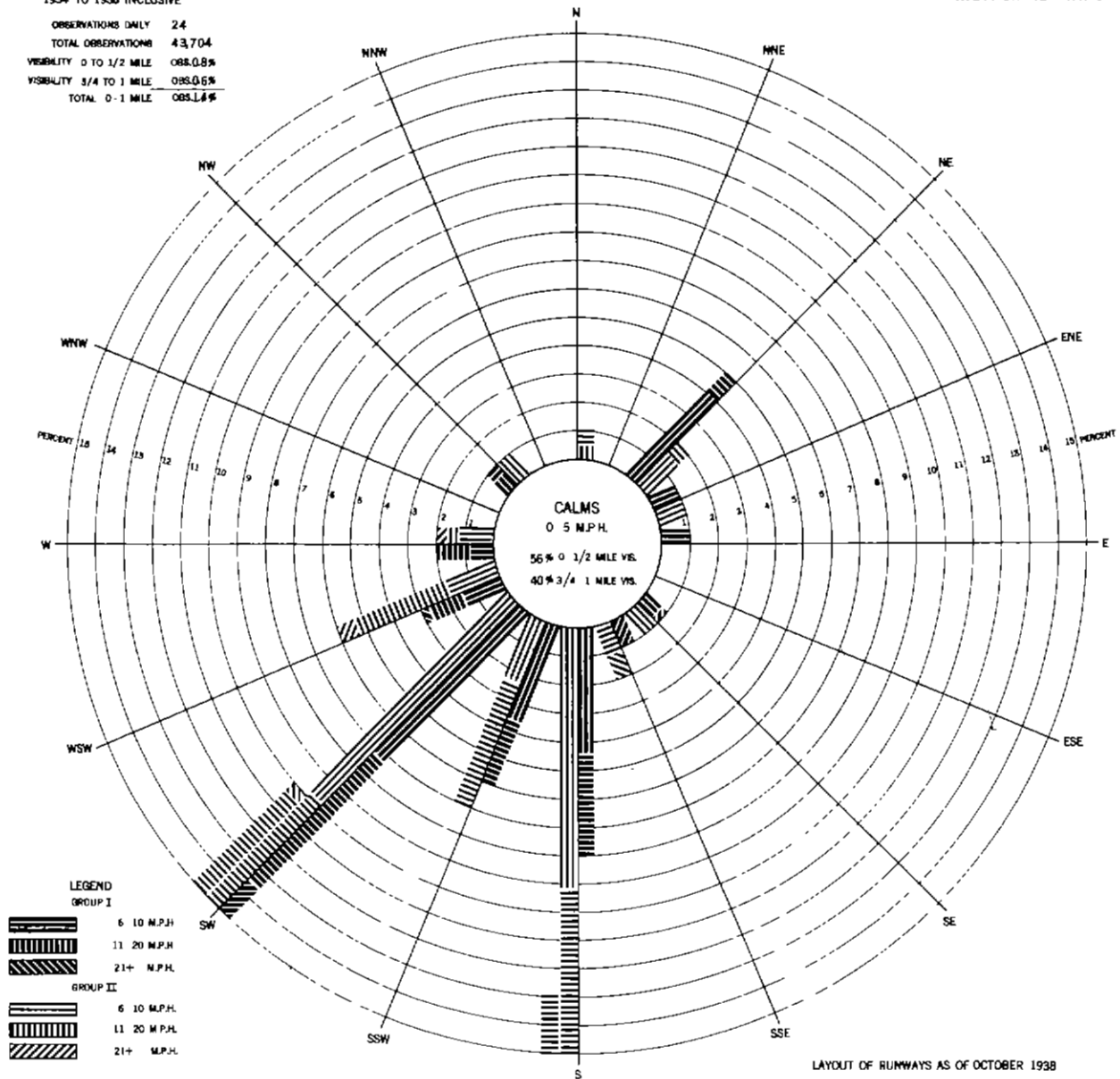
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,704
VISIBILITY 0 TO 1/2 MILE 088.08%
VISIBILITY 3/4 TO 1 MILE 088.08%
TOTAL 0-1 MILE 088.16%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ELKO, NEV.
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF OCTOBER 1938

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	76	25
SMOKE		5
RAIN		
DUST		1
SNOW	24	30
TOTALS	100	55

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

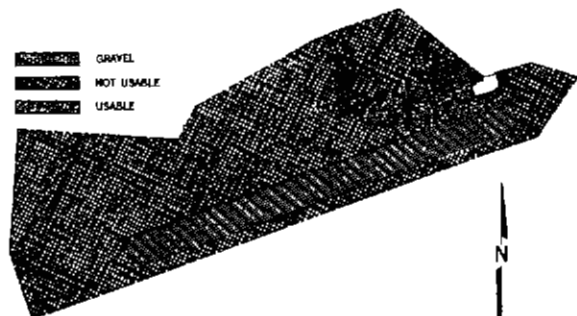
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	50	11
SMOKE	1	9
RAIN	1	
DUST		1
SNOW	46	37
TOTALS	100	49

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	108	9	14	4	6	4			1	1	16	39	202
SMOKE												1	1
RAIN												1	1
DUST													
SNOW	24	40	7	4	1						8	14	98
TOTALS	132	49	21	8	7	4			1	2	24	54	302

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration



SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 5 TO 24
TOTAL OBSERVATIONS 30,584

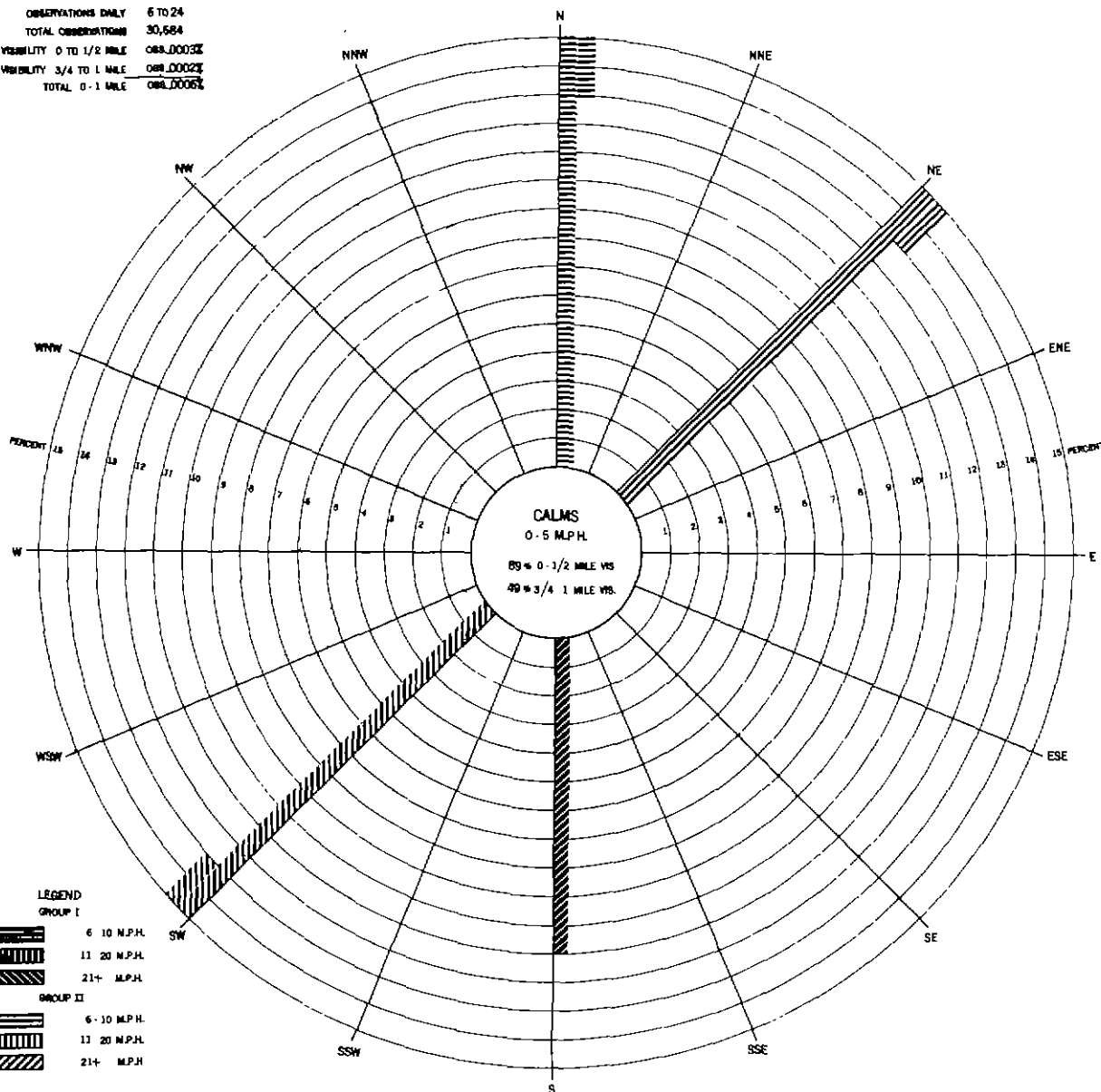
VISIBILITY 0 TO 1/2 MILE 088.0003%

VISIBILITY 3/4 TO 1 MILE 088.0002%

TOTAL 0-1 MILE 088.0006%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LAS VEGAS, NEV.



LEGEND

GROUP I

[Hatched]	6-10 M.P.H.
[Vertical lines]	11-20 M.P.H.
[Diagonal lines]	21+ M.P.H.

GROUP II

[Hatched]	6-10 M.P.H.
[Vertical lines]	11-20 M.P.H.
[Diagonal lines]	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	
SMOKE		
RAIN		
DUST		100
SNOW		
TOTALS	100	100

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	67	
SMOKE		
RAIN		33
DUST		33
SNOW	33	
TOTALS	100	33

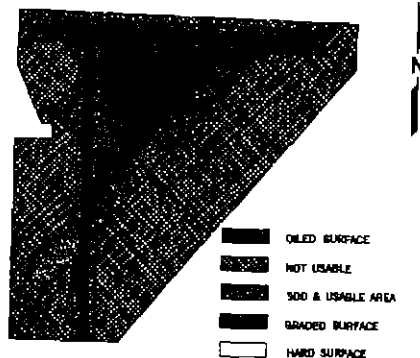
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	3	2	4									1	10
SMOKE													
RAIN													
DUST													
SNOW	1												1
TOTALS	4	2	4									1	11

NOTE:
Percentages in tables are based on the number of observations in each visibility group.
Example: 67 indicates the percentage of total in either Group I or Group II depending upon the visibility classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



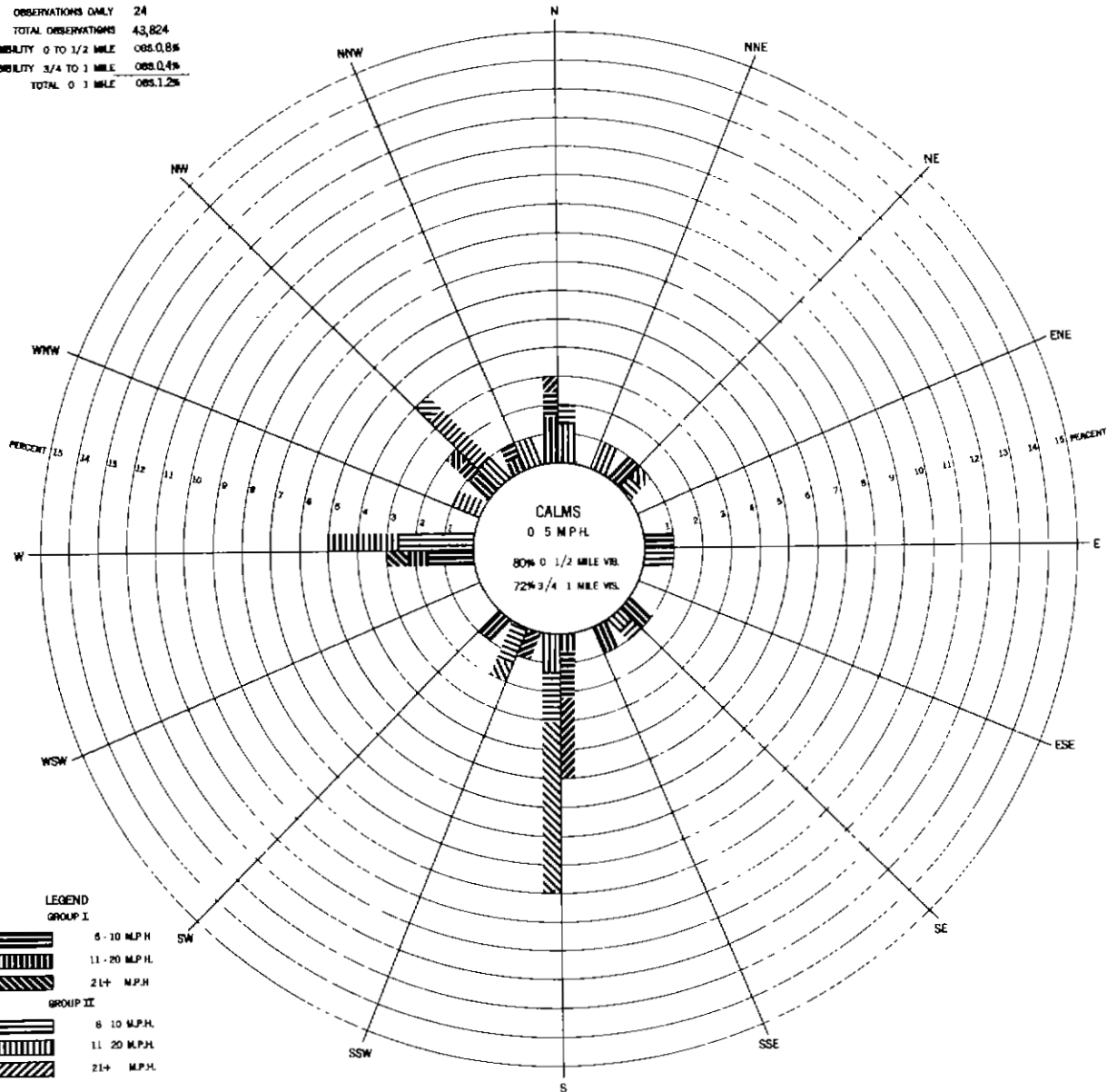
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

RENO, NEV.
UNITED AIRPORT

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 0.8%
VISIBILITY 3/4 TO 1 MILE OBS. 0.4%
TOTAL 0 1 MILE OBS. 1.2%



LEGEND
GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	81	13 2
SMOKE		
RAIN		
DUST		
SNOW	19	30 19 36
TOTALS	100	43 21 36

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	46	2 7
SMOKE	4	
RAIN	1	
DUST		
SNOW	49	31 31 29
TOTALS	100	33 38 29

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	71	24	9								69	118	291
SMOKE	5												5
RAIN													
DUST													
SNOW	32	40	3	1							20	17	113
TOTALS	108	64	12	1							89	135	409

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.

Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the spatial identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



SWAMP
NOT USABLE
USABLE AREA
HARD SURFACE

0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION (6)
AIR TRANSPORT SECTION

NEW YORK

Albany

Buffalo

Elmira

New York (Floyd Bennett)

New York (LaGuardia)

Rochester

Syracuse

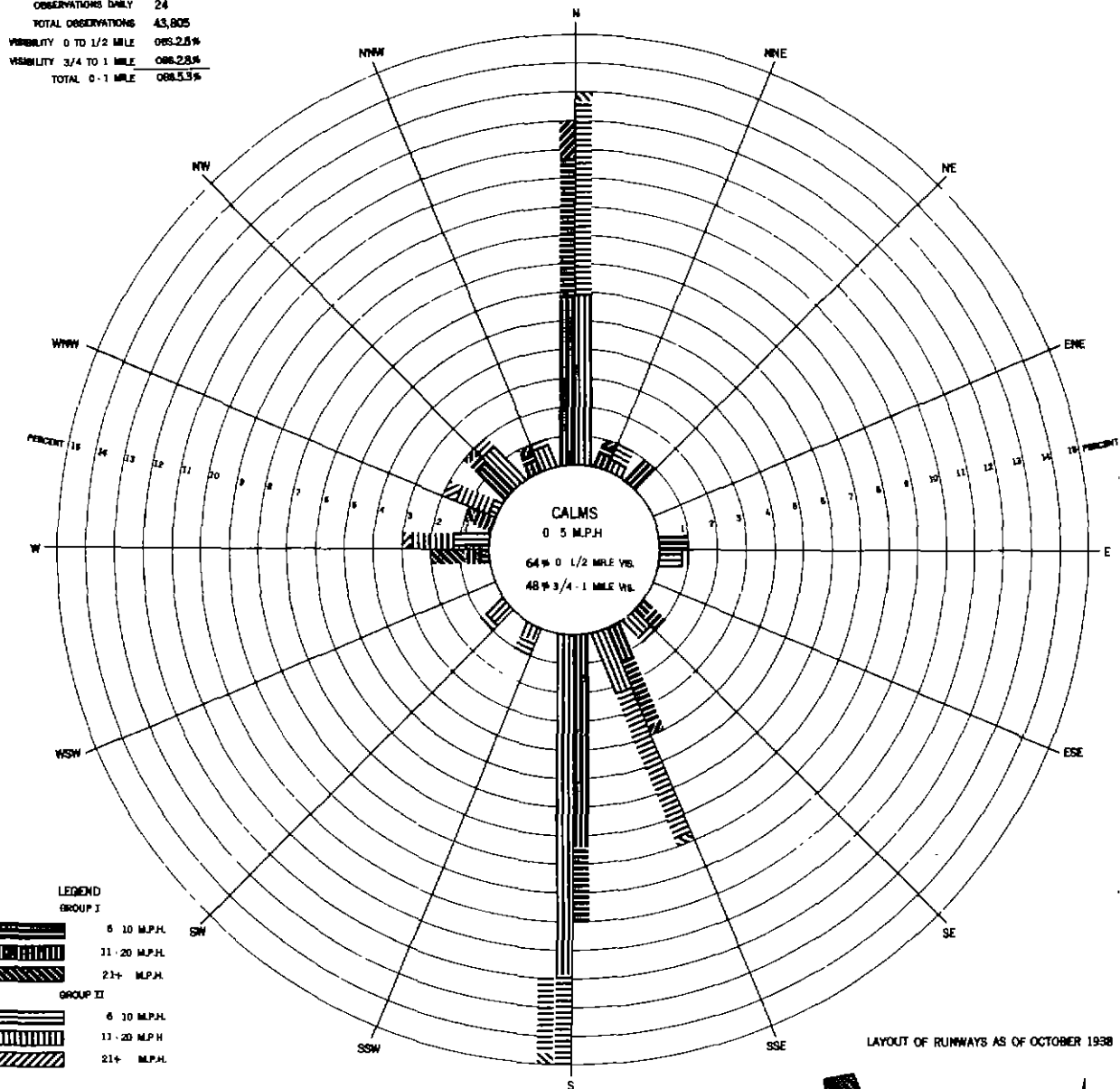
Utica

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,805
VISIBILITY 0 TO 1/2 MILE 085.25%
VISIBILITY 3/4 TO 1 MILE 086.25%
TOTAL 0-1 MILE 085.75%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ALBANY, N.Y.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP II

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	95	39	17	3
SMOKE	1			
RAIN				
DUST				
SNOW	4	15	20	6
TOTALS	100	54	37	9

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOR	82	40	25	2
SMOKE	6	1		
RAIN	1	1	1	
DUST	5	3	2	
SNOW	6	10	13	2
TOTALS	100	55	41	4

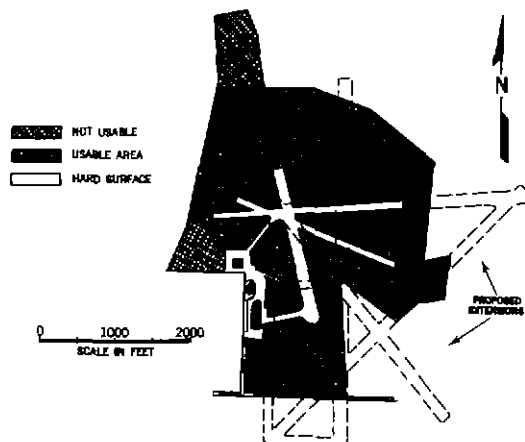
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOR	114	59	113	60	42	45	68	105	193	107	121	115	1340
SMOKE	17	13	3		1						1	3	38
RAIN	1		1				2						4
DUST	6	4	4	2	2		1	1	1	3	3	6	32
SNOW	17	23	8	3						3	13	77	177
TOTALS	154	109	129	65	45	45	71	106	194	110	128	195	1901

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938

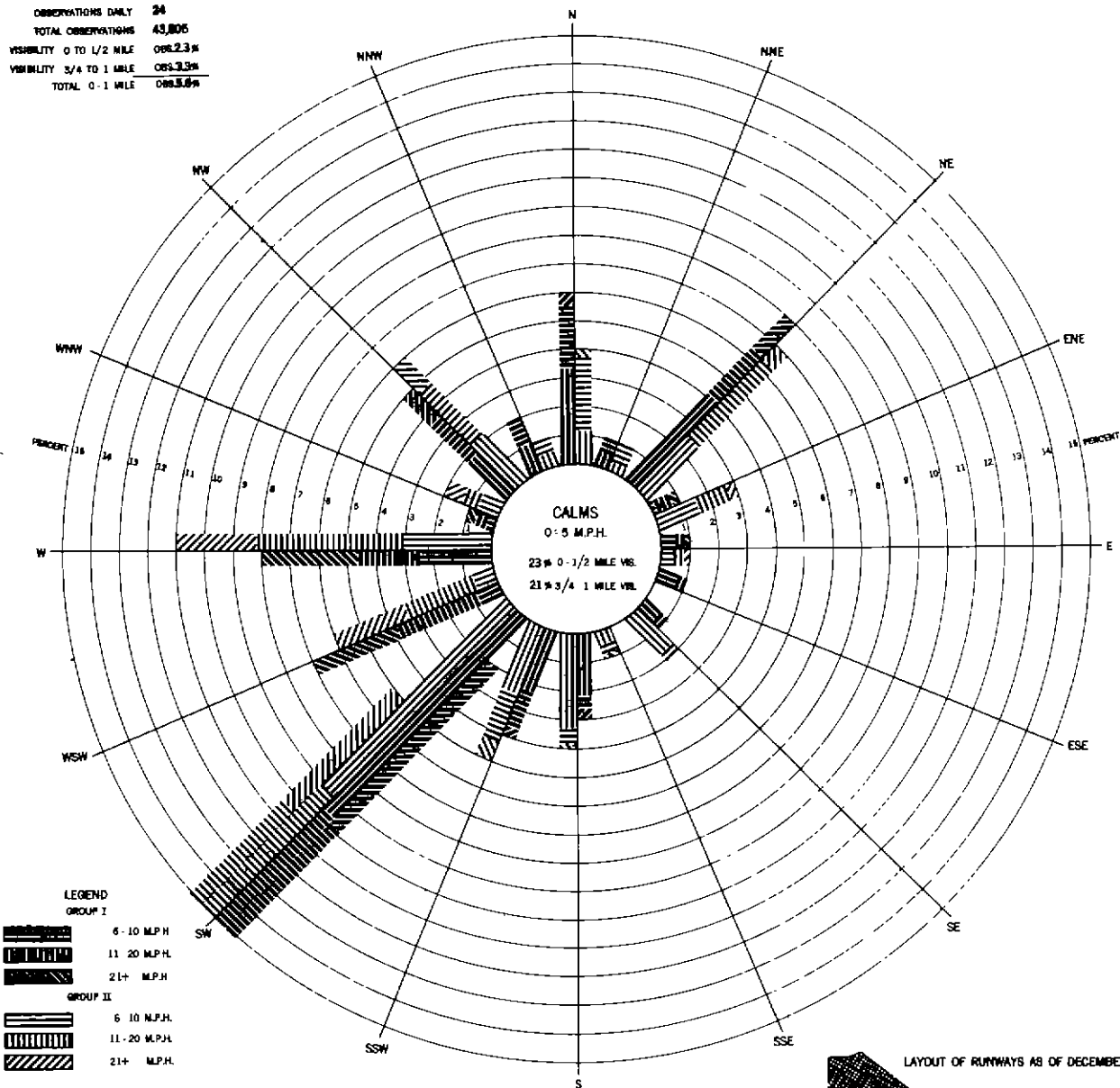


SUMMARY OF YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,805
VISIBILITY 0 TO 1/2 MILE 0.23%
VISIBILITY 3/4 TO 1 MILE 0.33%
TOTAL 0-1 MILE 0.56%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BUFFALO, N.Y.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	90	36
SMOKE	3	1
RAIN		
DUST		
SNOW	7	3
TOTALS	100	42

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

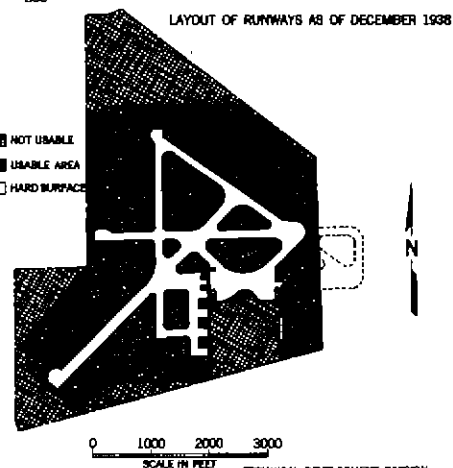
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	66	25
SMOKE	29	9
RAIN		1
DUST		
SNOW	6	5
TOTALS	100	39

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	34	31	23	31	34	25	16	39	25	31	25	58	372
SMOKE	4	14	9	10	16	5	3		2	9	7	8	81
RAIN													
DUST						1							1
SNOW	11	9	1								4	15	34
TOTALS	49	48	23	41	34	31	19	39	27	34	36	81	488

NOTE:
Percentages in statistics are based on the number of observations in each visibility group.
Group I or Group II indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

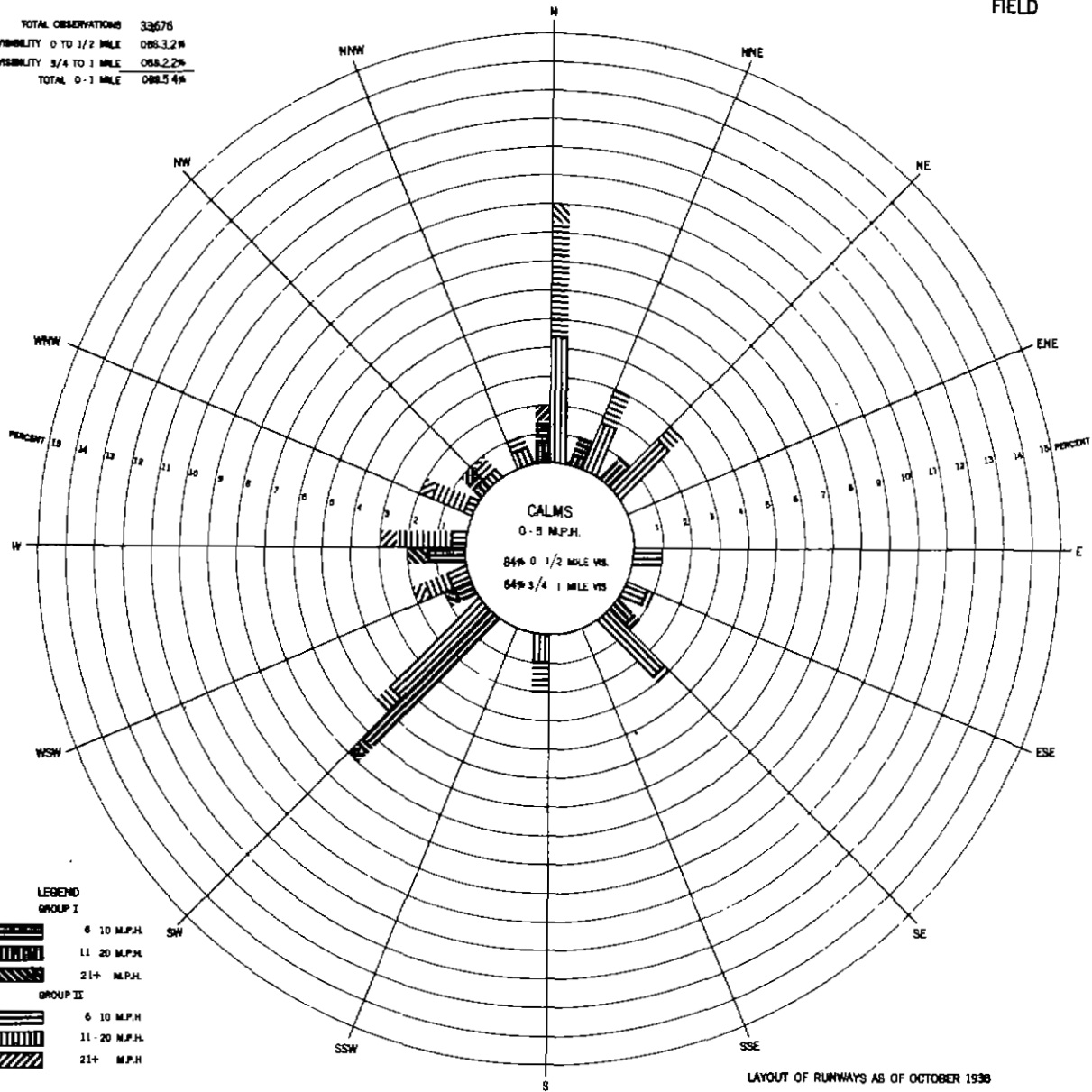


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

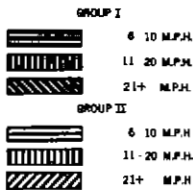
CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ELMIRA, N. Y.
AMERICAN AIRLINES
FIELD

TOTAL OBSERVATIONS 33676
VISIBILITY 0 TO 1/2 MILE 086.32%
VISIBILITY 3/4 TO 1 MILE 088.22%
TOTAL 0-1 MILE 088.54%



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	98	57
SMOKE		8
RAIN		1
DUST		2
SNOW	2	11
TOTALS	100	68

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	87	40
SMOKE	1	19
RAIN	1	2
DUST	1	1
SNOW	10	13
TOTALS	100	57

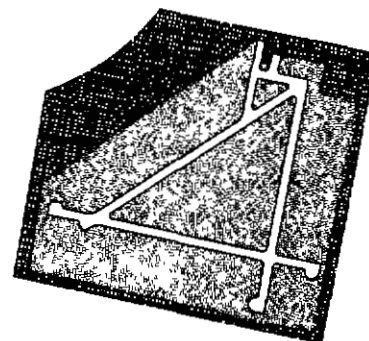
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	57	36	87	42	43	101	123	207	249	170	89	92	1296
SMOKE	1							7				1	9
RAIN		3											3
DUST			3	2								1	6
SNOW	26	13	3	4						2	21		89
TOTALS	84	52	93	48	43	101	123	214	249	170	91	115	1383

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 84 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938



0 1000 2000 3000
SCALE IN FEET

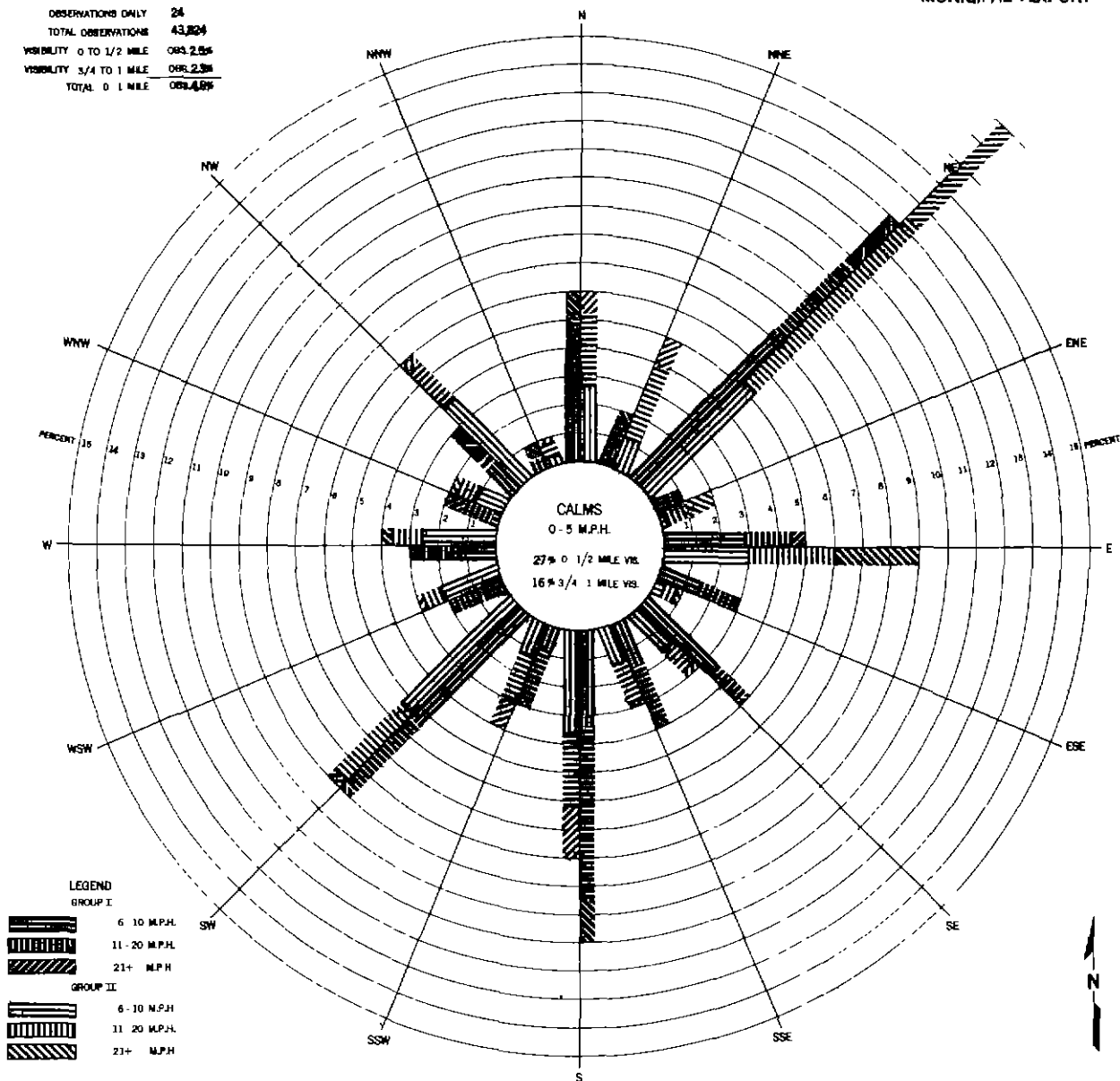
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

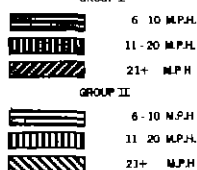
OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.5%
VISIBILITY 3/4 TO 1 MILE OBS. 2.3%
TOTAL 0 1 MILE OBS. 4.8%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

NEW YORK (BROOKLYN) N.Y.
FLOYD BENNETT FIELD
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	48 36 8
SMOKE		
RAIN		
DUST		
SNOW	2	1 2 5
TOTALS	100	49 38 13

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	38 34 14
SMOKE	2	1
RAIN		
DUST	4	1 1 1
SNOW	2	1 4 5
TOTALS	100	41 39 20

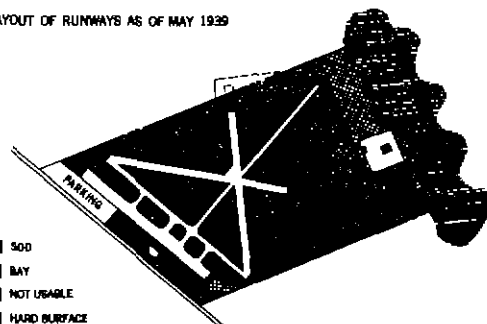
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	101	42	31	17	33	39	13	30	20	23	22	37	408
SMOKE				1			1			1	1		4
RAIN													1
DUST	5	2						1					8
SNOW	5	4											9
TOTALS	111	48	31	18	33	39	15	31	20	24	23	37	430

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the visibility limitation.
This data furnished through the cooperation of the U. S. Weather Service and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF MAY 1939



0 1000 2000 4000
SCALE IN FEET

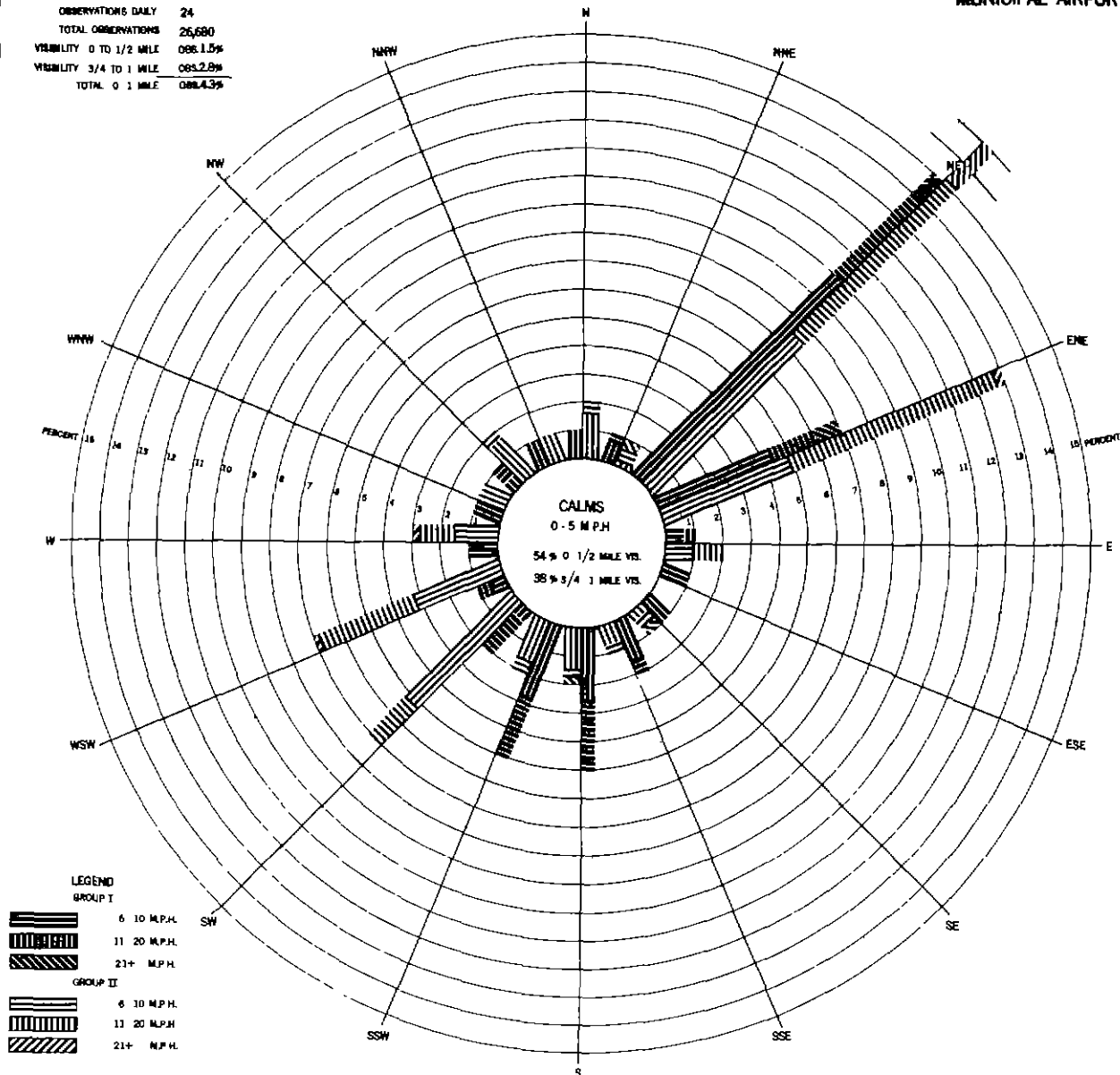
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 3 YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 26,680
VISIBILITY 0 TO 1/2 MILE 088.15%
VISIBILITY 3/4 TO 1 MILE 089.28%
TOTAL 0 1 MILE 088.43%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

NEW YORK, N.Y.
LA GUARDIA FIELD
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	96	61
SMOKE	2	30
RAIN		5
DUST	1	
SNOW	1	2
TOTALS	100	63

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	86	46
SMOKE	12	39
RAIN		2
DUST	1	
SNOW	1	1
TOTALS	100	54

(Figures indicate percentage)

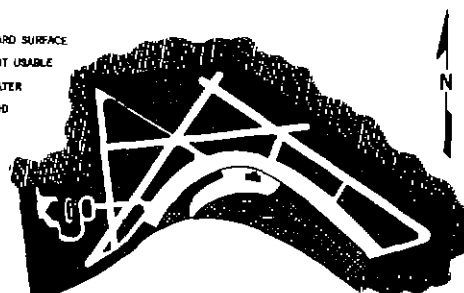
TOTAL OCCURRENCES DURING CALMS 0-5 M.P.H. BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	25	11	49	1	18	18	7	21	21	11	13	41	236
SMOKE	1	1	2		7				1	6		2	20
RAIN				1									
DUST				1									2
SNOW		2											2
TOTALS	26	14	52	1	26	18	7	22	27	11	13	43	260

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Legend: 5% indicates the percentage of land in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Service and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

HARD SURFACE
NOT USABLE
WATER
SOIL



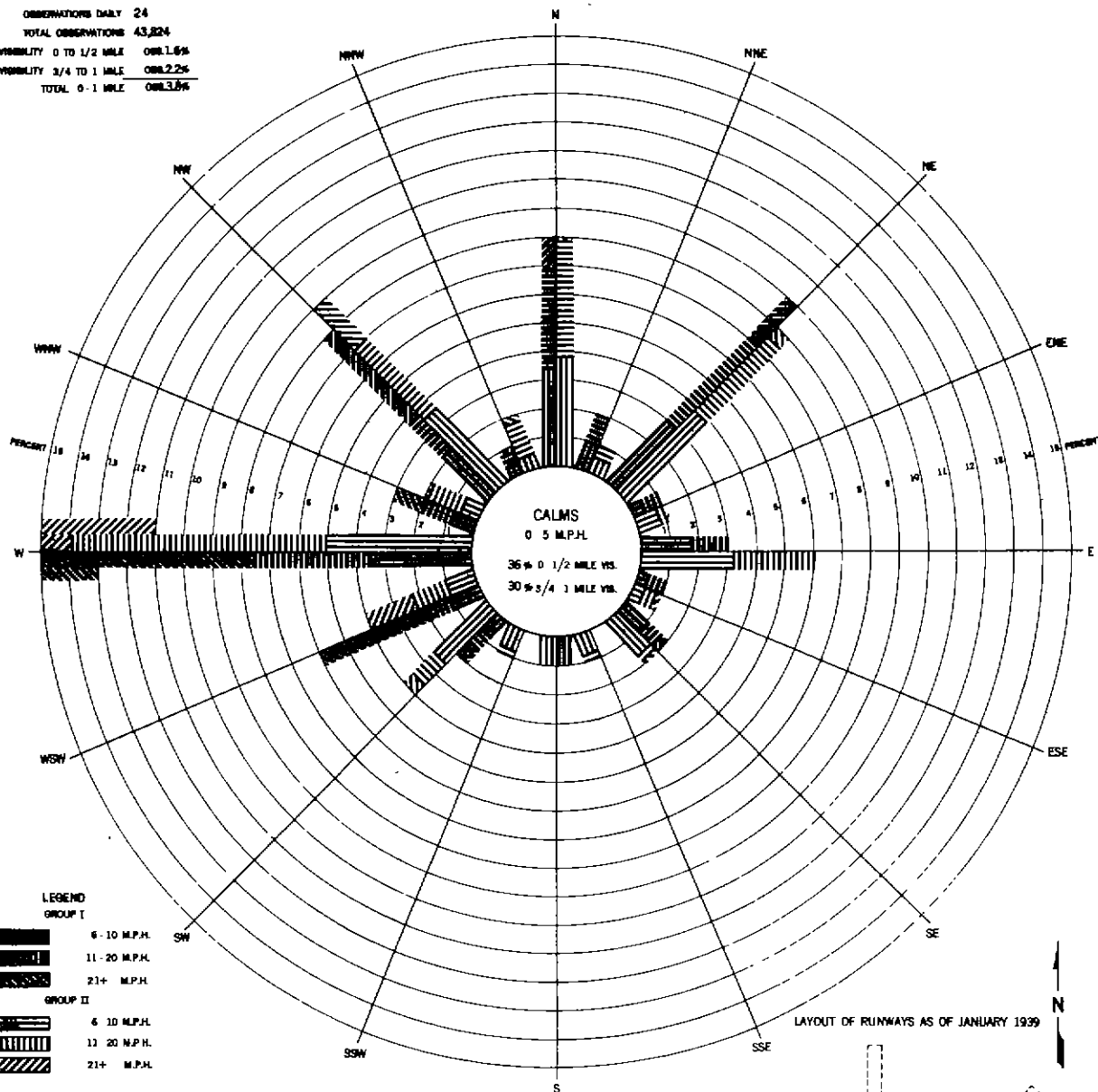
0 1000 2000 4000
SCALE IN FEET

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.6%
VISIBILITY 3/4 TO 1 MILE OBS. 2.2%
TOTAL 0-1 MILE OBS. 3.8%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ROCHESTER, N. Y.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	21 9 3
SMOKE		
RAIN		
DUST		
SNOW	4	9 22 36
TOTALS	100	90 31 39

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	82	51 17 2
SMOKE	3	
RAIN		1 1
DUST		
SNOW	15	11 24 13
TOTALS	100	43 42 15

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS	GROUPS I & II COMBINED												TOTAL
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	
FOG	45	24	31	53	31	23	19	50	44	64	60	44	485
SMOKE		2	1					5			1		9
RAIN			1		1								2
DUST													
SNOW	4	12	9								7	20	52
TOTALS	49	38	42	53	32	23	19	55	44	64	68	64	551

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the system identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 3000
SCALE IN FEET

