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HUNTSVILLE AIR TRAFFIC FORECAST

Prepared by

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INTRODUCTION

This report is a result of an effort sponsored by the National Aeronautics and Space Administration* and assisted through the cooperation of the Huntsville-Madison County Airport Authority, Delta Airlines, Eastern Airlines, Southern Airways, and United Airlines. The research contained in this survey of Huntsville commercial air traffic was obtained from published reports of the Civil Aeronautics Board, the Federal Aviation Agency, and the Air Transport Association of America. Contained in this report is a sample of Huntsville air traffic that was undertaken jointly by the University of Alabama and Huntsville-Madison County Airport Authority in May, 1970, in order to generate additional data.

The purpose of this study is to better understand the characteristics of Huntsville's pattern of commercial air traffic in order that future passenger requirements and service improvements may be better evaluated. This report is limited to passenger traffic and ancillary market characteristics. No attempt has been made to study freight shipments.

The author is indebted to all of those who extended their cooperation and assistance, but he alone remains singularly responsible for mistakes and inaccuracies contained herein.

THE HUNTSVILLE AIR TRAFFIC MARKET

Huntsville's commercial aviation posture can be best understood when viewed in relation to the United States domestic market. The following table illustrates the fact that in recent years Huntsville's air traffic has experienced a slower rate of

* Under NASA Grant NGL 01-002-001

THE HUNTSVILLE AIR TRAFFIC MARKET (Continued)

growth than the national average. In part, this is assumed to be a function of the increasing number of growing air hubs in the nation. In addition, it is assumed that the role of the space program has diminished as the Huntsville area has increased in population, and as the space effort itself has experienced cutbacks.

Year	United States Domestic Passenger Originations	Huntsville Domestic Passenger Originations	%Δ	Huntsville - Percent of Domestic Originations
1960	50,761,846	52,133		.00103
1961	53,107,000	58,987	13.2	.00111
1962	55,935,135	81,041	37.4	.00145
1963	63,902,101	112,368	38.7	.00176
1964	72,971,891	140,165	24.7	.00192
1965	84,610,013	166,582	18.9	.00197
1966	97,743,251	174,996	5.1	.00169
1967	118,652,581	198,979	13.7	.00168
1968	134,507,219	205,879	3.5	.00153
<u>Forecast</u>				
1969	142,359,000*	209,500*	1.7	.00147
1970	153,700,000	201,800	(3.7)	.00131
1975	247,400,000	317,620	9.5	.00128
1980	398,100,000	523,260	10.5	.00131

* Estimated

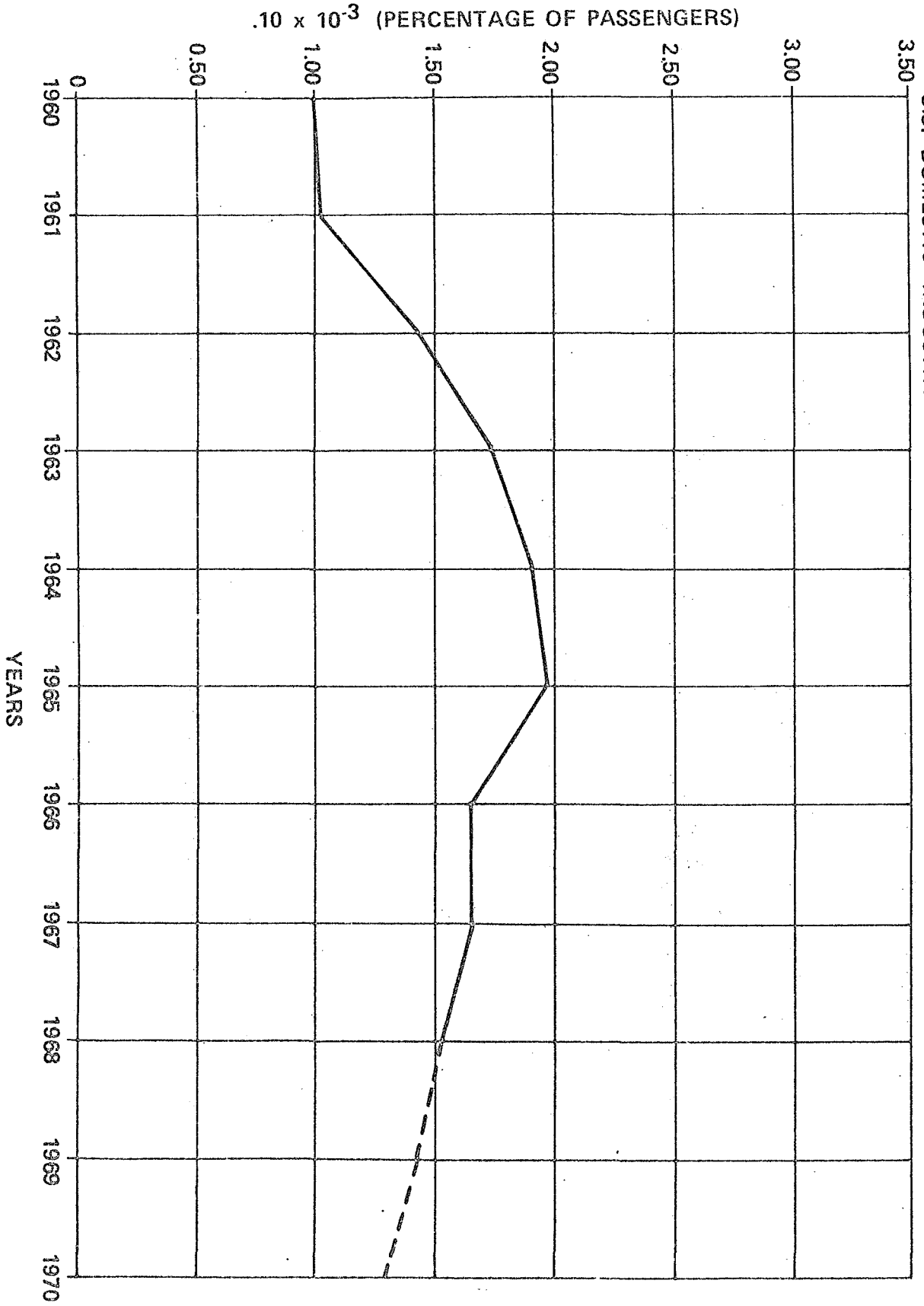
THE DISTRIBUTION OF HUNTSVILLE'S AIR TRAFFIC (Continued)

Year	Baltimore, Boston, New York, Philadelphia, and Washington as a percent of Huntsville origin and destinations	Atlanta, Los Angeles, New York, Orlando, and Washington as a percent of Huntsville origin and destinations	Huntsville Origin and Destination
1960	31.7	39.7	104,597
1961	30.0	39.8	122,213
1962	24.1	35.1	166,035
1963	21.9	33.8	227,904
1964	21.1	34.5	283,543
1965	21.1	36.7	335,387
1966	22.2	36.5	350,072
1967	22.0	35.7	400,013
1968	23.5	37.1	413,500
<u>Forecast</u>			
1969	23.8	37.7	420,760
1970	25.7	39.8	405,175
1975	25.3	39.6	637,790
1980	24.6	38.6	1,050,705

This relative concentration of traffic to present major markets is forecast to stabilize during the coming decade as new markets emerge. For example, it is forecast that Orlando's growth rate will remain relatively high as the new Disneyland complex and the space program concurrently draw upon the Huntsville area. Similarly, the probable emergence of a community of interest with growing hubs such as Dallas and Denver create the specter of future single plane service to other major population points.

The following charts indicate the past origin and destination growth of primary city pairs in Huntsville's route pattern. Dotted lines symbolize estimated figures and forecasted trends.

HUNTSVILLE DOMESTIC ORIGINATIONS AS A PERCENT OF THE
U.S. DOMESTIC INDUSTRY



THE HUNTSVILLE AIR TRAFFIC MARKET (Continued)

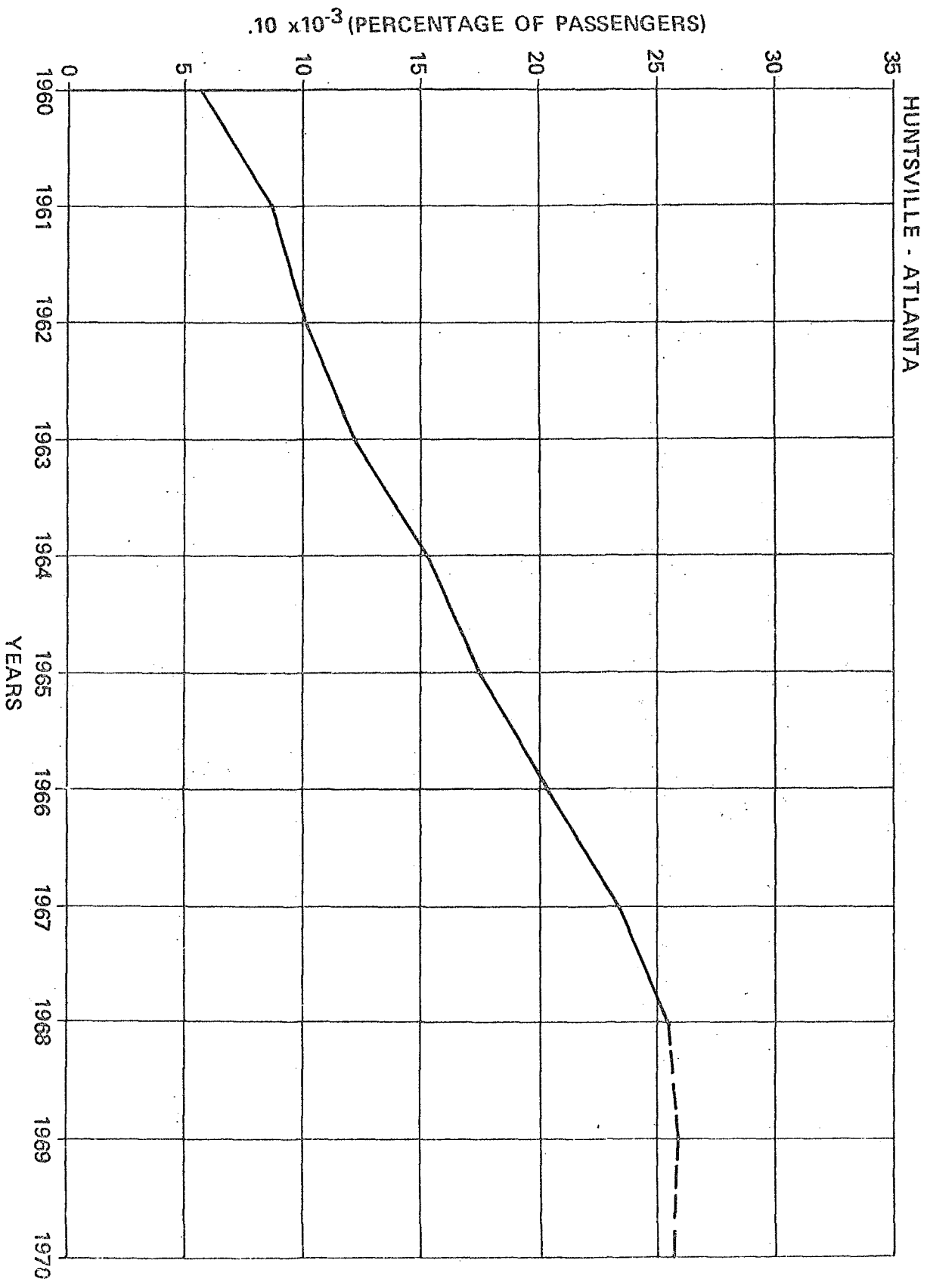
This forecast projects a stabilization of total Huntsville originations as the conversion from a space center to a more diversified economy takes effect. Huntsville air-traffic growth should begin to resume shortly, as the detrimental effects of space cutbacks are absorbed. Moreover, it is thought that the process of economic diversification, combined with the economic potential and appeal of the Tennessee Valley region should result in an air traffic growth rate similar to the national average in the period 1975-1980.