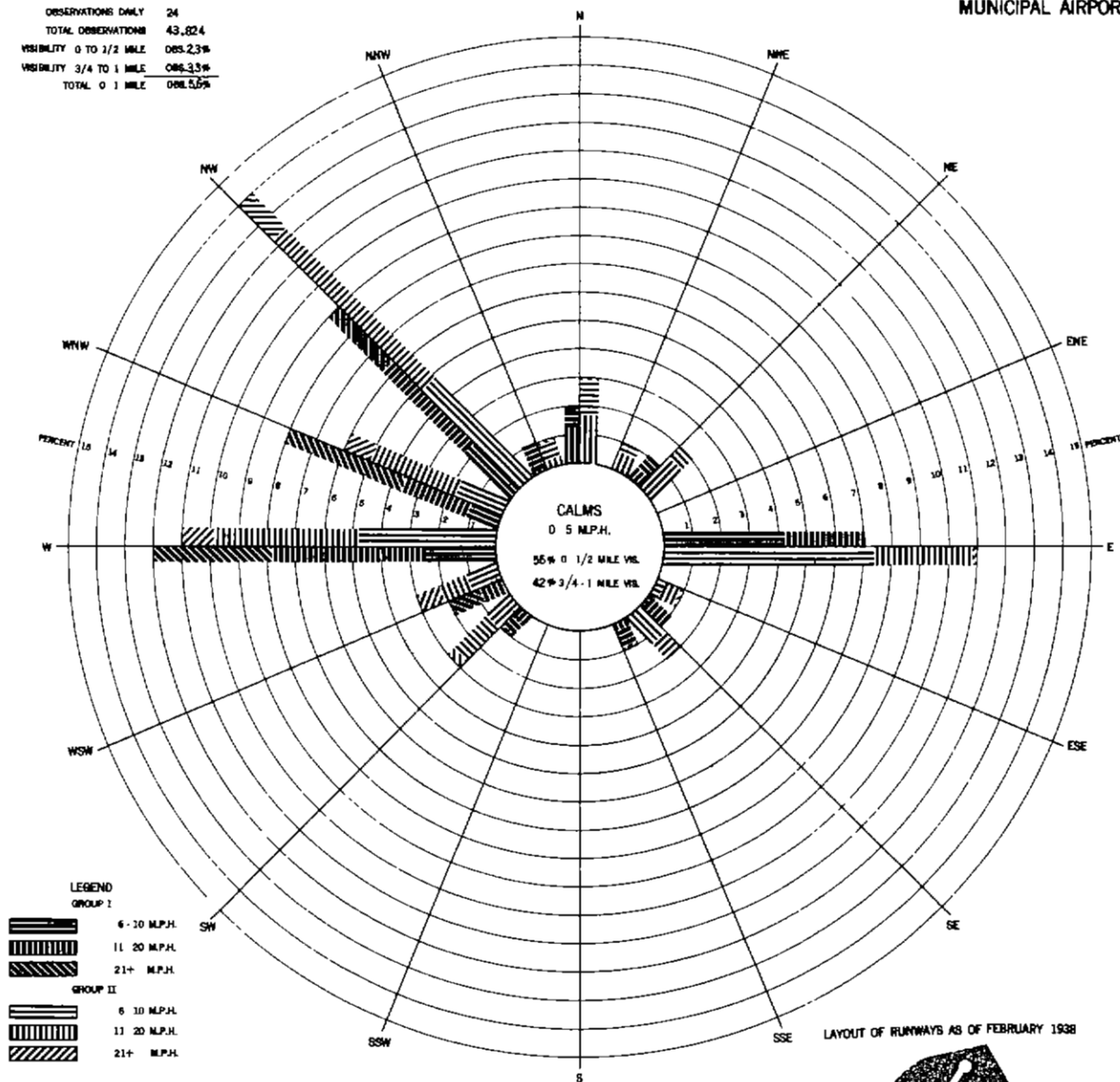
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 3.5%
TOTAL 0 1 MILE OBS. 5.8%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SYRACUSE, N. Y.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	91	14 6 1
SMOKE	3	
RAIN	1	1 1
DUST		
SNOW	5	15 26 27
TOTALS	100	29 42 29

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	79	25 9
SMOKE	11	1
RAIN	1	1 1
DUST		
SNOW	10	19 33 10
TOTALS	100	46 43 11

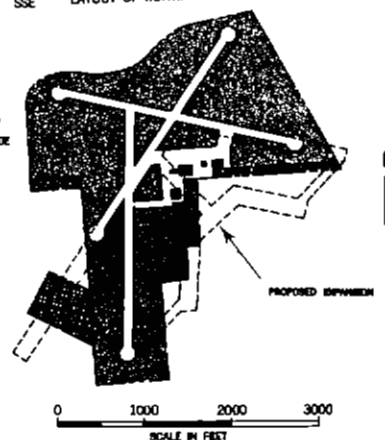
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	86	64	102	54	42	46	24	72	200	150	74	71	965
SMOKE	14	8		6	8	2	2	12	20	8	5	3	86
RAIN	3						1			1			6
DUST		2											3
SNOW	18	18	15	2						13	25		88
TOTALS	121	89	117	62	47	48	27	84	220	159	92	101	1167

NOTE:
Percentages in windrosettes are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of wind in either Group I or Group II depending upon the reported identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF FEBRUARY 1938



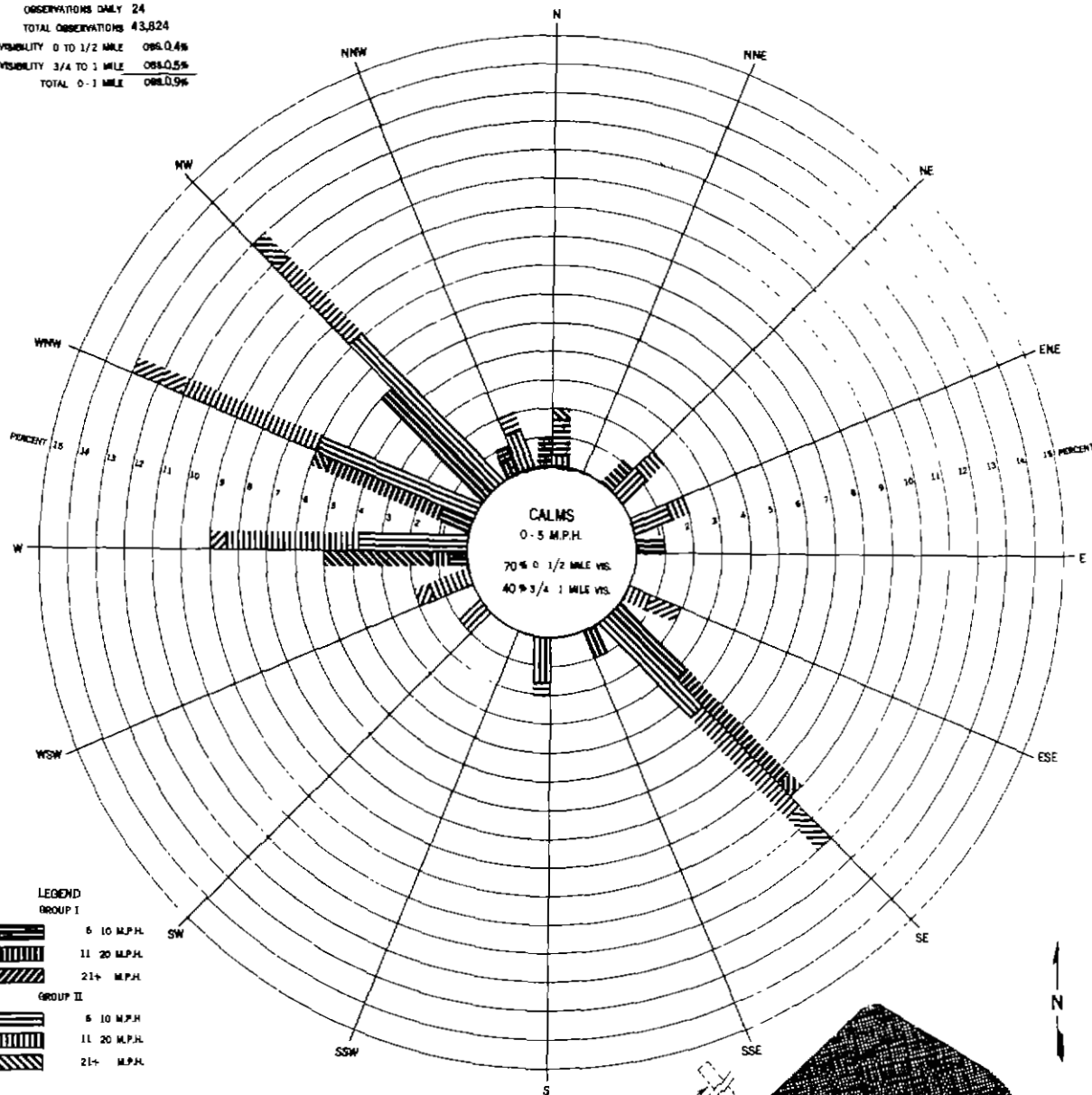
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 086.0.4%
VISIBILITY 3/4 TO 1 MILE 088.0.5%
TOTAL 0-1 MILE 086.0.9%

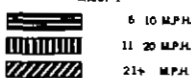
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

UTICA, N. Y.
MUNICIPAL AIRPORT



LEGEND

GROUP I



GROUP II



GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	29 15 2
SMOKE		
RAIN		2 2
DUST		
SNOW	3	11 26 13
TOTALS	100	40 43 17

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	28 16 2
SMOKE		
RAIN		1 2 1
DUST		
SNOW	5	17 23 10
TOTALS	100	46 41 13

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	6	8	3	2	1	14	12	12	37	97	30	31	193
SMOKE													
RAIN													
DUST													
SNOW	3			2							2		7
TOTALS	9	8	3	4	1	14	12	12	37	37	32	31	200

NOTE:

Percentages in windrose are based on the number of observations in each wind/sky group.

Example: 95 indicates the percentage of wind in either Group I or Group II occurring upon the specified identification.

This data furnished through the cooperation of the U. S. Weather Service and the State Progress Administration.

EXTENDING TO 4500'

LAYOUT AS OF
FEBRUARY 1939

NOT USABLE
USABLE AREA
HARD SURFACE

0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

OHIO

Akron

Cincinnati

Cleveland

Columbus

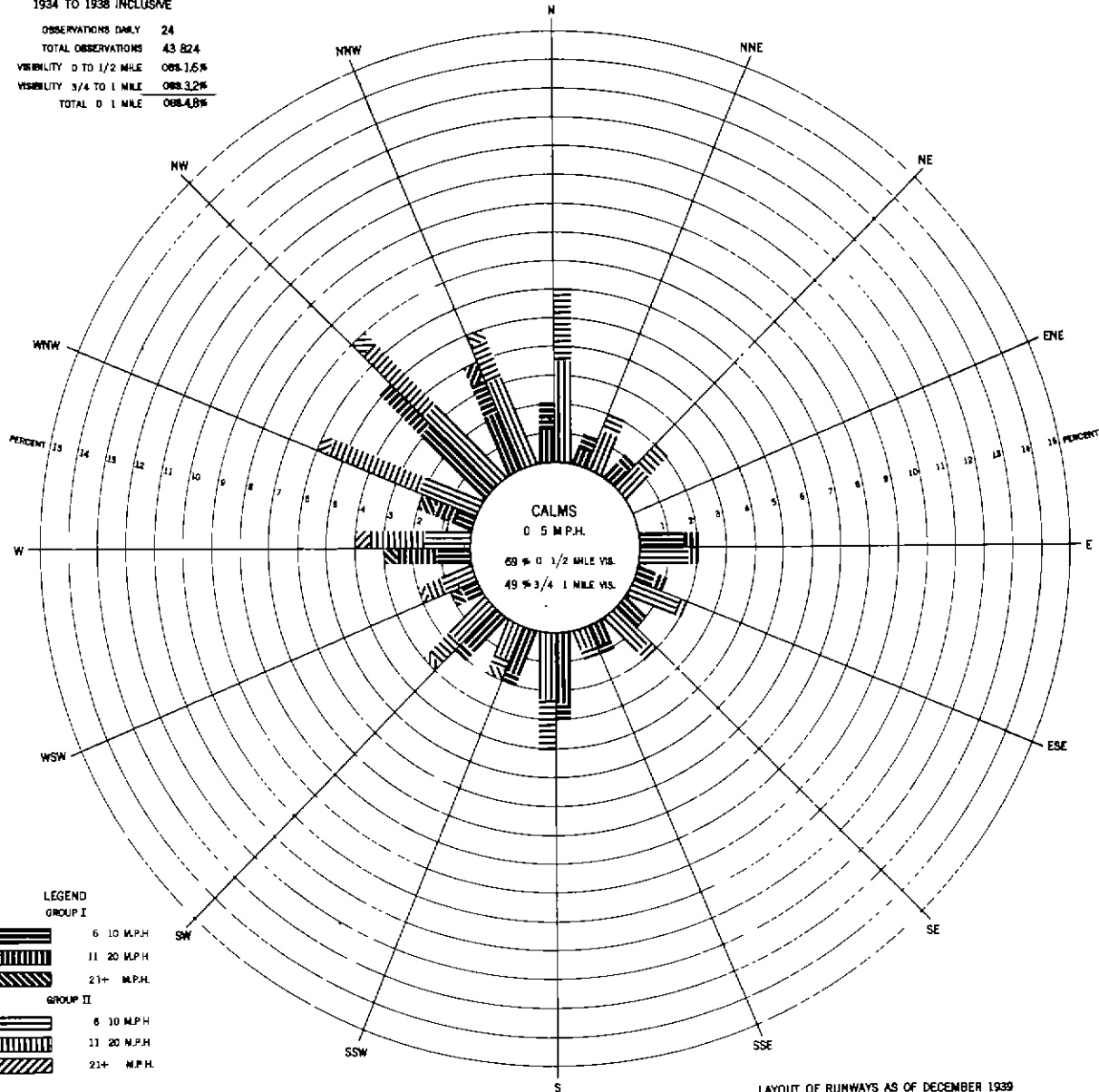
Dayton

Toledo

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

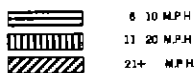
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 1.6%
VISIBILITY 3/4 TO 1 MILE OBS. 3.2%
TOTAL 0 1 MILE OBS. 4.8%



LEGEND
GROUP I



GROUP II



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	91	56 20
SMOKE	6	2 2
RAIN		
DUST		
SNOW	3	3 10 7
TOTALS	100	61 32 7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	60	35 20 1
SMOKE	37	13 6
RAIN		1
DUST	1	1 2
SNOW	2	6 12 3
TOTALS	100	55 41 4

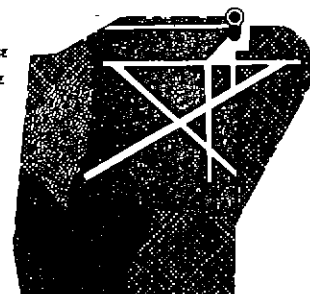
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS												
GROUP I & II COMBINED												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	129	39	87	50	39	61	45	66	50	92	67	117
SMOKE	44	31	28	32	5	2		1	6	23	52	55
RAIN								1	1			2
DUST	1	2									1	6
SNOW	2	6									7	11
TOTALS	176	78	115	82	44	63	45	67	56	115	127	189

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the symbol identifier.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



0 1000 2000 4000
SCALE IN FEET

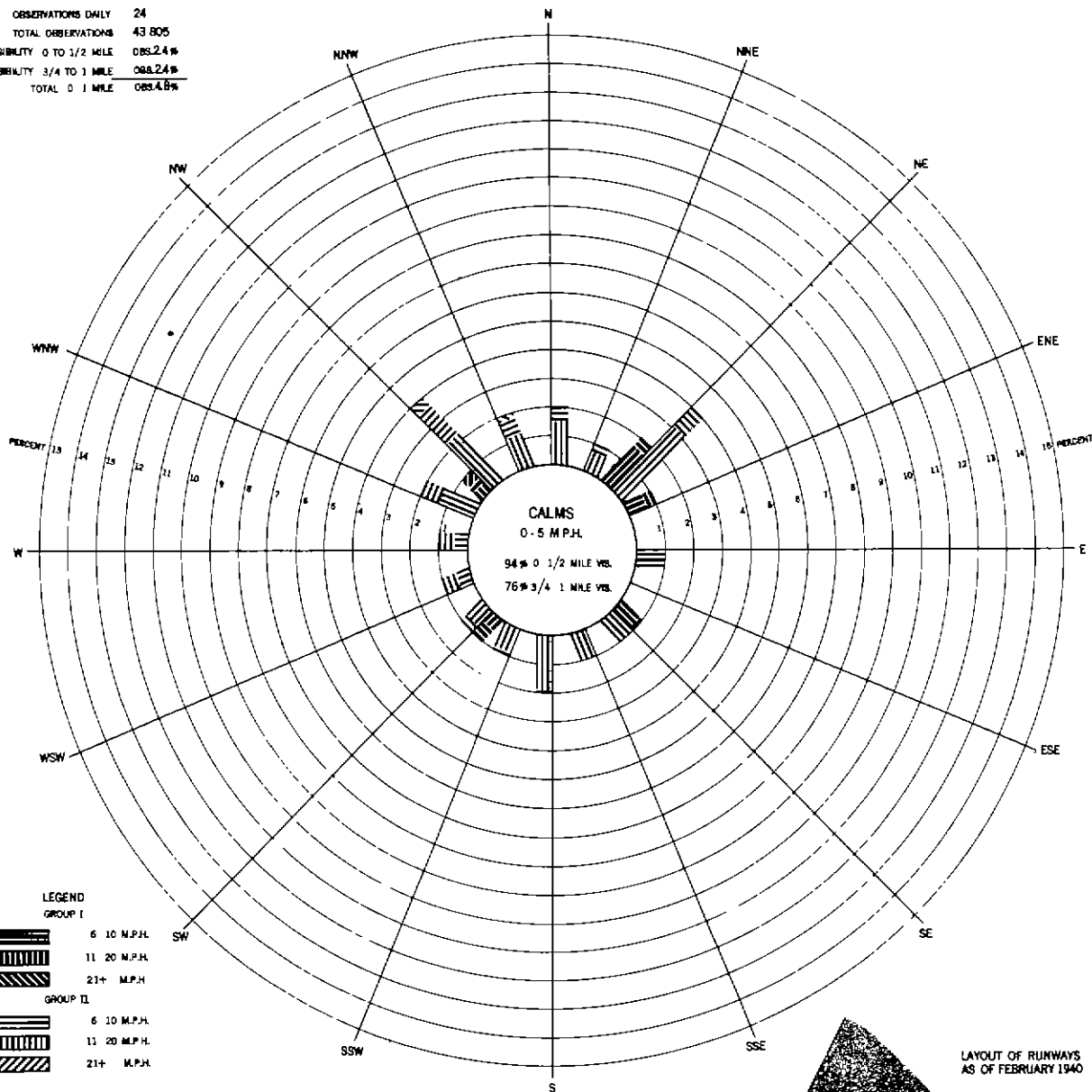
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

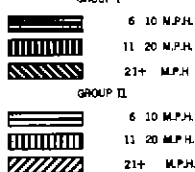
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 805
VISIBILITY 0 TO 1/2 MILE OBS. 2.4%
VISIBILITY 3/4 TO 1 MILE OBS. 2.4%
TOTAL 0 1 MILE OBS. 4.8%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CINCINNATI, OHIO
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	57 6
SMOKE		2 4
RAIN		1 2 1
DUST		
SNOW		12 10 5
TOTALS	100	72 22 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

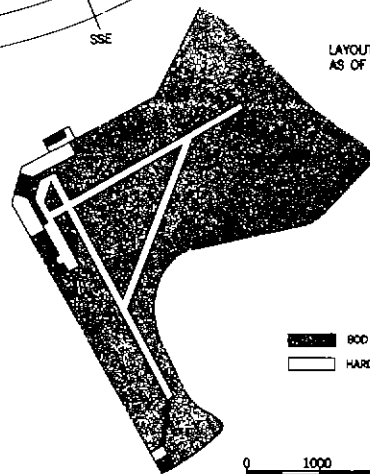
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	83	46 10
SMOKE	14	14 2
RAIN		2
DUST	1	3 2
SNOW	2	8 12 1
TOTALS	100	73 26 1

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	143	71	116	48	68	82	114	162	205	280	210	179	1848
SMOKE	32	12	16	4	3					6	7	35	115
RAIN	1					1							5
DUST	1		3	1						1			6
SNOW	2	5	7							3			17
TOTALS	179	88	142	53	71	83	114	162	205	287	217	220	1791

NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Group I: 5/8 indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



LAYOUT OF RUNWAYS
AS OF FEBRUARY 1940

800
HARD SURFACE

0 1000 2000 3000
SCALE IN FEET

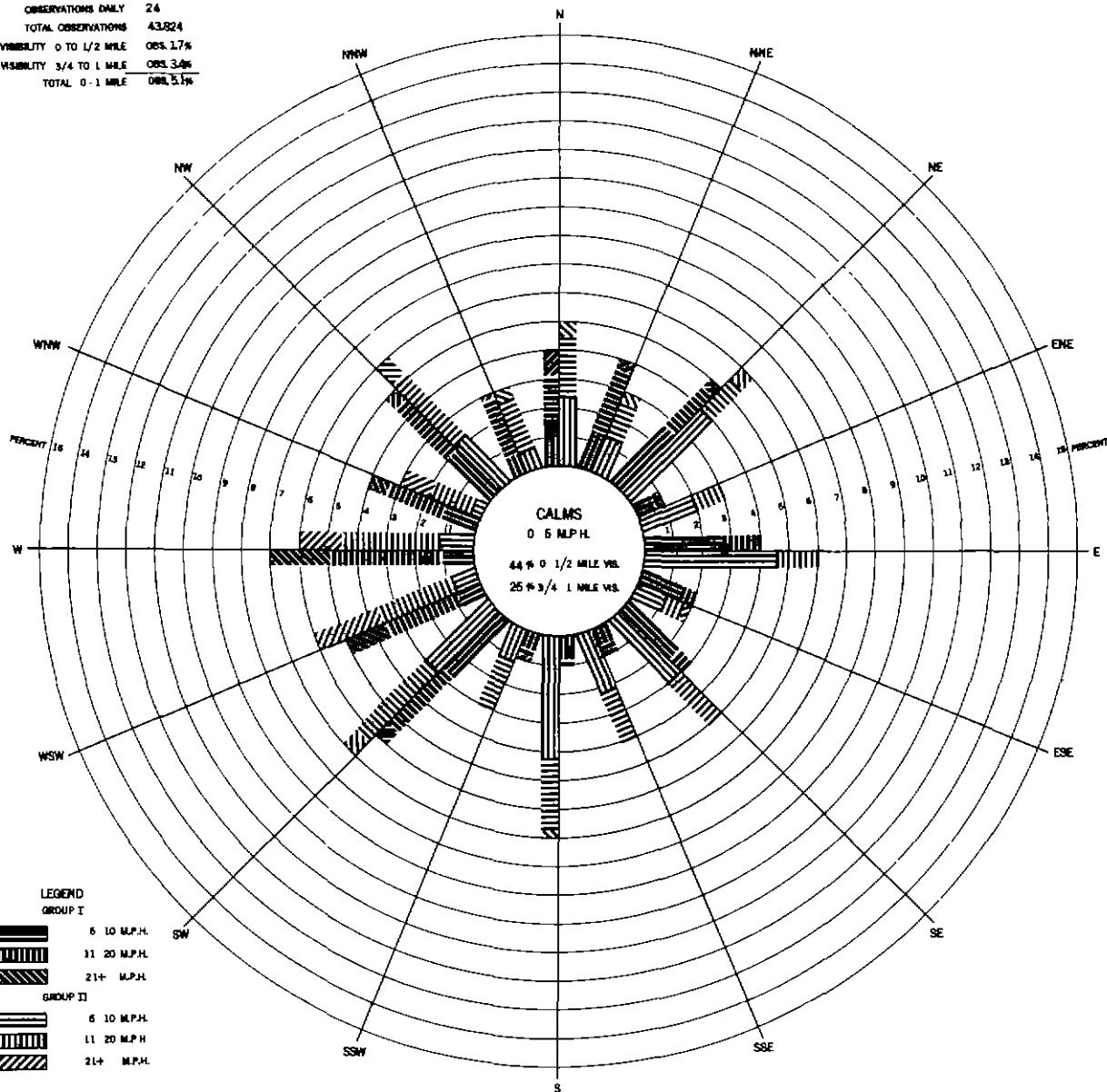
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 8 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 3.4%
TOTAL 0 - 1 MILE OBS. 5.1%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

CLEVELAND, OHIO
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	90	35 20
SMOKE	6	3
RAIN	1	1 1
DUST	3	4 25 11
SNOW	100	42 46 12

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	55	24 19 1
SMOKE	37	18 77
RAIN		1 1
DUST	8	4 17 8
SNOW	100	46 44 10

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	74	21	24	44	37	29	44	59	29	40	27	58	486
SMOKE	46	48	20	16	3	3		3	2	5	5	10	158
RAIN			2					1					3
DUST													
SNOW	10	6	2	3							2	17	40
TOTALS	129	73	48	63	40	32	44	63	31	45	34	85	687

NOTE.

Percentages in windrose are based on the number of observations in each visibility group.
Example: 55 indicates the percentage of wind in either Group I or Group II depending upon the reported visibility.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938

NOT USABLE
HARD SURFACE
BOD & USABLE AREA
GRADED



0 3000 5000
SCALE IN FEET

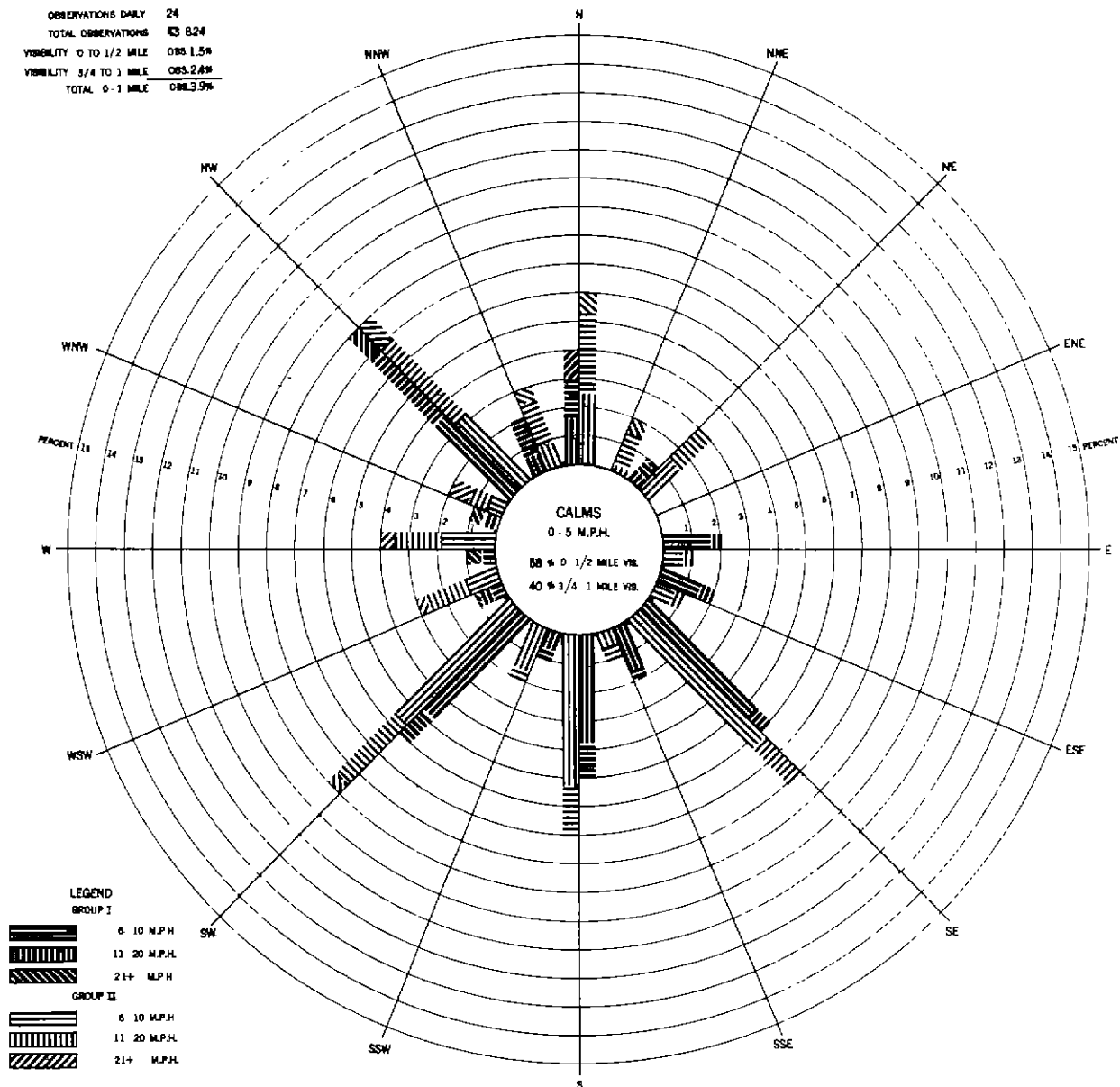
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 085.15%
VISIBILITY 3/4 TO 1 MILE 085.24%
TOTAL 0-1 MILE 088.39%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

COLUMBUS, OHIO
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	57 18
SMOKE	4	2 1
RAIN		
DUST		
SNOW	2	6 8 8
TOTALS	100	65 27 8

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	72	37 25 1
SMOKE	26	9 4 1
RAIN		1 1 1
DUST		1 1 1
SNOW	2	5 8 8
TOTALS	100	53 99 8

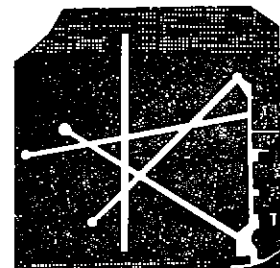
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	72	21	59	36	26	26	36	50	56	99	93	79	653
SMOKE	41	16	8					2		3	21	35	126
RAIN													
DUST													
SNOW	5	5	1	1								3	15
TOTALS	118	42	69	37	26	26	36	52	56	102	114	117	795

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the wind identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



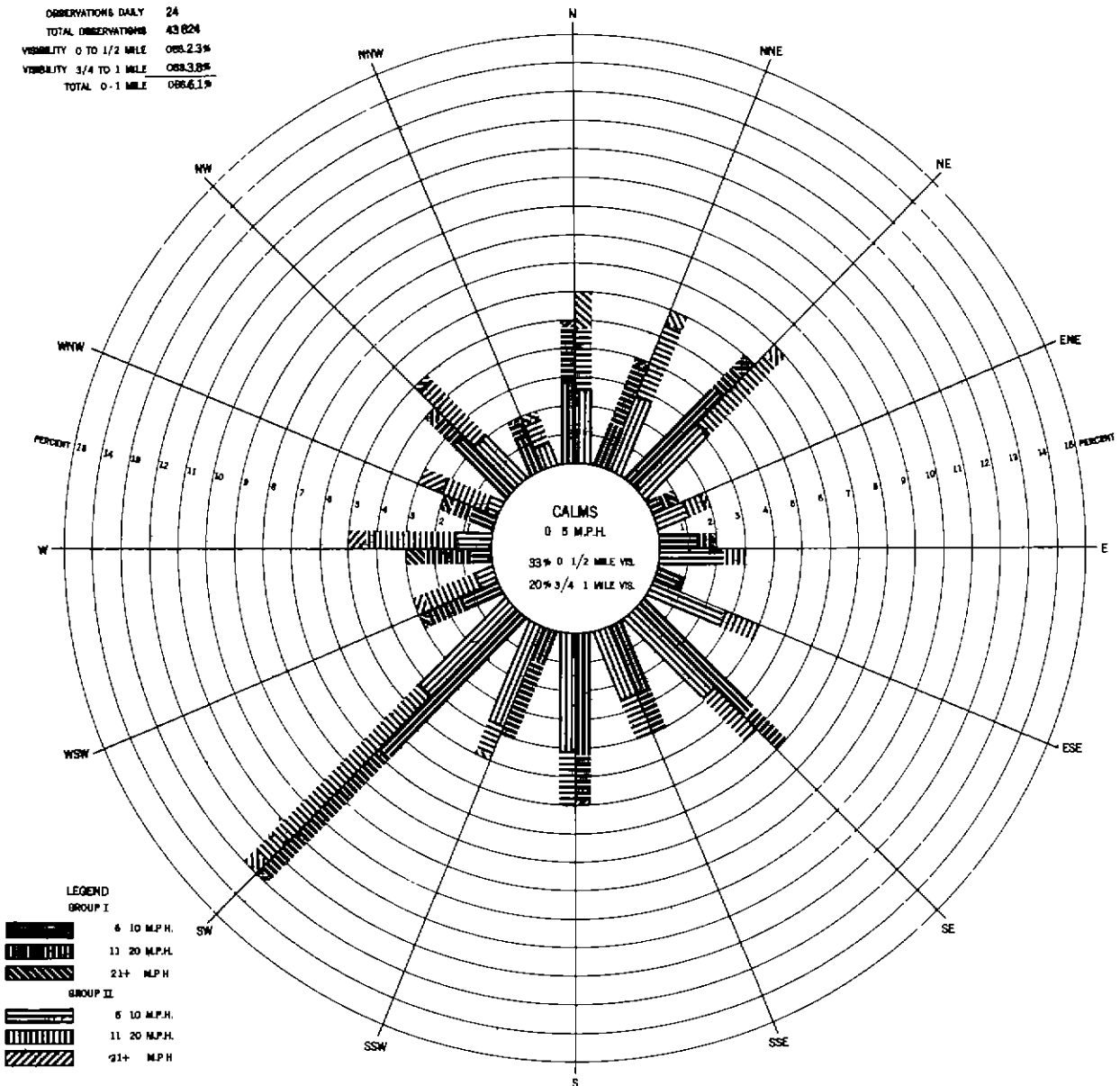
0 1000 4000
SCALE IN FEET

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 024
VISIBILITY 0 TO 1/2 MILE 088.23%
VISIBILITY 3/4 TO 1 MILE 089.38%
TOTAL 0-1 MILE 088.61%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DAYTON, OHIO
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	53 35 2
SMOKE		1
RAIN		
DUST		
SNOW	2	2 3 4
TOTALS	100	56 38 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	84	38 39 3
SMOKE	12	6 2
RAIN		1 2
DUST	2	1 1
SNOW	2	2 3 2
TOTALS	100	48 47 5

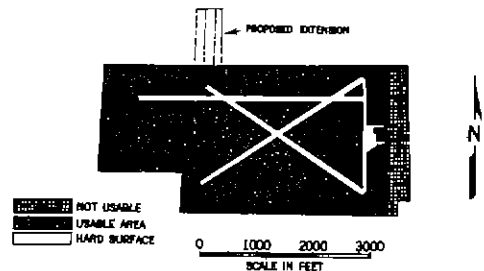
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	78	40	66	30	35	20	18	26	47	70	101	59	590
SMOKE	10	5	14								1	9	42
RAIN											1		1
DUST				3	2							1	6
SNOW	5	6	3								1		15
TOTALS	93	51	86	32	35	20	18	26	47	70	104	69	654

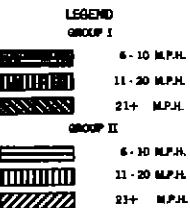
NOTE:
Percentages in visibilities are based on the number of observations in each visibility group.
Example: 89 indicates the percentage of wind in either Group I or Group II depending upon the speed classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1938



TOLEDO, OHIO
MUNICIPAL AIRPORT

OBSERVATIONS DAILY	24
TOTAL OBSERVATIONS	43,824
VELOCITY 0 TO 1/2 MILE	088.23%
VELOCITY 1/4 TO 1 MILE	088.31%
TOTAL 0-1 MILE	088.54%

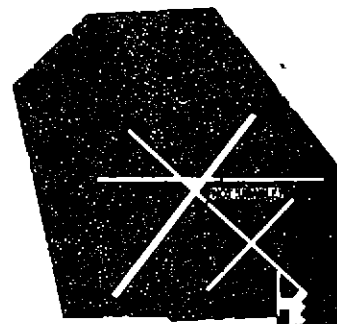


LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

(Figures indicate percentages)

(Figures indicate percentages)

NOTE:
Percentages in windows are based on the number of stations in each visibility group.
Example: 5-6 indicates the percentage of steel in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Work Program Administration.



0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

OKLAHOMA

Oklahoma City

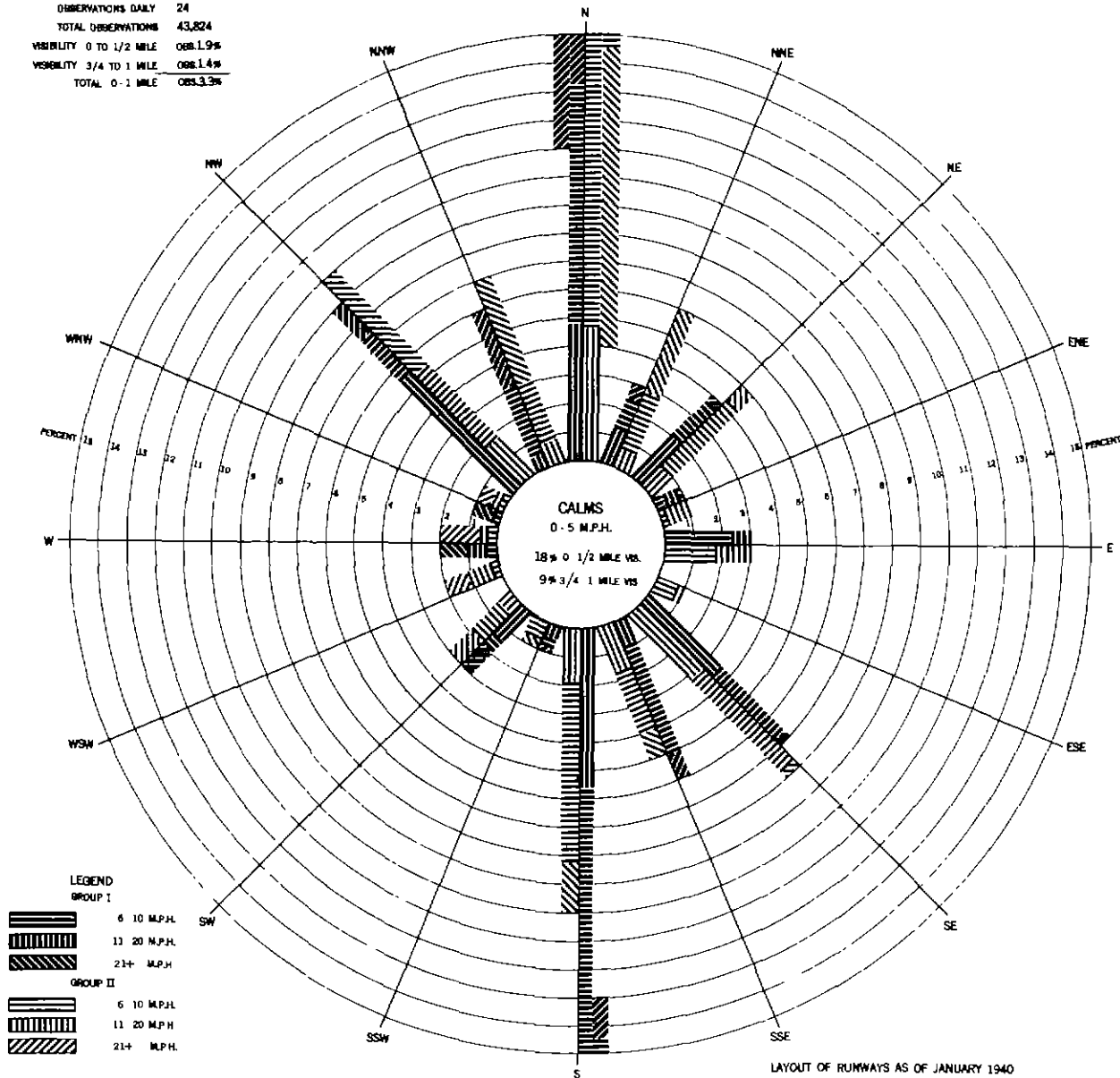
Tulsa

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.81.9%
VISIBILITY 3/4 TO 1 MILE 0.81.4%
TOTAL 0-1 MILE 0.83.3%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

OKLAHOMA CITY, OKLA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	29 40 11
SMOKE		
RAIN		
DUST	2	1 2 12
SNOW	1	1 3
TOTALS	100	33 43 26

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

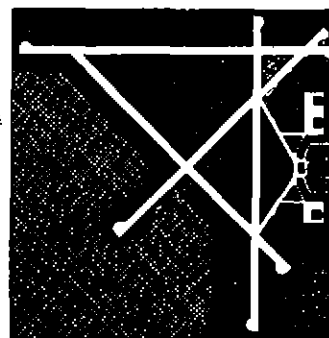
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	16 38 16
SMOKE		
RAIN		1 1
DUST	6	4 7 15
SNOW		2
TOTALS	100	20 46 34

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	45	25	9	6		2	3	3	4	21	24	50	192
SMOKE													
RAIN													
DUST			4	1		1							6
SNOW													
TOTALS	45	25	13	7		3	3	3	4	21	24	50	198

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 9% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

SOB
NOT USABLE
HARD SURFACE



0 1000 2000 4000
SCALE IN FEET

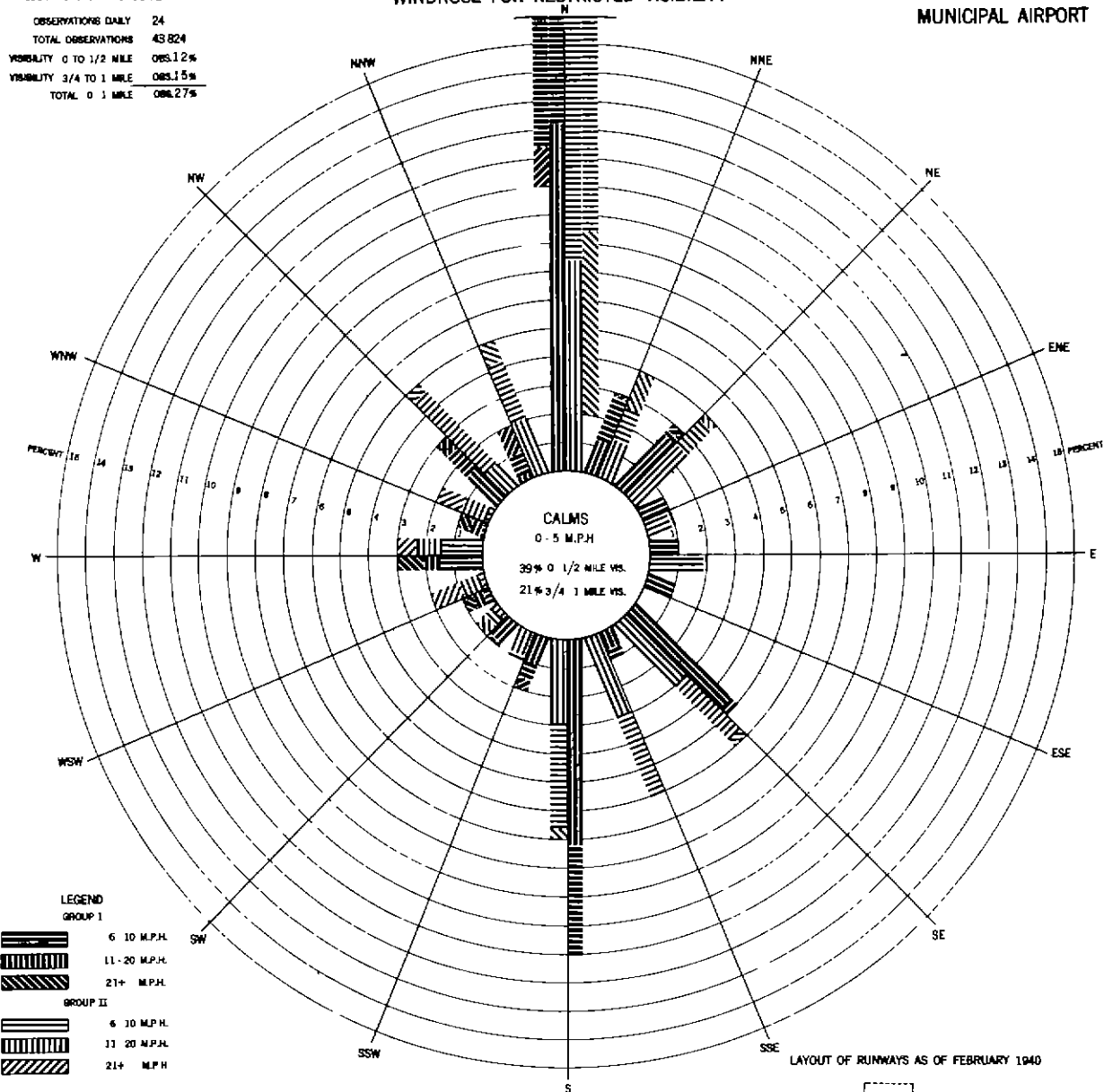
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 12%
VISIBILITY 3/4 TO 1 MILE OBS. 15%
TOTAL 0 1 MILE OBS. 27%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

TULSA, OKLA.
MUNICIPAL AIRPORT



LEGEND
GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.		
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	94	57	24	3
SMOKE				
RAIN		1	3	4
DUST	5	2	1	3
SNOW	1		1	1
TOTALS	100	60	29	11

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.		
	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	85	32	37	8
SMOKE		1		
RAIN	2	1	2	1
DUST	12	2	7	7
SNOW	1		1	1
TOTALS	100	36	47	17

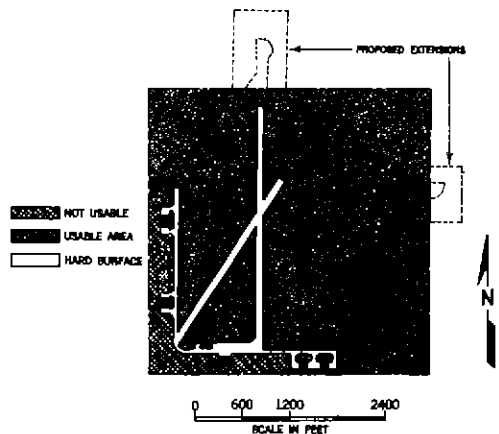
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	87	34	26	4	11	3		8	17	36	25	56	307
SMOKE													
RAIN					1		1		1	1			4
DUST	4		20	2							1		27
SNOW	1	1	2								1		5
TOTALS	92	35	48	6	12	3	1	8	18	37	27	56	343

NOTE:
Percentages in windrosettes are based on the number of observations in each visibility group.
Example: 8% indicates the percentage of total in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Service and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF FEBRUARY 1940



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

OREGON

Baker

Eugene

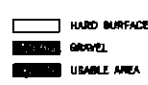
Medford

Pendleton

Portland

BAKER, ORE
MUNICIPAL AIRPORT

TOTAL	0	1	MILE	0.0016%
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APPR. SCALE IN FEET
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

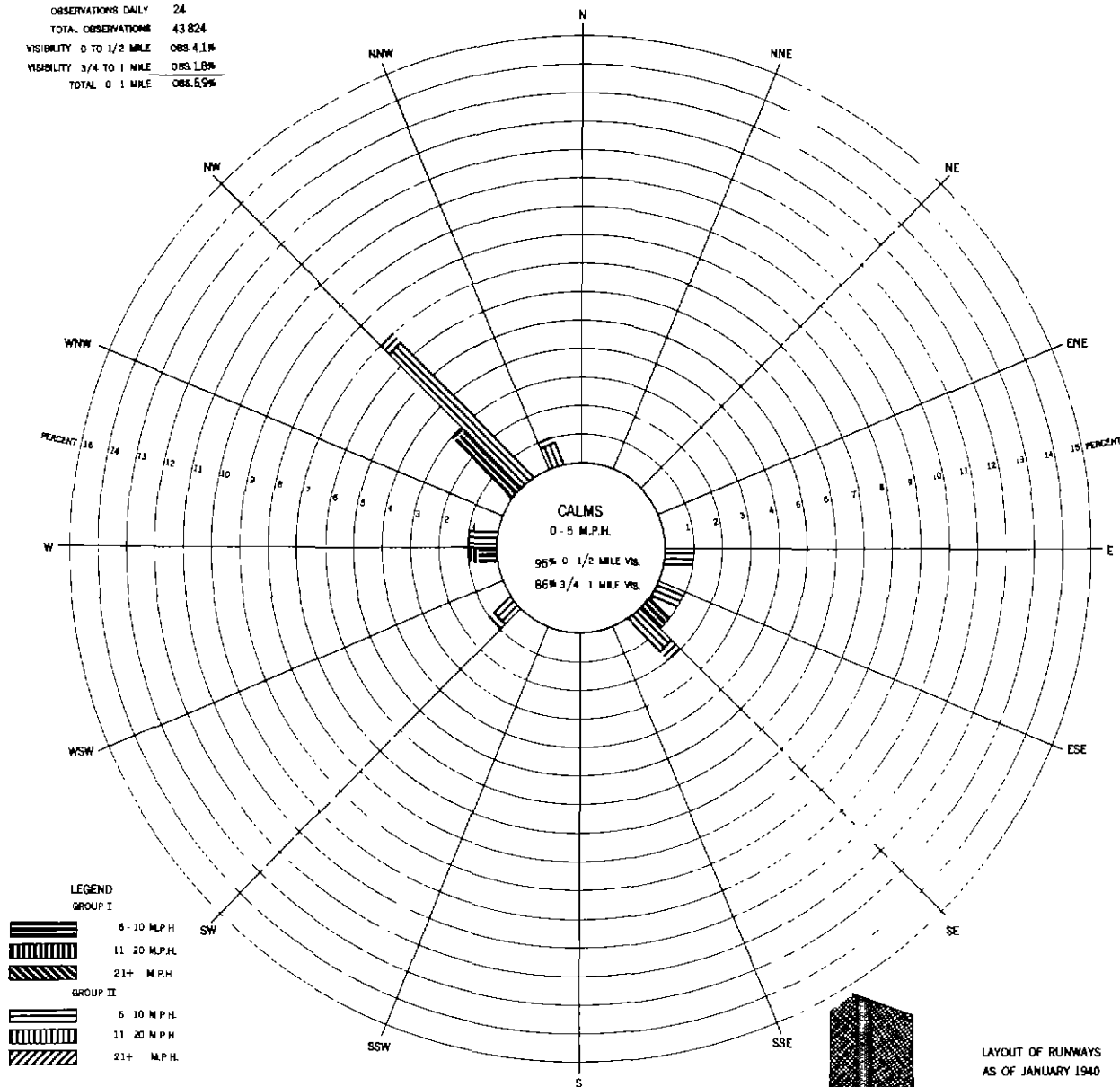
TOTAL OCCURRENCES DURING CALMS (0 - 8 M.P.H.) BY MONTHS GROUPS I & II COMBINED													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	78	37	16	5		6				2	18	130	289
SMOKE	3												3
RAIN													
DUST													
SNOW	59	63	12	8						3	2	16	163
TOTALS	140	100	28	13		6				5	17	146	455

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43824
VISIBILITY 0 TO 1/2 MILE OBS. 4.1%
VISIBILITY 3/4 TO 1 MILE OBS. 1.8%
TOTAL 0 1 MILE OBS. 5.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

EUGENE, ORE.
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	86 2
SMOKE	2	2 3
RAIN		1
DUST		
SNOW		4 2
TOTALS	100	93 7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

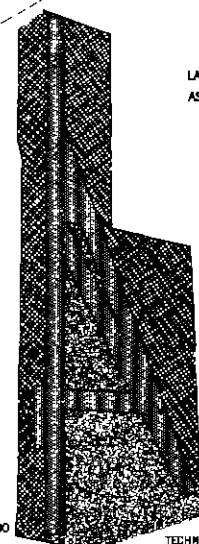
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	71	58 1
SMOKE	26	20 3
RAIN	1	3 1
DUST		
SNOW	2	9 5
TOTALS	100	90 10

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUP I & II COMBINED													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	362	210	80	15	13	12		10	120	371	474	484	2151
SMOKE								70	60	73			203
RAIN	2										2		4
DUST													
SNOW	12		4							1			17
TOTALS	376	210	84	15	13	12		10	190	432	549	484	2375

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

900
GRAVEL
NOT USABLE



LAYOUT OF RUNWAYS
AS OF JANUARY 1940

0 500 1000 2000
SCALE IN FEET

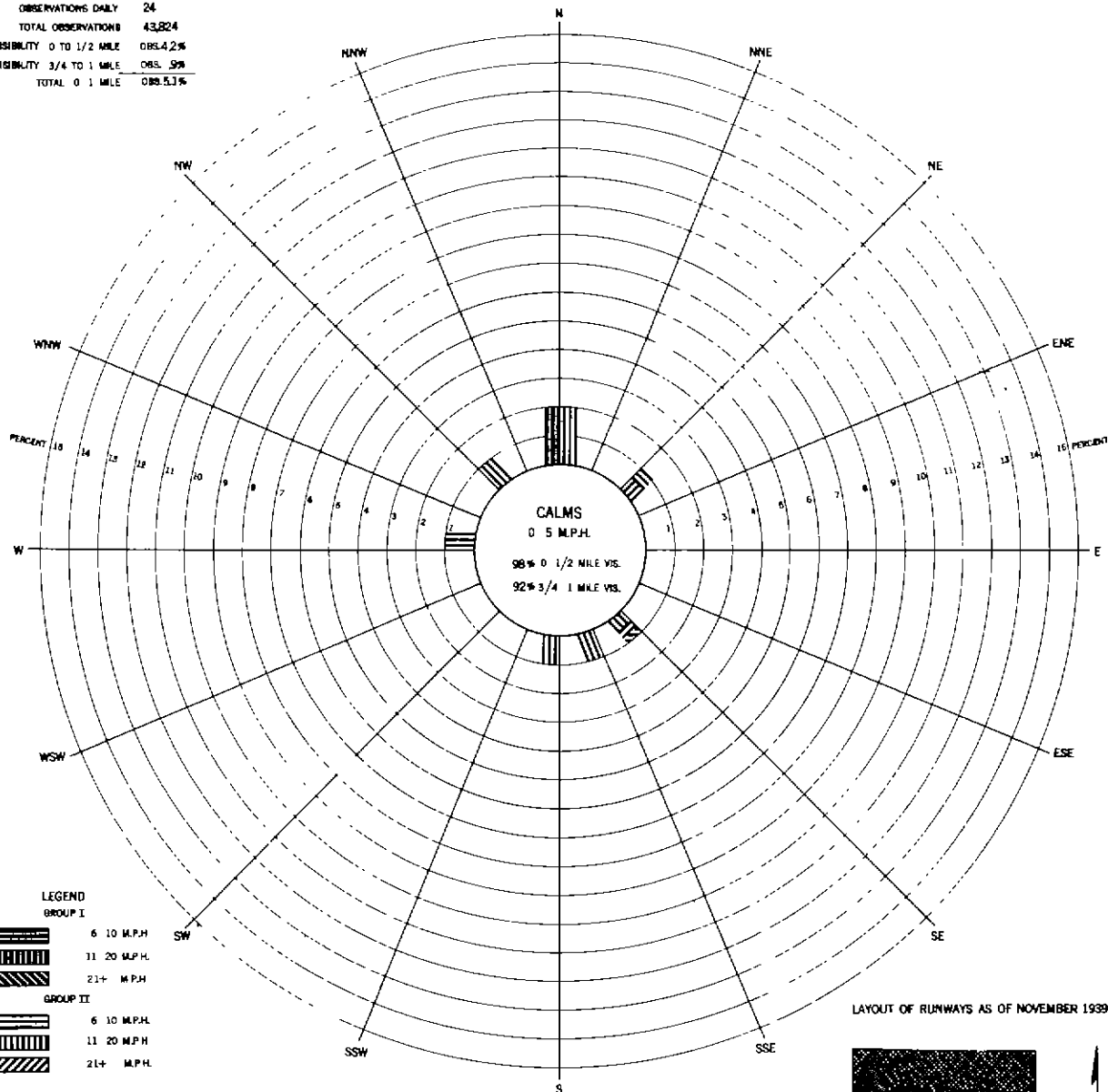
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 4.2%
VISIBILITY 3/4 TO 1 MILE OBS. .9%
TOTAL 0 TO 1 MILE OBS. 5.1%

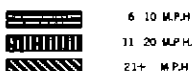
CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MEDFORD, ORE.
MUNICIPAL AIRPORT



LEGEND

GROUP I



GROUP II



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 MPH		
	0-5 MPH.	6-10 MPH.	11-20 MPH.	21+ MPH.
FOG	98	93		2
SMOKE	2	1		
RAIN		1		
DUST				
SNOW		2	1	
TOTALS	100	97	1	2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	83	59			
SMOKE	11	13	3		
RAIN	1				
DUST					
SNOW	5	16	6	3	
TOTALS	100	88	9	3	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	711	153	27	9	1				10	46	313	759	2029
SMOKE			13	21			1		25	3	5		68
RAIN											1	1	2
DUST													
SNOW	9	4	5									1	19
TOTALS	720	157	45	30	1		1		35	49	319	761	2118

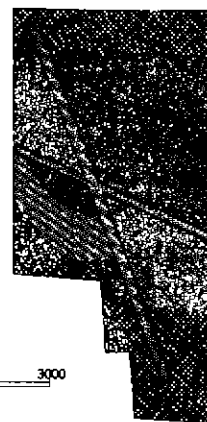
NOTE:

Percentage in windrose are based on the number of observations in each visibility group.

Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



- TREES
- GRAVEL
- NOT USABLE
- USABLE BUT ROUGH

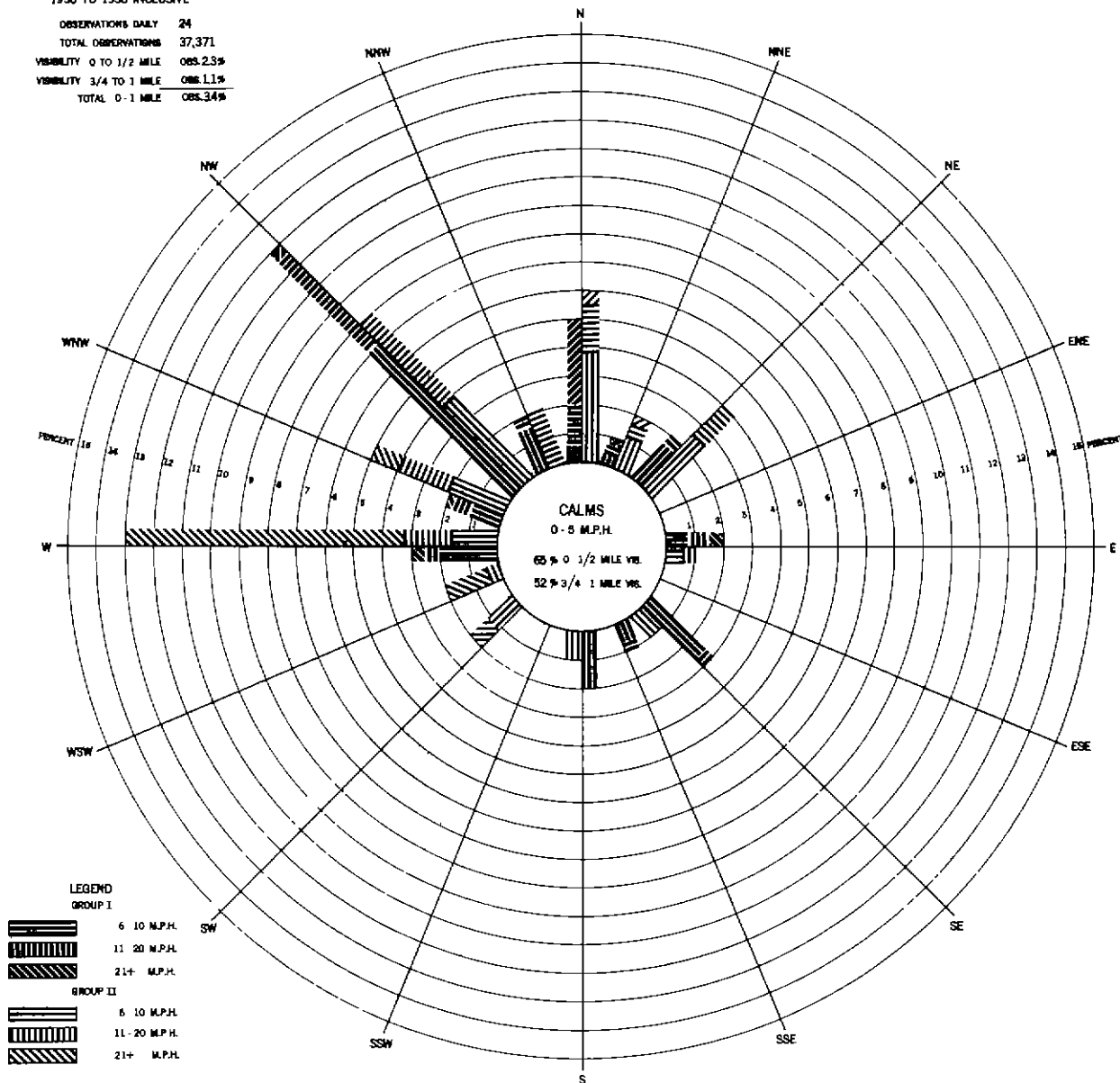
0 1000 2000 3000
SCALE IN FEET

SUMMARY OF 4 YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 37,371
VISIBILITY 0 TO 1/2 MILE OBS. 2.3%
VISIBILITY 3/4 TO 1 MILE OBS. 1.1%
TOTAL 0-1 MILE OBS. 3.4%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

PENDLETON, ORE.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	61 16 1
SMOKE		
RAIN		
DUST		1 3
SNOW	4	9 6 3
TOTALS	100	70 23 7

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	73	18 11
SMOKE	1	1
RAIN		
DUST	2	2 7 28
SNOW	24	19 13 1
TOTALS	100	40 31 29

(Figures indicate percentage)

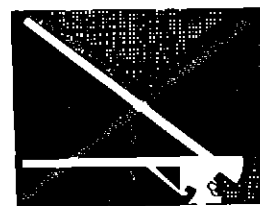
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	132	95	14	6	1					18	207	197	670
SMOKE								2			1	3	
RAIN											1	1	
DUST											4	1	
SNOW	45	28	1	1								5	80
TOTALS	177	123	15	7		1	2			18	212	203	758

NOTE.
Percentages in windroset are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the wind classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

HARD SURFACE
USABLE
GRAVEL
600



0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

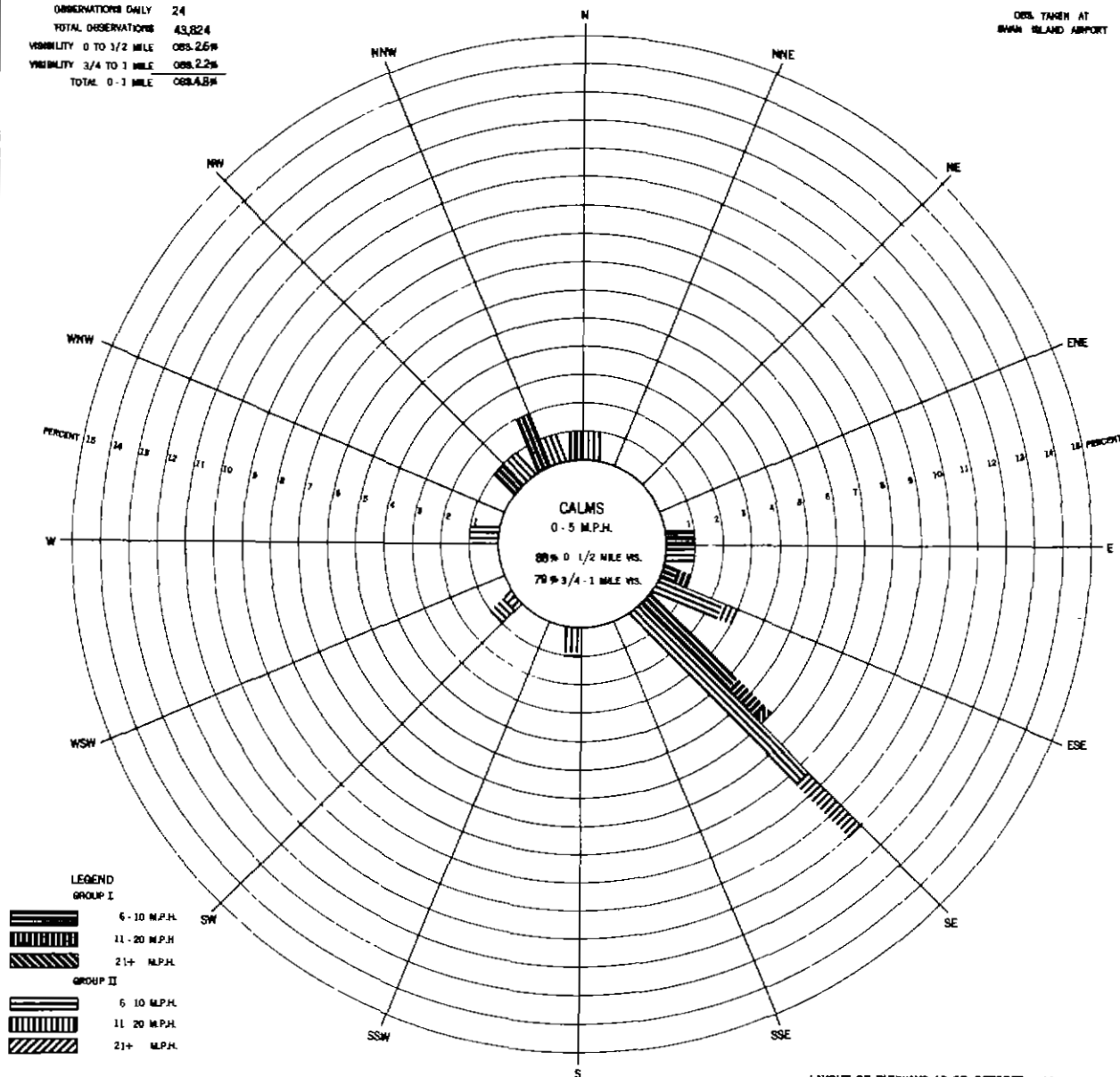
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.6%
VISIBILITY 3/4 TO 1 MILE OBS. 2.2%
TOTAL 0-1 MILE OBS. 4.8%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

PORTLAND, ORE.
MUNICIPAL AIRPORT

OBS. TAKEN AT
BANK ISLAND AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939

GROUP I 0 TO 1/2 MILE VISIBILITY					
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	98	71	2	2	
SMOKE	2	4	1		
RAIN					
DUST					
SNOW		4	15	1	
TOTALS	100	79	18	3	

(Figures indicate percentages)

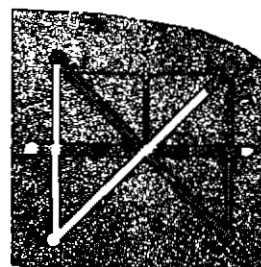
GROUP II 3/4 TO 1 MILE VISIBILITY					
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	56	35	6		
SMOKE	42	40	6		
RAIN		1			
DUST	1				
SNOW	1	6	6		
TOTALS	100	82	18		

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS TO 5 M.P.H. BY MONTHS GROUP I & II COMBINED													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	222	156	104	20	4				38	237	341	279	1401
SMOKE	68	24	19	1				6	22	66	123	16	343
RAIN	1									1	1		3
DUST	2		2										4
SNOW	5	3										1	9
TOTALS	298	183	125	21	4			5	60	304	465	295	1760

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: Fog indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This study furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

HARD SURFACE
 GRAVEL SURFACE
 GOOD & USABLE AREA



0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION ⑦
AIR TRANSPORT SECTION

PENNSYLVANIA

Allentown

Erie

Harrisburg

Kylertown

Philadelphia

Pittsburgh

Sunbury

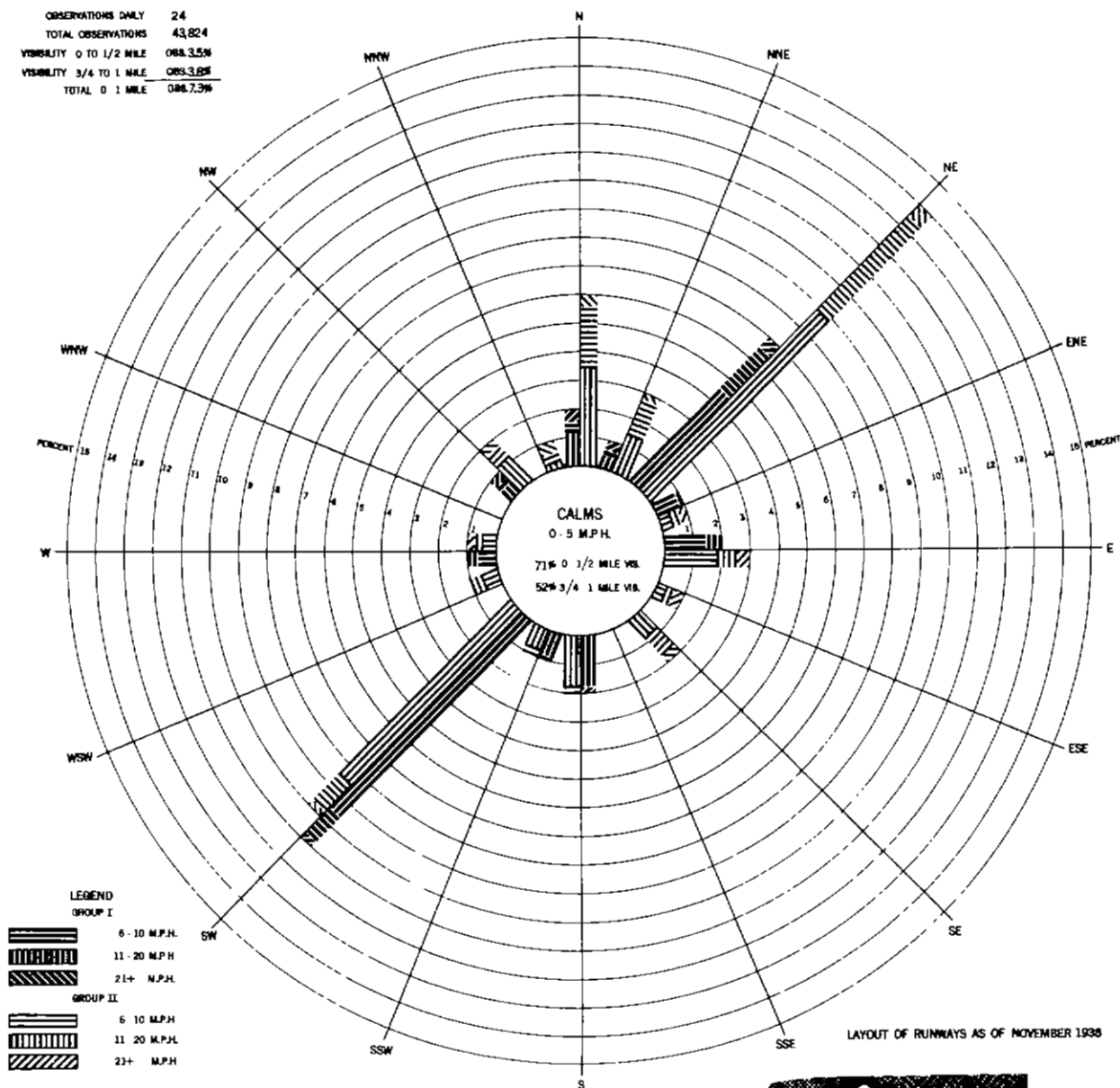
Wilkes Barre

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 088.35%
VISIBILITY 3/4 TO 1 MILE 089.38%
TOTAL 0 1 MILE 088.73%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ALLENTOWN, PA.
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	74 17 3
SMOKE		
RAIN		
DUST		1
SNOW	1	1 3 1
TOTALS	100	75 21 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

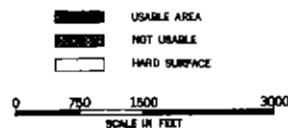
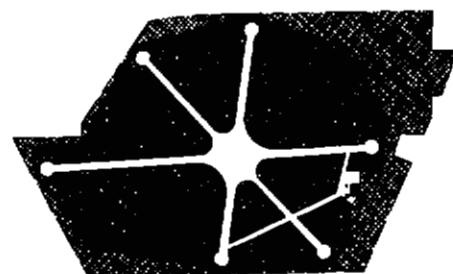
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	63 26 4
SMOKE	1	
RAIN	1	1
DUST	2	1 1
SNOW	1	1 2 1
TOTALS	100	66 29 5

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY/AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	296	129	152	49	102	126	114	175	227	214	162	1912
SMOKE								1		3		4
RAIN	7											7
DUST	9		4		1	2	2		2	1	4	25
SNOW	7	4	1							3	1	16
TOTALS	319	133	157	49	103	128	116	176	227	216	169	1964

NOTE:
Percentages in visibilities are based on the number of observations in each visibility group.
Example: 54% indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration

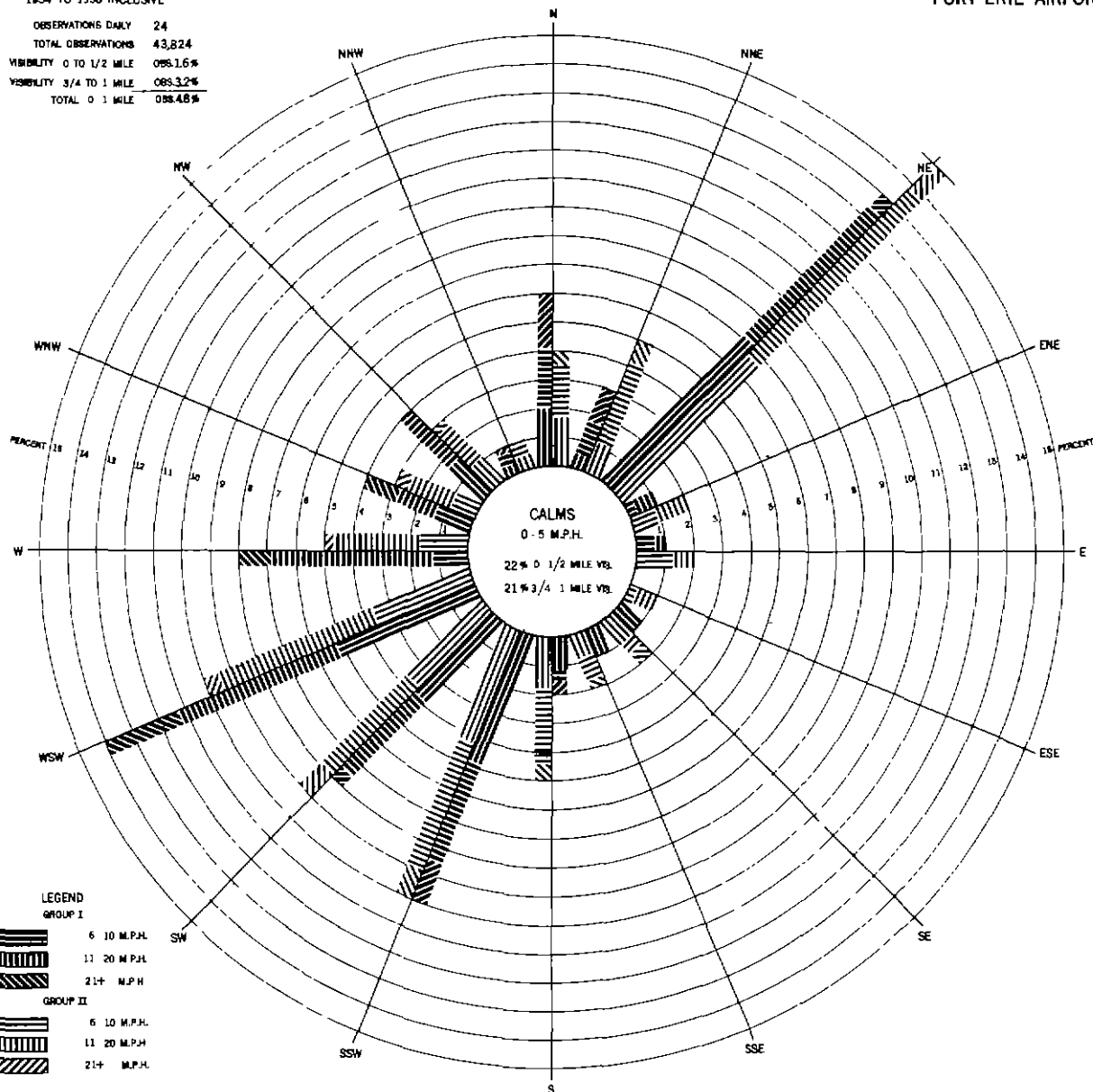


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 088.16%
VISIBILITY 3/4 TO 1 MILE 088.32%
TOTAL 0 1 MILE 088.48%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ERIE, PA
PORT ERIE AIRPORT



LEGEND

GROUP I

6-10 M.P.H.

11-20 M.P.H.

21+ M.P.H.

GROUP II

6-10 M.P.H.

11-20 M.P.H.

21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	33 16 1
SMOKE	1	
RAIN		
DUST		1
SNOW	7	9 26 16
TOTALS	100	42 42 16

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	69	26 23 1
SMOKE	20	5 2
RAIN		1 1
DUST	3	1 2
SNOW	8	8 23 7
TOTALS	100	41 51 8

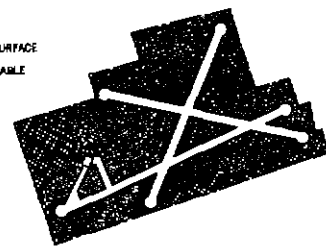
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	72	27	48	39	21	27	9	10	19	7	14	63	350
SMOKE	30	9	7	3	1								63
RAIN				1									1
DUST		2											8
SNOW	6	3	3	2							1	18	33
TOTALS	108	41	59	44	22	27	10	16	13	9	19	87	455

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

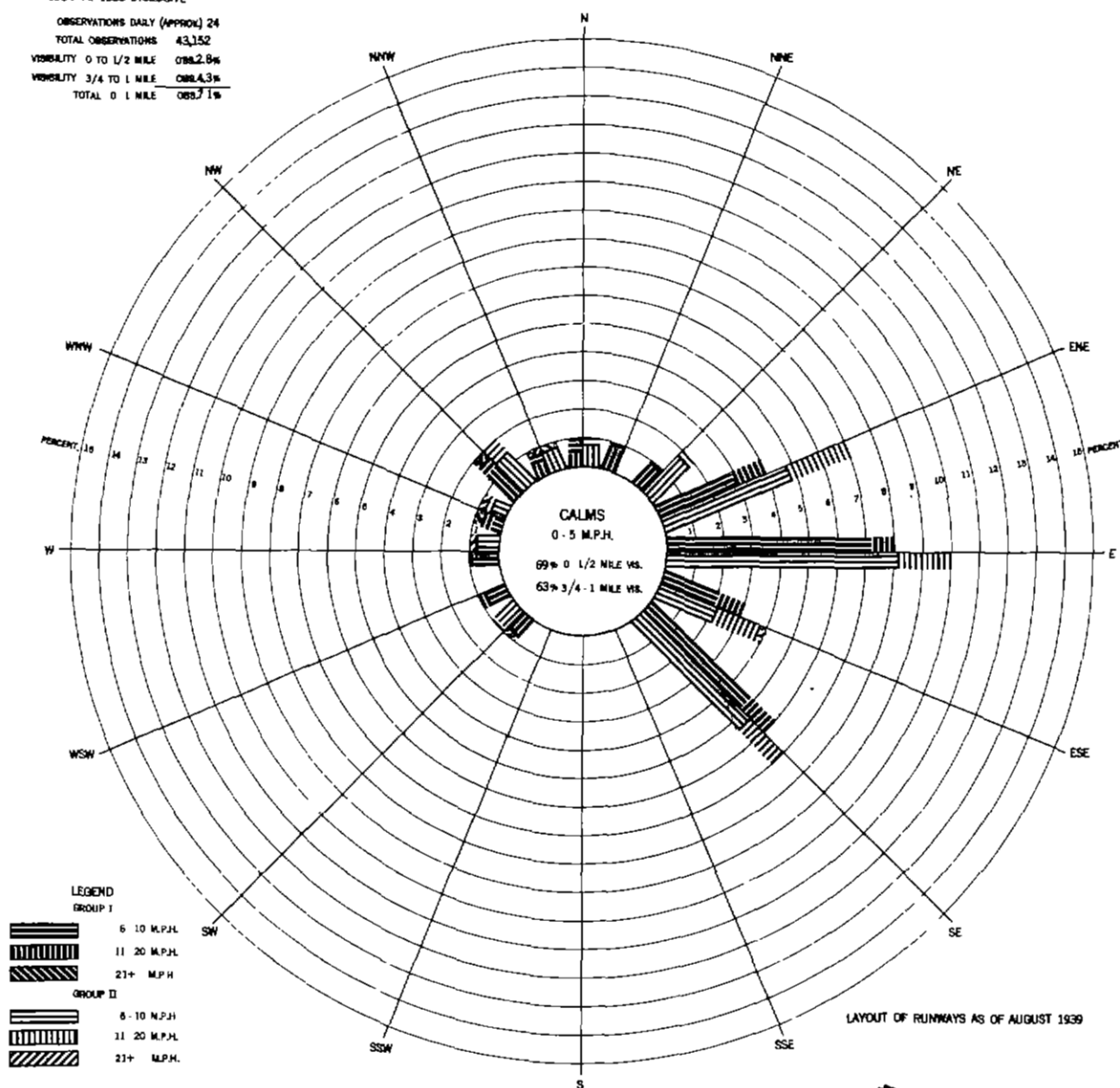
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY (APPROX) 24
TOTAL OBSERVATIONS 43,152

VISIBILITY 0 TO 1/2 MILE OBS. 2.8%
VISIBILITY 3/4 TO 1 MILE OBS. 4.3%
TOTAL 0 1 MILE OBS. 7.1%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

HARRISBURG, PA.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 - 5 M.P.H.	6 - 10 M.P.H. 11 - 20 M.P.H. 21+ M.P.H.
FOG	98	69 21
SMOKE		
RAIN	1	1 1 1
DUST		
SNOW	1	4 2 1
TOTALS	100	74 24 2

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

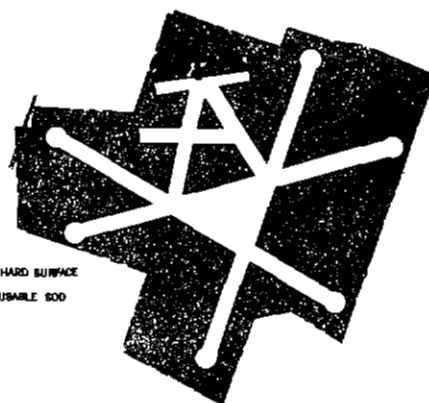
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 - 5 M.P.H.	6 - 10 M.P.H. 11 - 20 M.P.H. 21+ M.P.H.
FOG	91	66 23
SMOKE	7	1
RAIN		1
DUST	1	
SNOW	1	6 2 1
TOTALS	100	73 26 1

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 - 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	440	159	230	97	51	33	30	58	203	198	181	285	1889
SMOKE	1	40	18	4		1	1	1	3	2	4	3	78
RAIN		10											10
DUST	3		1					1					6
SNOW	6	3	4										16
TOTALS	450	212	250	41	51	34	31	60	206	200	185	278	1996

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 7% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Marine Program Administration.



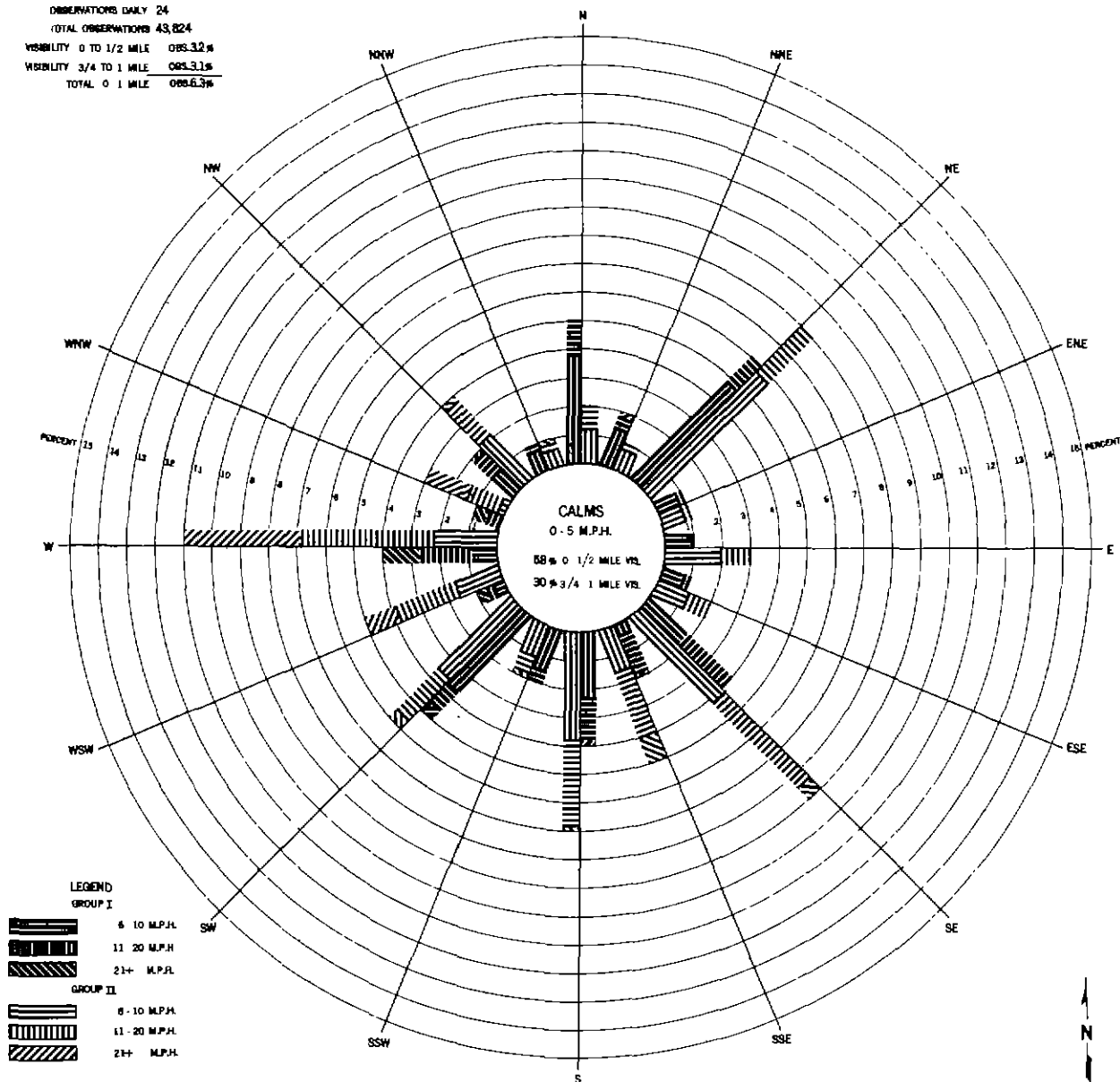
0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 3.2%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0 1 MILE OBS. 6.3%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

KYLERTOWN, PA.



LEGEND

GROUP I

	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP II

	0-5 M.P.H.
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	98	52	21	1	
SMOKE					
RAIN					
DUST					
SNOW	2	6	13	7	
TOTALS	100	58	34	8	

GROUP II
3/4 TO 1 MILE VISIBILITY

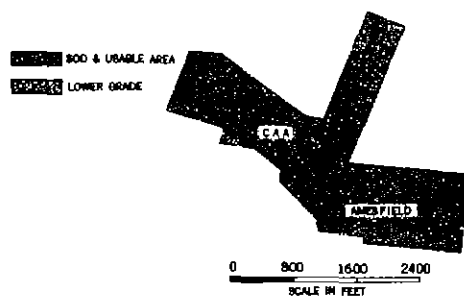
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	94	33	23	3	
SMOKE					
RAIN		1	1		
DUST			1		
SNOW	6	11	16	11	
TOTALS	100	45	41	14	

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
EXCEPT I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	TOTAL
FOG	113	39	84	52	39	61	98	153	228	89	88	121	1166
SMOKE													
RAIN						1							1
DUST			1								1		2
SNOW	3	14	6	1						2	1	17	44
TOTALS	116	54	90	53	39	62	98	153	228	91	90	138	1212

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 58 indicates the percentage of winds in other Group I or Group II depending upon the symbol identifiers.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 12 (APPROX.)
TOTAL OBSERVATIONS 20,627

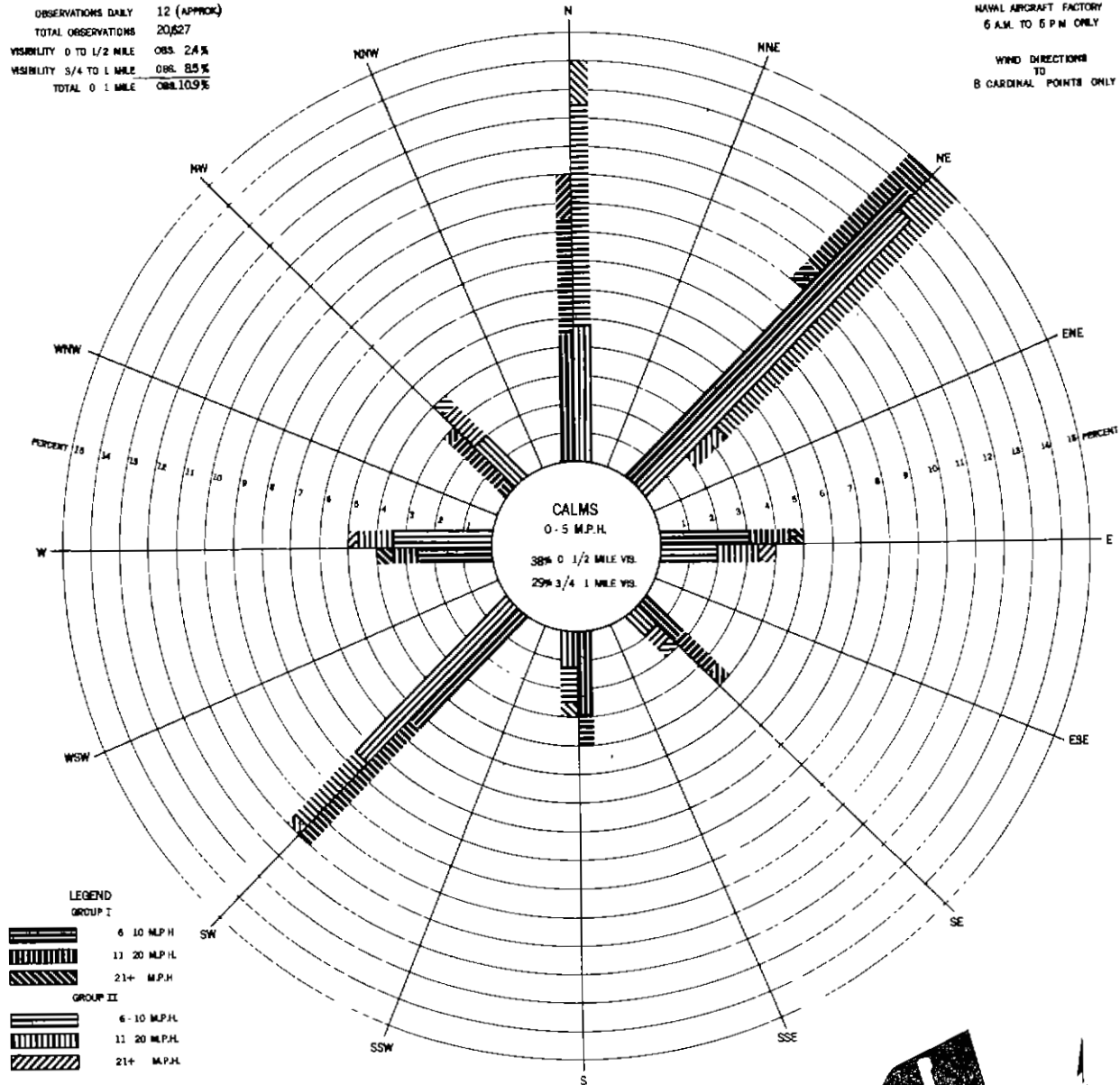
VISIBILITY 0 TO 1/2 MILE OBS. 2.4%
VISIBILITY 3/4 TO 1 MILE OBS. 8.5%
TOTAL 0 TO 1 MILE OBS. 10.9%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

PHILADELPHIA, PA.
MUNICIPAL AIRPORT

OBS. TAKEN AT
NAVAL AIRCRAFT FACTORY
6 A.M. TO 6 P.M. ONLY

WIND DIRECTIONS
TO
8 CARDINAL POINTS ONLY



LEGEND

GROUP I

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP II

0-5 M.P.H.	6-10 M.P.H.
11-20 M.P.H.	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	80	39 21 1
SMOKE		
RAIN	6	11 11
DUST	8	1 3
SNOW	6	2 6 5
TOTALS	100	53 41 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	22	8 5 1
SMOKE		
RAIN	16	14 21 4
DUST	56	24 11 1
SNOW	4	2 7 2
TOTALS	100	48 44 8

(Figures indicate percentage)

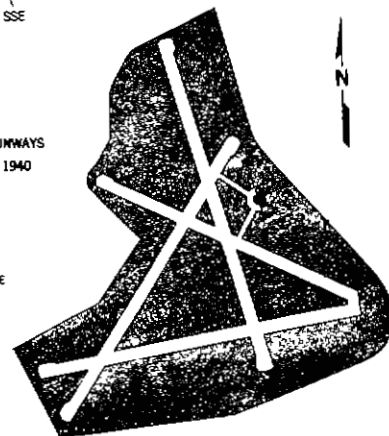
TOTAL OCCURRENCES DURING CALMS (0 TO 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	52	13	27	4	15	10	12	18	22	47	24	20	264
SMOKE													
RAIN	13	19		4	13	4	7	2	5	17	1	7	92
DUST	55	33	20	8	7	21	29	25	17	28	51	15	309
SNOW	4	13	14										32
TOTALS	124	78	61	16	35	35	48	45	44	92	76	43	697

NOTE:
Percentages in headings are based on the number of observations in each visibility group.
Example: 56 indicates the percentage of wind in other Group I, or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration

LAYOUT OF RUNWAYS
AS OF MAY 1940

800
HARD SURFACE



0 500 1000 2000 4000
SCALE IN FEET

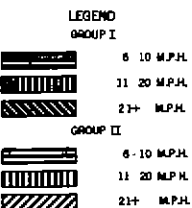
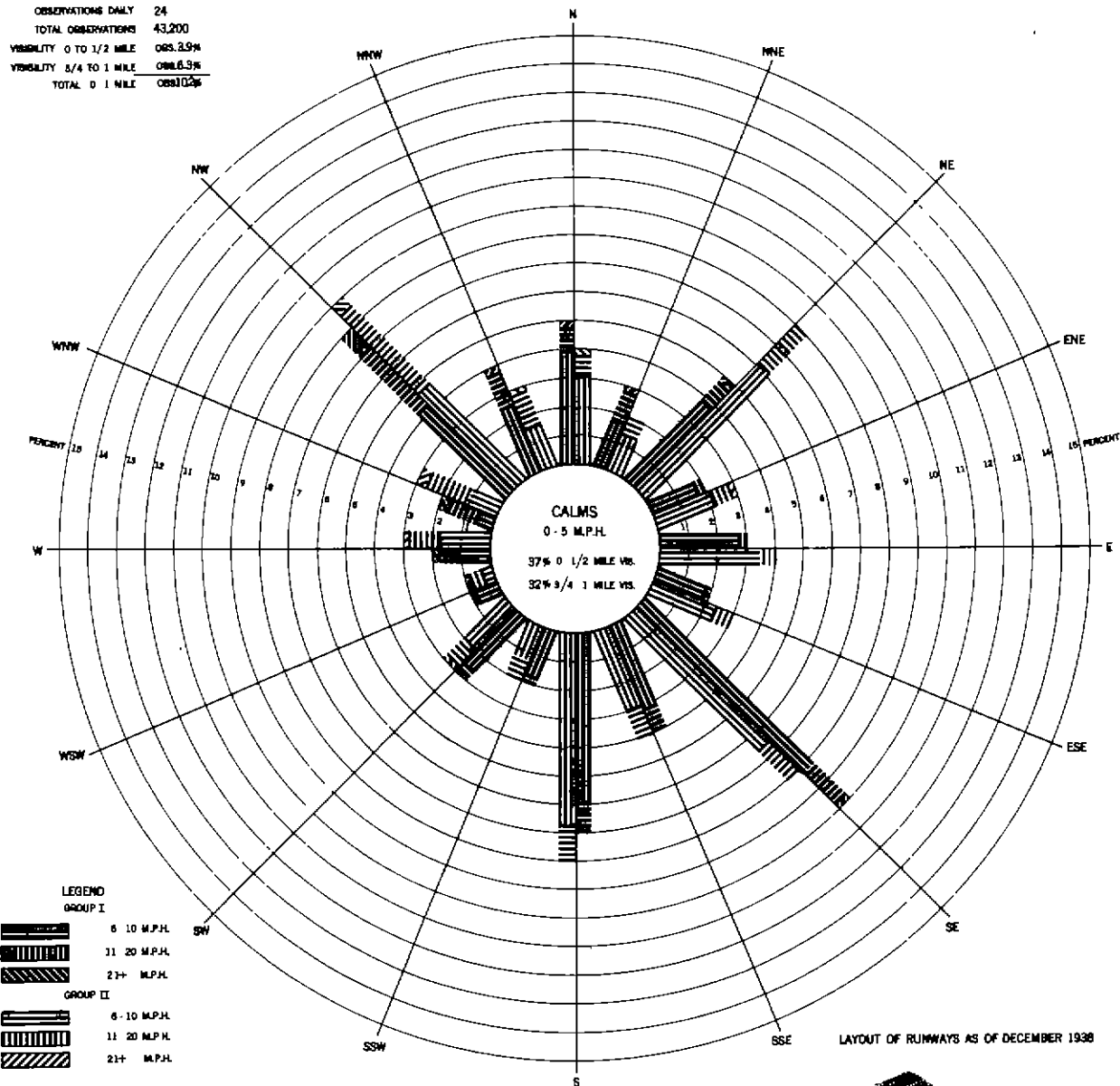
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,200
VISIBILITY 0 TO 1/2 MILE 089.33%
VISIBILITY 3/4 TO 1 MILE 086.63%
TOTAL 0 1 MILE 088.00%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

PITTSBURGH, PA.
ALLEGHENY COUNTY AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	89	50 13 1
SMOKE	40	22 1
RAIN		
DUST		
SNOW	1	2 8 3
TOTALS	100	74 22 4

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

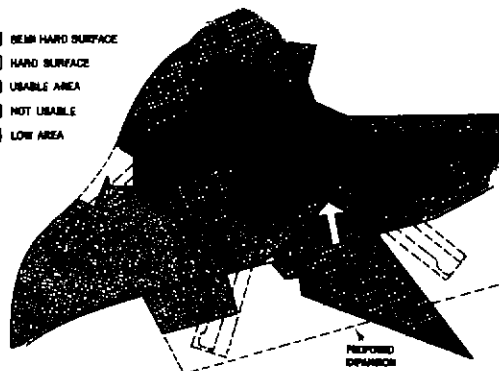
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	27	24 14 1
SMOKE	72	43 7
RAIN		
DUST		1 1
SNOW	1	2 8 1
TOTALS	100	70 28 2

(Figures indicate percentage)

TOTAL OCCURRENCES (DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	71	35	36	18	28	29	28	70	71	84	68	68	603
SMOKE	128	187	75	41	29	51	66	43	63	79	51	89	872
RAIN										1	3		4
DUST						2							2
SNOW	1	1	2								1	3	8
TOTALS	200	193	113	59	57	82	94	113	135	166	117	160	1489

NOTE:
Percentages in previous are based on the number of observations in each visibility group.
Example: 89 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Service and the State Program Administration.