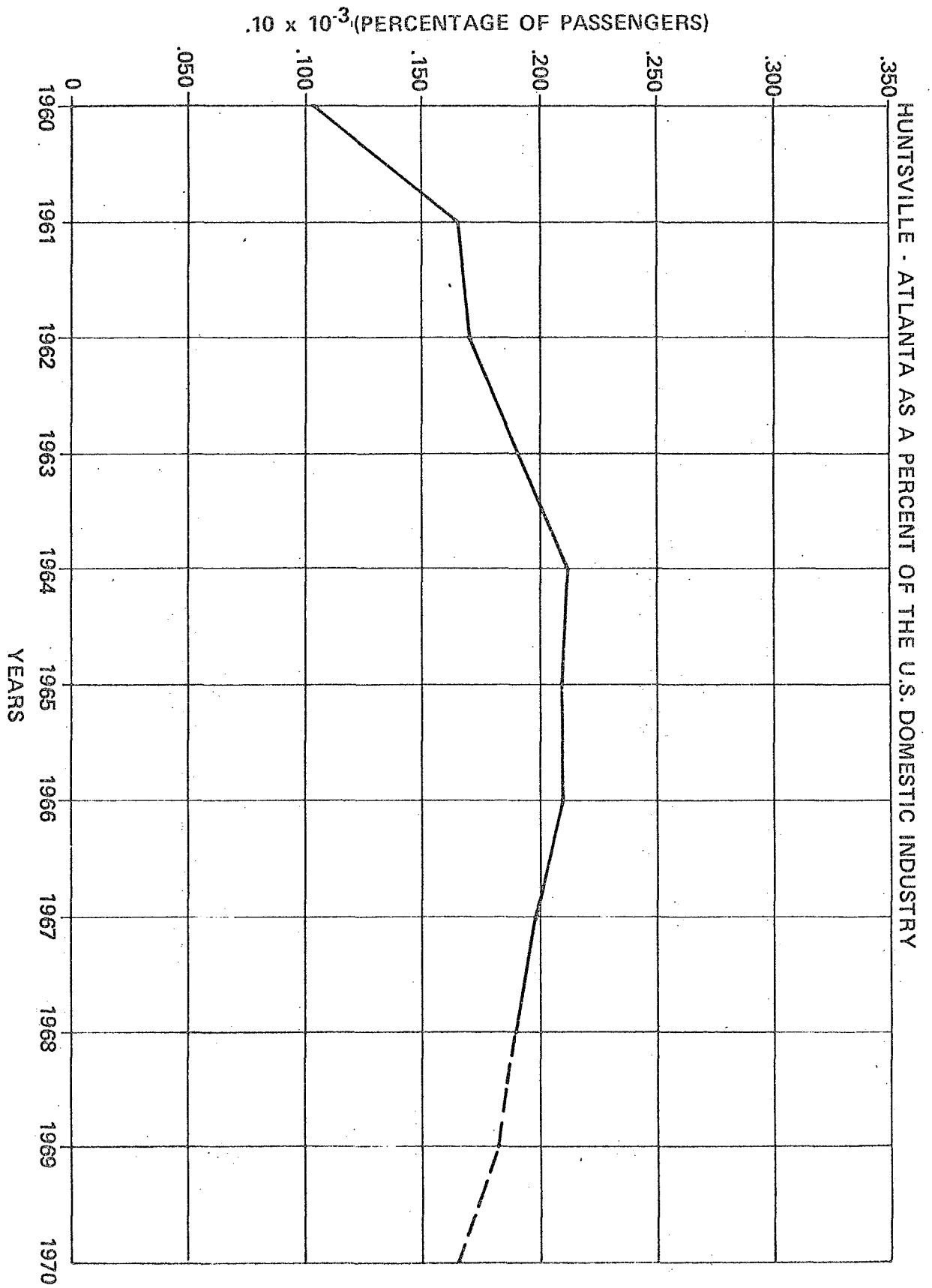
THE DISTRIBUTION OF HUNTSVILLE'S AIR TRAFFIC

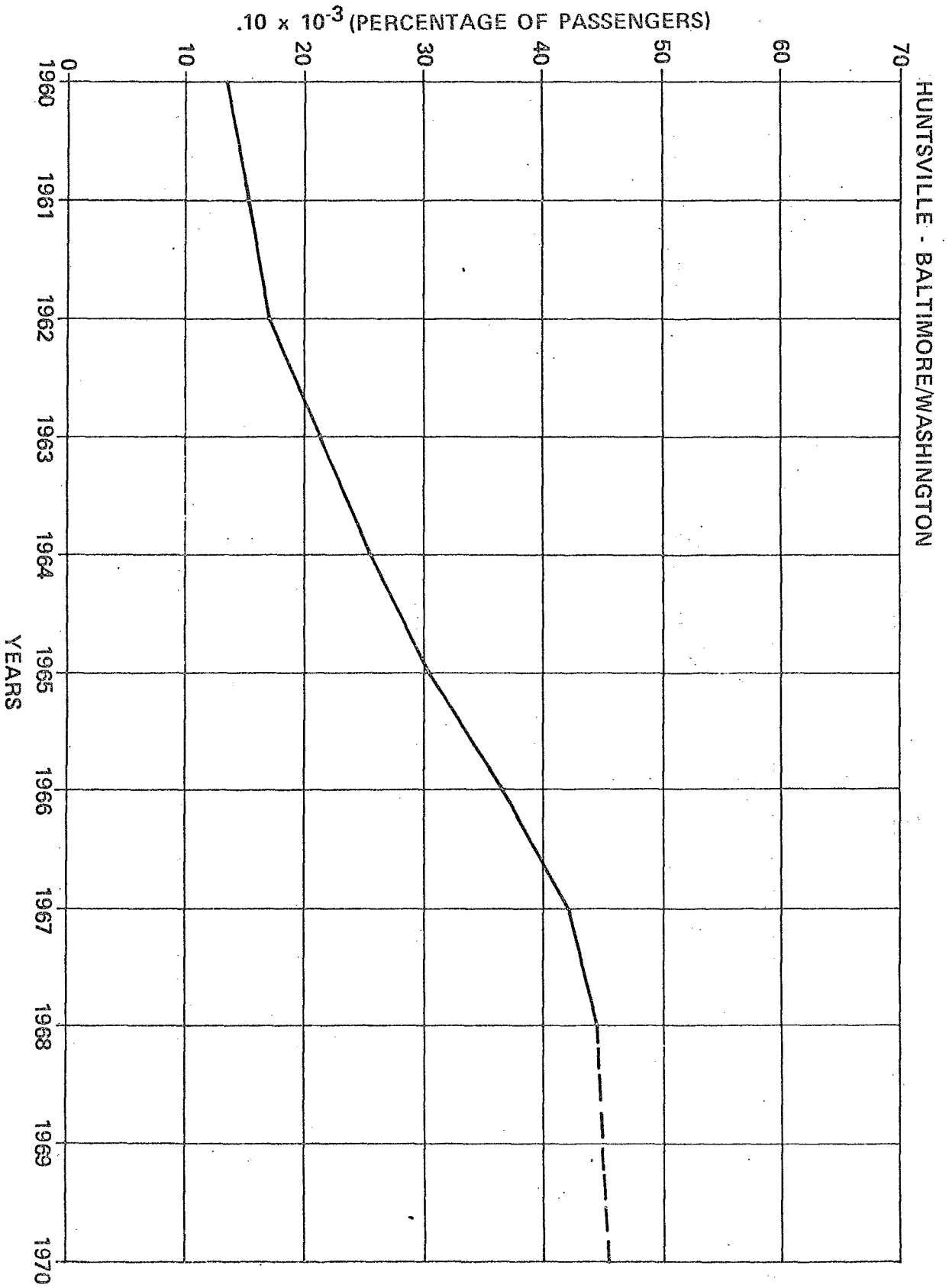
The task of forecasting the direction of future growth trends within the Huntsville commercial air traffic market is indeed perplexing. Born out of the space boom of the 1960's, Huntsville's air route pattern is a reflection of the legitimate needs of the space industries. Service to the Orlando-Cape Kennedy area has been emphasized as part of a "space corridor" that extends to Seattle, Washington.