0 1000 2000 4000
SCALE IN FEET

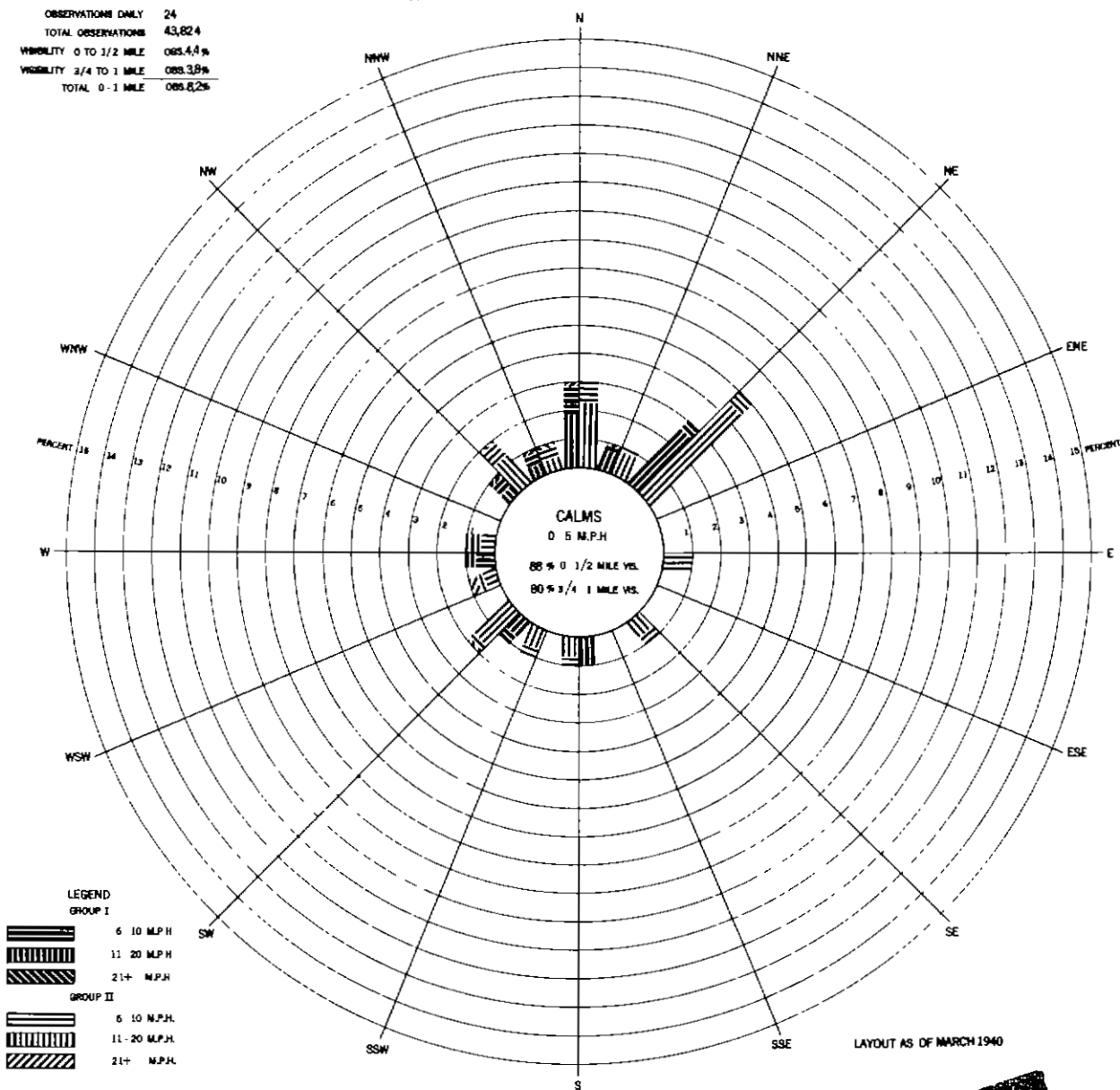
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 085.44%
VISIBILITY 3/4 TO 1 MILE 085.39%
TOTAL 0-1 MILE 085.62%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SUNBURY, PA.



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	82 6
SMOKE		
RAIN	1	1 1 1
DUST		
SNOW	2	22 15 2
TOTALS	100	75 22 3

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	57 8
SMOKE	1	
RAIN	1	6 2
DUST		2 2
SNOW	6	15 6 2
TOTALS	100	90 18 2

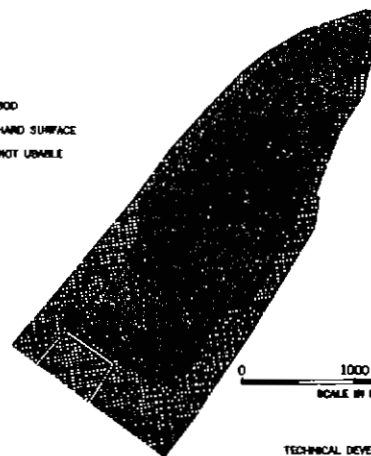
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	453	233	264	86	81	94	129	165	423	350	291	307	2876
SMOKE	2	5	1					3					4
RAIN	2	6		1	4	2	1	4	3		3	1	27
DUST	1	1						2			2		6
SNOW	37	38	13	1						1	2	27	119
TOTALS	494	283	279	88	86	96	130	174	426	351	298	339	3043

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 85 indicates the percentage of wind in either Group I or Group II depending upon the spatial identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

900
HARD SURFACE
NOT USABLE



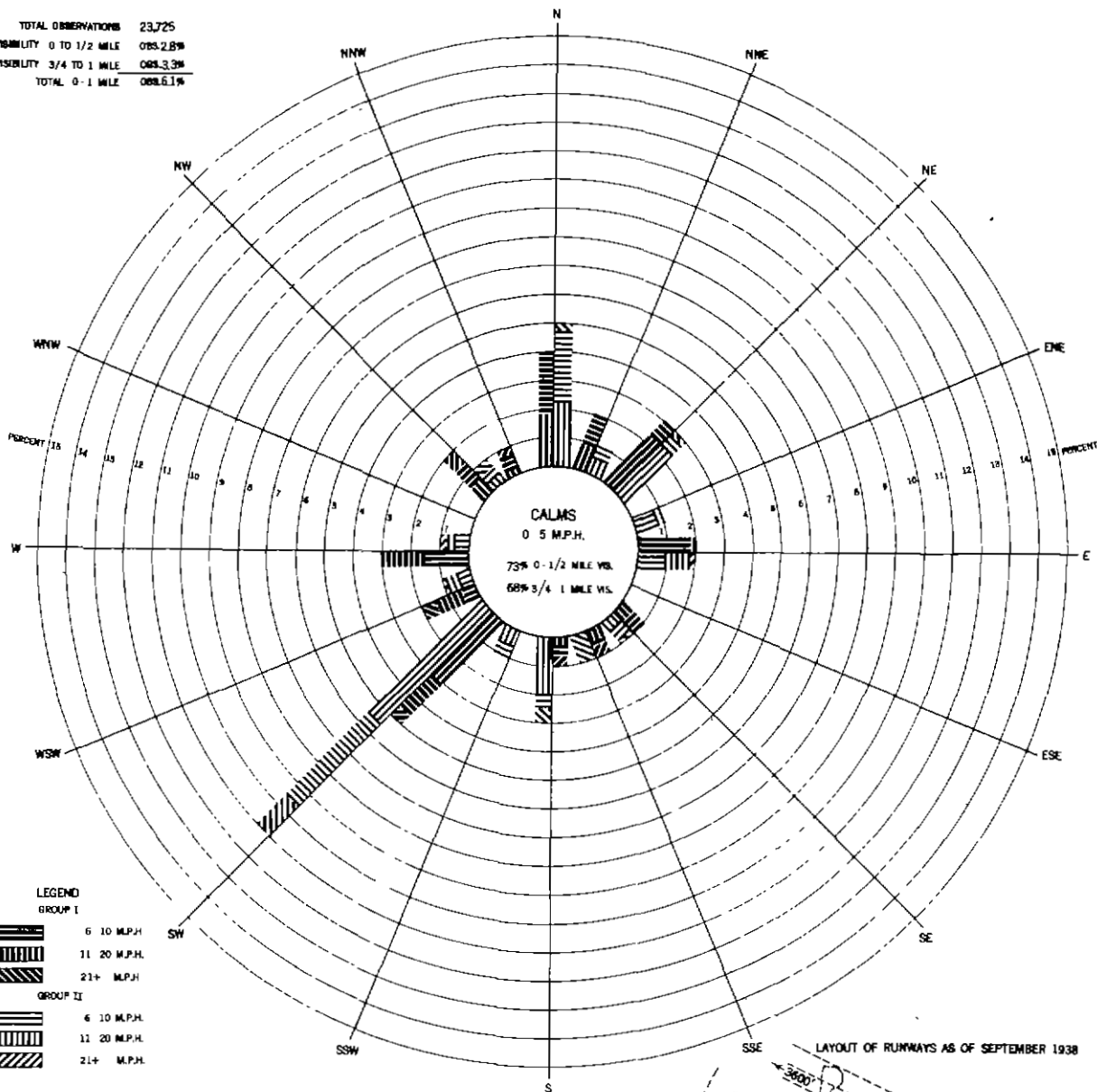
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WILKES BARRE, PA.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 23,725
VISIBILITY 0 TO 1/2 MILE OBS. 2.8%
VISIBILITY 3/4 TO 1 MILE OBS. 3.3%
TOTAL 0-1 MILE OBS. 6.1%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	91	31 13 2
SMOKE		
RAIN	1	1 2 2
DUST	3	2
SNOW	5	18 24 5
TOTALS	100	52 39 9

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

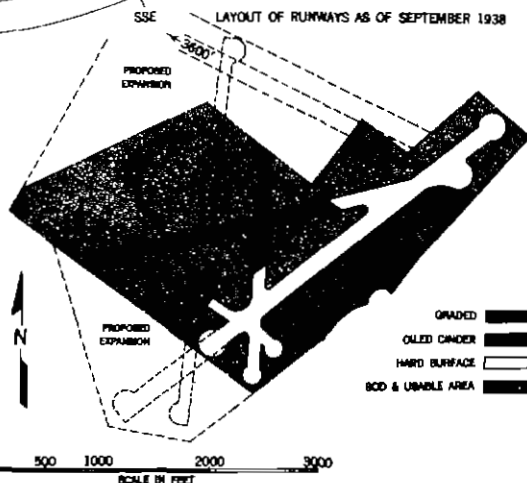
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	83	37 20 6
SMOKE	1	3 3 1
RAIN	10	4 3
DUST	6	10 9 5
SNOW	100	54 35 11
TOTALS	100	54 35 11

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	60	40	29	24	28	25	44	86	144	159	136	75	850
SMOKE								1			1	4	6
RAIN	4			1			1	2					8
DUST	8	2	2	7	1	3	1	9	5	6	17	6	66
SNOW	9	16	5	2							5	17	54
TOTALS	81	68	36	34	29	28	46	98	149	164	159	102	984

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 84% indicates the percentage of wind in Group I or Group II depending upon the actual identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Visual Program Administration.



RHODE ISLAND

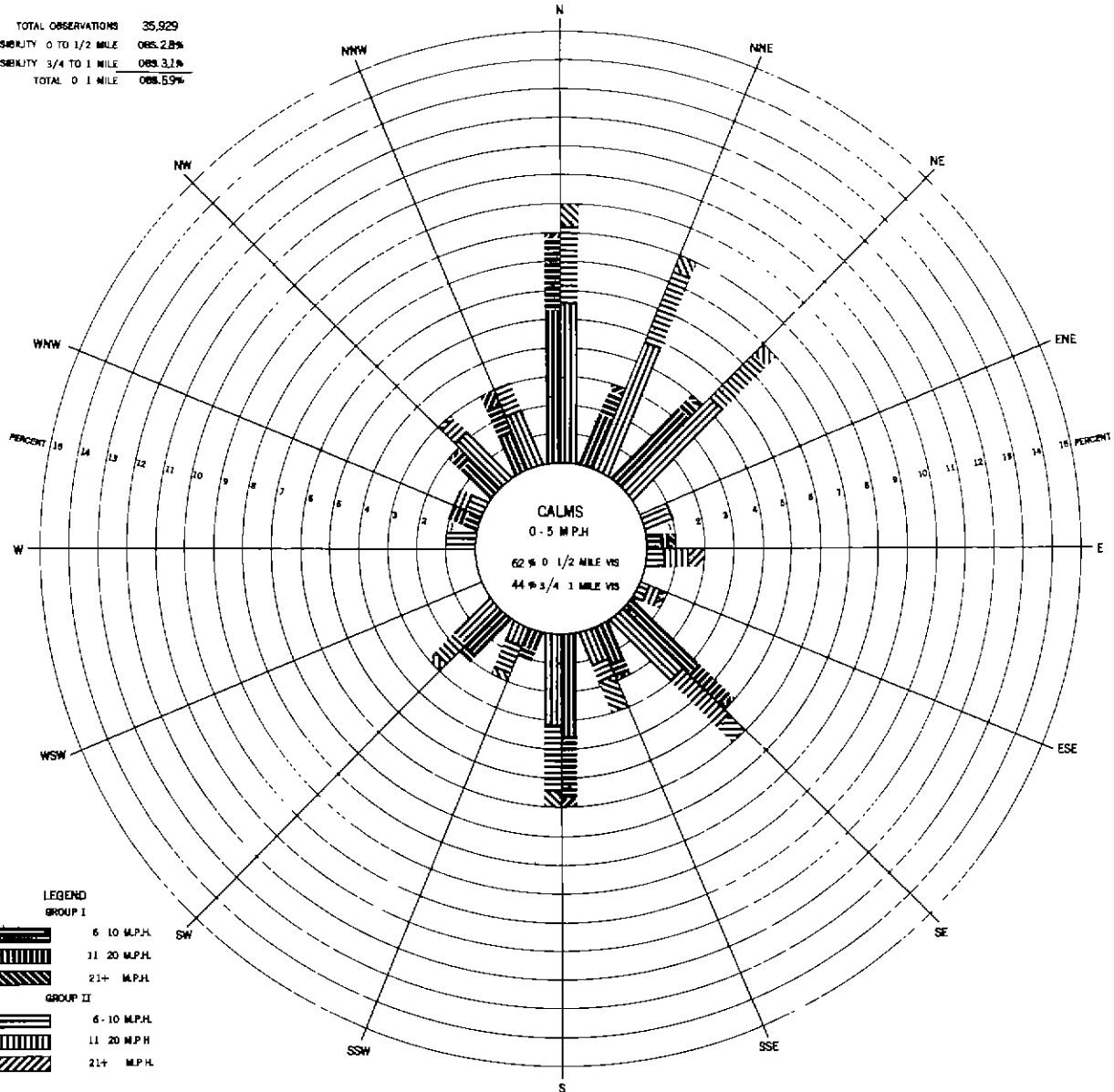
Providence

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

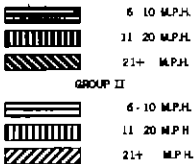
CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

PROVIDENCE, R. I.
MUNICIPAL AIRPORT

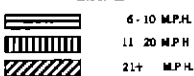
TOTAL OBSERVATIONS 35,929
VISIBILITY 0 TO 1/2 MILE OBS. 2.8%
VISIBILITY 3/4 TO 1 MILE OBS. 3.1%
TOTAL 0 1 MILE OBS. 5.9%



LEGEND
GROUP I



GROUP II



GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	98	60	22	3	
SMOKE					
RAIN	1	2	2	1	
DUST			1		
SNOW	1	2	4	3	
TOTALS	100	64	29	7	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	92	49	25	4	
SMOKE					
RAIN	5	5	4	5	
DUST	1	1	2		
SNOW	2	2	2		
TOTALS	100	57	34	9	

(Figures indicate percentage)

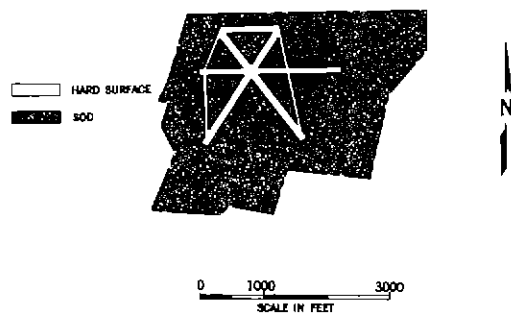
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	137	86	76	62	69	54	52	96	92	115	129	107	1075
SMOKE											1		1
RAIN	2	3		2	3	3	4		3	4	3	1	28
DUST		2	1				1					3	7
SNOW	5	8	3	2								3	21
TOTALS	144	99	80	66	72	57	57	96	95	119	133	114	1132

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the specified identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Program Administration.

LAYOUT OF RUNWAYS AS OF JANUARY 1940



SOUTH CAROLINA

Charleston

Greenville

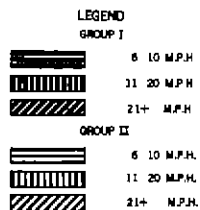
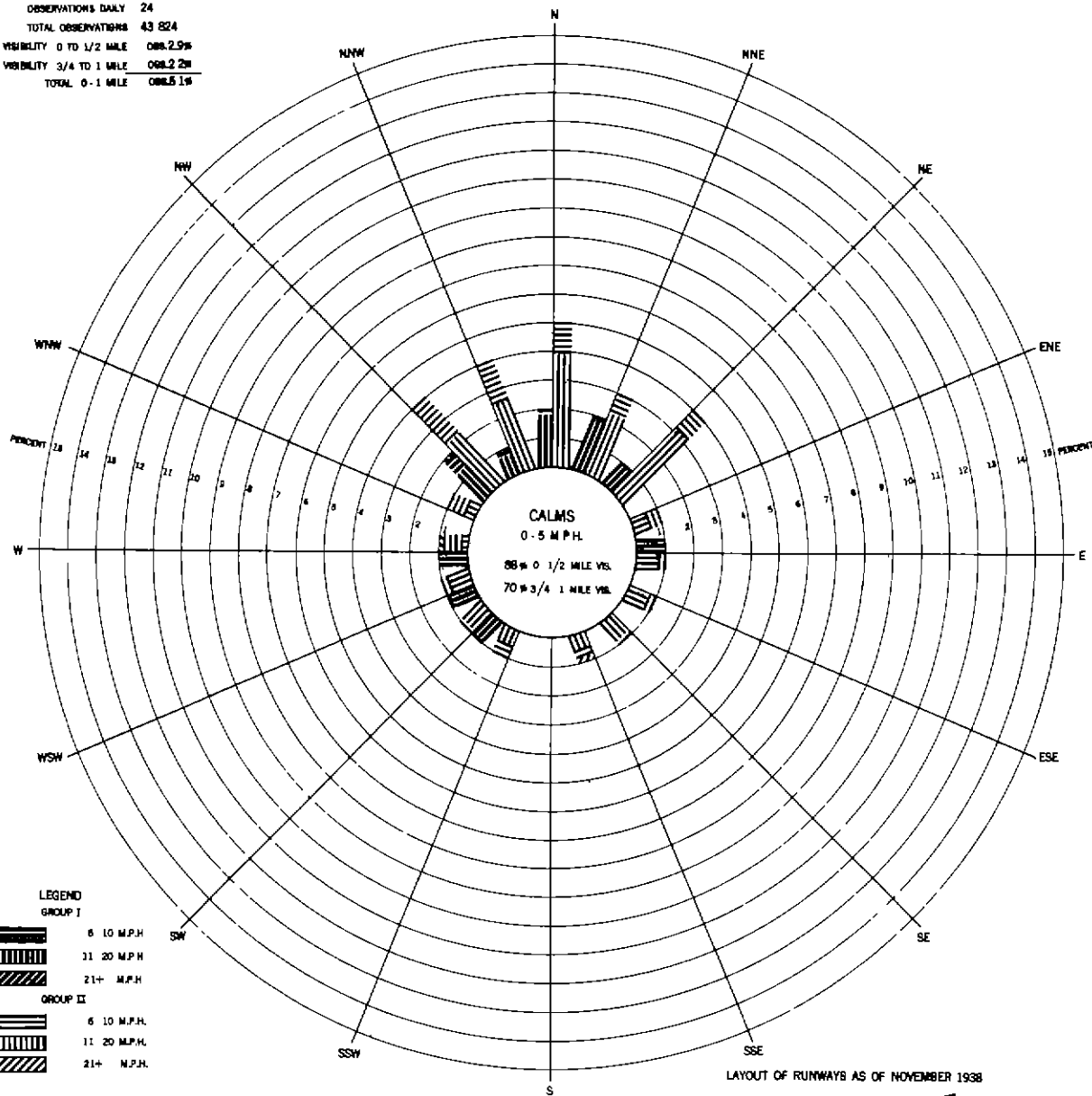
Spartanburg

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 2.9%
VISIBILITY 3/4 TO 1 MILE OBS. 2.2%
TOTAL 0-1 MILE OBS. 5.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CHARLESTON, S. C.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	85
SMOKE		12
RAIN		1
DUST		1
SNOW		2
TOTALS	100	84

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

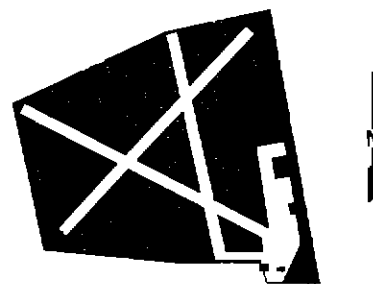
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	97	59
SMOKE	3	23
RAIN		3
DUST		5
SNOW		1
TOTALS	100	68

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	249	113	168	189	157	123	47	114	172	144	164	154	1761
SMOKE	9	5	2	2	1				1	1	1	1	23
RAIN										1			2
DUST													
SNOW													
TOTALS	258	119	167	161	157	124	47	115	173	145	165	155	1786

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 85 indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

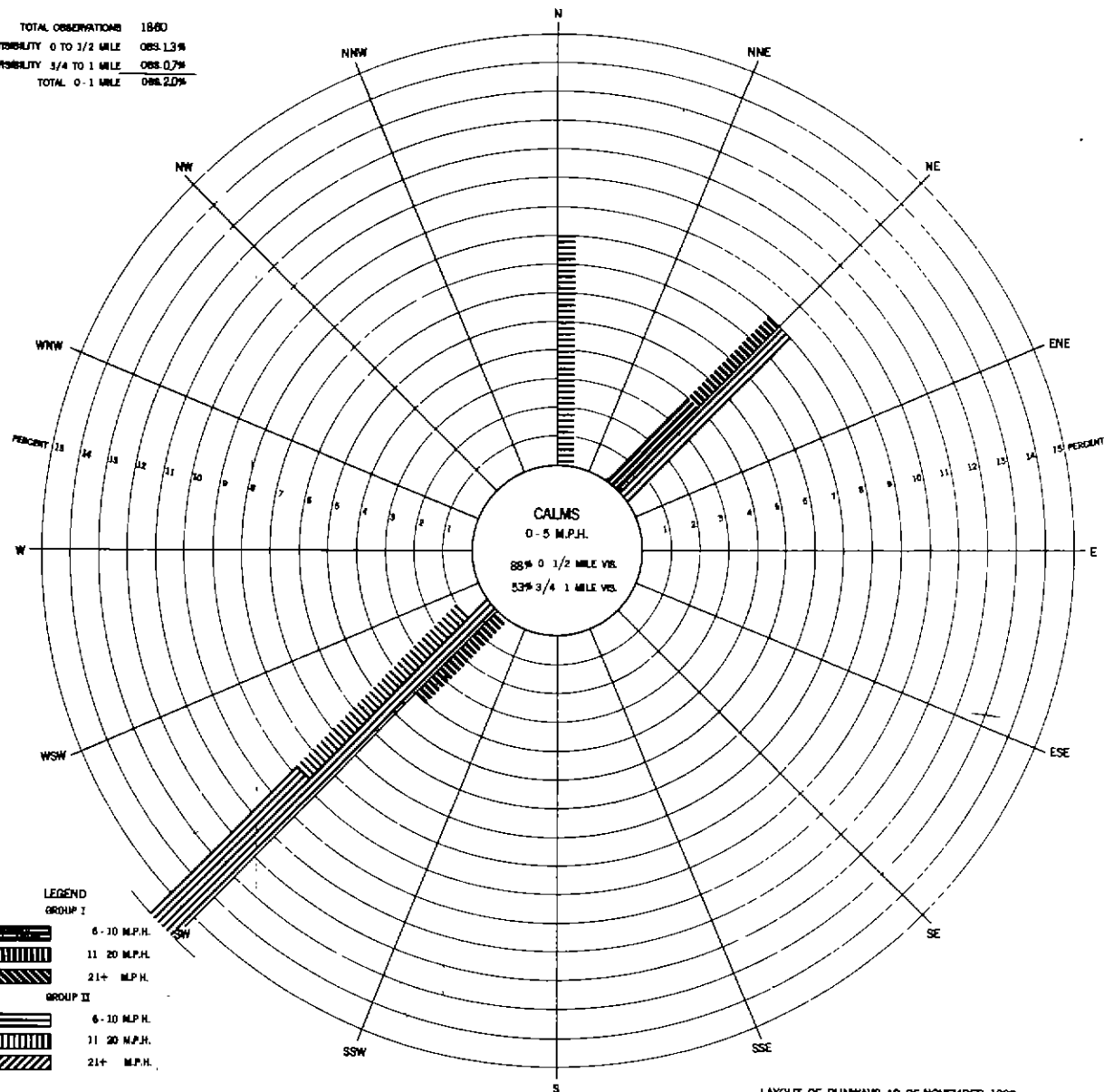


SUMMARY OF 2 YEAR PERIOD
1938 TO 1939 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

GREENVILLE, S. C.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 1860
VISIBILITY 0 TO 1/2 MILE OBS. 1.3%
VISIBILITY 3/4 TO 1 MILE OBS. 0.7%
TOTAL 0-1 MILE OBS. 2.0%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	66	33
SMOKE	45	33
RAIN		34
DUST		
SNOW		
TOTALS	100	67

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	29	66
SMOKE	71	17
RAIN		17
DUST		
SNOW		
TOTALS	100	34

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	4	5	1			1	1	2					14
SMOKE	7	3	5										15
RAIN													
DUST													
SNOW													
TOTALS	11	8	6			1	1	2					29

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Smaller the indicator the percentage of wind in either Group I or Group II depending upon the specified identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

NOT USABLE
USABLE AREA
HARD SURFACE

0 1000 2000 3000
SCALE IN FEET

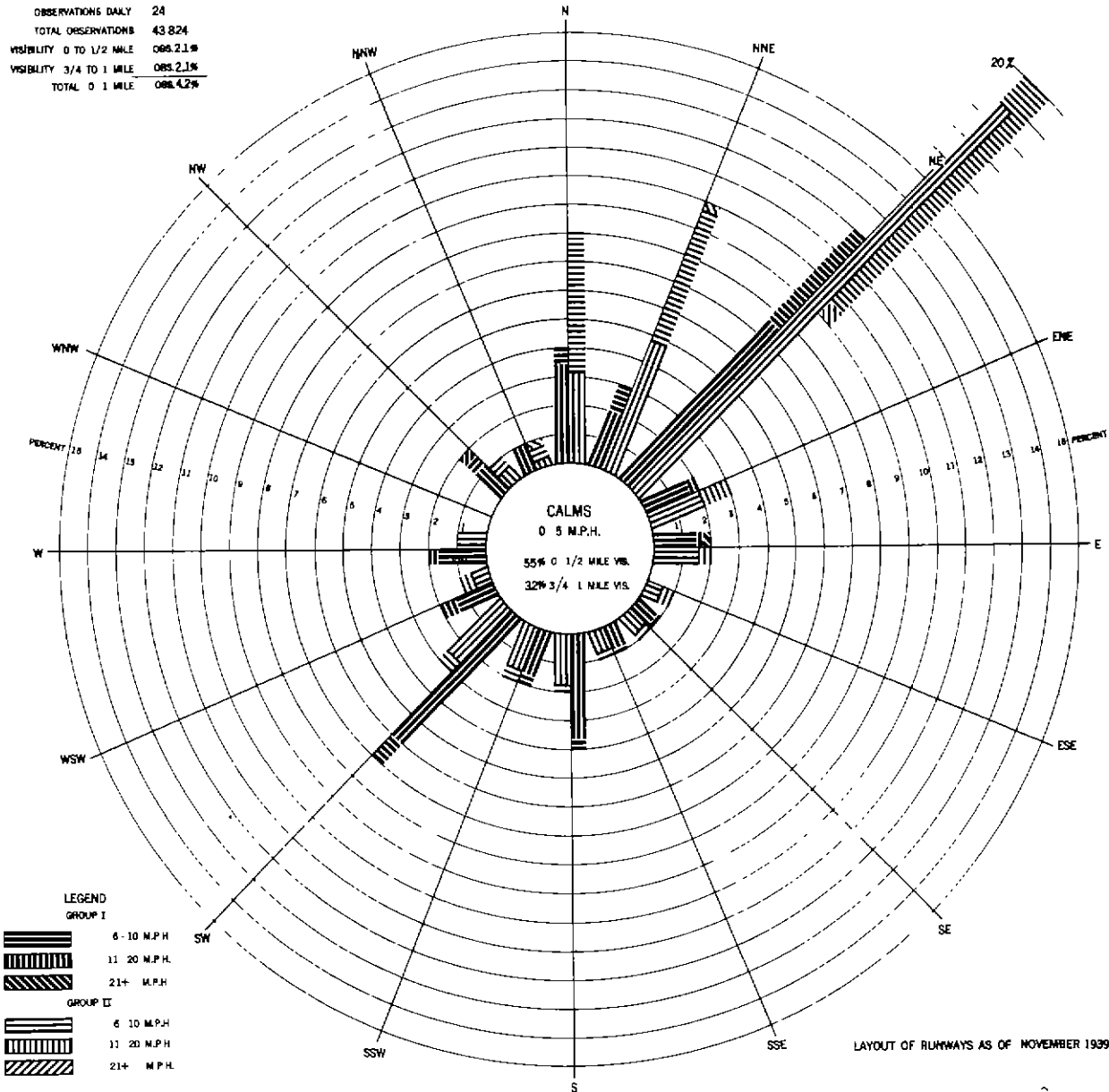
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 2.1%
VISIBILITY 3/4 TO 1 MILE OBS. 2.1%
TOTAL 0 1 MILE OBS. 4.2%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SPARTANBURG, S. C.
MUNICIPAL AIRPORT



LEGEND
GROUP I
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	97	76
SMOKE	1	1
RAIN		1
DUST		
SNOW	2	4
TOTALS	100	78

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	75	55
SMOKE	23	6
RAIN	1	1
DUST		
SNOW	1	1
TOTALS	100	62

(Figures indicate percentage)

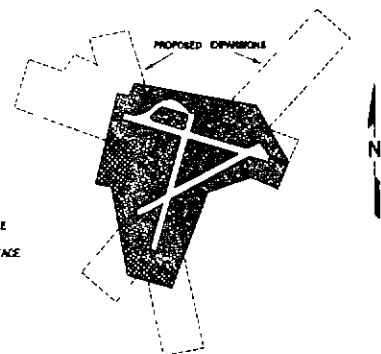
TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTH
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	245	78	49	34	15	14	14	19	19	6	64	160	717
SMOKE	8	16	7	6						3	9	25	74
RAIN				1						1			2
DUST													
SNOW	5	5											10
TOTALS	258	99	56	41	15	14	14	19	19	10	73	185	803

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the North Carolina Department of Transportation.

800
NOT USABLE
HARD SURFACE



0 500 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SOUTH DAKOTA

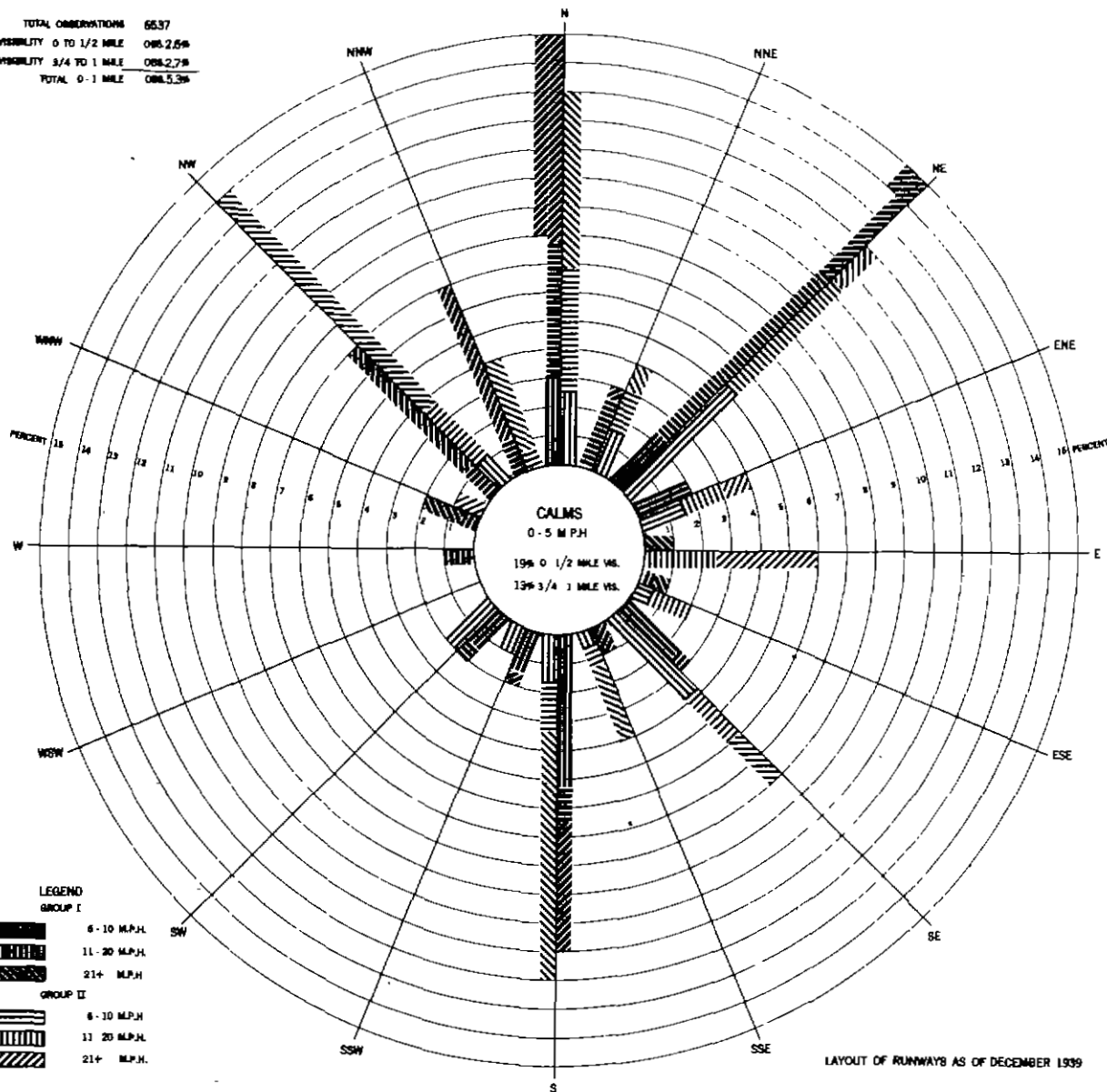
Aberdeen

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

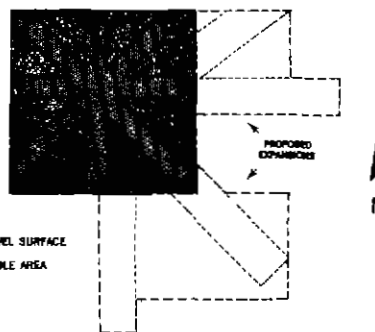
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ABERDEEN, S. D.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 6537
VISIBILITY 0 TO 1/2 MILE 088.25%
VISIBILITY 3/4 TO 1 MILE 088.27%
TOTAL 0-1 MILE 088.33%



LAYOUT OF RUNWAYS AS OF DECEMBER 1939



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	84	15 9 3
SMOKE		1 3
RAIN		
DUST		
SNOW	16	4 13 46
TOTALS	100	20 25 55

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	87	16 10 5
SMOKE	4	3 3 2
RAIN	9	1 1 3
DUST		1 1 19
SNOW		3 13 19
TOTALS	100	24 28 48

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

CA.	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	5	4	5	2	5	1	1		6		4	14	45
SMOKE									1				1
RAIN											2		2
DUST													
SNOW	2	1	1								1		5
TOTALS	7	5	6	2	5	1	1		6		5	16	54

NOTE:
Percentages in columns are based on the number of observations in each visibility group.
Example: 84 indicates the percentage of wind in either Group I or Group II depending upon the special identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

TENNESSEE

Chattanooga

Knoxville

Memphis

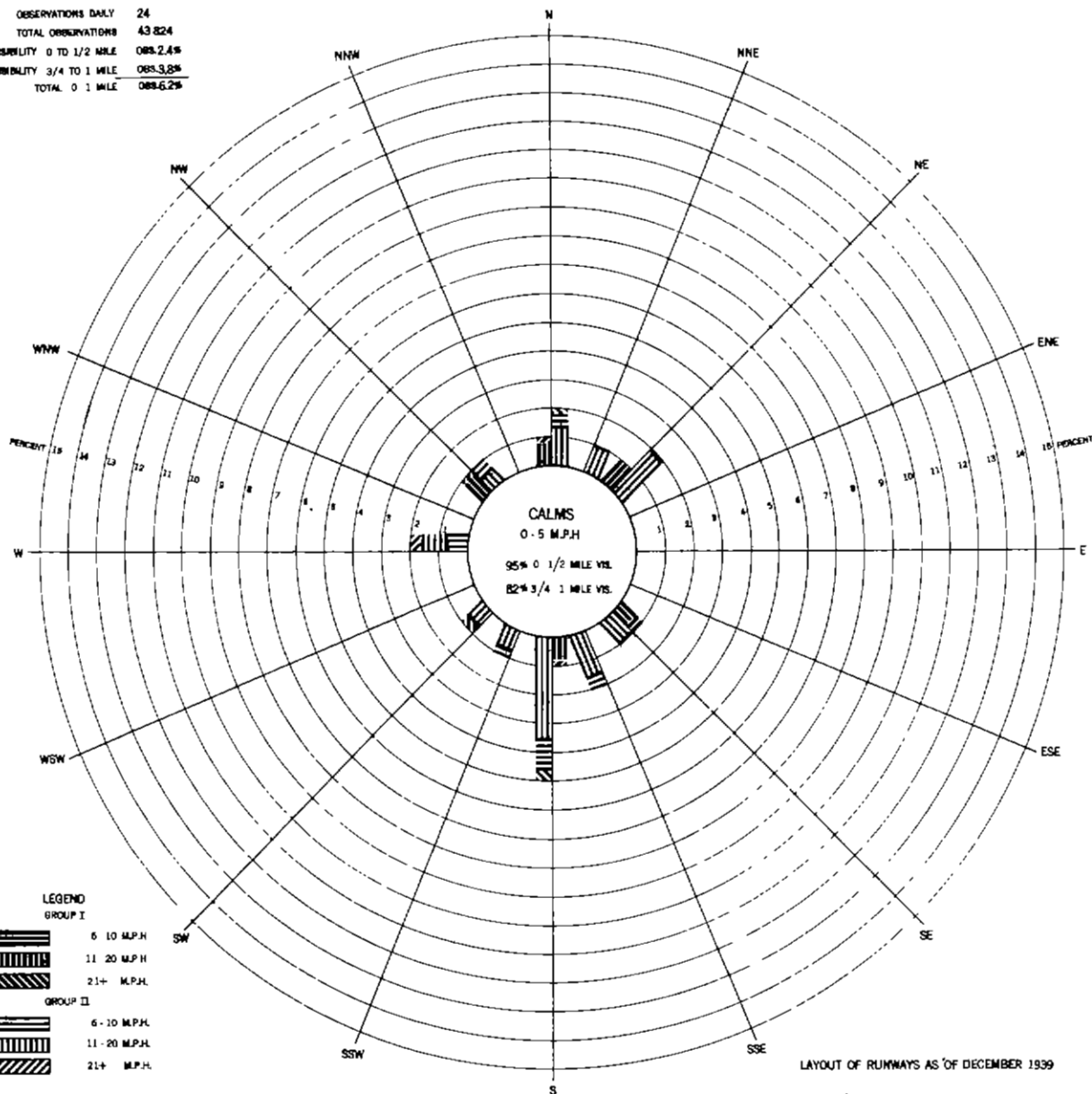
Nashville

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 2.4%
VISIBILITY 3/4 TO 1 MILE OBS. 3.8%
TOTAL 0 1 MILE OBS. 6.2%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CHATTANOOGA, TENN.
MUNICIPAL AIRPORT



LEGEND

GROUP I	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.
GROUP II	
	6-10 M.P.H.
	11-20 M.P.H.
	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	68 2
SMOKE	5	4
RAIN		4 8 6
DUST		
SNOW		6 2
TOTALS	100	82 12 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

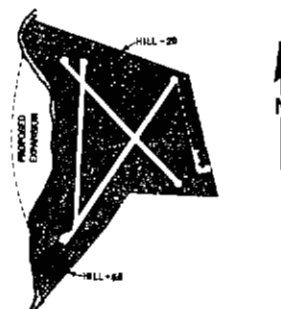
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	65	59 15
SMOKE	33	10 2
RAIN	1	3 3 2
DUST		1 2
SNOW	1	1 2
TOTALS	100	74 24 2

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
GROUPS I & II COMBINED												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	281	188	135	63	75	76	83	116	168	167	232	252
SMOKE	68	61	45	7			1	1	8	47	131	124
RAIN		3	2						2	2		11
DUST												
SNOW		2										7
TOTALS	346	254	182	70	75	76	84	119	178	214	365	383

NOTE:
Percentage in windrose are based on the number of observations in each visibility group.
Example: 95 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



0 1000 2000 4000
SCALE IN FEET

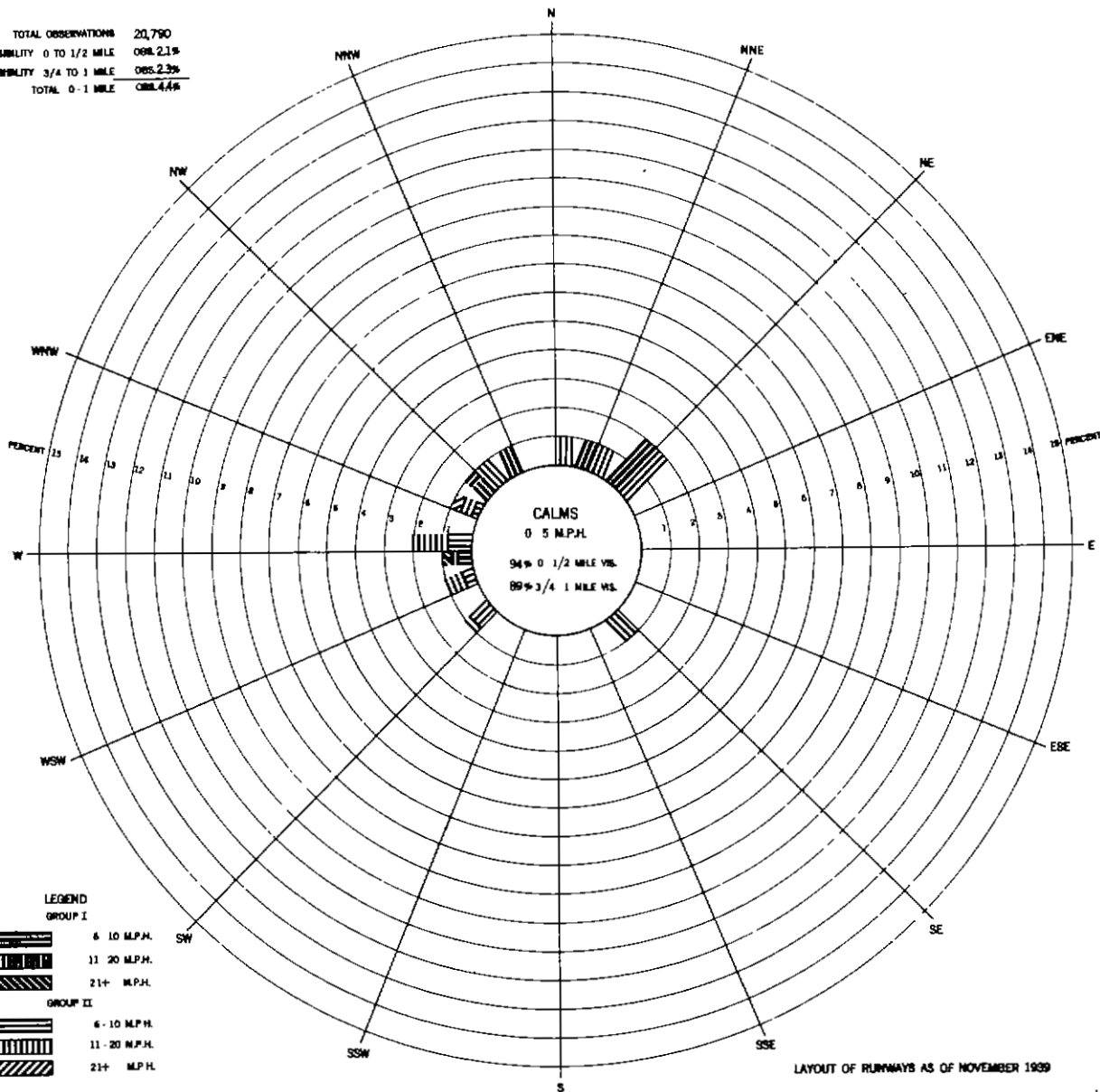
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 20,790
VISIBILITY 0 TO 1/2 MILE 088.21%
VISIBILITY 3/4 TO 1 MILE 085.23%
TOTAL 0 - 1 MILE 086.64%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

KNOXVILLE, TENN.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOR	92	56
SMOKE	4	8
RAIN	2	8
DUST		4
SNOW	2	8
TOTALS	100	84

GROUP II
3/4 TO 1 MILE VISIBILITY

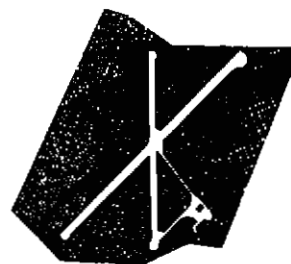
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOR	85	55
SMOKE	10	4
RAIN	3	5
DUST		8
SNOW	2	6
TOTALS	100	71

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOR	121	54	59	7	43	30	41	32	79	67	63	153	749
SMOKE	13	4	15	3					1	12	9		57
RAIN		6	4	1				4	1	1			20
DUST													1
SNOW	1	1	5								2	8	17
TOTALS	135	67	84	11	43	30	45	33	80	69	77	170	844

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Extrinsic 5% indicates the percentage of obs. in either Group I or Group II depending upon the symbol classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the War's Program Administration.