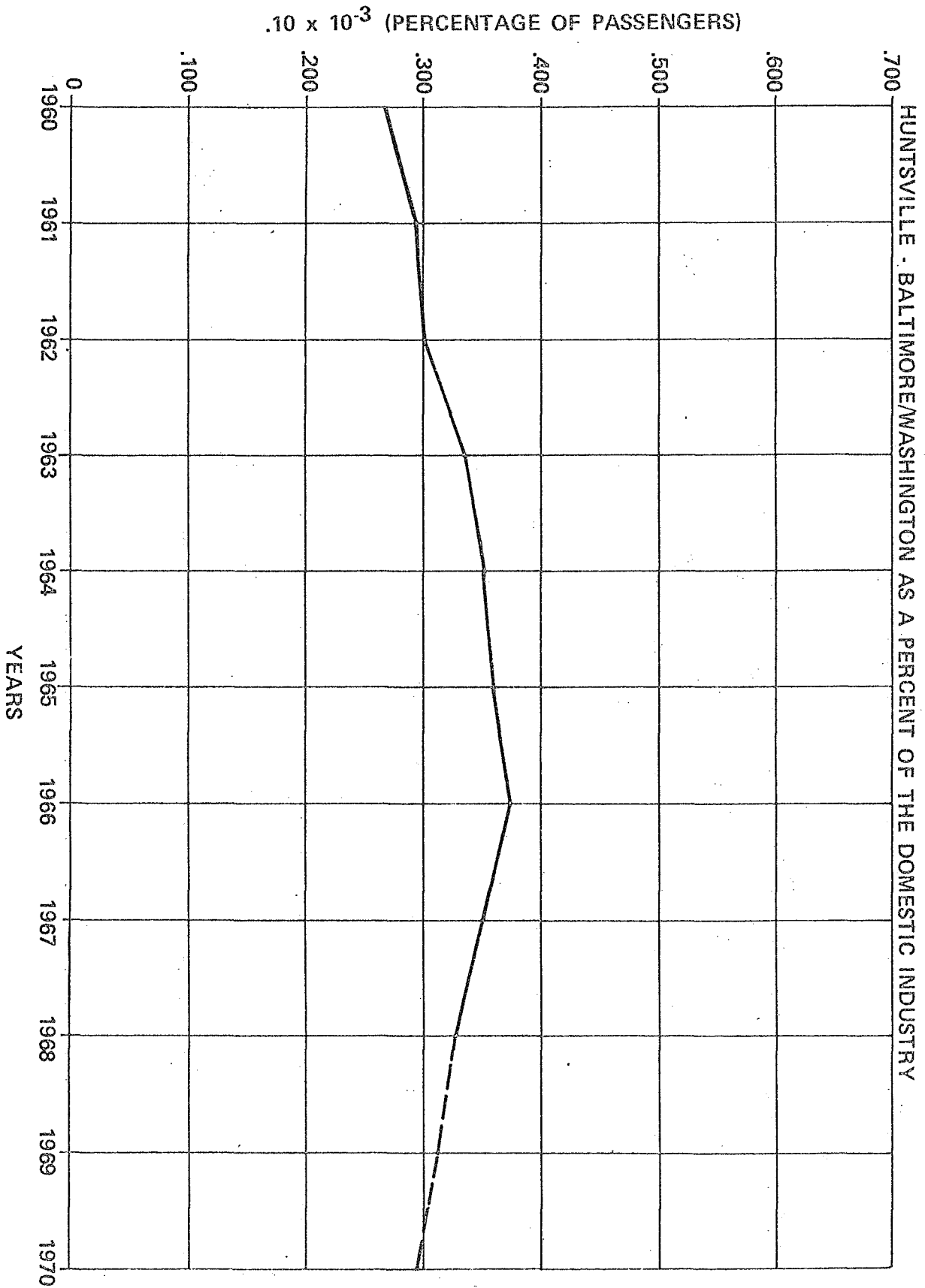
Moreover, much of the remaining traffic has been forced to connect in Atlanta, Memphis, and New Orleans in order to reach final destinations. To a great extent, the lack of single plane service from Huntsville to many major population points has been a function of a dispersed network of destinations desired by Huntsville originating passengers. This situation has not presented the possibility of concentrated traffic patterns which airlines desire as a prelude to nonstop or single plane service.

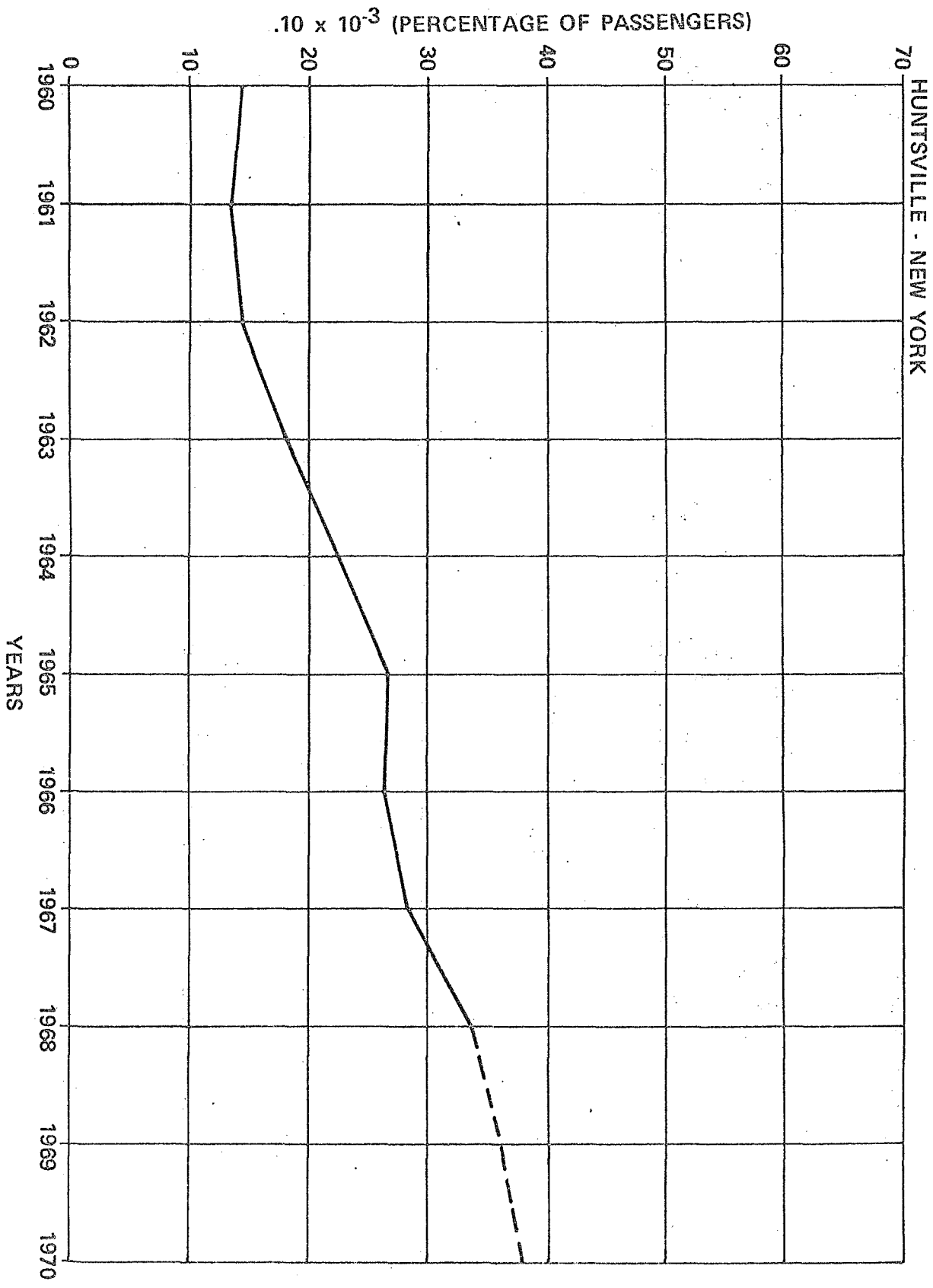
In recent years, a newer trend toward the concentration of Huntsville air traffic to a few destinations has emerged. The cities of Baltimore, Boston, New York, Philadelphia and Washington, which form a sort of Northeast corridor, are forecast to continue their collective importance to Huntsville air traffic patterns. In similar fashion, Huntsville's current primary markets of Atlanta, Los Angeles, New York, Orlando, and Washington are growing at a collective faster rate than the total of Huntsville air traffic, but are forecast to stabilize shortly as other markets emerge.