NOT USABLE
USABLE AREA
LOWER GRADE
HARD SURFACE



0 1000 2000 4000
SCALE IN FEET

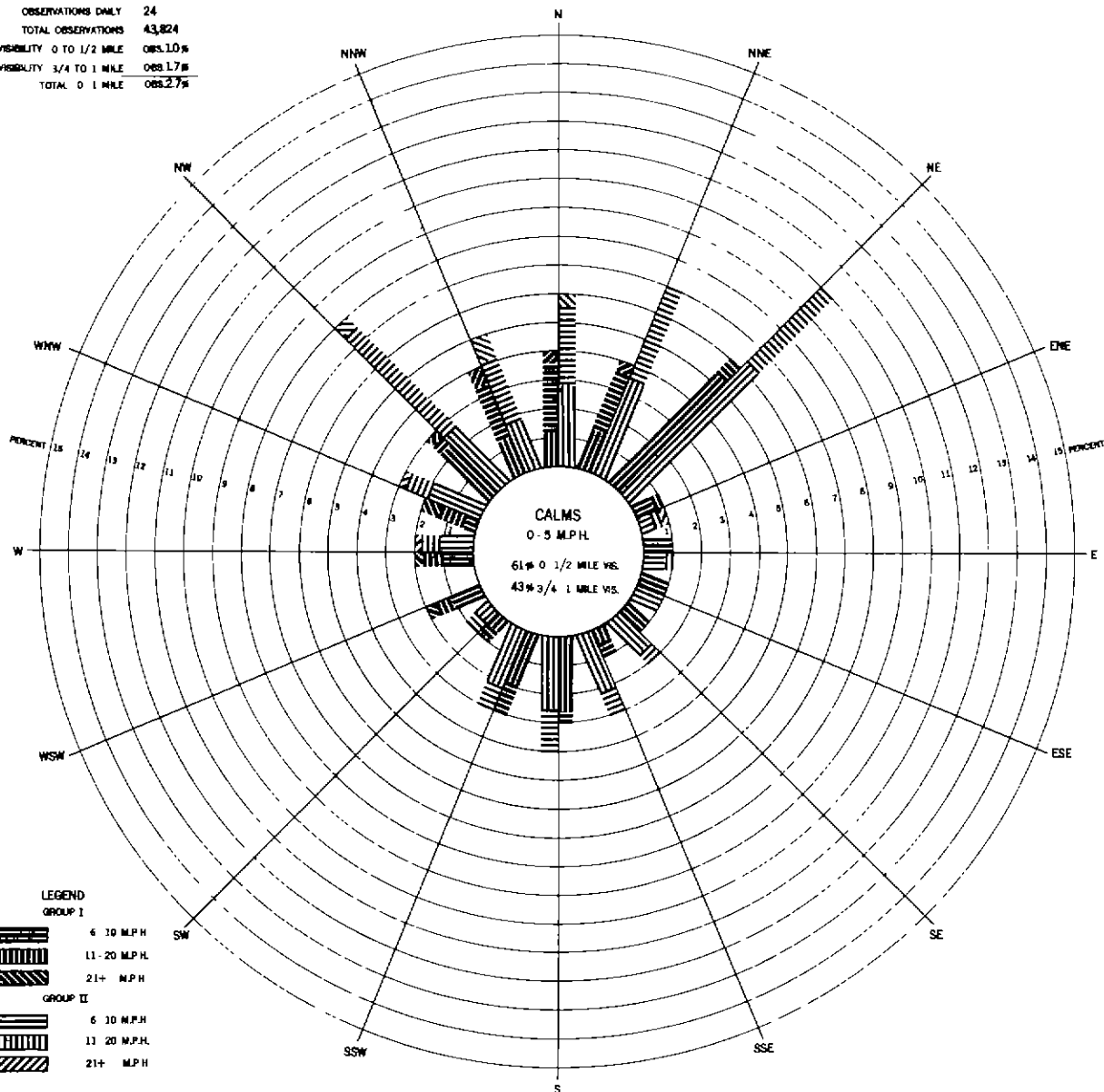
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.0%
VISIBILITY 3/4 TO 1 MILE OBS. 1.7%
TOTAL 0 1 MILE OBS. 2.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MEMPHIS, TENN.
MUNICIPAL AIRPORT

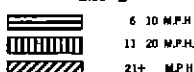


LEGEND

GROUP I



GROUP II



GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	49 19
SMOKE	3	5
RAIN		1 4 5
DUST		3 1
SNOW		4 4 5
TOTALS	100	59 30 11

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	74	42 30 2
SMOKE	19	6 4
RAIN	6	3 4 1
DUST		
SNOW	1	4 3 1
TOTALS	100	55 41 4

(Figures indicate percentage)

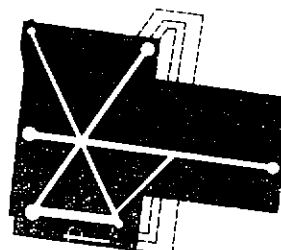
TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	132	60	21	11	29	5	10	11	32	36	48	127	524
SMOKE	36	16	1			1				3	4	11	72
RAIN	9	5		1						1	4		20
DUST	1				1								2
SNOW		4											4
TOTALS	178	85	22	12	30	6	10	11	32	42	66	138	622

NOTE:
Percentages in brackets are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of total as either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



0 1000 2000 4000
SCALE IN FEET

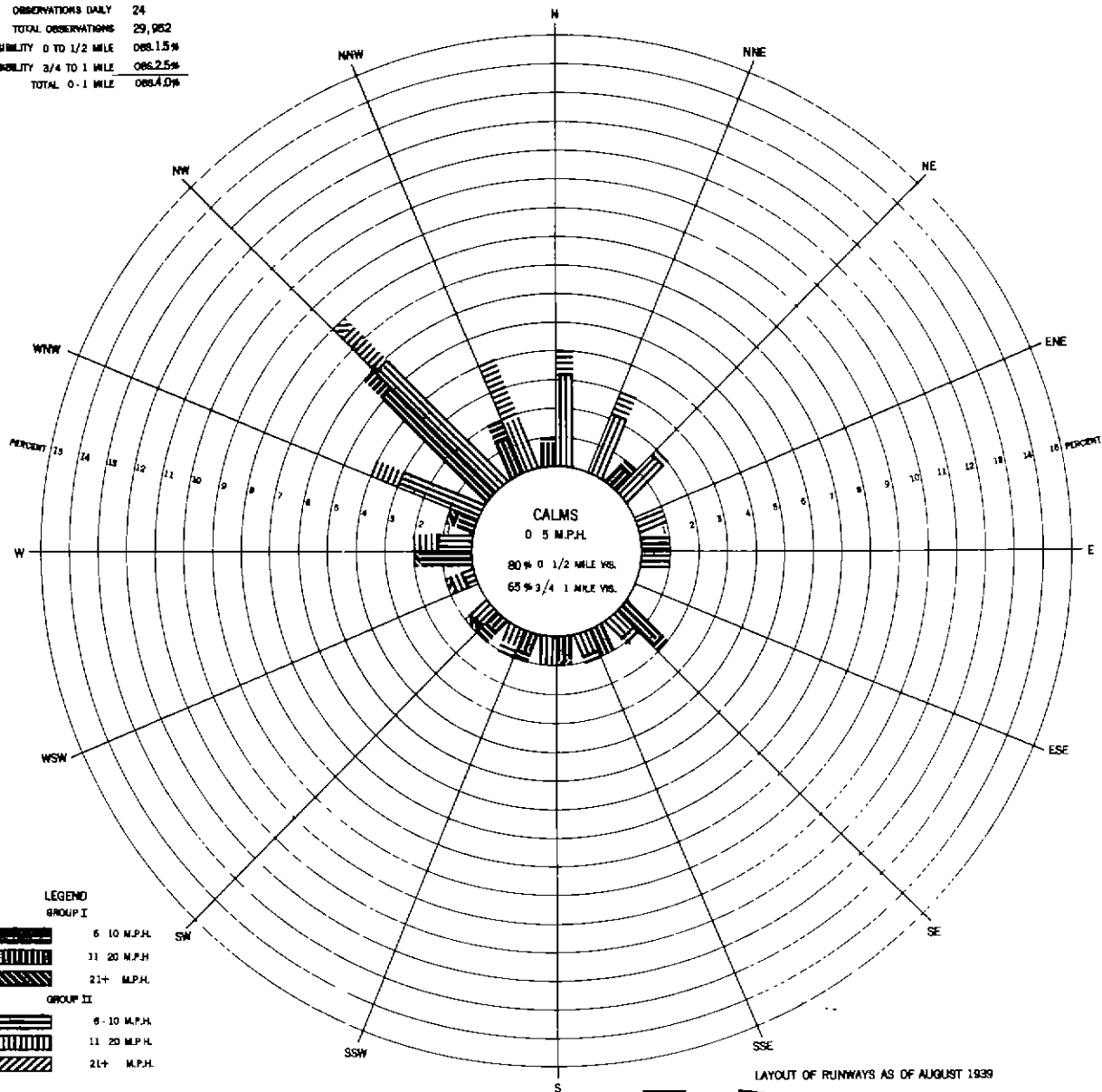
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 7 YEAR PERIOD
1932 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 29,952
VISIBILITY 0 TO 1/2 MILE 088.15%
VISIBILITY 3/4 TO 1 MILE 086.25%
TOTAL 0-1 MILE 088.40%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

NASHVILLE, TENN.
MUNICIPAL AIRPORT



LEGEND
GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	67 9 2
SMOKE	3	8 1
RAIN		1 5 3
DUST	1	
SNOW	1	3 1
TOTALS	100	79 16 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	74	50 19 1
SMOKE	25	13 2
RAIN		2 2 1
DUST	1	3 2
SNOW		3 2
TOTALS	100	71 27 2

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	104	64	38	17	15	12	38	38	63	75	91	165	720
SMOKE	25	17	7	2		1	1		2	21	24	36	136
RAIN			2				1						3
DUST					6							1	7
SNOW		4											4
TOTALS	129	85	47	19	21	13	40	38	65	96	115	202	870

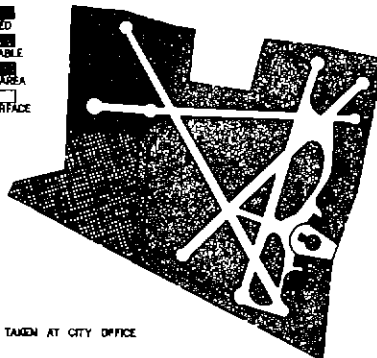
NOTE.

Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Program Administration.

LAYOUT OF RUNWAYS AS OF AUGUST 1939

GRADED
PAVED
NOT USABLE
USABLE AREA
HARD SURFACE



SOME OBS. TAKEN AT CITY OFFICE

0 1000 2000 3000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

TEXAS

Abilene

Amarillo

Beaumont

Big Spring

Brownsville

Corpus Christi

Dallas

El Paso

Fort Worth

Houston

San Antonio

Waco

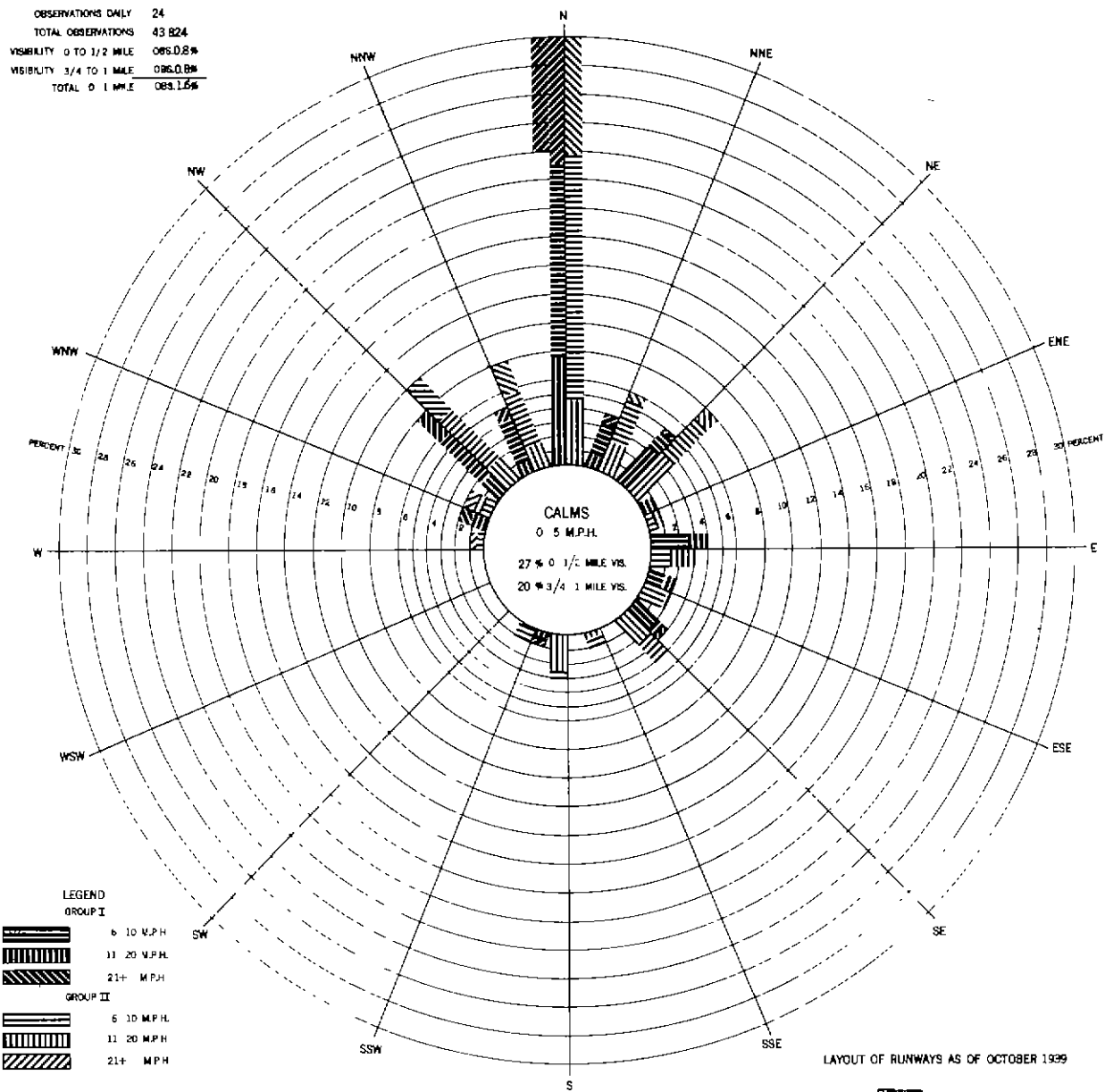
Wichita Falls

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 0.8%
VISIBILITY 3/4 TO 1 MILE OBS. 0.8%
TOTAL 0 1 MILE OBS. 1.6%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

ABILENE, TEXAS
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	90	22 24 3
SMOKE		
RAIN	1	2 1
DUST	9	5 13 26
SNOW		1 3
TOTALS	100	28 39 33

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

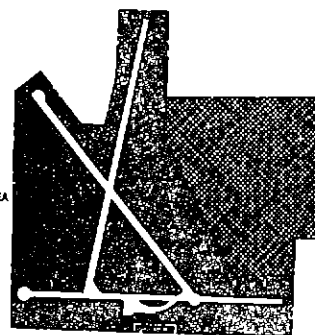
CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	47	15 25 4
SMOKE		
RAIN	3	2 4
DUST	50	12 18 18
SNOW		1 1
TOTALS	100	29 48 23

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	30	22	6	5	2	3			5	3	11	6	93
SMOKE											2		3
RAIN				1									
DUST	14	8	8	2	7						3		42
SNOW													
TOTALS	44	30	15	7	9	3			5	3	16	6	138

NOTE:
Percentages in parentheses are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



0 1000 2000 4000
SCALE IN FEET

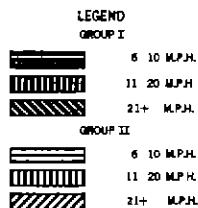
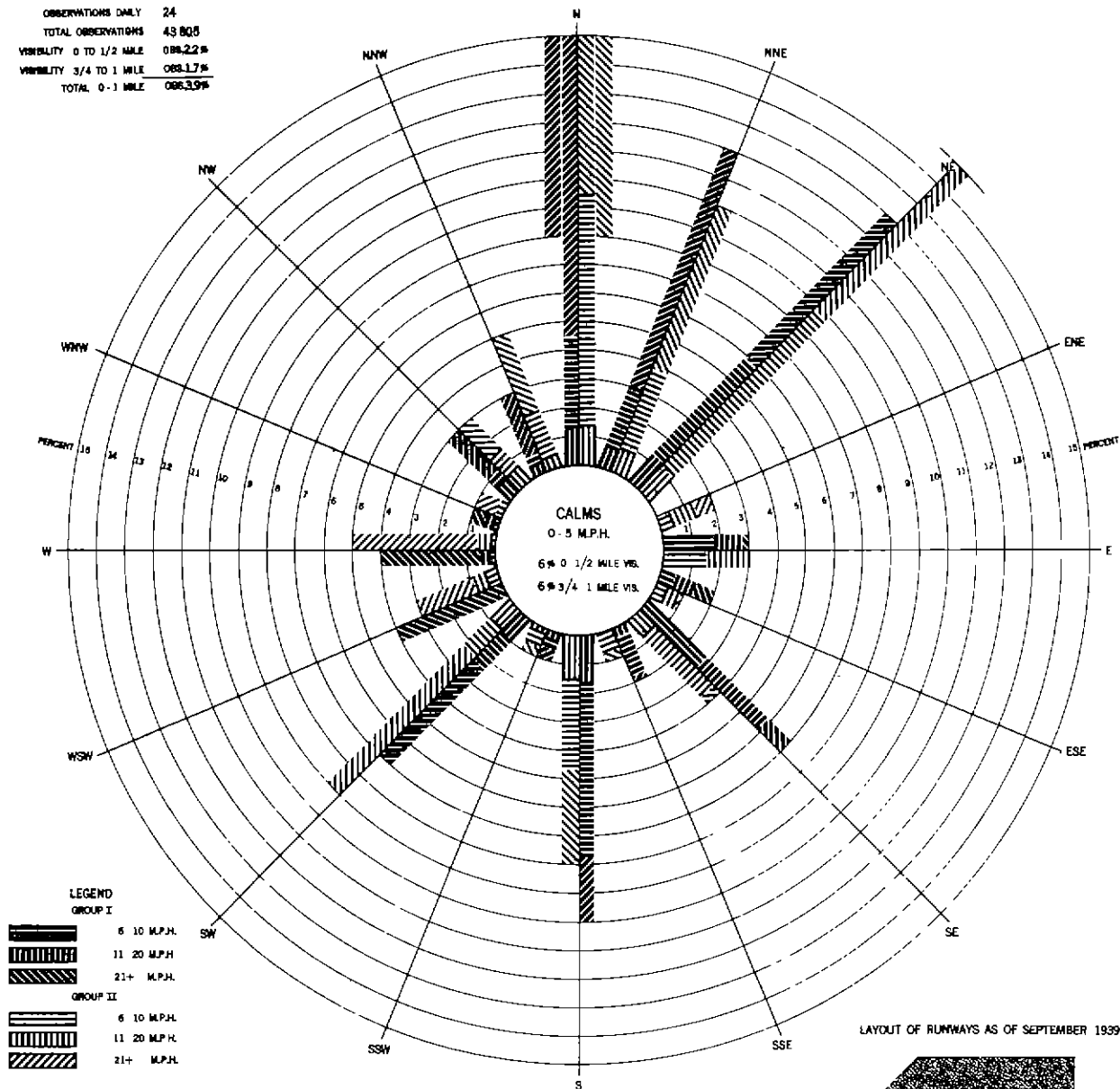
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 805
VISIBILITY 0 TO 1/2 MILE 088.22%
VISIBILITY 3/4 TO 1 MILE 088.17%
TOTAL 0-1 MILE 088.39%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

AMARILLO, TEXAS
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	93	11 22 7
SMOKE		
RAIN		
DUST	2	1 4 49
SNOW	5	2 4
TOTALS	100	12 28 60

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	41	6 19 6
SMOKE		
RAIN		
DUST	43	4 14 46
SNOW	16	2 2 2
TOTALS	100	11 35 54

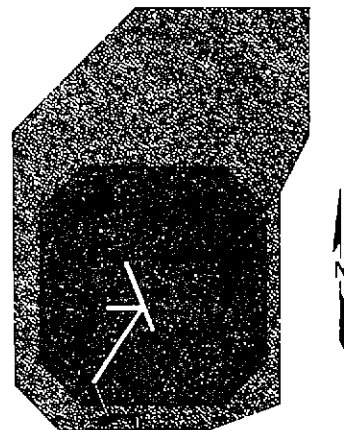
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	5	24	3	4	4	2	3	8		4		13	71
SMOKE													
RAIN													
DUST	11	1	1	7									20
SNOW		5	5										10
TOTALS	17	30	9	11	4	2	3	8		4		13	101

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: Fog indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Texas Progress Administration.

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1939



0 500 1000 2000 3000
SCALE IN FEET

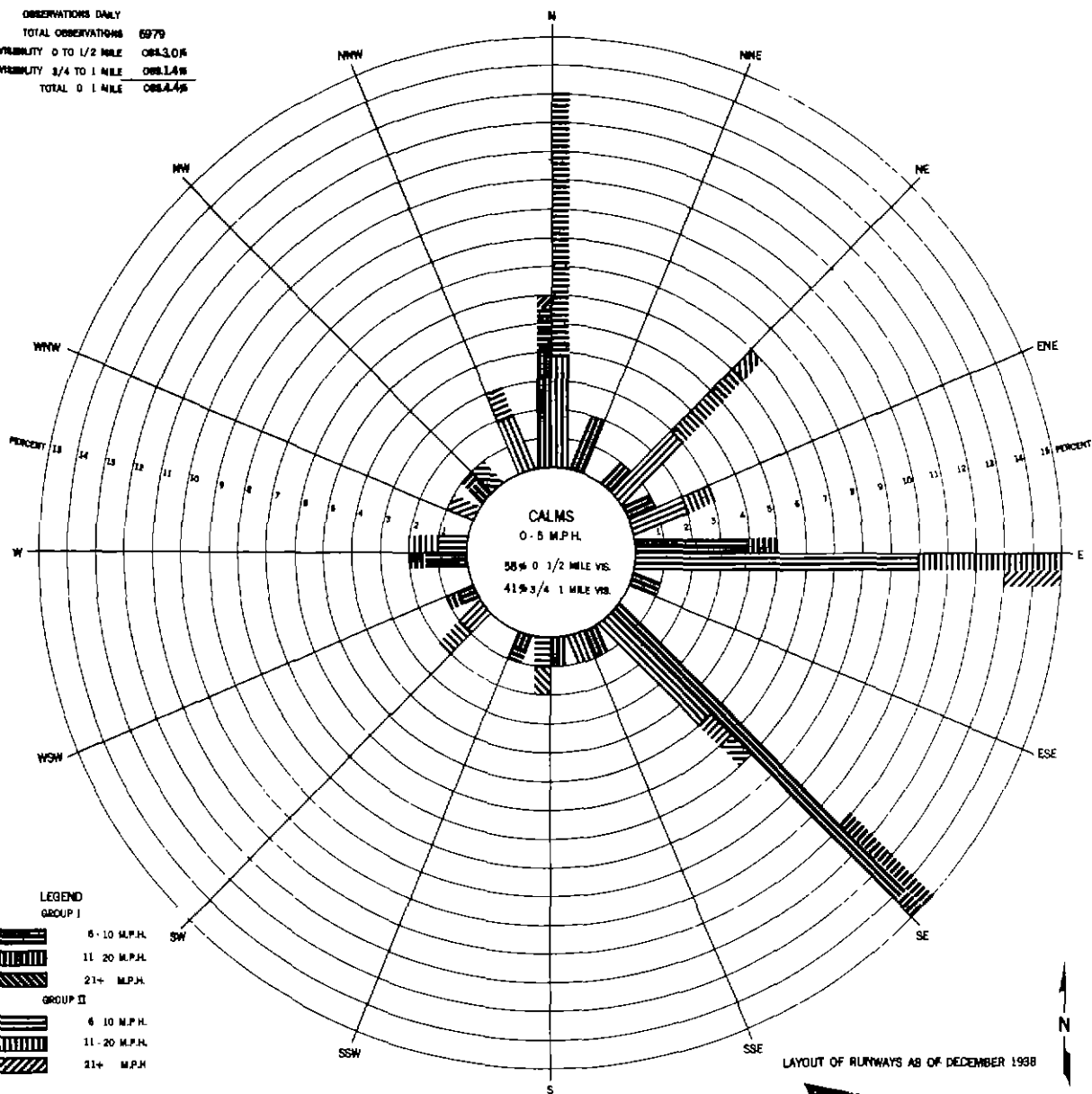
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

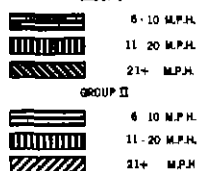
OBSERVATIONS DAILY
TOTAL OBSERVATIONS 6979
VISIBILITY 0 TO 1/2 MILE 0853.0%
VISIBILITY 3/4 TO 1 MILE 0881.4%
TOTAL 0 1 MILE 0864.4%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

BEAUMONT, TEX.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	97	74
SMOKE		1
RAIN	2	2
DUST	1	2
SNOW		
TOTALS	100	76

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	76	39
SMOKE		19
RAIN	22	10
DUST	3	2
SNOW		
TOTALS	100	49

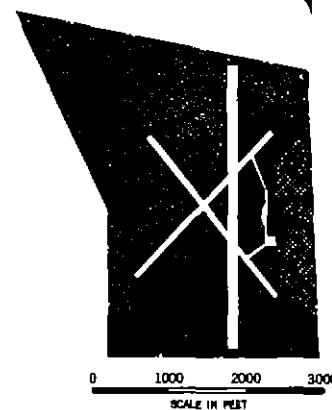
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	17	18	7	7	4	1	1	5	4	28	23	27	142
SMOKE													
RAIN	1		2		1			3			3	1	11
DUST	1											1	2
SNOW													
TOTALS	19	18	9	7	5	1	1	8	4	28	26	29	156

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in other Group I or Group II depending upon the special identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Texas Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1938



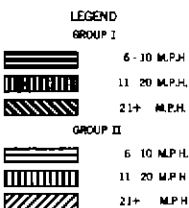
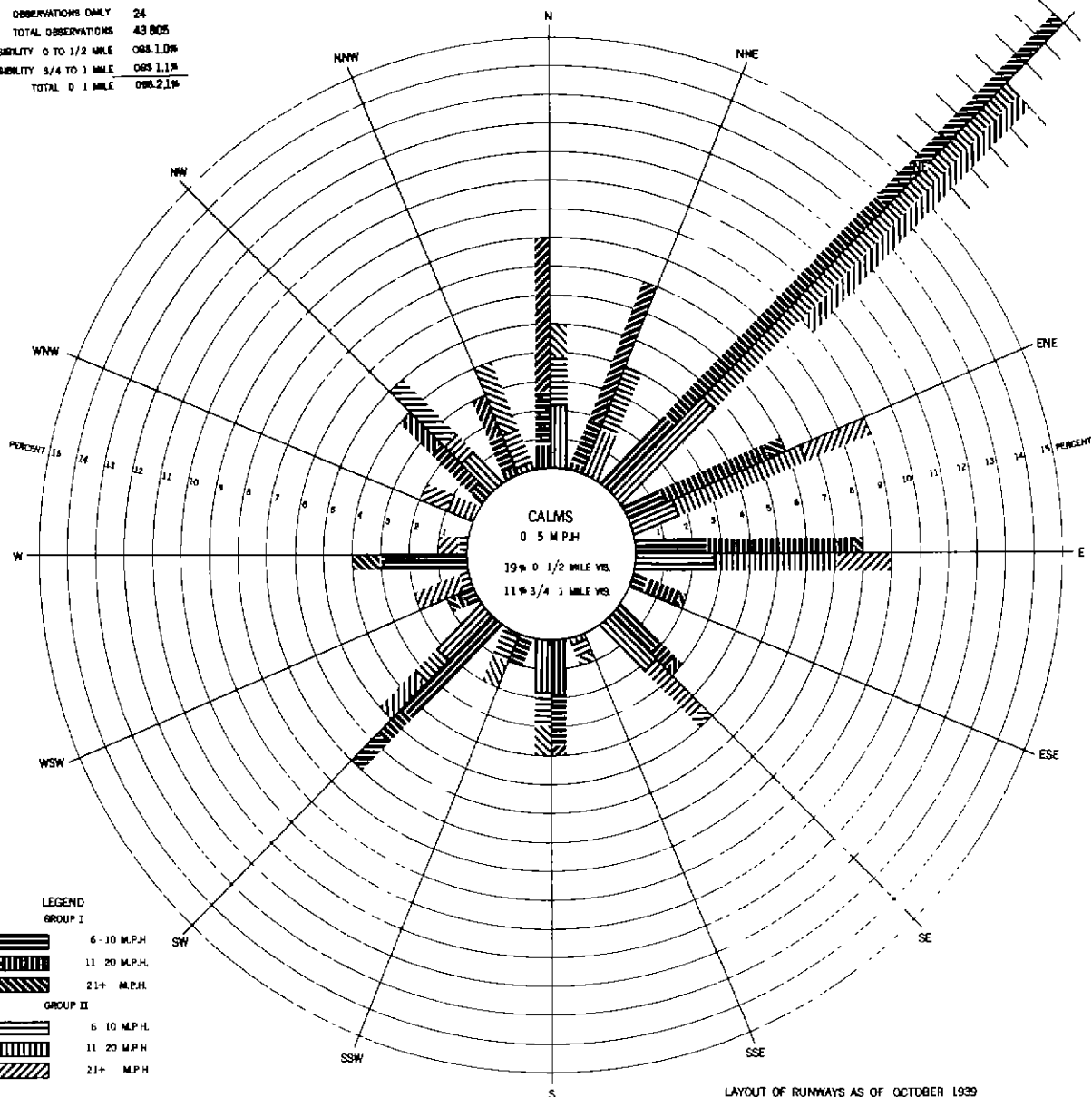
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43 805
VISIBILITY 0 TO 1/2 MILE 0.8 1.0%
VISIBILITY 3/4 TO 1 MILE 0.9 1.1%
TOTAL 0 1 MILE 0.8 2.1%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BIG SPRING, TEXAS
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF OCTOBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	95	22 26 2
SMOKE		
RAIN		1 1
DUST	5	3 13 29
SNOW		1 1 1
TOTALS	100	26 41 33

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	76	15 23 5
SMOKE	2	
RAIN	2	2
DUST	20	6 16 32
SNOW		1 1
TOTALS	100	21 42 37

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	TOTAL
FOG	27	16	1				3	2	4	22	25	24	124
SMOKE												1	1
RAIN											1		1
DUST	9	2	2	2									16
SNOW													
TOTALS	36	18	3	2			3	2	4	22	26	25	141

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Excessive fog indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the State Progress Administration.



NOT USABLE
800 & USABLE AREA
HARD SURFACE

0 1000 2000 4000
SCALE IN FEET

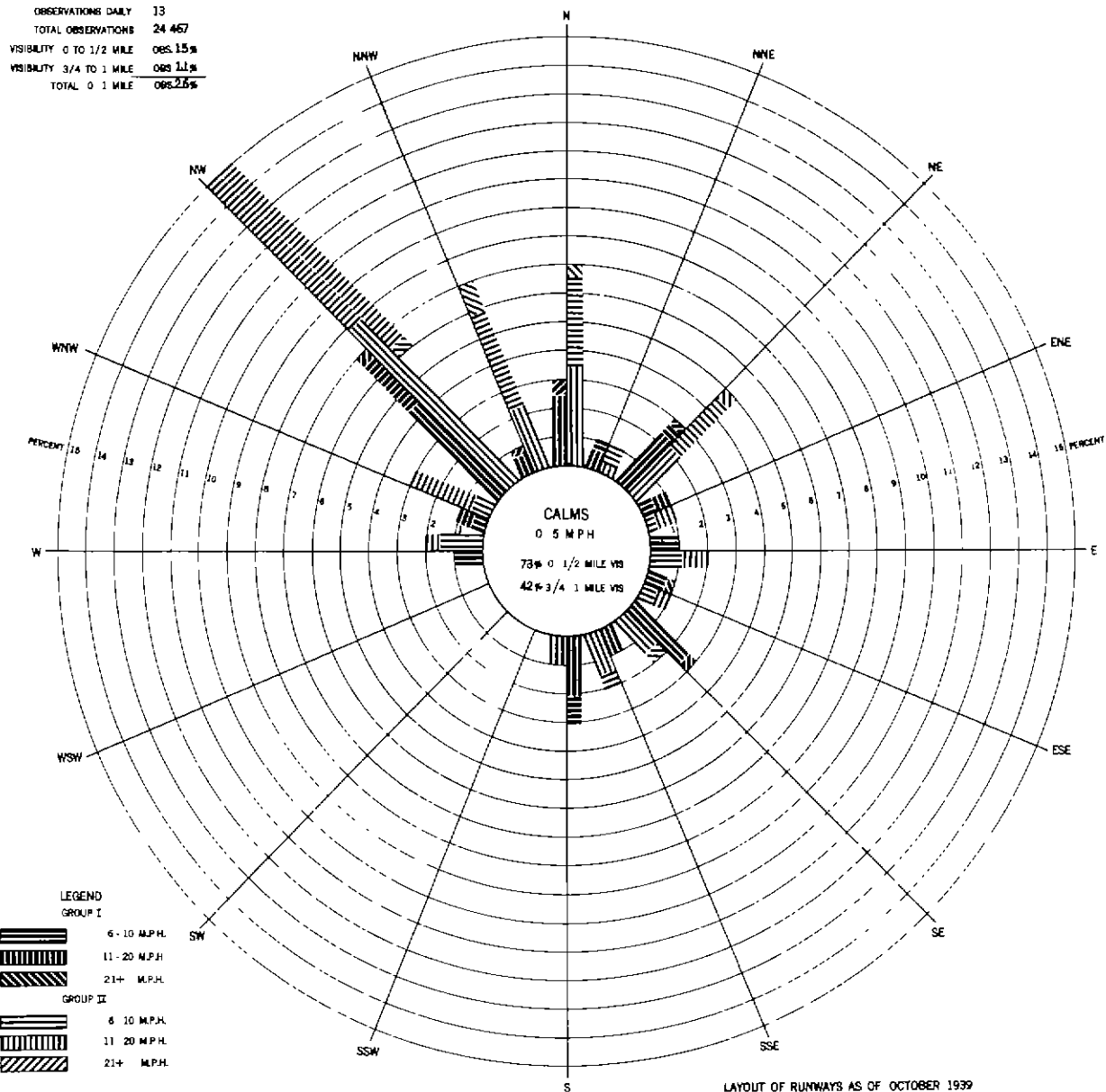
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 13
TOTAL OBSERVATIONS 24 457
VISIBILITY 0 TO 1/2 MILE OBS. 15%
VISIBILITY 3/4 TO 1 MILE OBS. 11%
TOTAL 0 1 MILE OBS. 26%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BROWNSVILLE, TEXAS
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	99	68 16
SMOKE		
RAIN	1	5 6 6
DUST		
SNOW		
TOTALS	100	73 21 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

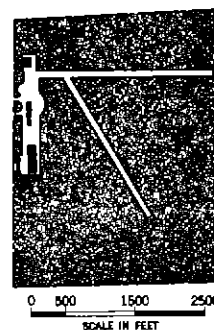
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	36 33 2
SMOKE		
RAIN	3	5 11 2
DUST		1 8 1
SNOW		
TOTALS	100	42 53 5

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	57	56	59	23	20	5	7	8	3	43	43	70	394
SMOKE													
RAIN	2								1			2	5
DUST													
SNOW													
TOTALS	59	56	59	23	20	5	7	8	4	43	43	72	399

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.



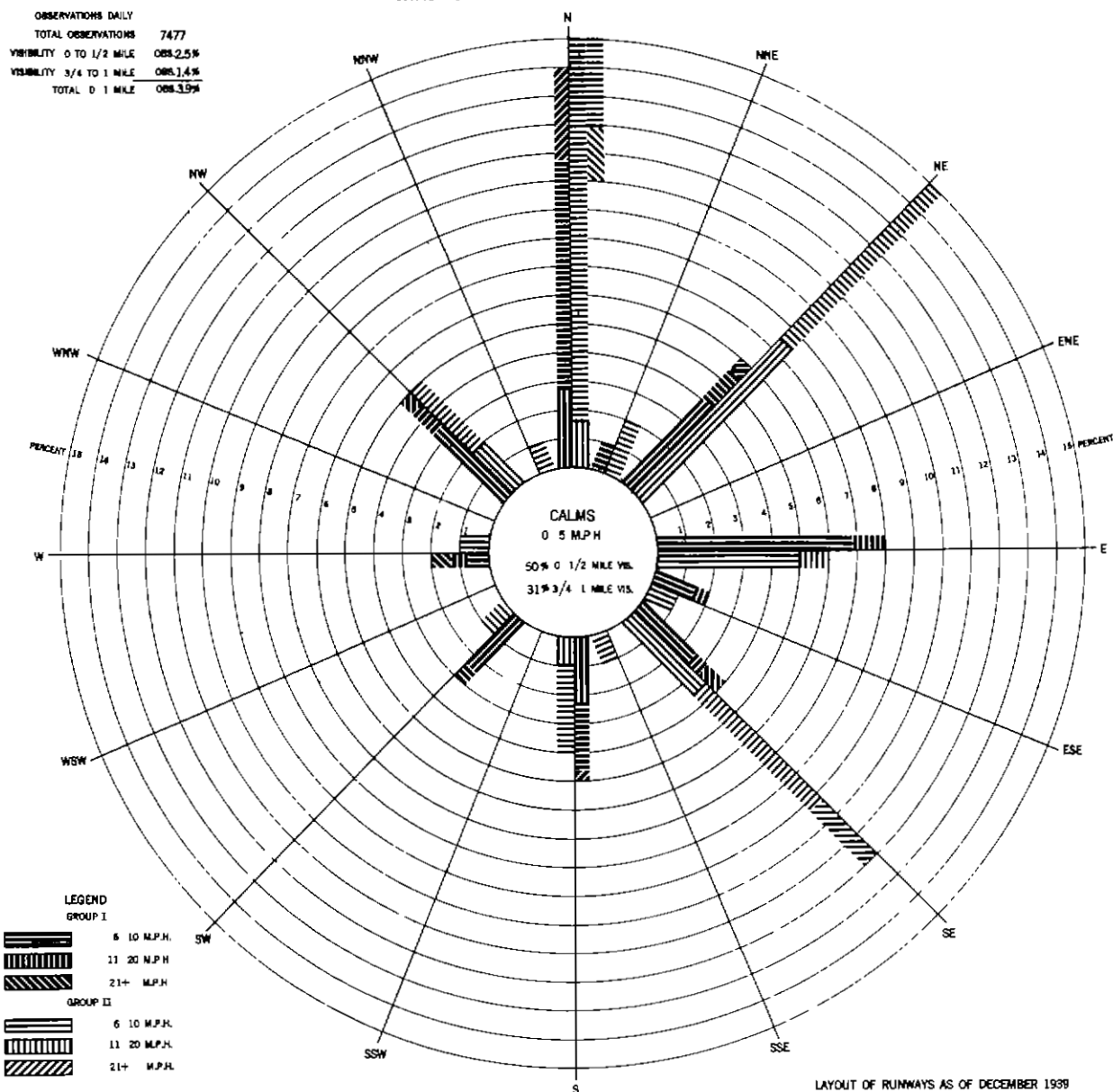
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 7477
VISIBILITY 0 TO 1/2 MILE OBS. 2.5%
VISIBILITY 3/4 TO 1 MILE OBS. 1.4%
TOTAL 0 1 MILE OBS. 3.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CORPUS CHRISTI, TEX.
MUNICIPAL AIRPORT



LAYOUT OF RUNWAYS AS OF DECEMBER 1939

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	47 17 1
SMOKE		
RAIN	6	6 12 11
DUST		1 5
SNOW		
TOTALS	100	54 34 12

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	68	17 27 1
SMOKE		
RAIN	26	17 19 4
DUST	6	14 1
SNOW		
TOTALS	100	34 60 6

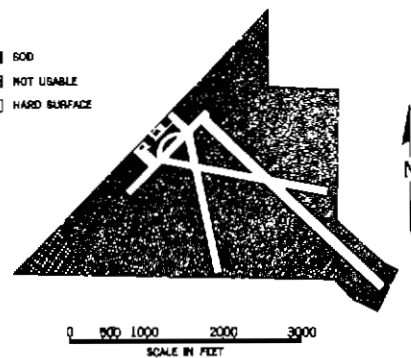
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	32	22	17	9	1	1	1			7	3	19	112
SMOKE													
RAIN			1	1	5	1		1				5	15
DUST										2			2
SNOW													
TOTALS	32	23	18	14	2	1	2		1	7	3	24	129

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Public Program Administration.