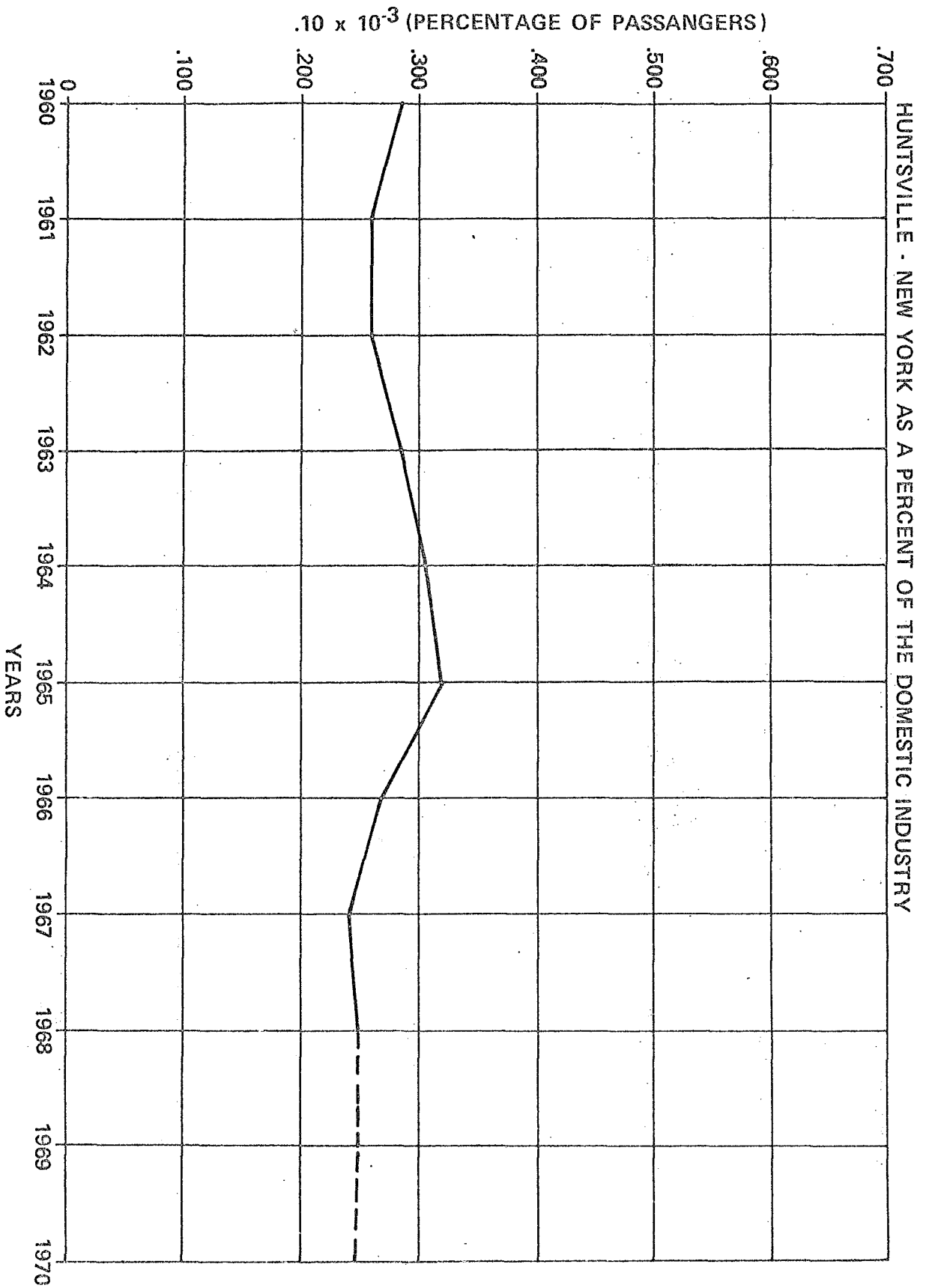


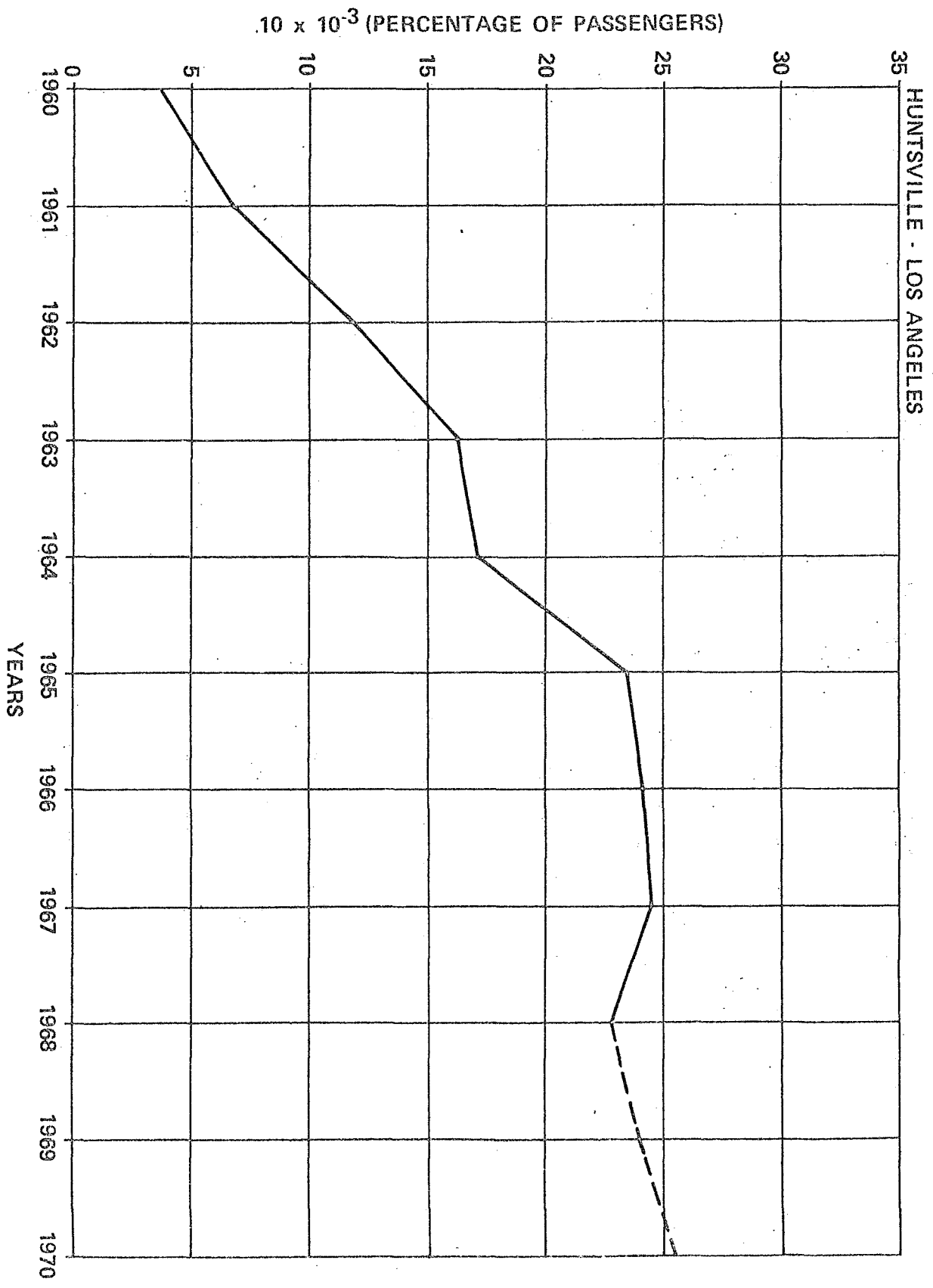