SOB
NOT USABLE
HARD SURFACE



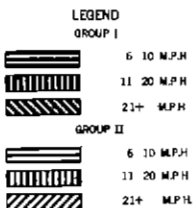
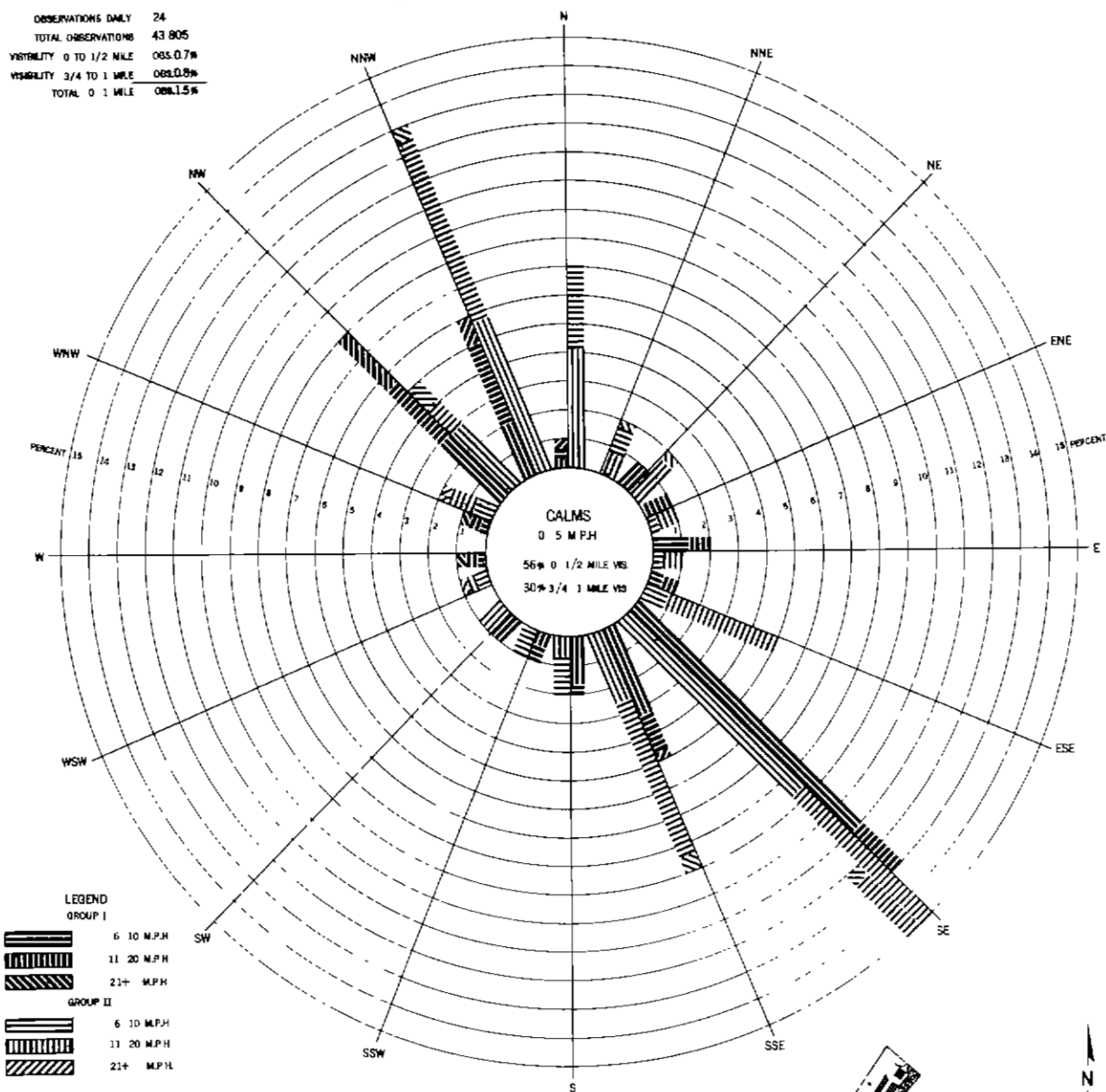
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 805
VISIBILITY 0 TO 1/2 MILE 065.07%
VISIBILITY 3/4 TO 1 MILE 068.08%
TOTAL 0 1 MILE 068.15%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

DALLAS, TEX.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	61
SMOKE		15
RAIN		3
DUST		7
SNOW		2
TOTALS	100	61

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	92	34
SMOKE	3	42
RAIN		2
DUST	5	7
SNOW		1
TOTALS	100	44

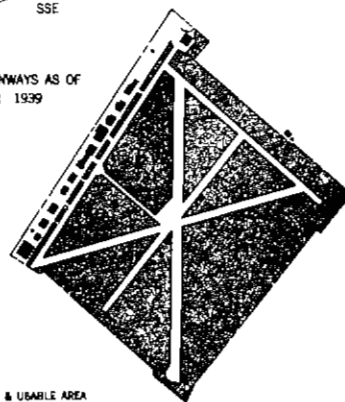
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	66	24	8	13	6	3	1			23	45	92	281
SMOKE										3			3
RAIN													
DUST	4				1								5
SNOW													
TOTALS	70	24	8	13	7	3	1			26	45	92	289

NOTE:
Percentage in all tables are based on the number of observations in each visibility group.
Example: Fog indicates the percentage of wind in either Group I or Group II, depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF
OCTOBER 1939



0 500 1000 2000
SCALE IN FEET

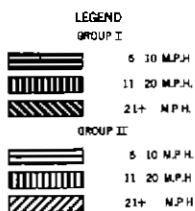
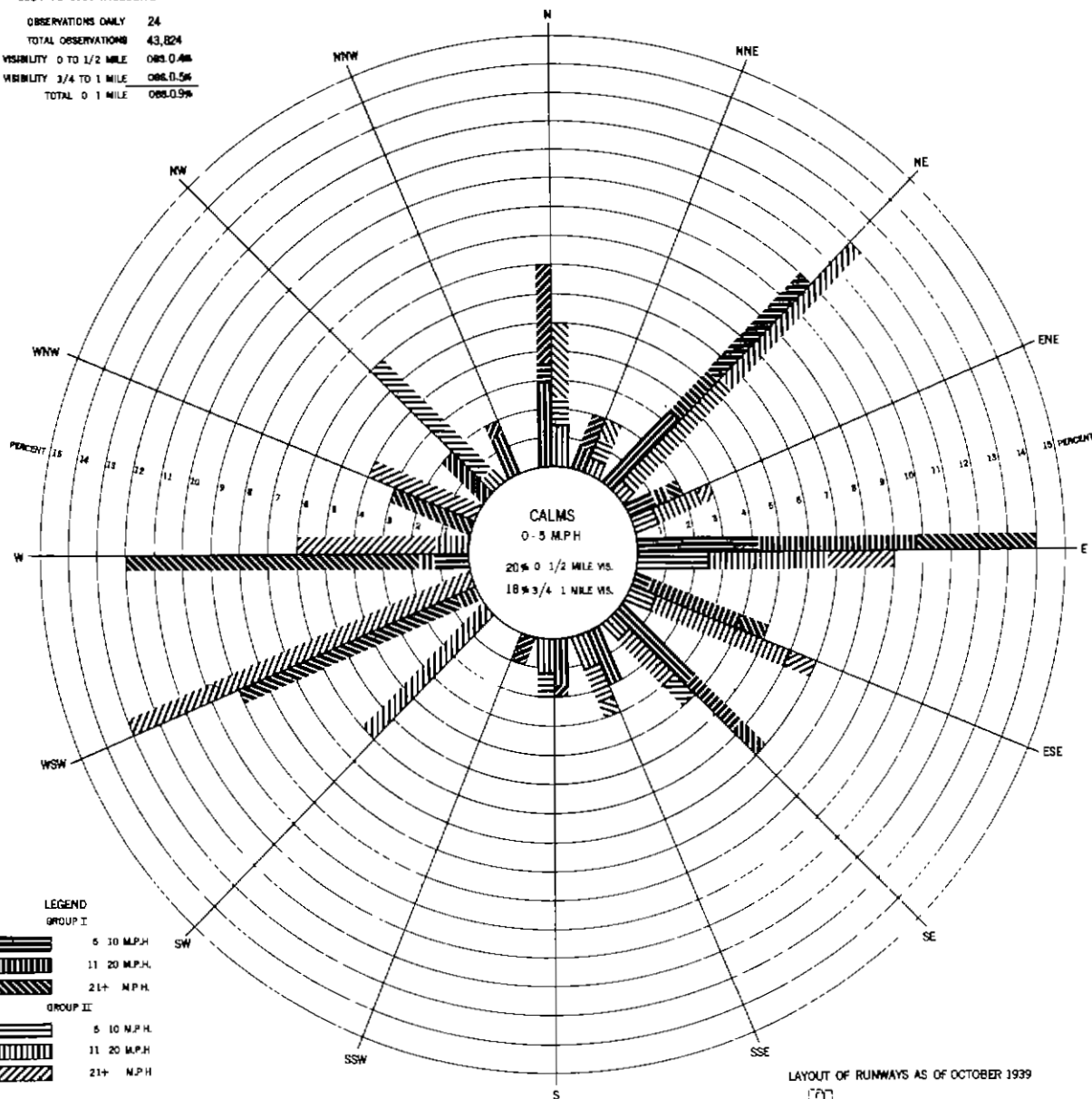
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

44-1

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 0.4%
VISIBILITY 3/4 TO 1 MILE OBS. 0.5%
TOTAL 0 1 MILE OBS. 0.9%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	58	10 1
SMOKE		
RAIN		
DUST	36	15 18 53
SNOW	6	2 1
TOTALS	100	27 20 53

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	28	2 1
SMOKE		
RAIN	3	1
DUST	69	9 24 58
SNOW		2 3
TOTALS	100	14 28 58

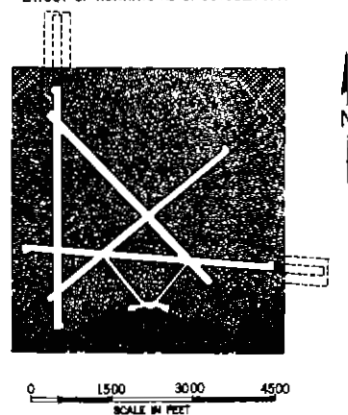
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS (GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	6	6								2		17	31
SMOKE													
RAIN								1					1
DUST		10	18	9	1								38
SNOW		2											2
TOTALS	6	18	18	9	1			1		2		17	72

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939

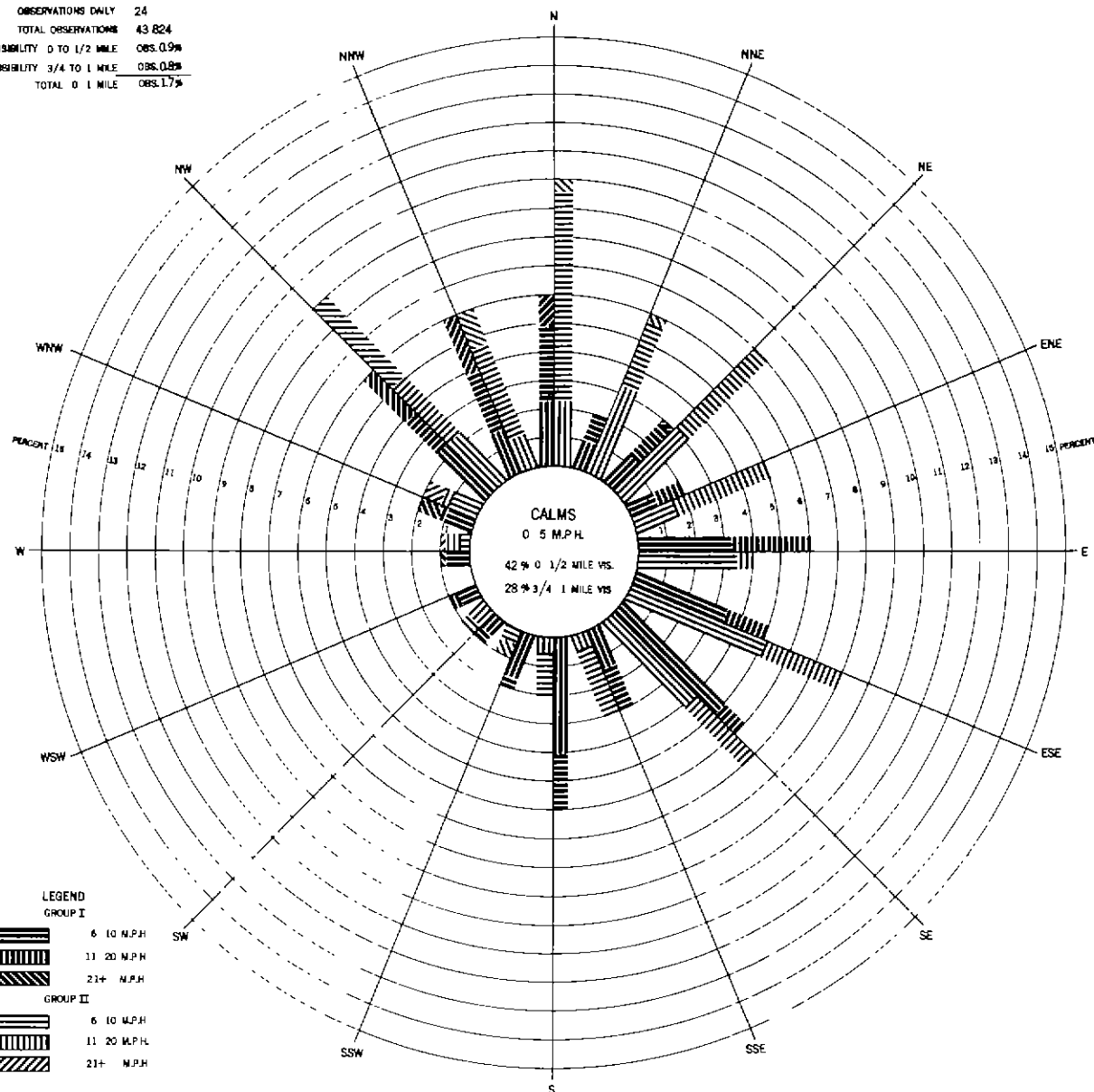


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE OBS. 0.9%
VISIBILITY 3/4 TO 1 MILE OBS. 0.8%
TOTAL 0 1 MILE OBS. 1.7%

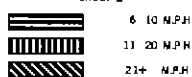
CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

FORT WORTH, TEX.
MUNICIPAL AIRPORT

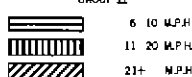


LEGEND

GROUP I



GROUP II



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	99	56 24
SMOKE	1	
RAIN		1
DUST		5 10
SNOW		3 1
TOTALS	100	56 33 11

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	96	36 38 2
SMOKE	2	
RAIN		1 1
DUST	2	4 8 7
SNOW		1 2
TOTALS	100	41 48 11

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS

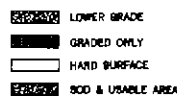
	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	TOTAL
FOG	94	21	16	5	6					29	38	99	268
SMOKE									1		1		3
RAIN													
DUST				2									2
SNOW													
TOTALS	94	21	16	5	6				1	29	39	60	273

NOTE

Percentages in windroset are based on the number of observations in each visibility group.
Example: 0% indicates the percentage of wind in either Group I or Group II depending upon the visibility identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1939



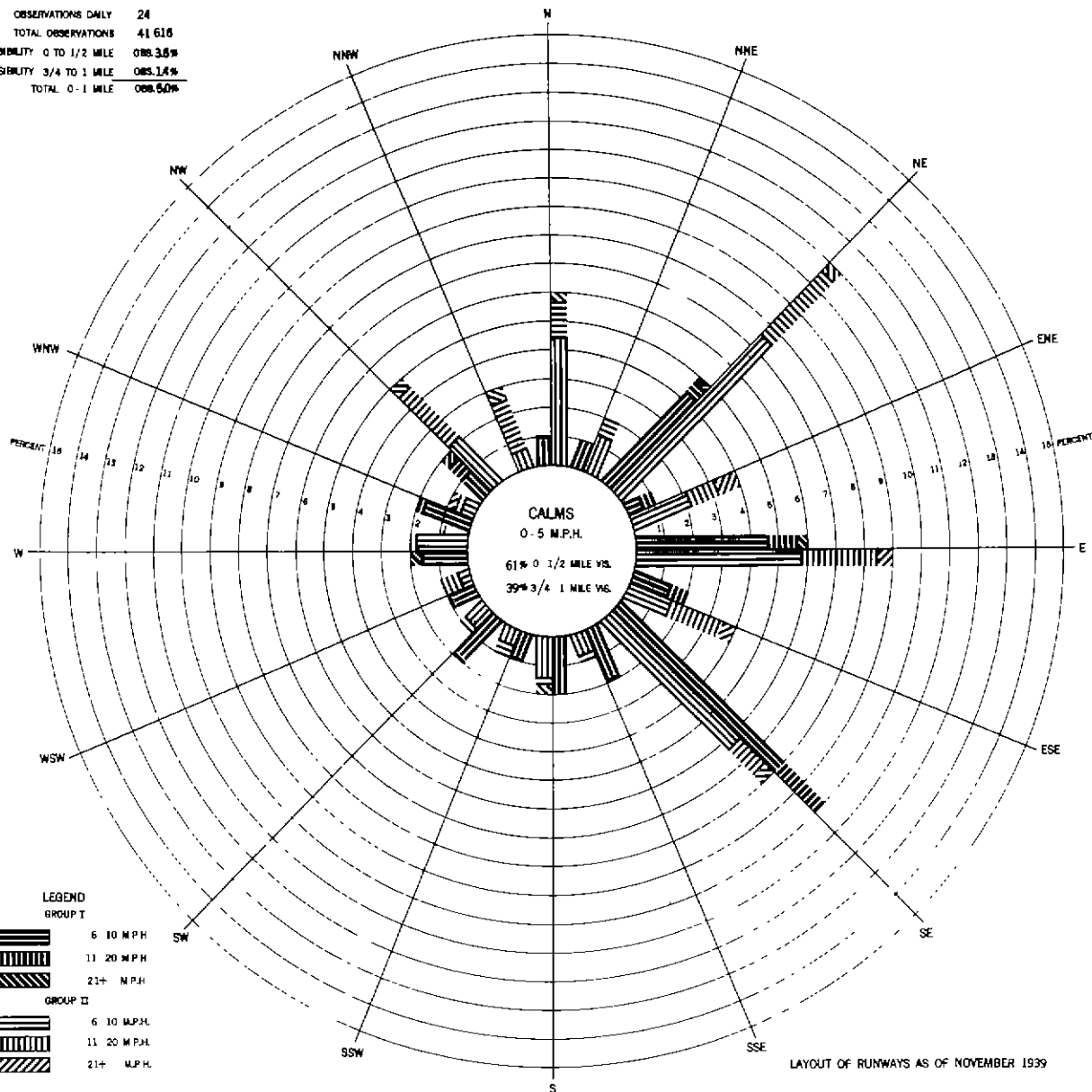
0 1000 2000 4000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

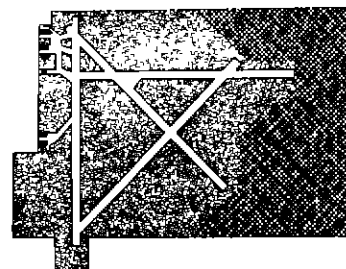
SUMMARY OF 8 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 41 616
VISIBILITY 0 TO 1/2 MILE OBS. 3.8%
VISIBILITY 3/4 TO 1 MILE OBS. 1.4%
TOTAL 0-1 MILE OBS. 5.2%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY



LAYOUT OF RUNWAYS AS OF NOVEMBER 1939



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	100	79
SMOKE		17
RAIN		1
DUST		2
SNOW		1
TOTALS	100	79

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	98	53
SMOKE	1	1
RAIN		5
DUST	1	3
SNOW		4
TOTALS	100	62

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
(GROUPS I & II COMBINED)

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	134	87	79	123	82	47	23	69	68	219	99	144	1174
SMOKE	1				2				1				4
RAIN											2		2
DUST													
SNOW													
TOTALS	135	87	79	123	82	49	23	69	69	219	101	144	1180

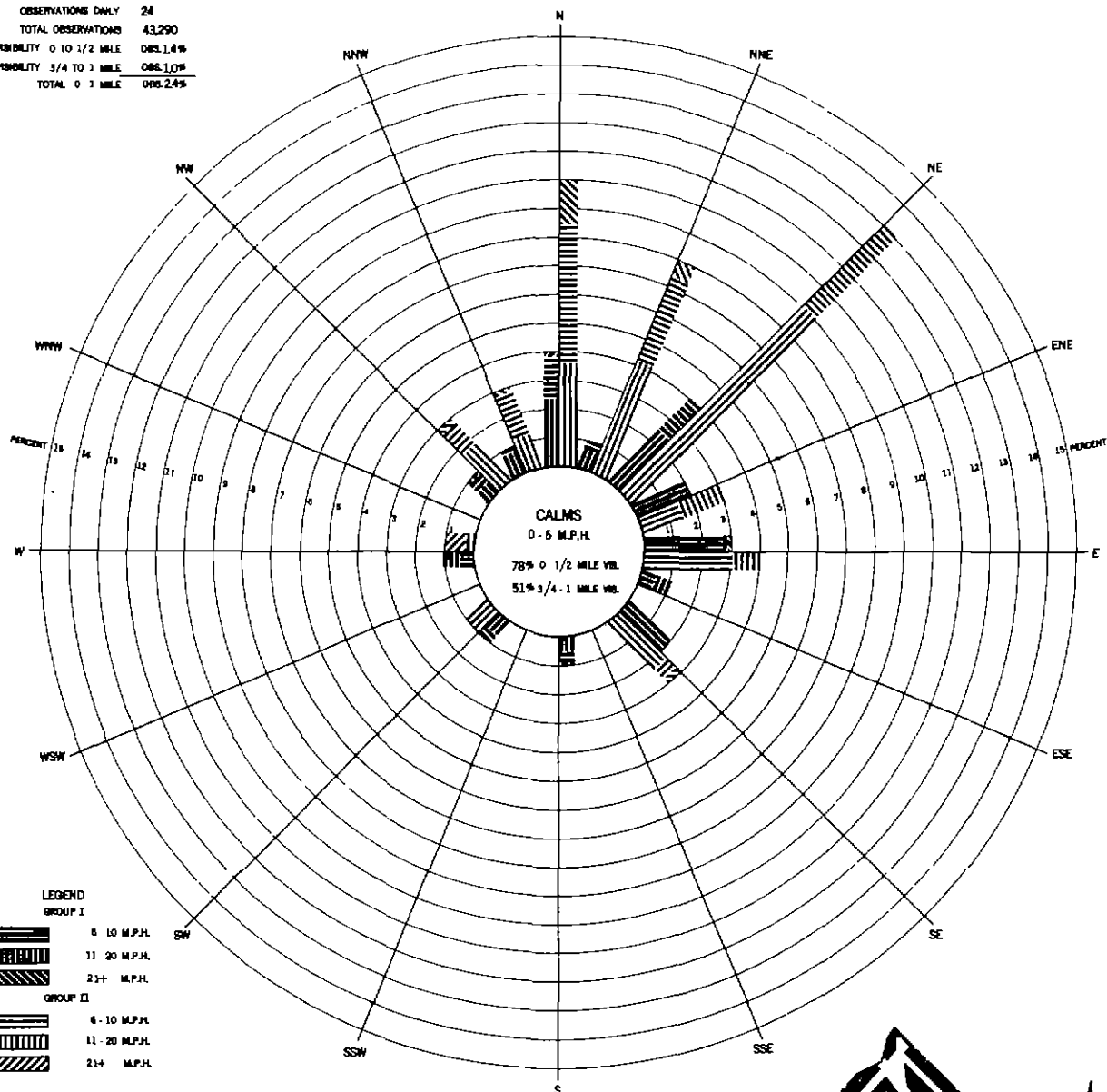
NOTE
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Texas Progress Administration.

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

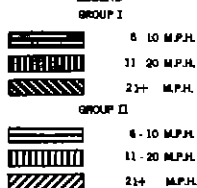
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,290
VISIBILITY 0 TO 1/2 MILE OBS. 1.4%
VISIBILITY 3/4 TO 1 MILE OBS. 1.0%
TOTAL 0 1 MILE OBS. 2.4%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SAN ANTONIO, TEX.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	98	67	13		
SMOKE					
RAIN		1	1	1	
DUST	2	7	8	1	
SNOW				1	
TOTALS	100	75	22	3	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

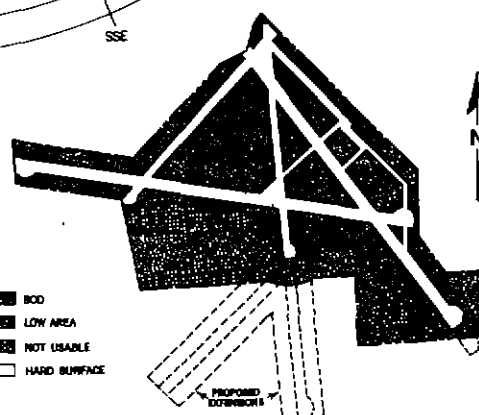
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.			
	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.	
FOG	96	50	20	1	
SMOKE					
RAIN	3	2	3	1	
DUST	1	6	12	5	
SNOW					
TOTALS	100	58	35	7	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II combined

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	117	96	60	40	7	6	3		6	58	67	196	646
SMOKE												1	1
RAIN	1	1	2	2		1						1	8
DUST			1	11									12
SNOW													
TOTALS	118	98	62	53	7	7	3		6	58	67	198	667

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
(Percentages 1/2 mile visibility are based on either Group I or Group II depending upon the revised identification.)
This was furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



LAYOUT OF RUNWAYS AS OF NOVEMBER 1938

0 500 1000 2000 3000
SCALE IN FEET

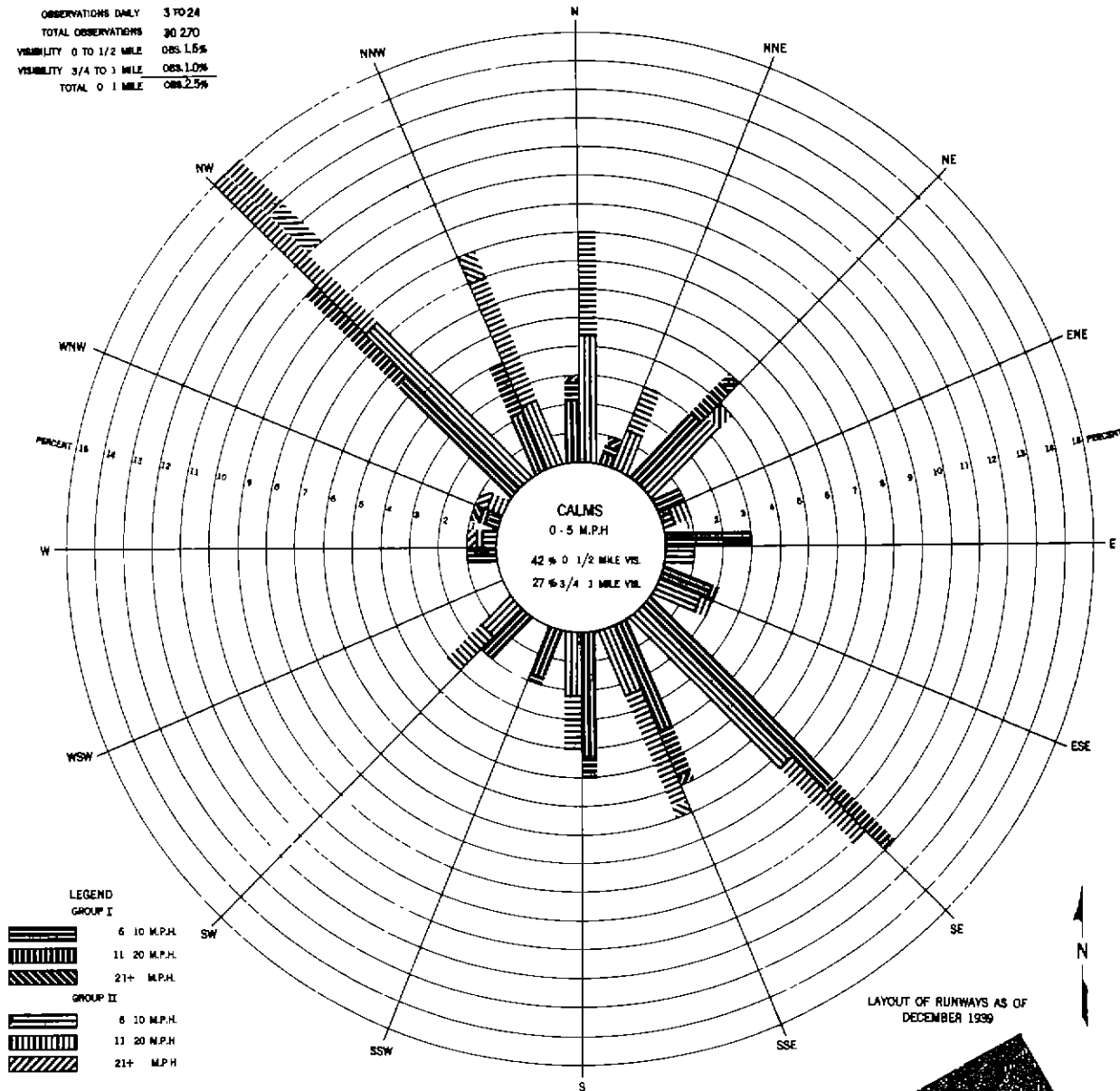
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 8 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 3 TO 24
TOTAL OBSERVATIONS 30 270
VISIBILITY 0 TO 1/2 MILE OBS. 1.5%
VISIBILITY 3/4 TO 1 MILE OBS. 1.0%
TOTAL 0 1 MILE OBS. 2.5%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WACO, TEX.
MUNICIPAL AIRPORT



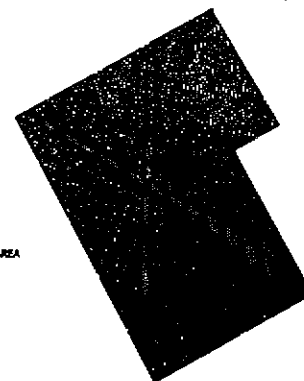
LEGEND
GROUP I

6 10 M.P.H.
11 20 M.P.H.
21+ M.P.H.

GROUP II

6 10 M.P.H.
11 20 M.P.H.
21+ M.P.H.

LAYOUT OF RUNWAYS AS OF
DECEMBER 1939



GRAYZEL
LOWER GRADE
ROD & UNABLE AREA

0 1000 2000 3000
SCALE IN FEET

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	98	71 19
SMOKE		2 1
RAIN	1	2 1
DUST	1	2 1
SNOW		1
TOTALS	100	71 26 3

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	99	47 35 2
SMOKE		
RAIN		4
DUST	1	3 4 4
SNOW		1
TOTALS	100	50 43 7

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC	TOTAL
FOG	74	8	14	10	7	4	1	1	2	14	43	73	251
SMOKE													
RAIN									1				1
DUST	1		1										2
SNOW													
TOTALS	75	8	15	10	7	4	1	1	3	14	43	73	254

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.

Example: 8% indicates the percentage of wind in either Group I or Group II depending upon the speed identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

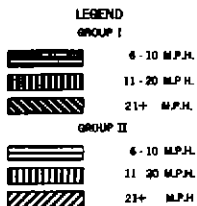
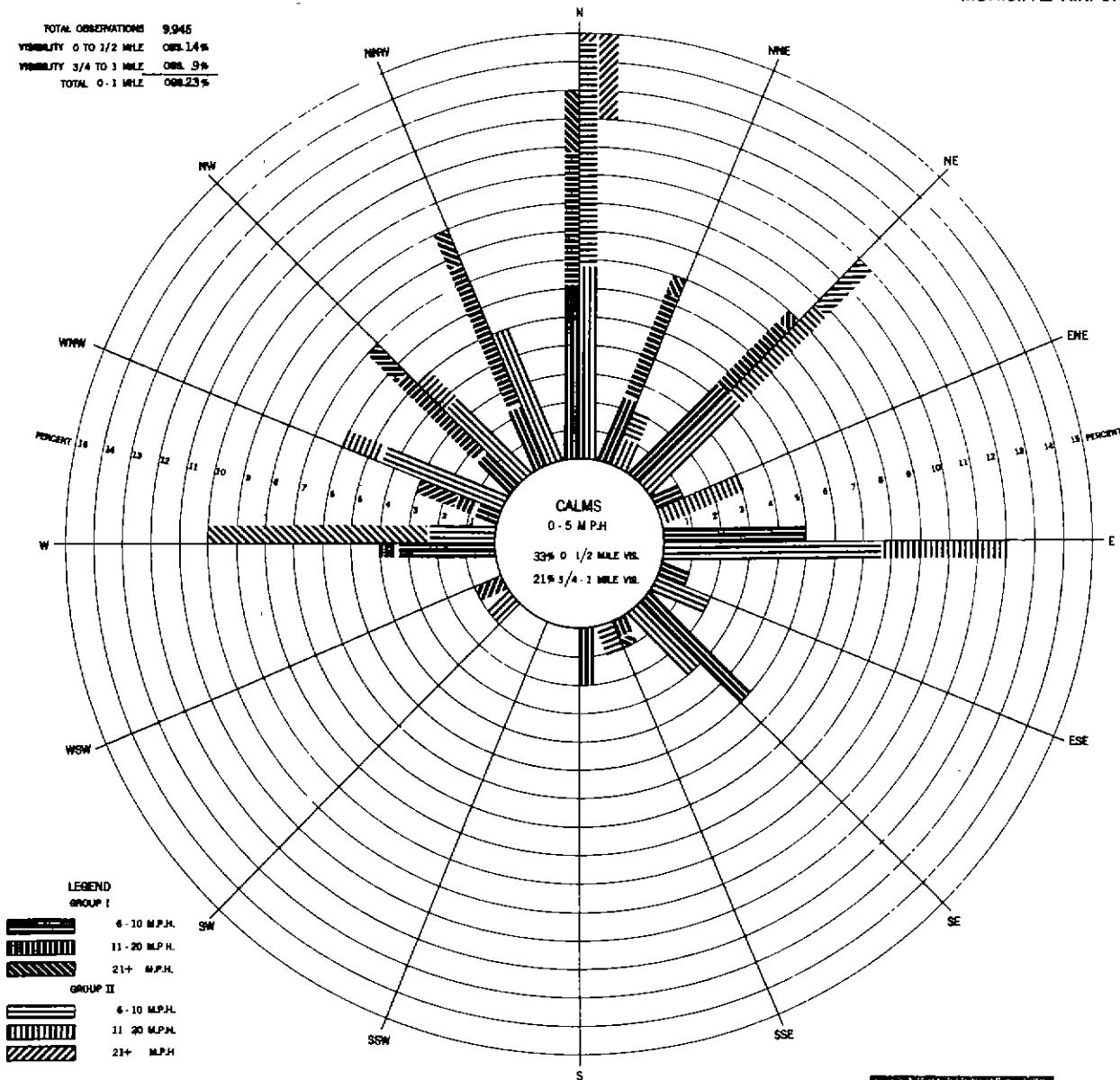
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

WICHITA FALLS, TEX.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 9,945
VISIBILITY 0 TO 1/2 MILE OBS. 1.4%
VISIBILITY 3/4 TO 1 MILE OBS. 9%
TOTAL 0-1 MILE OBS. 23%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	34 10 2
SMOKE		
RAIN		9 7 4
DUST	2	2 7 5
SNOW		6 12 3
TOTALS	100	50 36 14

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	72	18 17
SMOKE		
RAIN	6	18 6
DUST	22	13 10 16
SNOW		1 1
TOTALS	100	50 33 17

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	7	8	5	2	1	1				9	9	18	55
SMOKE											1		1
RAIN													
DUST				2	3								5
SNOW													
TOTALS	7	8	5	2	1	1				9	10	18	61

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of total in other Group I or Group II, depending upon the speed classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF
NOVEMBER 1938

HAZY SURFACE
USABLE
NOT USABLE



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

UTAH

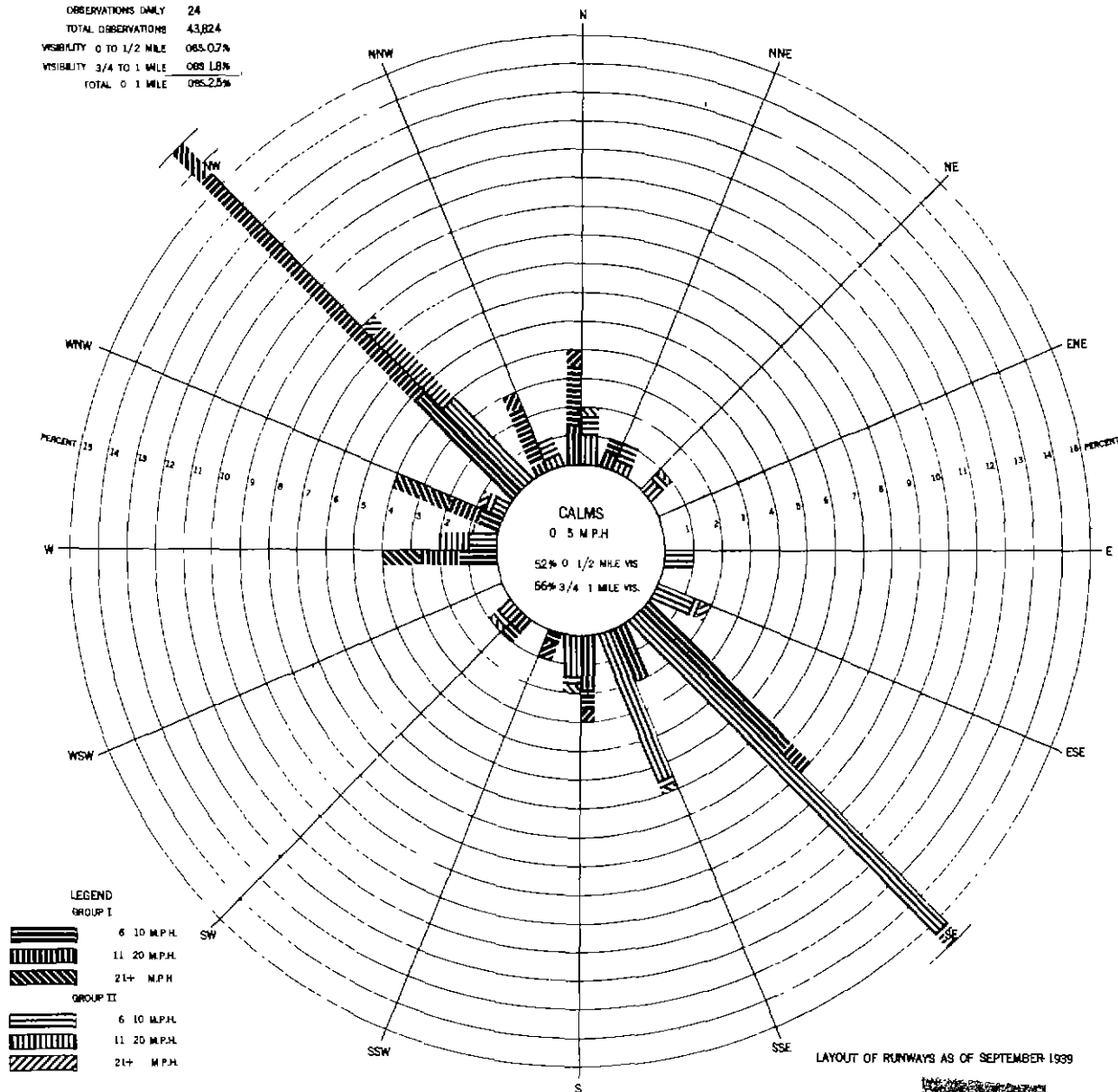
Salt Lake City

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 065.07%
VISIBILITY 3/4 TO 1 MILE 088.18%
TOTAL 0 1 MILE 085.25%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SALT LAKE CITY, UTAH
MUNICIPAL AIRPORT



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	0 5 M.P.H.	6 10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	98	15	1	1	
SMOKE	27	13	2		
RAIN					
DUST				1	5
SNOW	15	16	36	10	
TOTALS	100	44	40	16	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	0 5 M.P.H.	6 10 M.P.H.	11 20 M.P.H.	21+ M.P.H.
FOG	21	13	1		
SMOKE	69	52	2		
RAIN					
DUST				1	3
SNOW	10	12	14	2	
TOTALS	100	77	18	5	

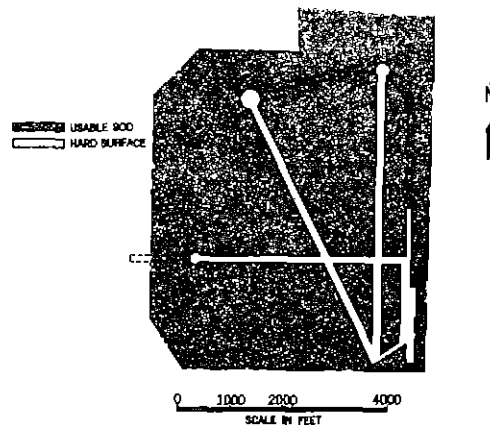
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	69	37		3							8	59	176
SMOKE	108	32	12								73	110	335
RAIN		1											1
DUST													
SNOW	13	11	6	7							4	34	75
TOTALS	190	81	18	10							85	203	587

NOTE:
Percentages in preceding are based on the number of observations in each visibility group.
Example: 15% indicated the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF SEPTEMBER 1939



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

VIRGINIA

Norfolk

Richmond

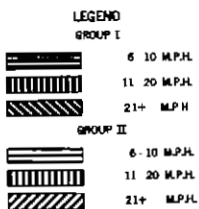
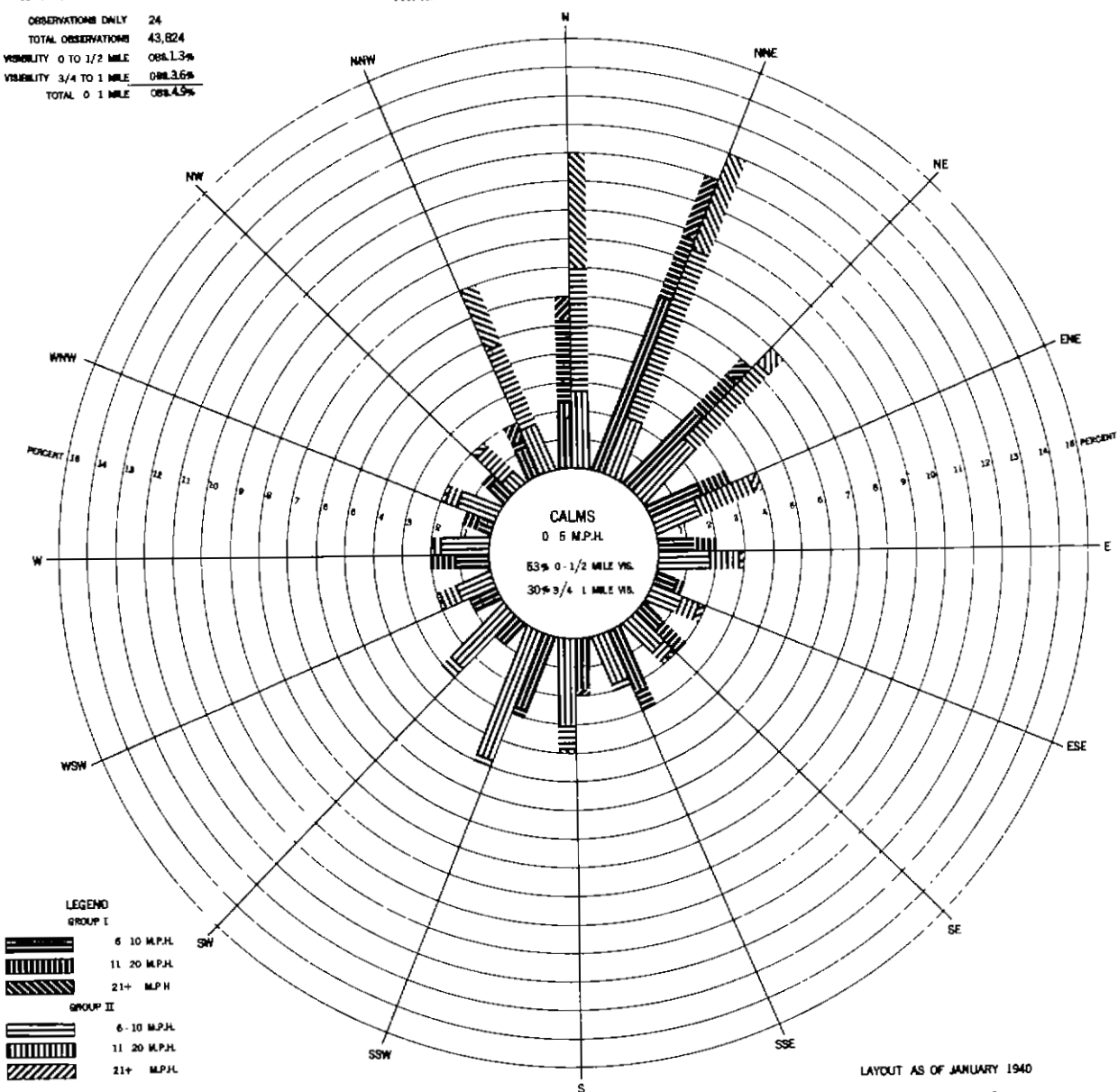
Roanoke

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.81.3%
VISIBILITY 3/4 TO 1 MILE 0.86.3.6%
TOTAL 0 1 MILE 0.84.3%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

NORFOLK, VA
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	91	57 17
SMOKE		
RAIN	3	1 2
DUST	6	3
SNOW		2 8 10
TOTALS	100	63 27 10

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	29	12 5 1
SMOKE		
RAIN	29	14 23 10
DUST	37	19 6
SNOW	5	1 6 4
TOTALS	100	46 39 15

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS TO 5 M.P.H. BY MONTHS
GROUPS I & II COMBINED

	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	116	47	24	11	26	12	19	1	39	37	29	45	406
SMOKE													
RAIN	19	27	14	29	1		2		6	8	18	25	146
DUST	12	21	10	14	16	17	6	7	16	39	9	24	191
SNOW	23	1											24
TOTALS	170	96	48	54	43	29	27	8	61	84	53	94	767

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the wind identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Progress Administration.

LAYOUT AS OF JANUARY 1940



0 500 1000 1500
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

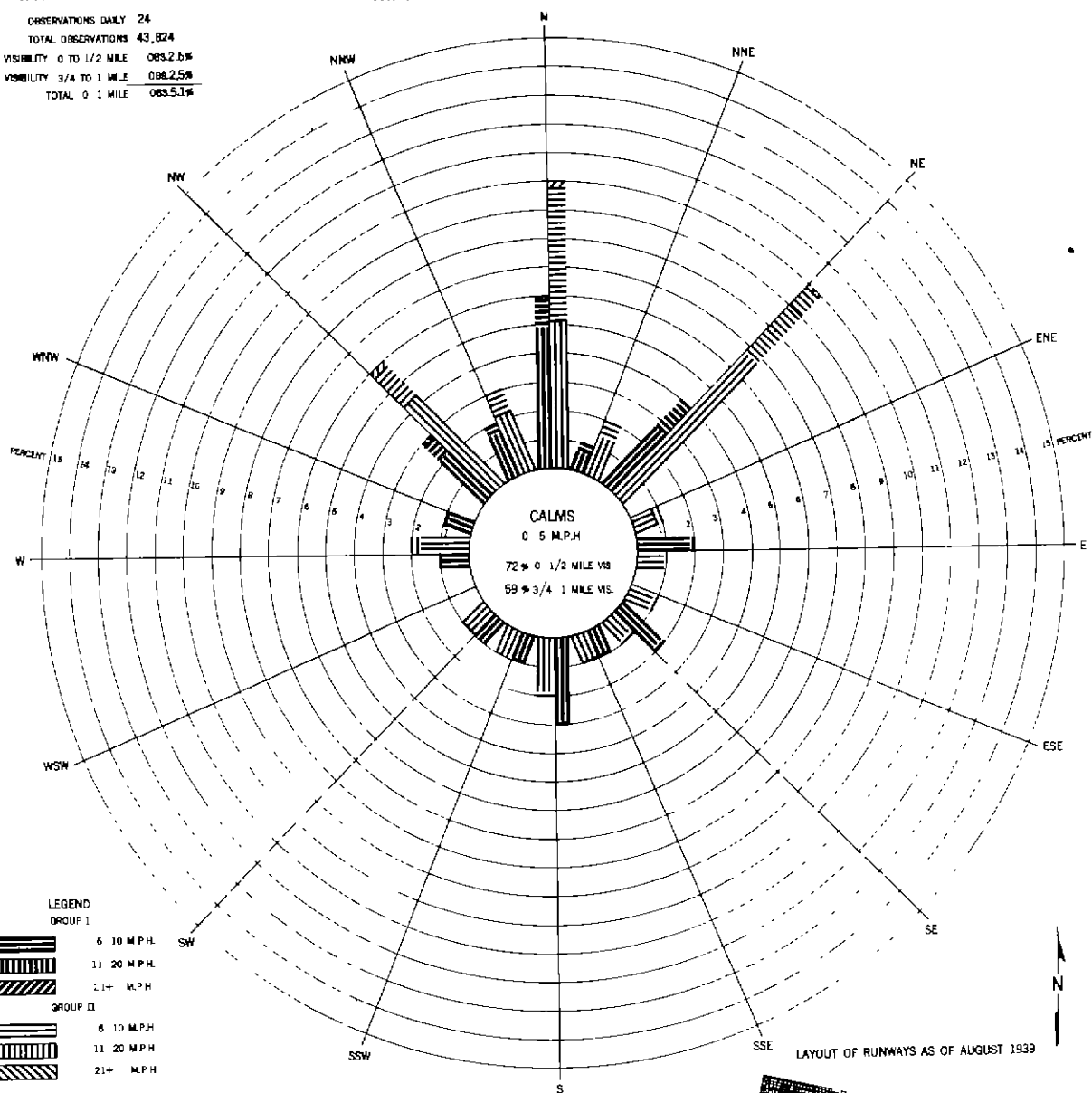
SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824

VISIBILITY 0 TO 1/2 MILE OBS. 2.5%
VISIBILITY 3/4 TO 1 MILE OBS. 2.5%
TOTAL 0 1 MILE OBS. 5.1%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

RICHMOND, VA.
MUNICIPAL AIRPORT



LEGEND

GROUP I

0-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	96	78 11
SMOKE	1	
RAIN	2	1 1
DUST		
SNOW	2	4 3 1
TOTALS	100	84 15 1

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

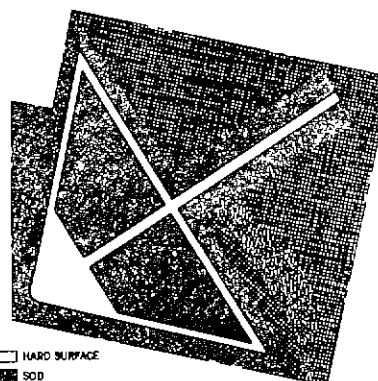
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0 5 M.P.H.	6 10 M.P.H. 11 20 M.P.H. 21+ M.P.H.
FOG	94	68 18 1
SMOKE	4	1
RAIN	1	2 2
DUST		
SNOW	1	4 4 1
TOTALS	100	75 24 1

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 5 M.P.H.) BY MONTHS

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
FOG	248	93	109	47	71	58	108	63	216	195	91	79	1378
SMOKE	8	6	6							2	3	7	30
RAIN	4	7			1			1	1	1	3	18	
DUST													1
SNOW	7	1	4							5	5	22	
TOTALS	267	107	120	47	72	58	108	64	217	197	98	94	1449

NOTE:
Percentages in windroset are based on the number of observations in each visibility group.
Example: 75 indicates the percentage of wind in either Group I or Group II depending upon the specific identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.