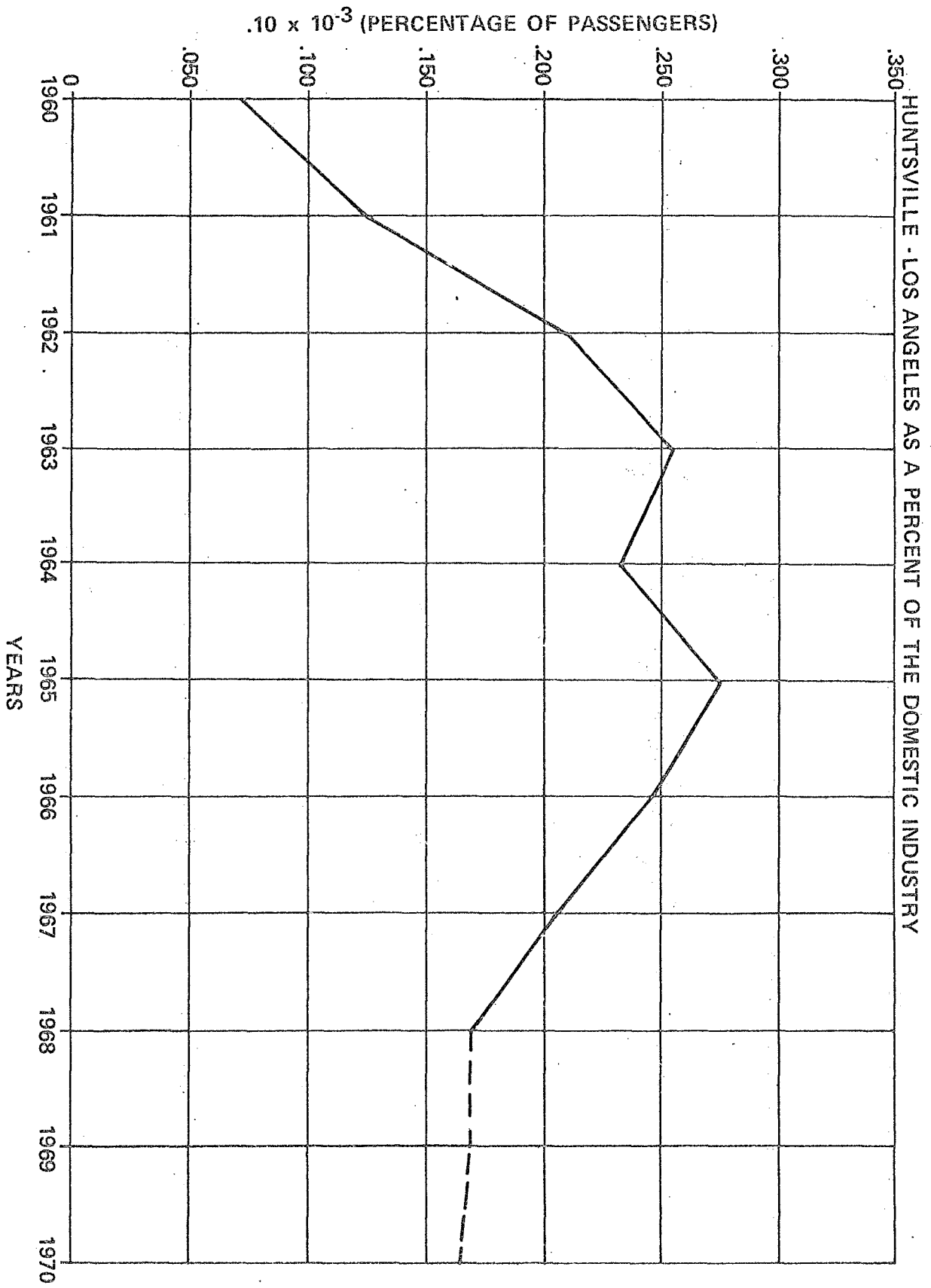


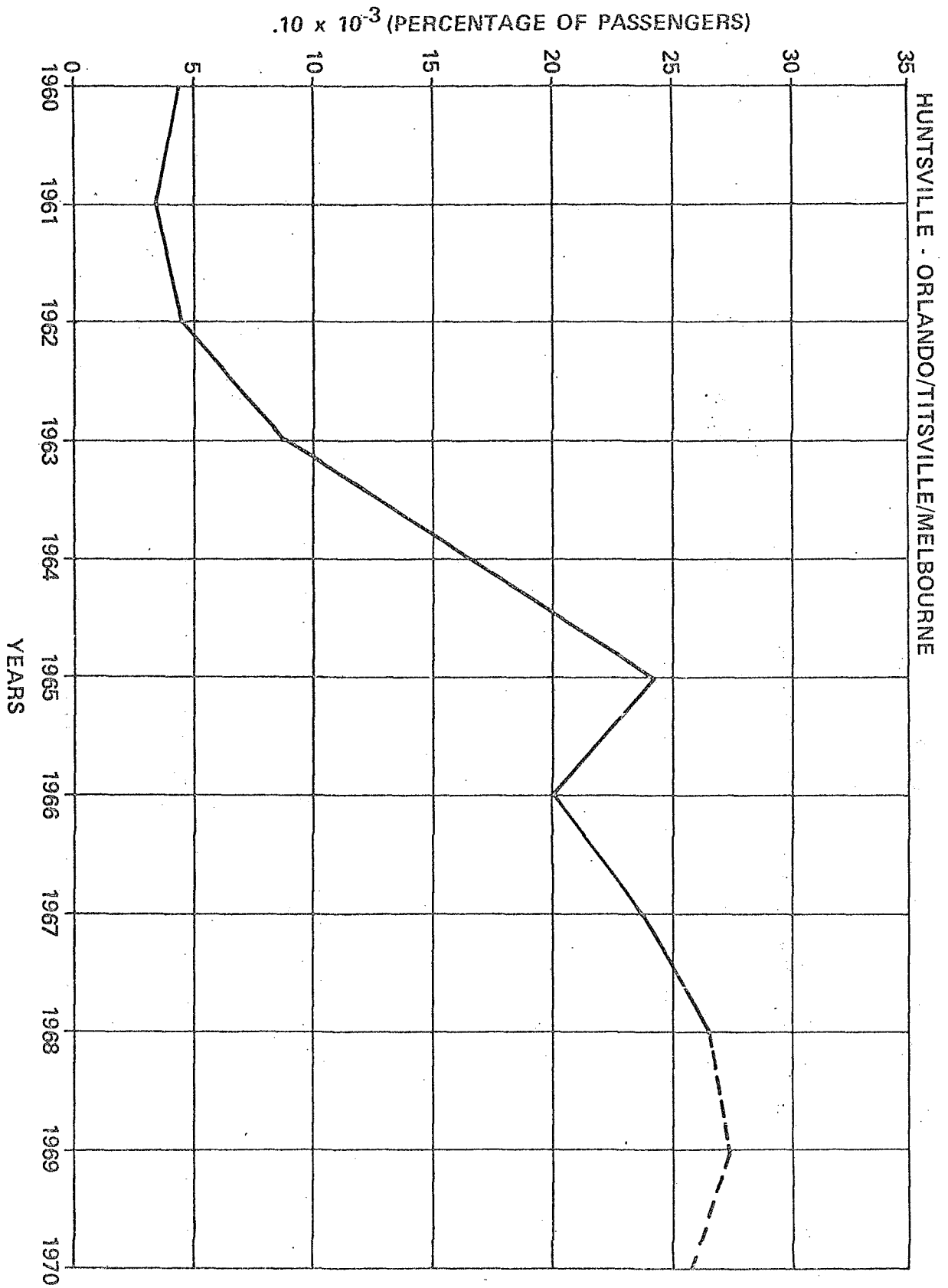