— HARD SURFACE
--- SOD
... UP TO GRADE BUT NOT USABLE
XXXX LOWER GRADE

0 800 1600 2400
SCALE IN FEET

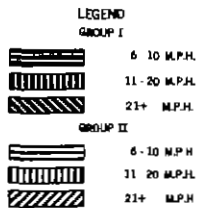
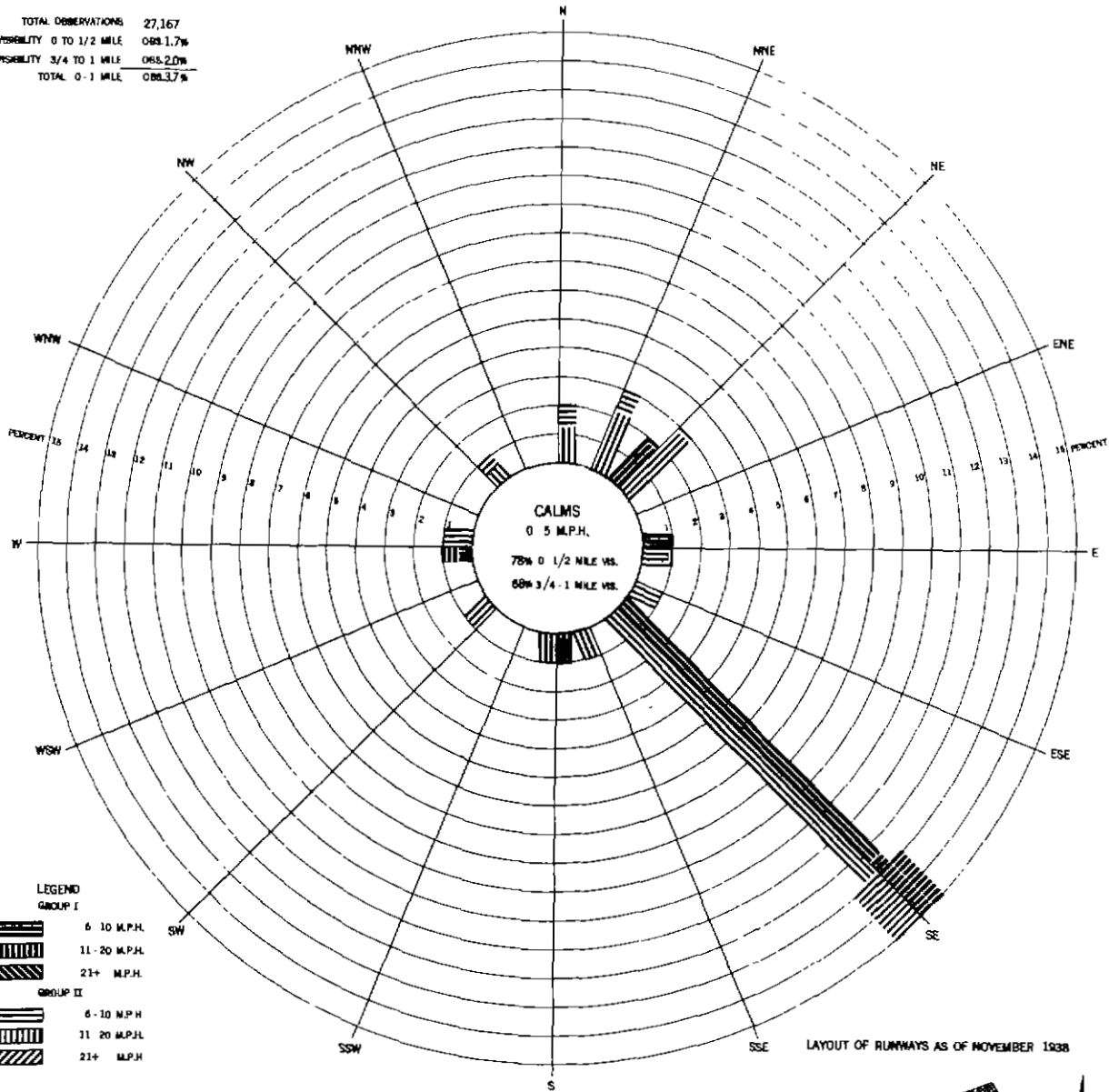
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ROANOKE, VA.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 27,167
VISIBILITY 0 TO 1/2 MILE OBS. 1.7%
VISIBILITY 3/4 TO 1 MILE OBS. 2.0%
TOTAL 0-1 MILE OBS. 3.7%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	74 16 1
SMOKE	1	
RAIN	1	1 2 2
DUST		1
SNOW		1 2
TOTALS	100	76 21 3

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	96	77 17 1
SMOKE	3	1
RAIN		1 1
DUST		
SNOW	1	1 1
TOTALS	100	80 19 1

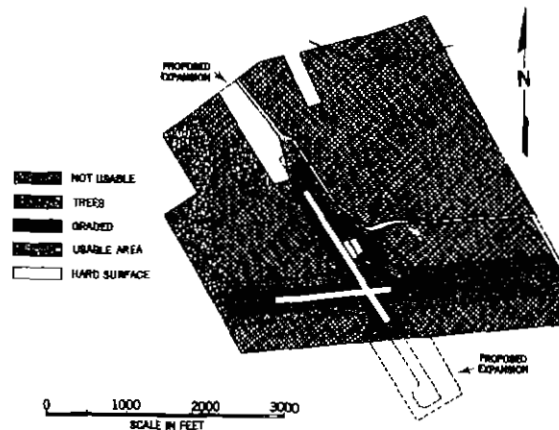
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	137	49	41	51	15	5	17	36	118	43	57	129	698
SMOKE	2	1								8	2		13
RAIN									1	2			3
DUST													
SNOW			5										5
TOTALS	139	55	41	51	15	5	17	36	119	43	67	131	719

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 78% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This rose furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



VERMONT

Burlington

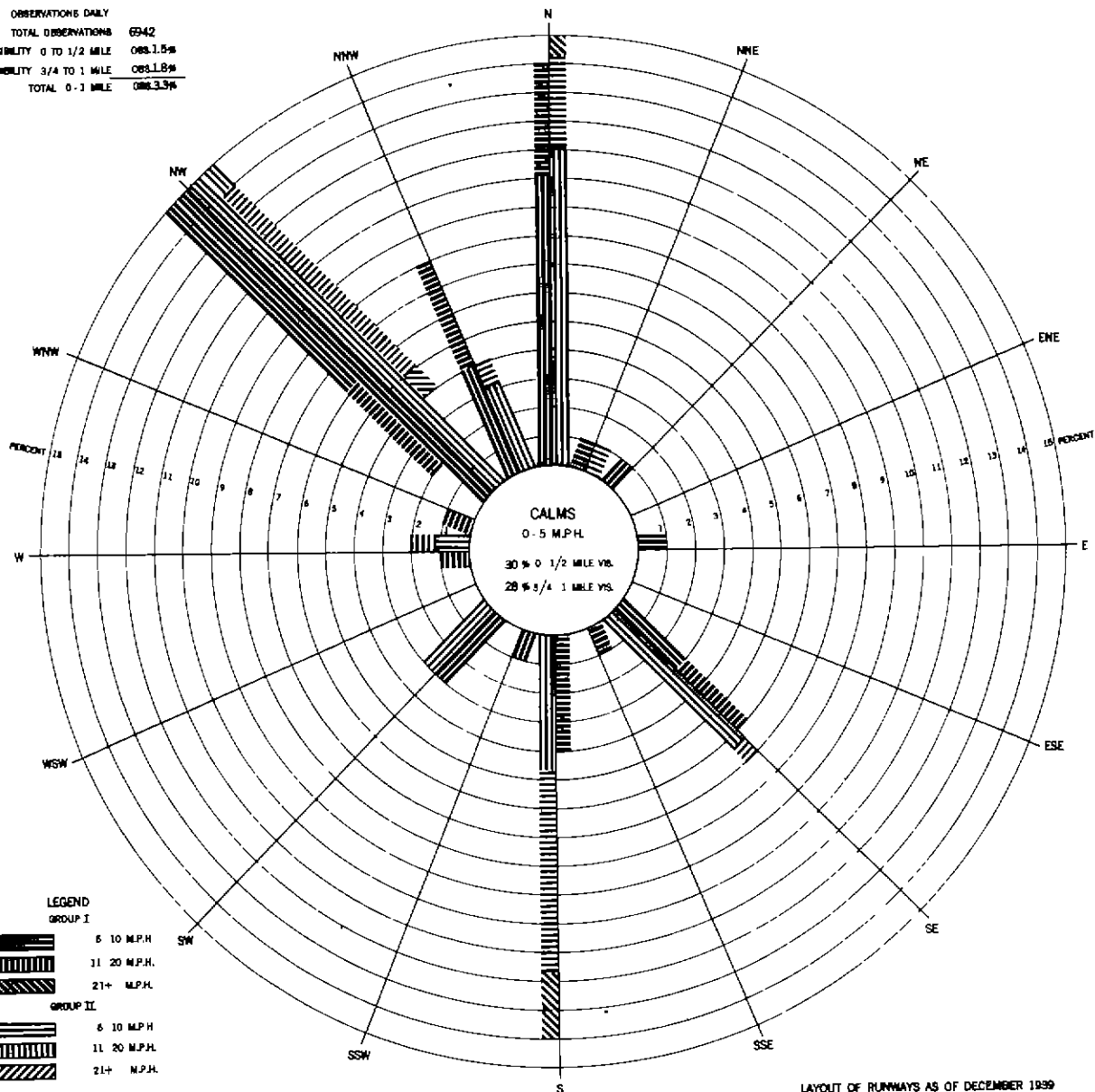
Montpelier

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 6942
VISIBILITY 0 TO 1/2 MILE 088.18%
VISIBILITY 3/4 TO 1 MILE 083.18%
TOTAL 0-1 MILE 086.33%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

BURLINGTON, VT.
MUNICIPAL AIRPORT



LEGEND
GROUP I
5-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	84	50 4
SMOKE		
RAIN		
DUST		
SNOW	16	17 29
TOTALS	100	67 33

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	76	31 7
SMOKE		
RAIN	6	2 1
DUST		
SNOW	18	31 23 5
TOTALS	100	64 31 5

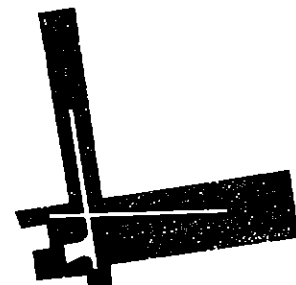
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	6		4	5	2				10	8	6	11	52
SMOKE													
RAIN	1						1						2
DUST													
SNOW	9	1	2	2								3	11
TOTALS	10	1	6	7	2		1		10	8	6	14	65

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



0 1000 2000 3000
SCALE IN FEET

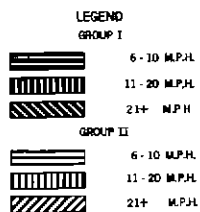
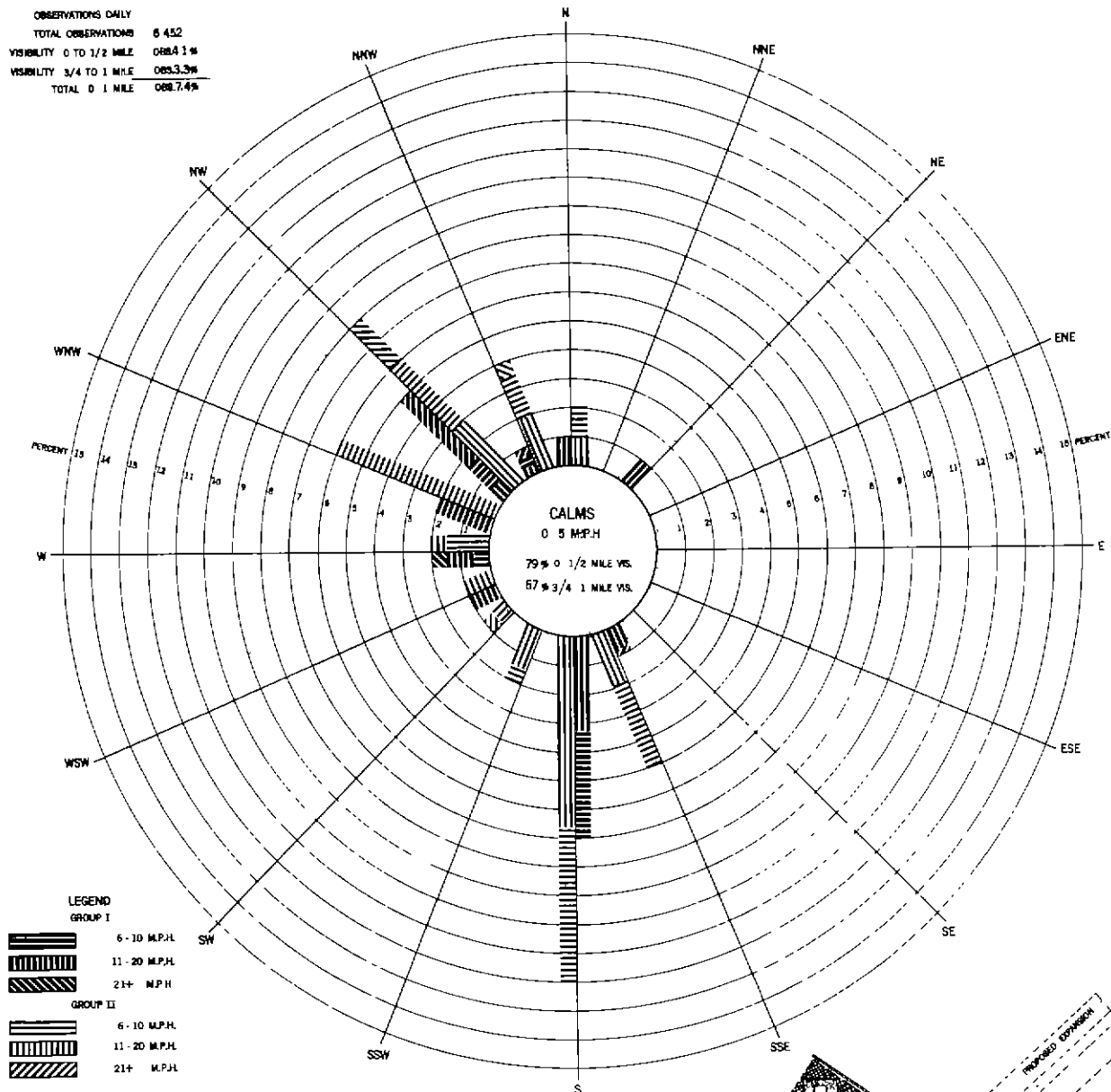
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

MONTPELIER, VT.
MUNICIPAL AIRPORT

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 6 452
VISIBILITY 0 TO 1/2 MILE OBS. 1.1%
VISIBILITY 3/4 TO 1 MILE OBS. 3.3%
TOTAL 0 1 MILE OBS. 7.4%



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	85	16 2 3
SMOKE		
RAIN	1	2 2
DUST		2
SNOW	14	18 39 16
TOTALS	100	36 43 21

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

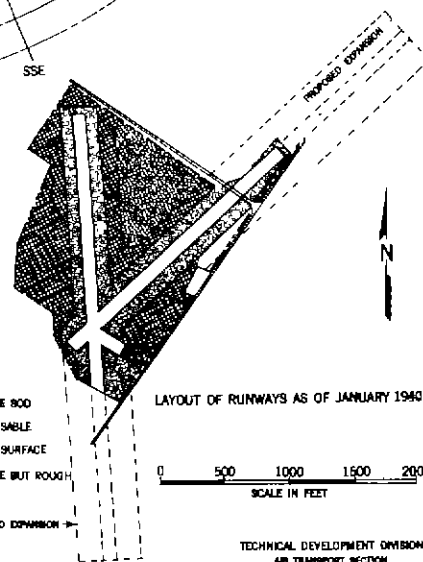
CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	72	27 17 1
SMOKE		
RAIN	2	1 1
DUST	4	15 33 4
SNOW	22	25 33 4
TOTALS	100	43 51 6

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	5	13	12	12	9	15	25	28	62	35	27	23	266
SMOKE						1		1	1				4
RAIN													
DUST	1				1	1	1	1					5
SNOW	8	13	7	4							12	12	56
TOTALS	14	26	19	17	10	16	27	30	63	35	39	35	331

NOTE:
Percentages in windroset are based on the number of observations in each visibility group.
Example: 1% indicates the percentage of wind in either Group I or Group II depending upon the visibility identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Montpelier Municipal Administration.



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

WASHINGTON

Chehalis

North Dalles

Pasco

Seattle

Spokane

Tacoma

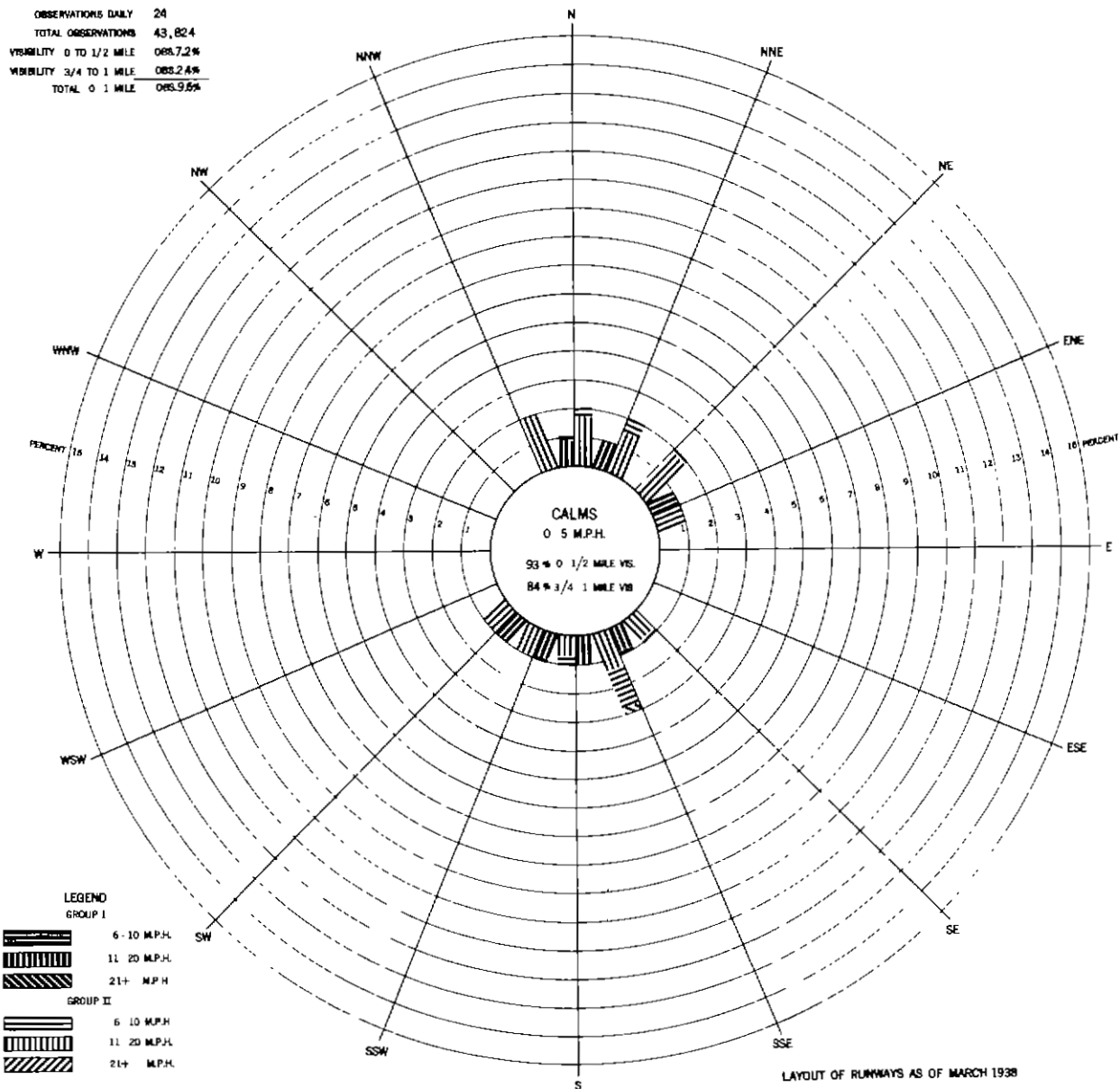
Wenatchee

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 7.2%
VISIBILITY 3/4 TO 1 MILE OBS. 2.4%
TOTAL 0 TO 1 MILE OBS. 9.6%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CHEHALIS, WASH.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	99	95
SMOKE		
RAIN		
DUST		
SNOW	1	3
TOTALS	100	98

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
FOG	92	61
SMOKE	7	14
RAIN		1
DUST		1
SNOW	1	6
TOTALS	100	83

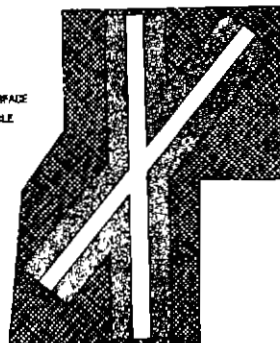
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS TO 5 M.P.H. BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	261	406	227	113	119	59	97	189	463	858	491	532	3836
SMOKE													71
RAIN						1							1
DUST													7
SNOW	8	1	1										17
TOTALS	269	407	228	113	120	60	97	191	504	864	493	559	3924

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: The indicator the percentage of total in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF MARCH 1938



0 1000 2000
SCALE IN FEET

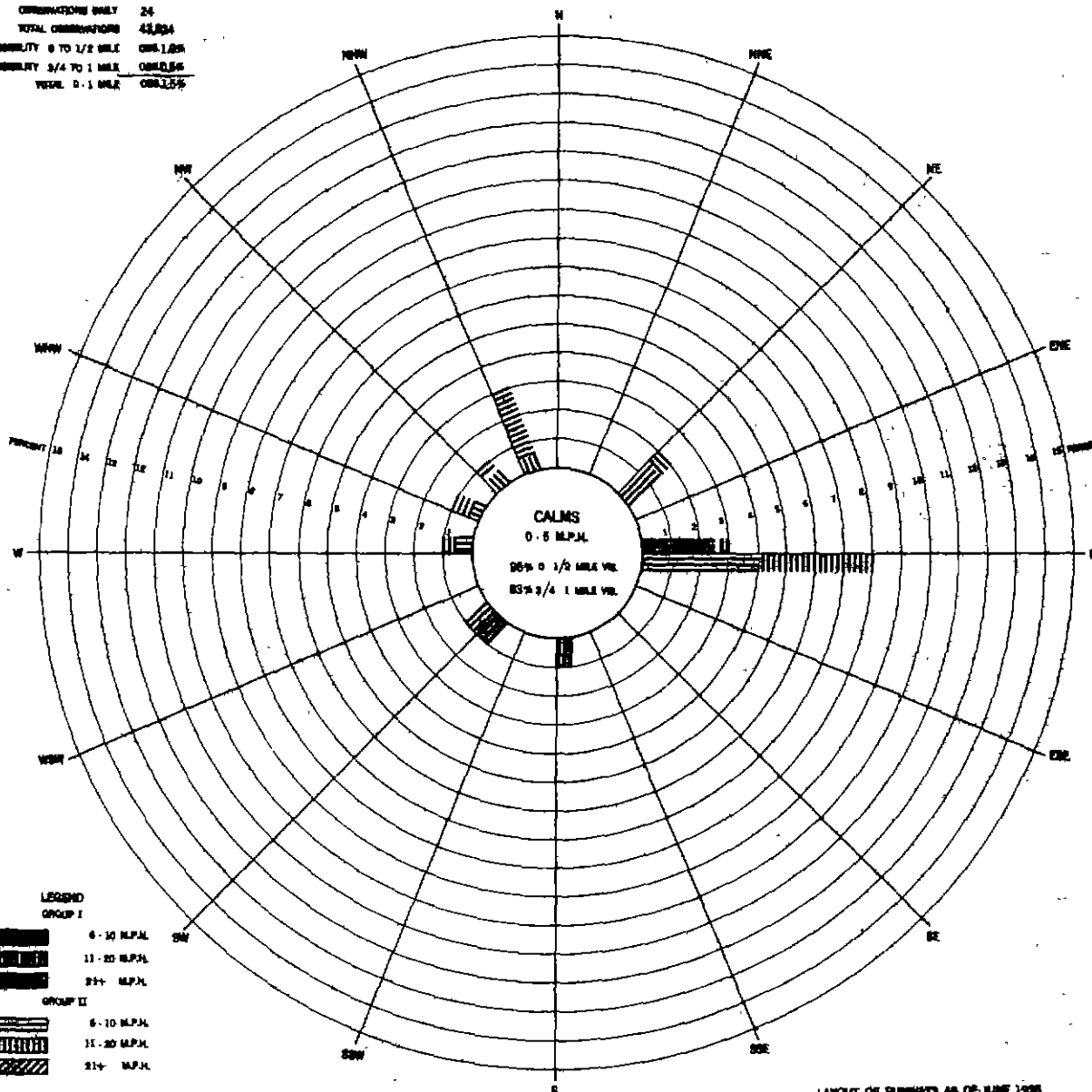
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1984 TO 1988 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

NORTH DALLES, WASH.

OBSERVATIONS ONLY 24
TOTAL OBSERVATIONS 43,834
VISIBILITY 3/4 TO 1/2 MILE 088,184
VISIBILITY 3/4 TO 1 MILE 088,556
TOTAL 0-1 MILE 088,740



LEGEND

GROUP I

6-10 M.P.H. 94
11-20 M.P.H. 3
21+ M.P.H. 3

GROUP II

6-10 M.P.H. 94
11-20 M.P.H. 3
21+ M.P.H. 3

GROUP I 3/4 TO 1/2 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	97	08		
SMOKE				3
RAIN				
DRY				
SNOW	3	14	14	
TOTALS	100	85	14	3

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CALMS	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	80	34	7	
SMOKE	3	7	78	
RAIN				
DRY				
SNOW	17	14	19	
TOTALS	100	55	45	

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	248	82	4							1	109	112
SMOKE							8					
RAIN												
DRY												
SNOW	14	22								1		43
TOTALS	262	74	4				8			2	109	155

NOTE:
Percentage is calculated on basis of the number of observations in each visibility group.
Numbers in parentheses indicate the percentage of wind in other Group I or Group II depending upon the specified classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

LAYOUT OF RUNWAYS AS OF JUNE 1988

VISIBLE
NOT VISIBLE



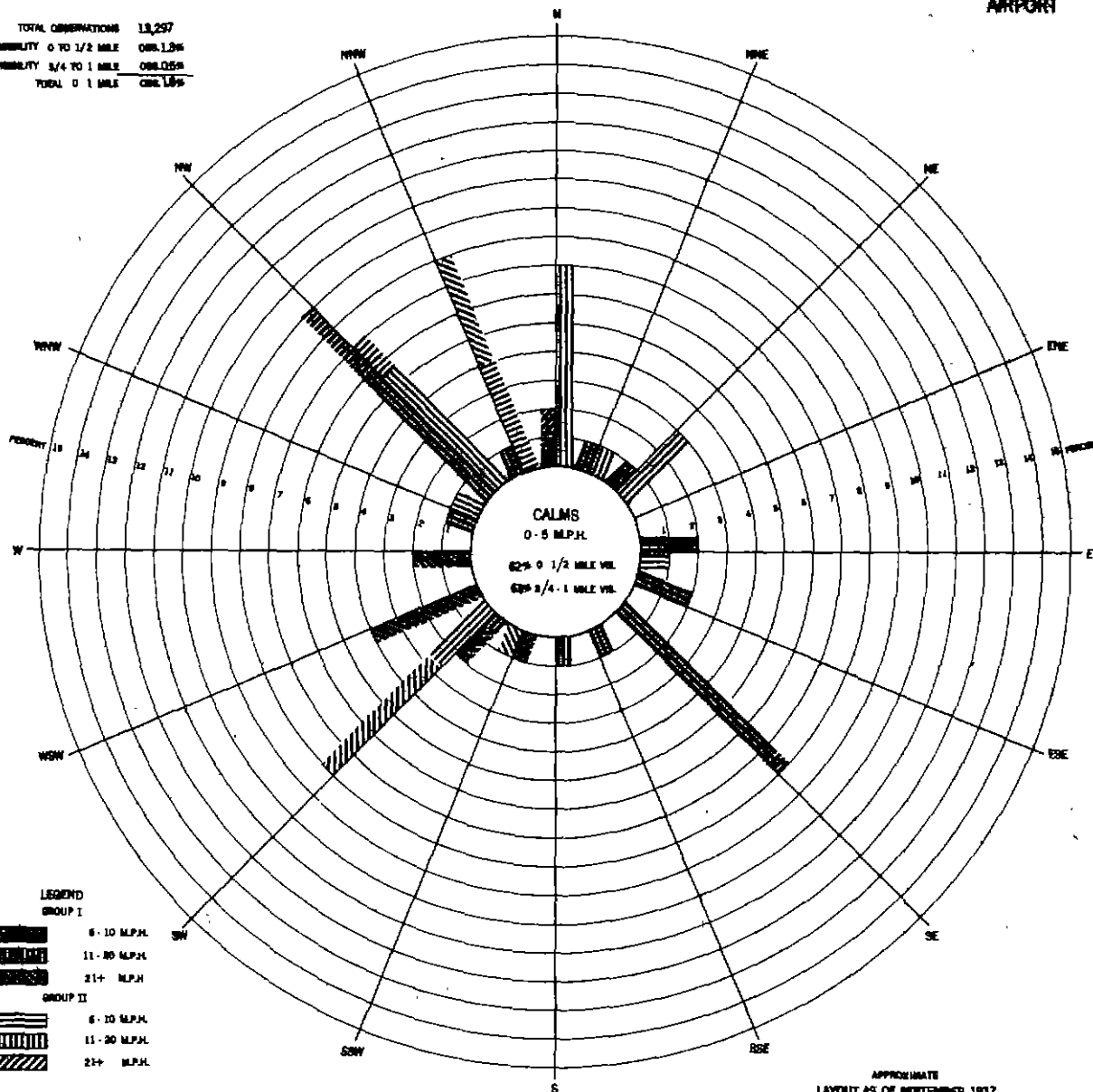
0 1000 2000
SCALE IN FEET

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

PASCO, WASH.
FRANKLIN COUNTY
AIRPORT

TOTAL OBSERVATIONS 13,257
VISIBILITY 0 TO 1/2 MILE OBS. 1.3%
VISIBILITY 3/4 TO 1 MILE OBS. 0.5%
TOTAL 0 1 MILE OBS. 1.8%



LEGEND
GROUP I
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.
GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

APPROXIMATE
LAYOUT AS OF SEPTEMBER 1937

GROUP I
0 TO 1/2 MILE VISIBILITY

CHANGES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	66 11 11
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	75 11 16

(Figure indicates percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CHANGES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	92	43
SMOKE		
RAIN		
DUST		
SNOW		
TOTALS	100	57 14 29

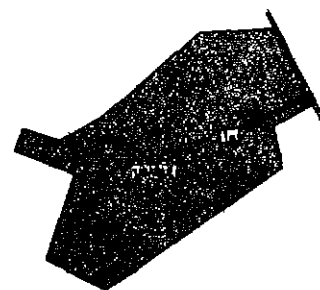
(Figure indicates percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	41	17	18								19	53	148
SMOKE													
RAIN	1										1		2
DUST													
SNOW	1										1		2
TOTALS	43	17	18								21	53	152

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 62 indicates the percentage of total in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Army Air Corps Administration.



0 1000' 2000'
APPROX. SCALE

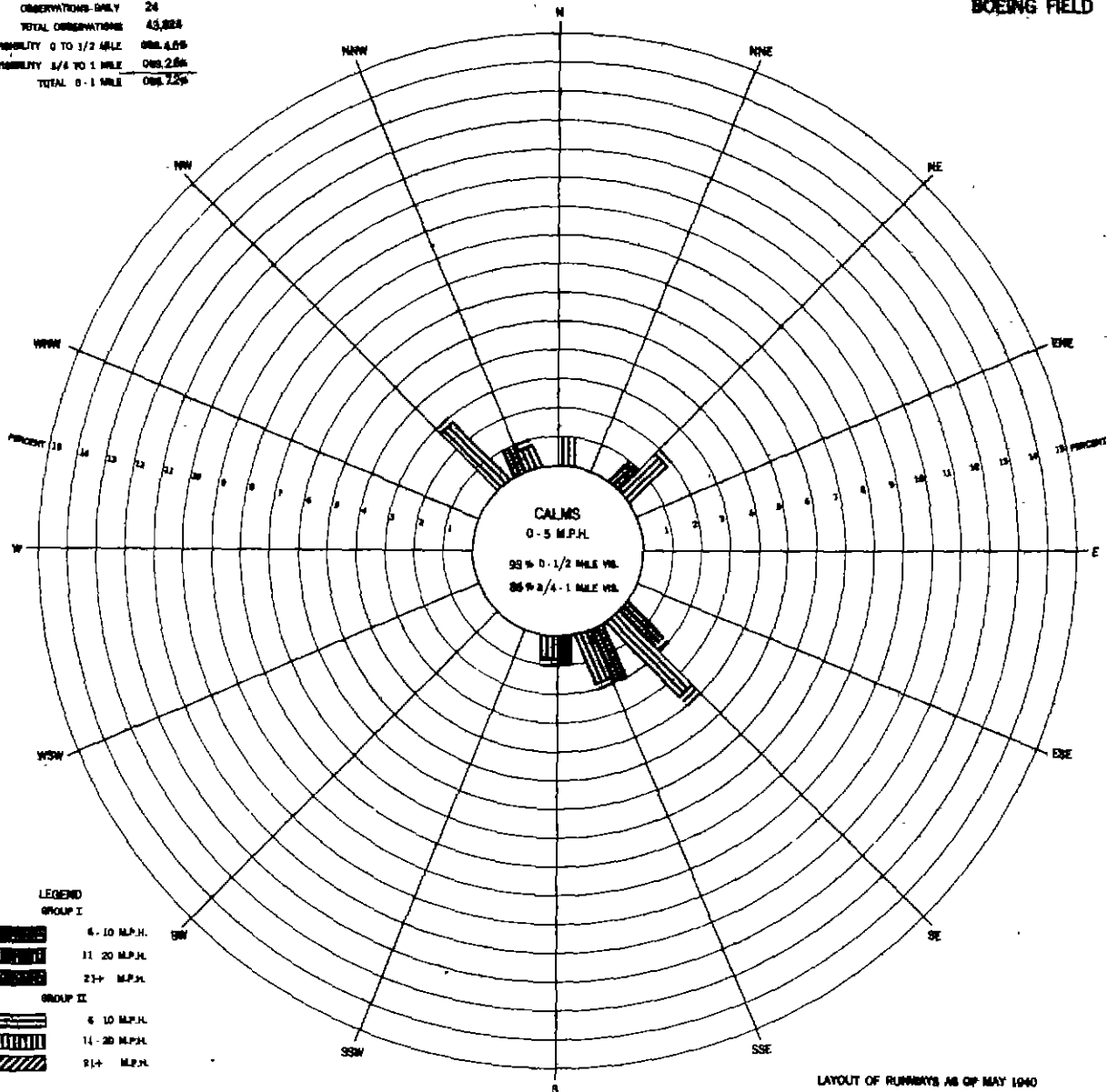
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS-DAILY 24
TOTAL OBSERVATIONS 43,825
VISIBILITY 0 TO 1/2 MILE OBS. 4.65
VISIBILITY 1/4 TO 1 MILE OBS. 2.64
TOTAL 0-1 MILE OBS. 7.29

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

SEATTLE, WASH.
MUNICIPAL AIRPORT
BOEING FIELD



LEGEND

GROUP I

4-10 M.P.H.

11-20 M.P.H.

21+ M.P.H.

GROUP II

4-10 M.P.H.

11-20 M.P.H.

21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	92 2
SMOKE	3	1
RAIN		
DUST		
SNOW		4 1
TOTALS	100	97 3

GROUP II
1/4 TO 1 MILE VISIBILITY

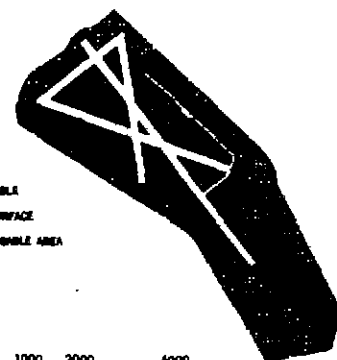
CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	65	53 2
SMOKE	33	24 1
RAIN		4 1
DUST		
SNOW	2	11 4
TOTALS	100	92 8

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUP I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	208	237	90	37	10	16	11	80	279	566	377	406	2313
SMOKE	36	33	5	4	1	2	6	27	44	96	52	47	385
RAIN	1	1	1										6
DUST													
SNOW	16	3	8	1									28
TOTALS	268	274	101	42	11	18	17	107	324	666	429	452	2699

NOTE:
Percentages in italics are based on the number of observations in each visibility group.
Example: 5% indicating the percentage of wind in other Group I or Group II, depending upon the limited identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Windy Program Administration.

LAYOUT OF RUNWAYS AS OF MAY 1940



NOT USABLE
HARD SURFACE
ROD & USABLE AREA

0 1000 2000 4000
SCALE IN FEET

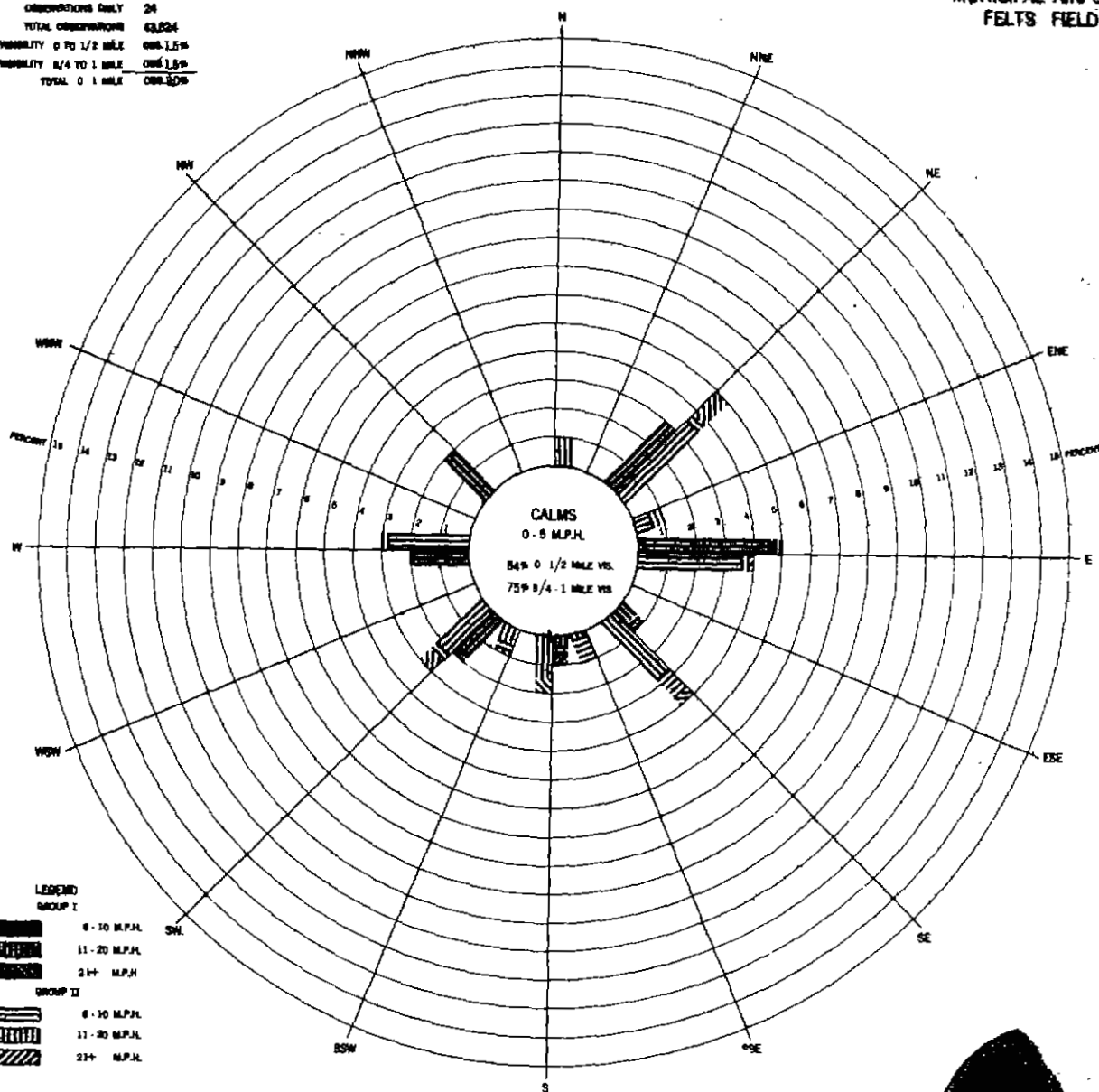
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.6%
VISIBILITY 1/4 TO 1 MILE 0.6%
TOTAL 0 1 MILE 0.6%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

SPOKANE, WASH.
MUNICIPAL AIRPORT
FELTS FIELD



LEGEND

GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	98	80 3
SMOKE		
RAIN		
DUST		
SNOW	4	5 6 2
TOTALS	100	88 9 2

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	81	49 1 2
SMOKE	4	1
RAIN		
DUST		
SNOW	15	25 13 7
TOTALS	100	75 14 11

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS												
GROUPS I & II COMBINED												
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
FOG	236	112	24	2				4	9	96	220	207
SMOKE	1									2	14	1
RAIN			2									
DUST												
SNOW	34	81	3							3	22	93
TOTALS	271	146	27	2				4	9	98	237	230

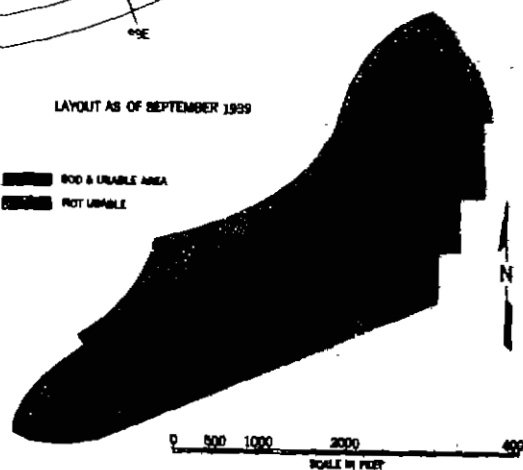
NOTE.

Percentages in tables are based on the number of observations in each visibility group.
Example: 81 indicating the percentage of wind in either Group I or Group II depending upon the reported identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

LAYOUT AS OF SEPTEMBER 1939

0-5 M.P.H. MOD & UNABLE AREA
6-10 M.P.H. NOT UNABLE



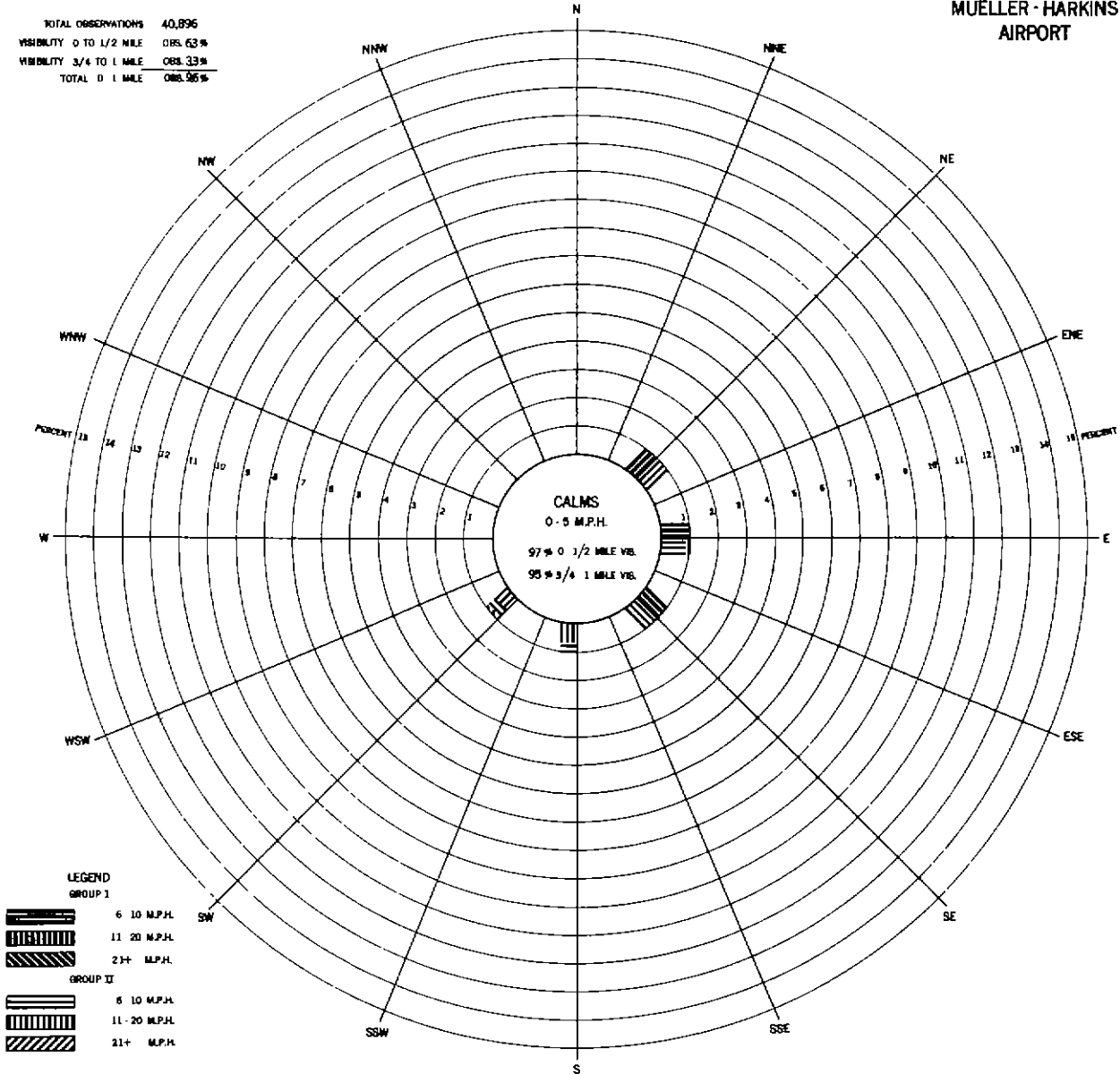
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

TOTAL OBSERVATIONS 40,896
VISIBILITY 0 TO 1/2 MILE OBS. 63%
VISIBILITY 3/4 TO 1 MILE OBS. 33%
TOTAL 0 1 MILE OBS. 96%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

TACOMA, WASH.
MUELLER-HARKINS
AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	100	91 3
SMOKE		1
RAIN		
DUST		
SNOW		3 2
TOTALS	100	95 5

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	91	66 7 1
SMOKE	7	9
RAIN	1	
DUST		
SNOW	1	10 5
TOTALS	100	84 15 1

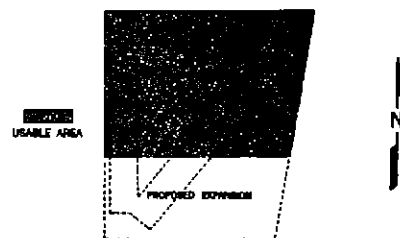
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS													
GROUPS I & II COMBINED													
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	439	532	233	79	52	31	27	122	305	677	563	558	3618
SMOKE	2	16	2				5	9	30	22	7		93
RAIN	4								1	3			8
DUST													
SNOW	13	3	2									1	19
TOTALS	458	561	237	79	52	31	32	131	336	699	573	559	3738

NOTE:
Percentages in brackets are based on the number of observations in each visibility group.
Example: 6% indicates the percentage of wind in either Group I or Group II depending upon the special classification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Waste Program Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1938



0 1000 2000
SCALE IN FEET

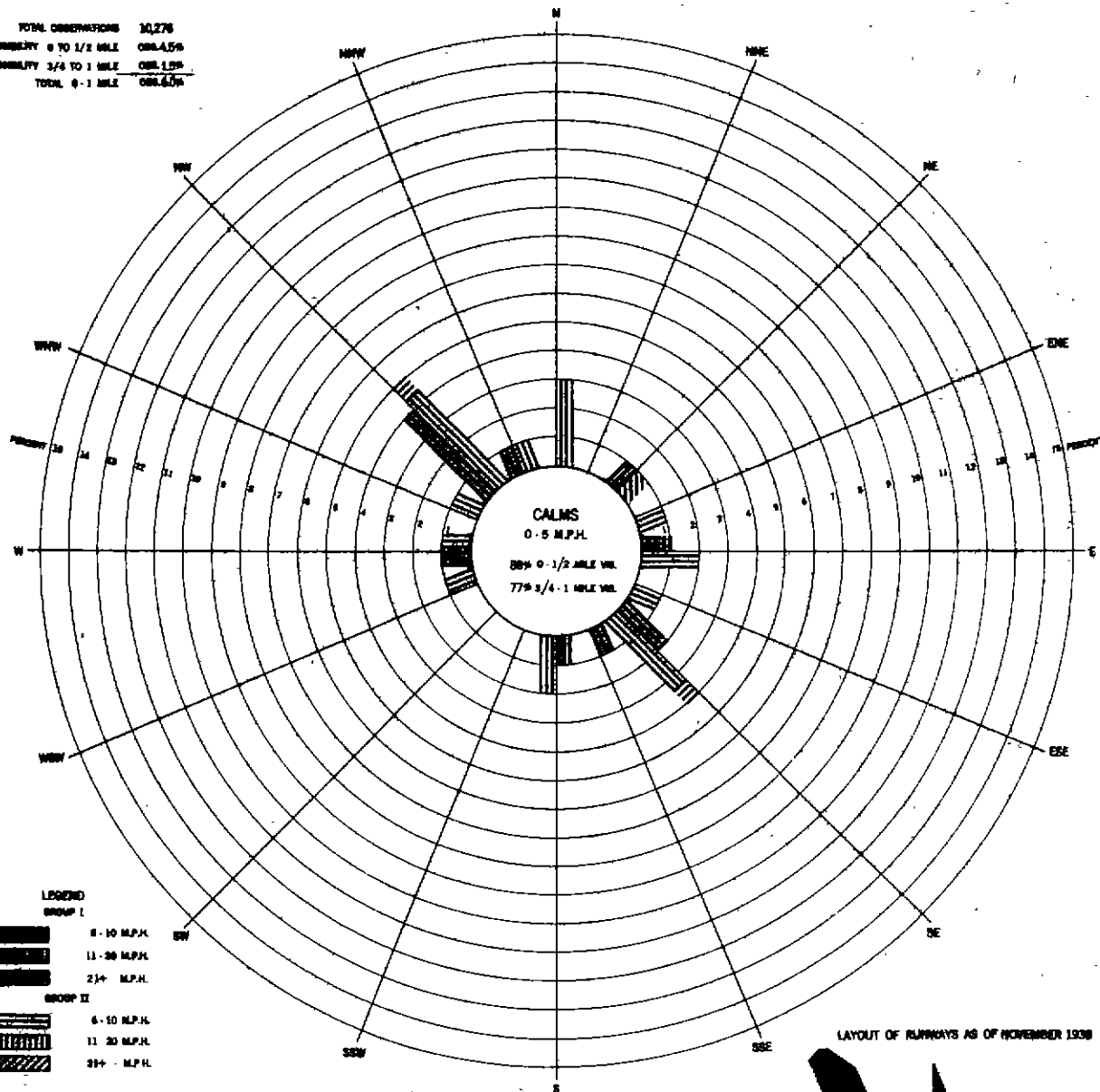
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

WENATCHEE, WASH.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 10,276
VISIBILITY 0 TO 1/2 MILE OBS. 4,596
VISIBILITY 3/4 TO 1 MILE OBS. 1,596
TOTAL 0-1 MILE OBS. 6,192



LEGEND

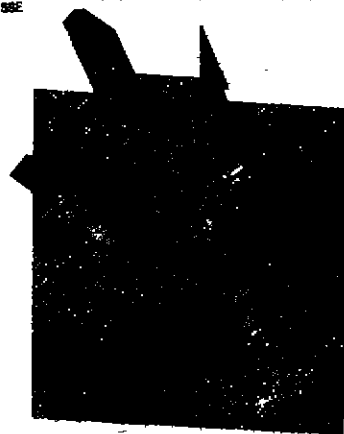
GROUP I

0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	84	76	2	
WIND	3	4		
DUST	13	13	6	
TOTALS	100	93	7	

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	83	80	3	
WIND		8		3
DUST	1			
TOTALS	100	91	6	3

(Figures indicate percentages)

TOTAL OCCURRENCES CAUSES (0-5 M.P.H.) BY MONTHS
EXCEPT 1938 EXCLUDED

CAUSES	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG													446
WIND													11
DUST													73
TOTALS													531

DATA BY MONTHS NOT AVAILABLE

NOTE.