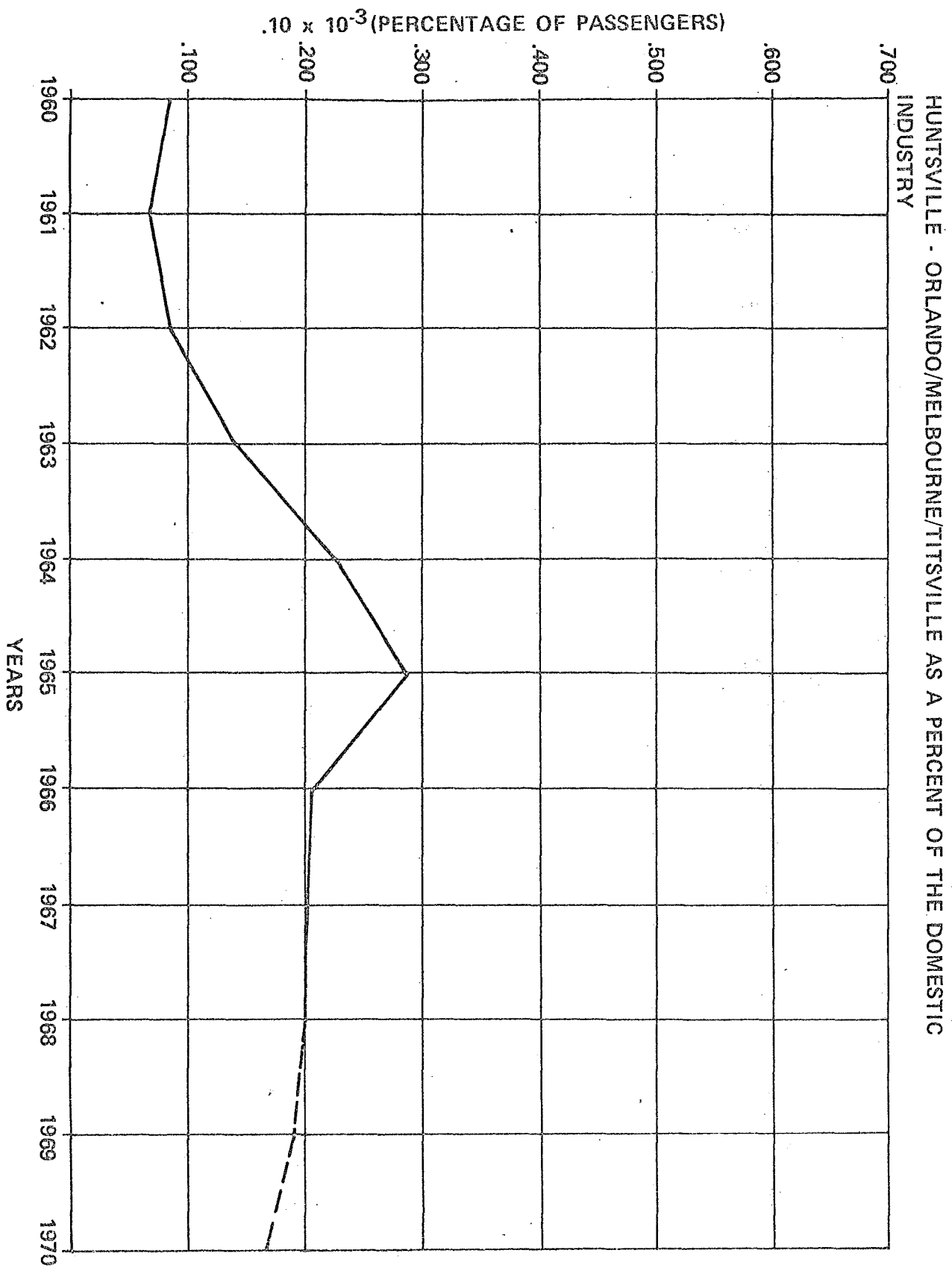