Percentages in windrose are based on the number of observations in each visibility group.
Example: 76 indicates the percentage of wind in other Group I or Group II depending upon the reported modification.

This data furnished through the cooperation of the U. S. Weather Bureau and the State Program Administration.

0 500 1000 1500 2000
SCALE IN FEET

TECHNICAL DEVELOPMENT DIVISION
AIR CORP. SECTION

WISCONSIN

La Crosse

Madison

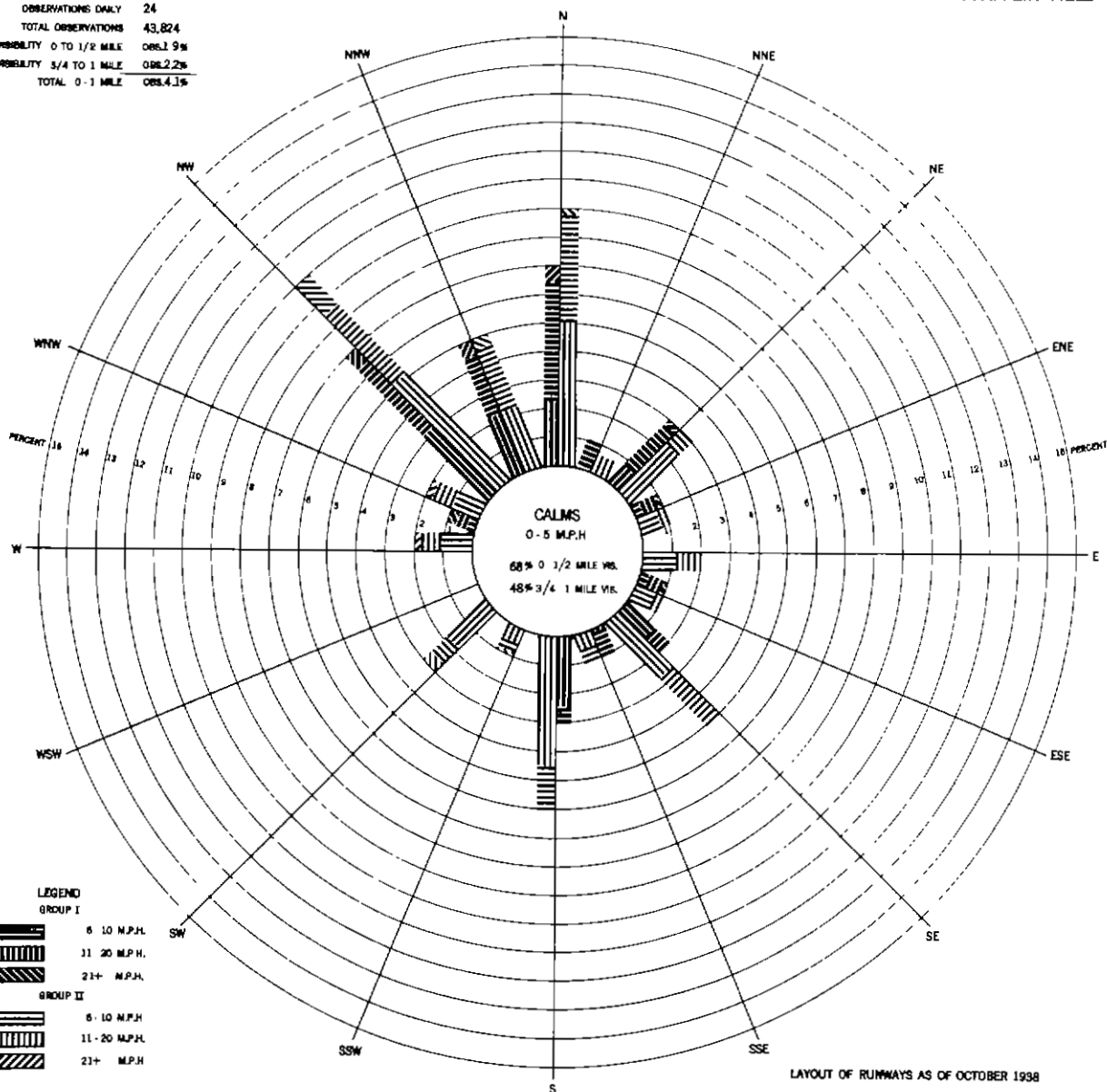
Milwaukee

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

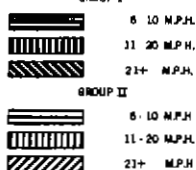
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE 0.6%
VISIBILITY 3/4 TO 1 MILE 0.2%
TOTAL 0-1 MILE 0.8%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

LACROSSE, WIS.
PFAFFLIN FIELD



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	97	30 23 1
SMOKE		
RAIN	1	1 1
DUST		3 3
SNOW	2	13 21 4
TOTALS	100	43 48 9

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	86	45 21 1
SMOKE	5	1 1
RAIN	1	1 1
DUST	1	1 2 1
SNOW	7	10 10 4
TOTALS	100	59 35 6

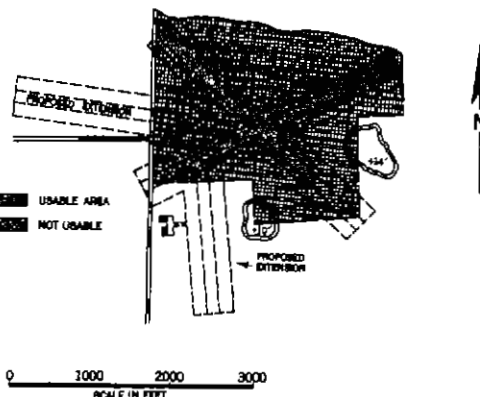
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	188	66	41	26	32	28	22	108	135	84	102	112	943
SMOKE	9	3		1				2	3				25
RAIN	8	1											6
DUST	2	1						1					4
SNOW	17	18	4										47
TOTALS	221	89	45	26	32	28	22	111	138	84	102	127	1025

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF OCTOBER 1938

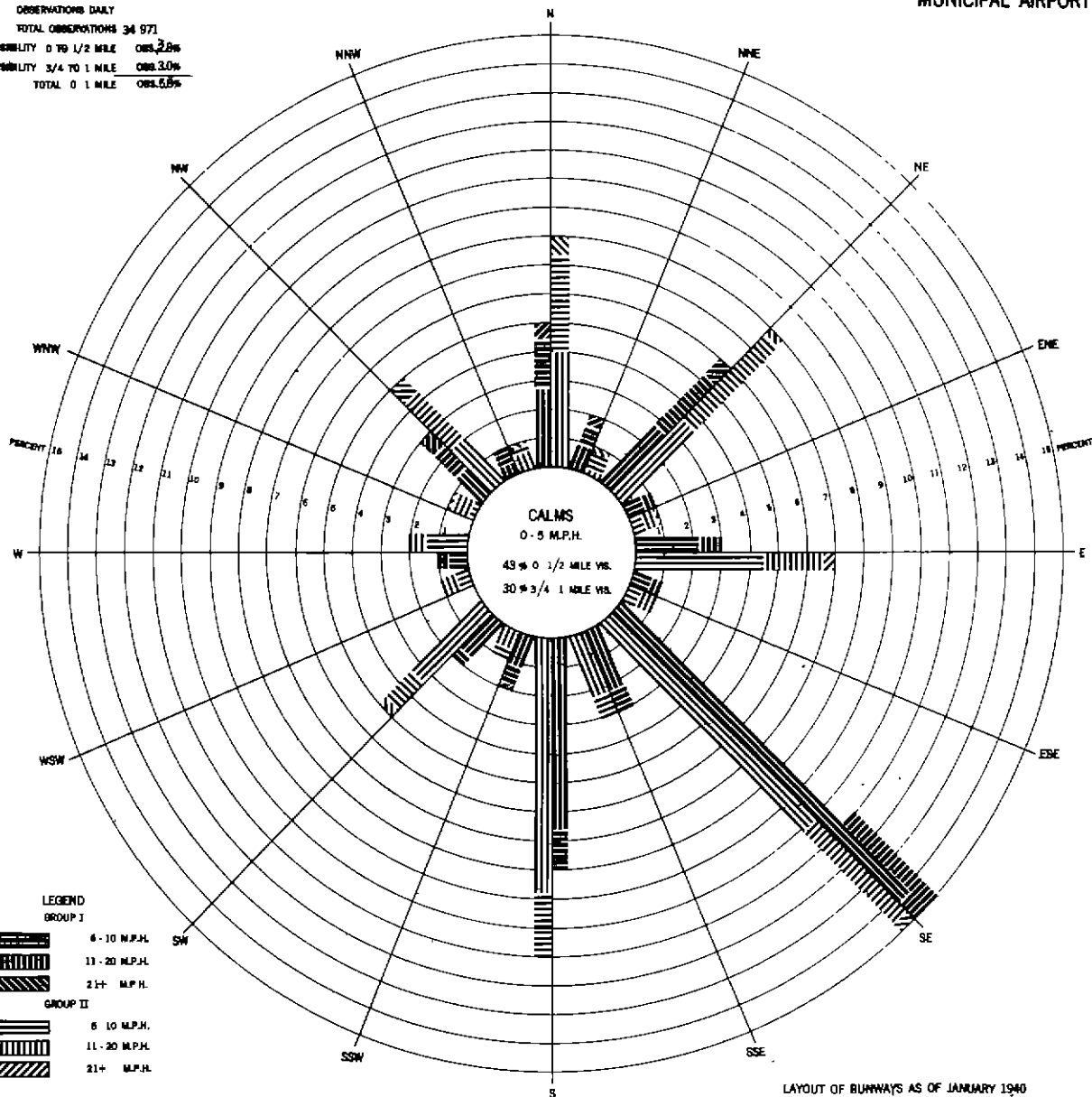


SUMMARY OF 4 YEAR PERIOD,
1935 TO 1938 INCLUSIVE

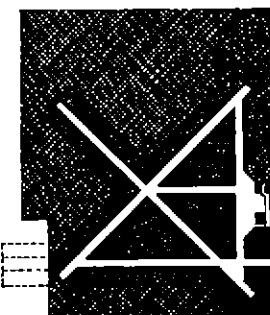
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MADISON, WIS.
MUNICIPAL AIRPORT

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 34 971
VISIBILITY 0 TO 1/2 MILE OBS. 2.8%
VISIBILITY 3/4 TO 1 MILE OBS. 3.0%
TOTAL 0 1 MILE OBS. 5.8%



LAYOUT OF RUNWAYS AS OF JANUARY 1940



GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.
0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	98	61 17 1
SMOKE	1	
RAIN		1 1
DUST		
SNOW	1	5 10 4
TOTALS	100	67 28 5

(Figures indicate percentages)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	CALMS	WINDS IN EXCESS OF 5 M.P.H.
0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H. 21+ M.P.H.
FOG	84	61 23 2
SMOKE	8	
RAIN		1 1
DUST		1
SNOW	8	7 11 2
TOTALS	100	60 36 4

(Figures indicate percentages)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	141	90	64	24	68	16	13	25	18	65	38	83	648
SMOKE		4	5	4							6	10	29
RAIN												1	1
DUST													
SNOW	8	7	6								1	7	27
TOTALS	147	101	75	29	68	16	13	25	18	65	45	101	702

NOTE:
Percentages in parentheses are based on the number of observations in each visibility group.

Example: 98% indicates the percentage of total in other Group I or Group II depending upon the reported identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

0 1200 2400
SCALE IN FEET

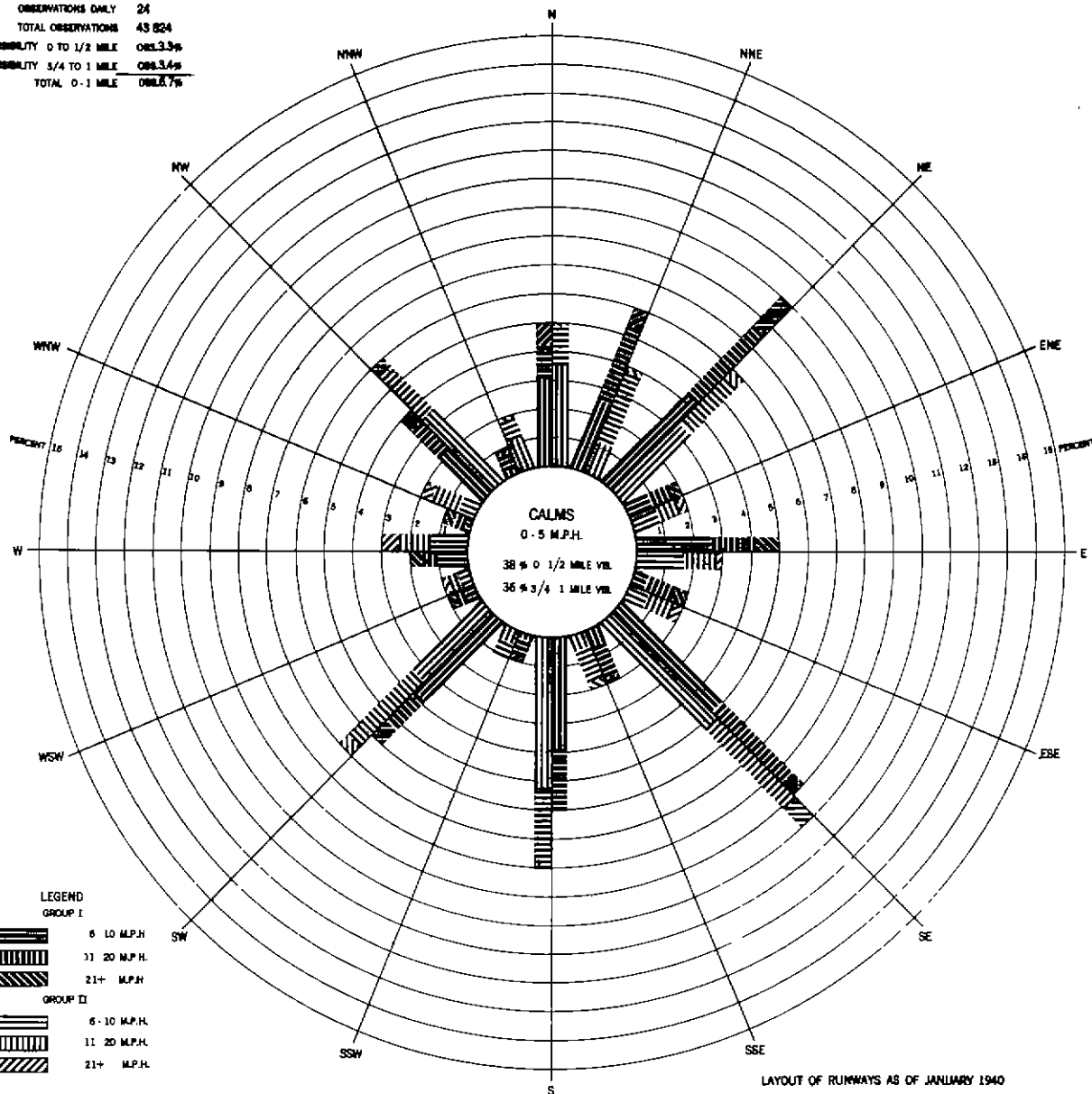
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43 824
VISIBILITY 0 TO 1/2 MILE 083.3%
VISIBILITY 3/4 TO 1 MILE 083.3%
TOTAL 0-1 MILE 086.7%

CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

MILWAUKEE, WIS.
MUNICIPAL AIRPORT



GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
		6-10 M.P.H.	11-20 M.P.H.
FOG	99	49	35
SMOKE			
RAIN	1		
DUST			
SNOW		1	3
TOTALS	100	50	38

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

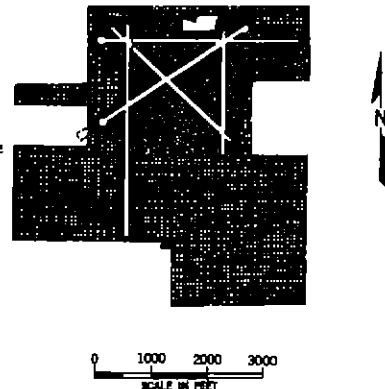
CALMS	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
		6-10 M.P.H.	11-20 M.P.H.
FOG	91	51	37
SMOKE	9	1	1
RAIN			
DUST		1	1
SNOW		1	2
TOTALS	100	53	41

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	132	87	60	41	78	89	65	136	123	109	64	79	1063
SMOKE	2	5			2	4	1	3	2	7	2	19	47
RAIN	3							1				2	6
DUST		1										1	2
SNOW												1	1
TOTALS	137	93	60	41	80	93	66	140	125	116	66	102	1109

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 3% indicates the percentage of wind in other Group I or Group II depending upon the symbol identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

WEST VIRGINIA

Charleston

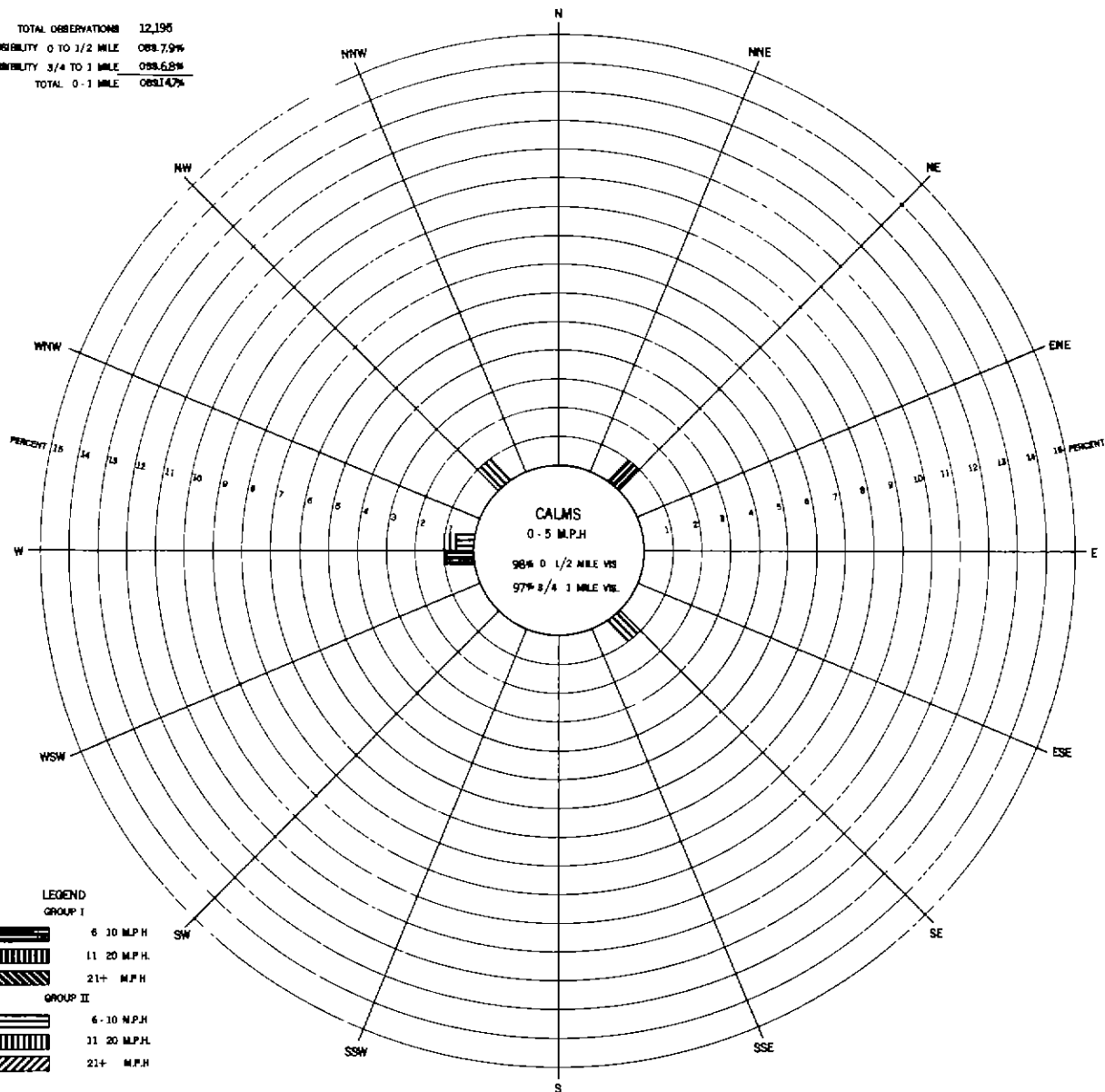
Elkins

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

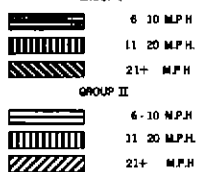
CIVIL AERONAUTICS AUTHORITY WINDROSE FOR RESTRICTED VISIBILITY

CHARLESTON, W. VA.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 12,195
VISIBILITY 0 TO 1/2 MILE 088.79%
VISIBILITY 3/4 TO 1 MILE 088.68%
TOTAL 0-1 MILE 088.74%



LEGEND



GROUP I 0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	95	88
SMOKE	3	
RAIN		4
DUST	1	
SNOW	1	4
TOTALS	100	92

(Figures indicate percentage)

GROUP II 3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS 0-5 M.P.H.	WINDS IN EXCESS OF 5 M.P.H.
FOG	82	59
SMOKE	10	5
RAIN		2
DUST	8	2
SNOW		7
TOTALS	100	87

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS GROUP I & II COMBINED

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT	OCT	NOV	DEC.	TOTAL
FOG	54	39	78	57	97	71	124	160	112	247	249	242	1530
SMOKE	6	9		3						3	32	61	114
RAIN													
DUST		1	3	12	11	2	10	3	5	4	9	10	70
SNOW											9	7	16
TOTALS	60	49	81	72	108	73	134	163	117	254	299	320	1730

NOTE:

Percentages in windrose are based on the number of observations in each visibility group.

Example: Fog indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF AUGUST 1939

NOT USABLE
HARD SURFACE
GRASS
USABLE AREA
CINDER SURFACE



0 500 1000 2000
SCALE IN FEET

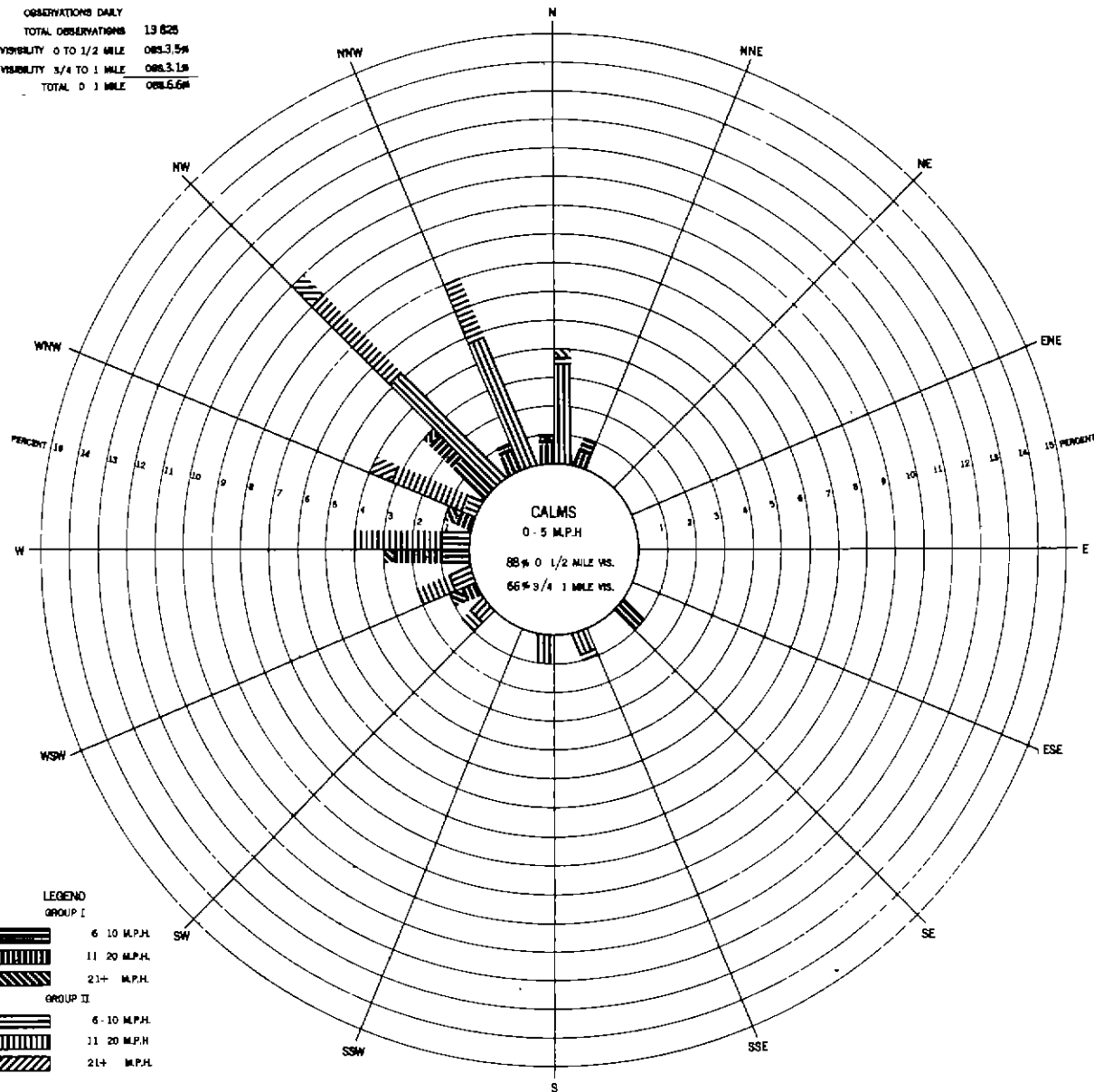
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 4 YEAR PERIOD
1936 TO 1938 INCLUSIVE

OBSERVATIONS DAILY
TOTAL OBSERVATIONS 13 825
VISIBILITY 0 TO 1/2 MILE 085.3.5%
VISIBILITY 3/4 TO 1 MILE 085.3.1%
TOTAL 0 1 MILE 085.5.6%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ELKINS, W. VA.
MUNICIPAL AIRPORT



LEGEND

GROUP I
0-5 M.P.H.
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II
6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	94	25 9 2
SMOKE	1	2 2
RAIN	1	2 2
DUST	5	20 31 7
SNOW	100	47 44 9
TOTALS	100	

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	89	34 18 9
SMOKE	2	3 1 1
RAIN	2	3 1 1
DUST	9	17 21 1
SNOW	100	54 40 6
TOTALS	100	

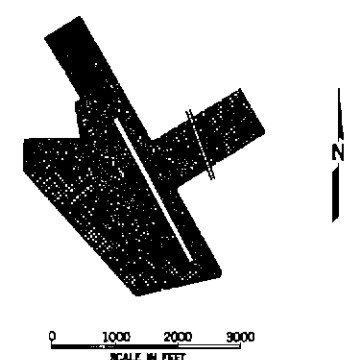
(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	24	5	21	3	32	59	55	100	129	155	21	45	649
SMOKE	1												1
RAIN	1	2	1						1	1	2	1	9
DUST	11	11	8							2	8	11	48
SNOW	37	18	27	9	32	59	55	101	129	158	31	57	707
TOTALS													

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol classification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF DECEMBER 1939



WYOMING

Casper

Cheyenne

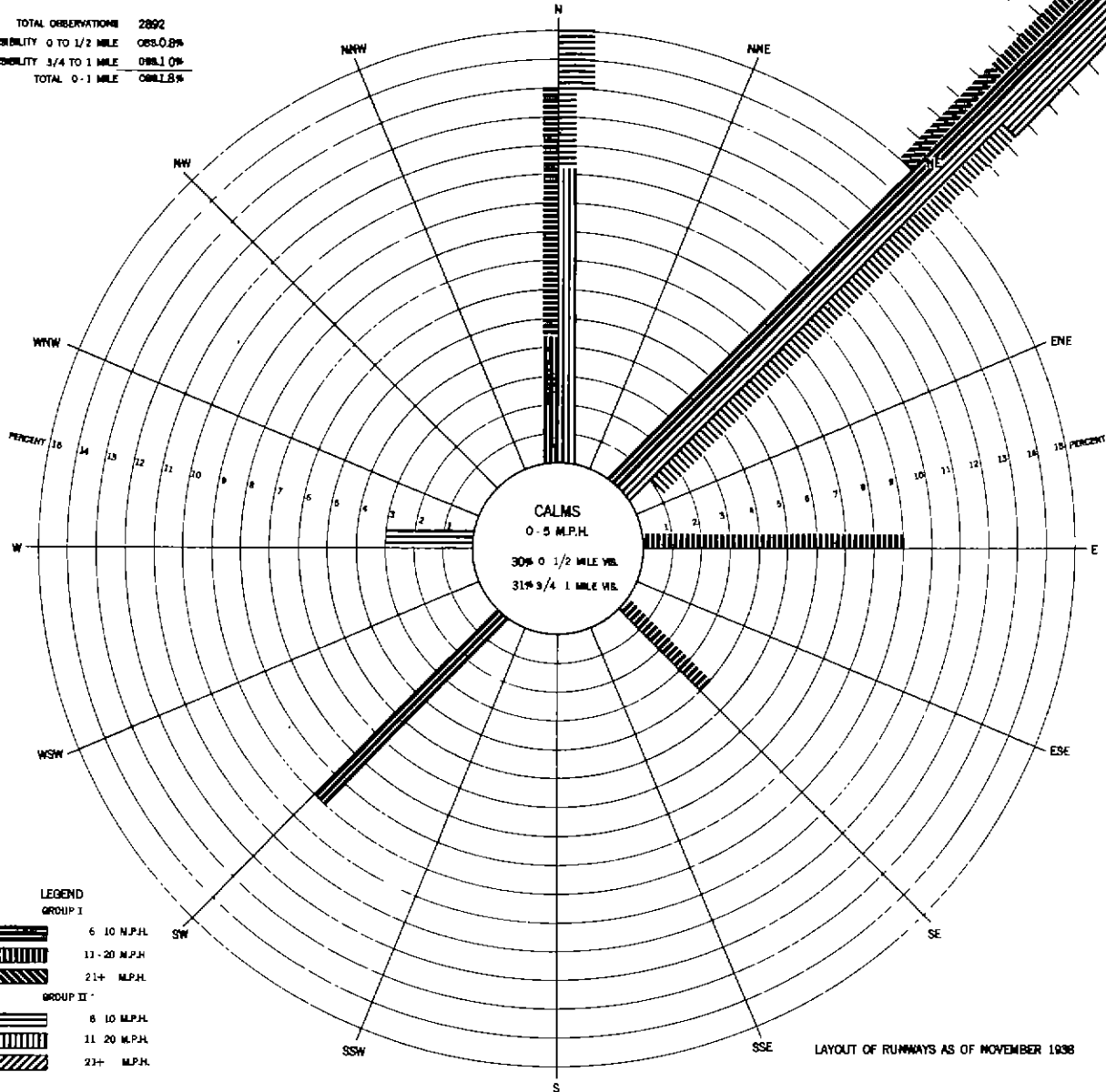
Rock Springs

SUMMARY OF 4 YEAR PERIOD
1935 TO 1938 INCLUSIVE

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CASPER, WYO.
MUNICIPAL AIRPORT

TOTAL OBSERVATIONS 2892
VISIBILITY 0 TO 1/2 MILE 088.08%
VISIBILITY 3/4 TO 1 MILE 088.10%
TOTAL 0-1 MILE 088.18%



LEGEND

GROUP I

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP II

6-10 M.P.H.
11-20 M.P.H.
21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	71	44 19
SMOKE		
RAIN		
DUST		
SNOW	29	12 19 5
TOTALS	100	56 38 6

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CAUSES	CALMS	WINDS IN EXCESS OF 5 M.P.H.
	0-5 M.P.H.	6-10 M.P.H. 11-20 M.P.H. 21+ M.P.H.
FOG	78	45 15
SMOKE		5
RAIN		
DUST		
SNOW	22	16 20
TOTALS	100	68 35

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS 0-5 M.P.H. BY MONTHS

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV	DEC.	TOTAL
FOG	1	1		2	2	2					3	3	12
SMOKE													
RAIN													
DUST													
SNOW			2	1							1		4
TOTALS	1	1	2	3	2	2					4	3	16

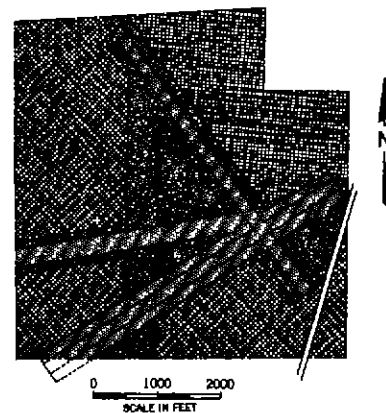
NOTE.

Percentages in windrose are based on the number of observations in each visibility group.

Example: 78 indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

LAYOUT OF RUNWAYS AS OF NOVEMBER 1938



SCALE IN FEET

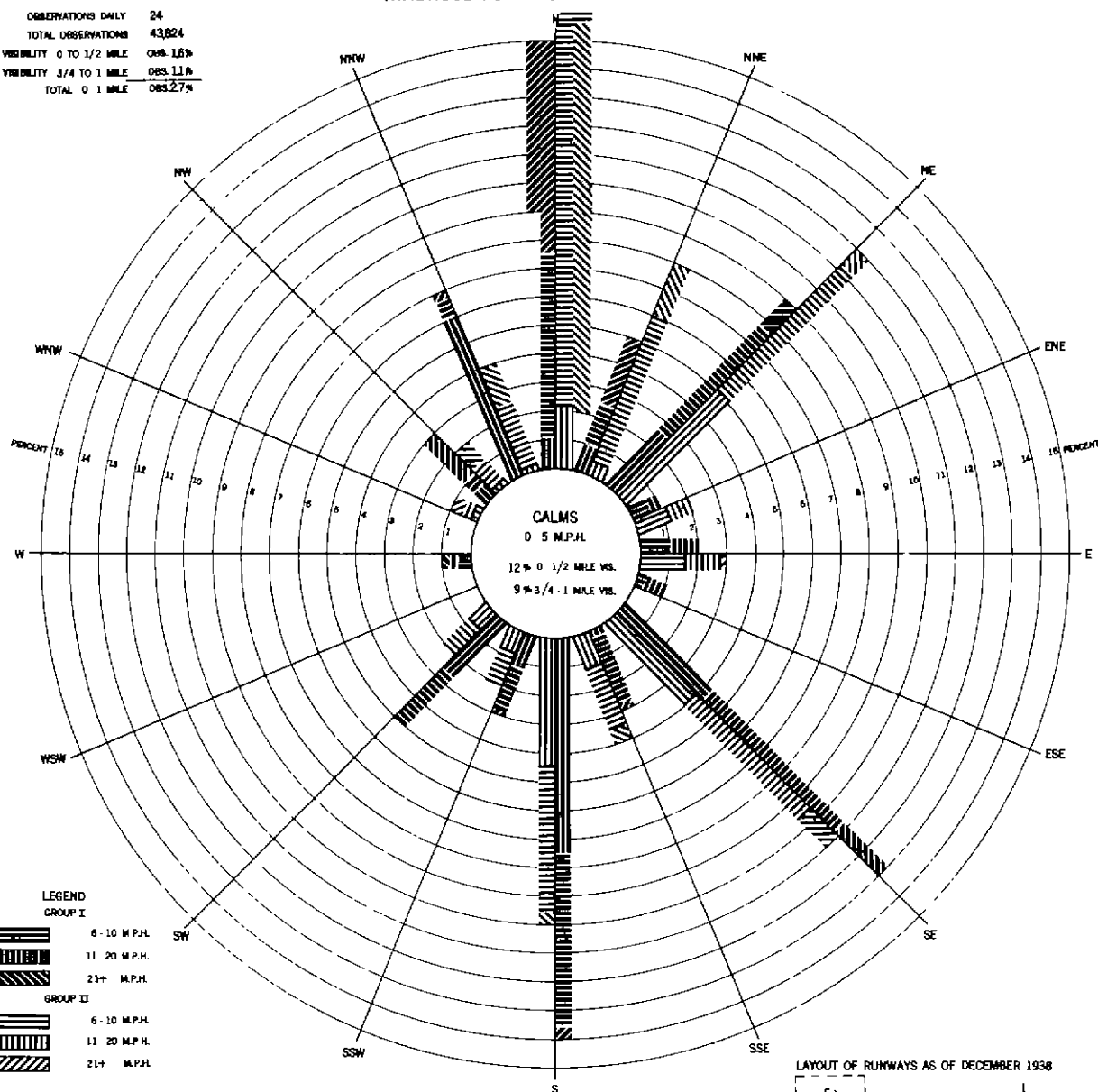
TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION

SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

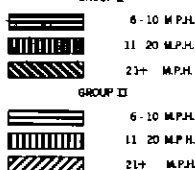
OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.6%
VISIBILITY 3/4 TO 1 MILE OBS. 1.1%
TOTAL 0 1 MILE OBS. 2.7%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

CHEYENNE, WYO.
MUNICIPAL AIRPORT



LEGEND



GROUP I
0 TO 1/2 MILE VISIBILITY

CAUSES	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	81	22	30	8
SMOKE	1			
RAIN	1			
DUST	3	2	2	1
SNOW	14	4	8	23
TOTALS	100	28	40	32

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

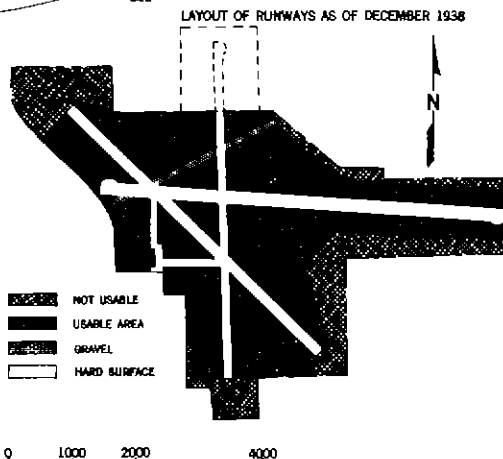
CAUSES	0-5 M.P.H.	6-10 M.P.H.	11-20 M.P.H.	21+ M.P.H.
FOG	77	20	34	9
SMOKE	2			
RAIN				1
DUST	7	1	2	2
SNOW	14	4	15	12
TOTALS	100	25	51	24

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0-5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	7	12	18	12	8	7	4	6	4	8	13	5	101
SMOKE			1									1	2
RAIN					1								1
DUST				3	3								6
SNOW		9	4	4	2						1	4	18
TOTALS	7	15	23	19	11	7	4	6	4	8	14	10	128

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.
Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the special identification.
This data furnished through the cooperation of the U. S. Weather Bureau and the Works Progress Administration.

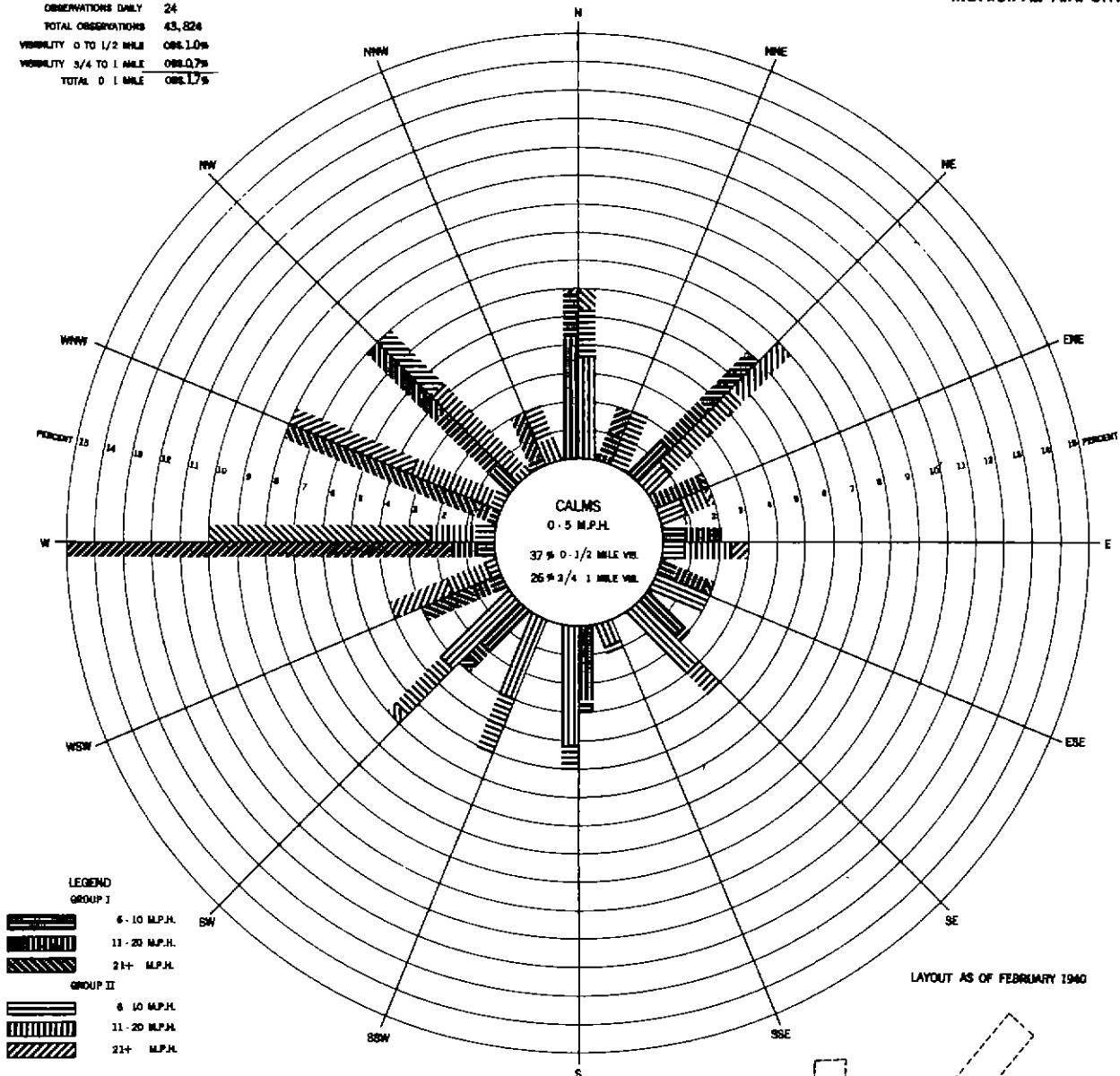


SUMMARY OF 5 YEAR PERIOD
1934 TO 1938 INCLUSIVE

OBSERVATIONS DAILY 24
TOTAL OBSERVATIONS 43,824
VISIBILITY 0 TO 1/2 MILE OBS. 1.0%
VISIBILITY 3/4 TO 1 MILE OBS. 0.7%
TOTAL 0 1 MILE OBS. 1.7%

CIVIL AERONAUTICS AUTHORITY
WINDROSE FOR RESTRICTED VISIBILITY

ROCK SPRINGS, WYO.
MUNICIPAL AIRPORT



LEGEND

GROUP I

[Solid bar]	0 - 10 M.P.H.
[Hatched bar]	11 - 20 M.P.H.
[Cross-hatched bar]	21+ M.P.H.

GROUP II

[Solid bar]	0 - 10 M.P.H.
[Hatched bar]	11 - 20 M.P.H.
[Cross-hatched bar]	21+ M.P.H.

GROUP I
0 TO 1/2 MILE VISIBILITY

CALMS	0 - 5 M.P.H.	6 - 10 M.P.H.	11 - 20 M.P.H.	21+ M.P.H.
FOG	70	6	1	2
SMOKE				
RAIN				
DUST				6
SNOW	30	19	21	46
TOTALS	100	25	22	53

(Figures indicate percentage)

GROUP II
3/4 TO 1 MILE VISIBILITY

CALMS	0 - 5 M.P.H.	6 - 10 M.P.H.	11 - 20 M.P.H.	21+ M.P.H.
FOG	29	3	1	2
SMOKE				
RAIN				
DUST				3
SNOW	71	30	36	23
TOTALS	100	33	37	30

(Figures indicate percentage)

TOTAL OCCURRENCES DURING CALMS (0 - 5 M.P.H.) BY MONTHS
GROUPS I & II COMBINED

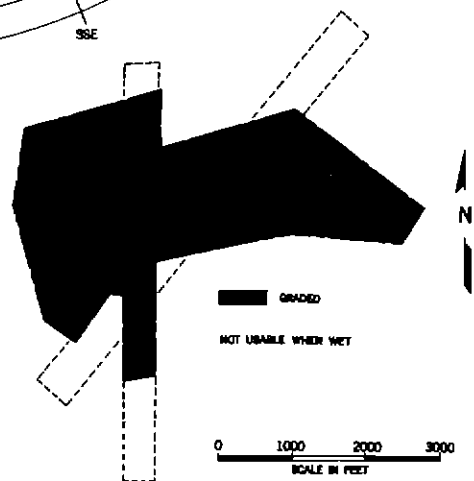
	JAN.	FEB.	MAR.	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL
FOG	21	18	12	1		1					26	53	132
SMOKE													
RAIN													
DUST													
SNOW	23	17	14	18	1					2	21	8	101
TOTALS	44	35	26	19	1	1				2	47	58	233

NOTE:
Percentages in windrose are based on the number of observations in each visibility group.

Example: 5% indicates the percentage of wind in either Group I or Group II depending upon the symbol identification.

This data furnished through the cooperation of the U. S. Weather Bureau and the Weather Program Administration.

LAYOUT AS OF FEBRUARY 1940



TECHNICAL DEVELOPMENT DIVISION
AIR TRANSPORT SECTION