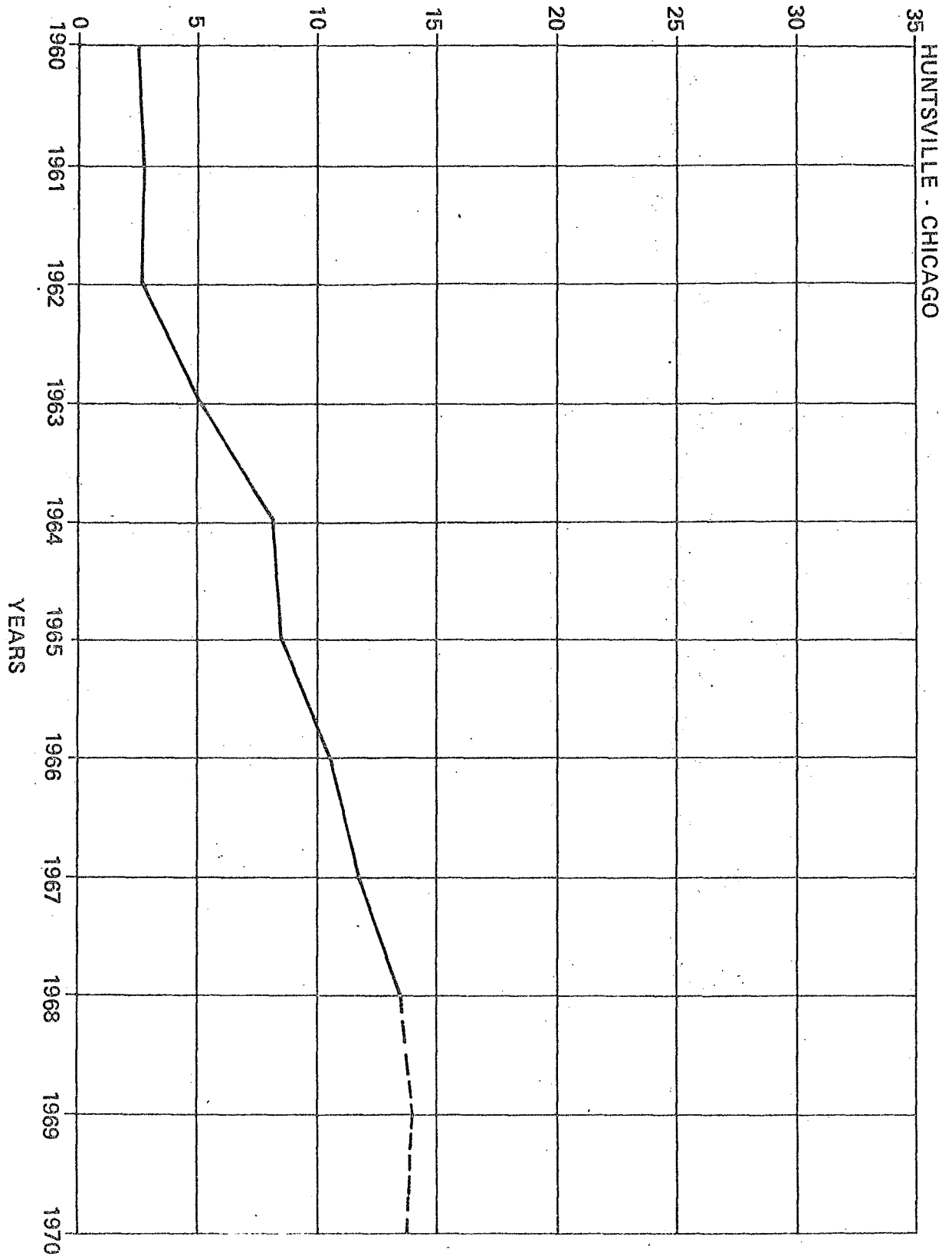




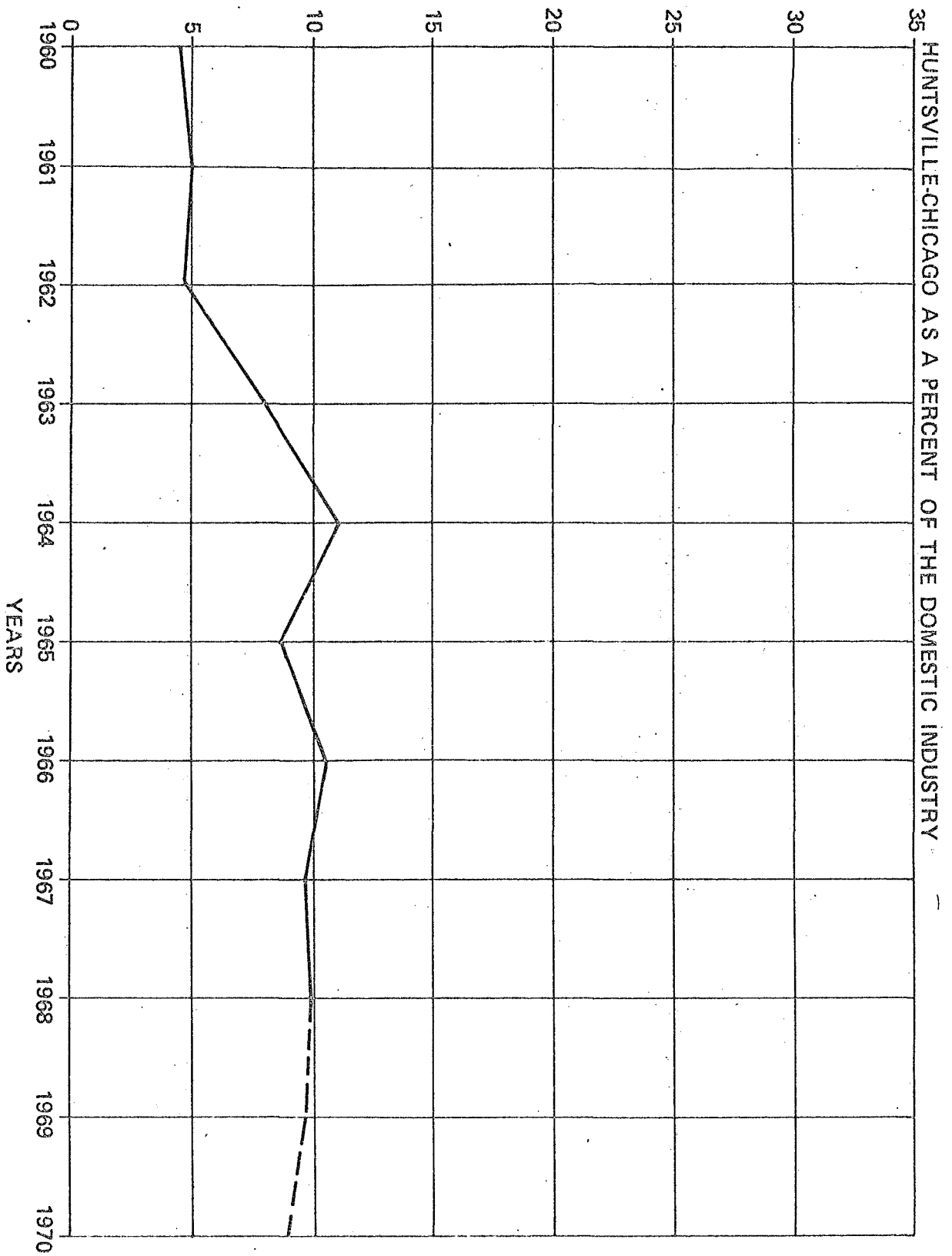


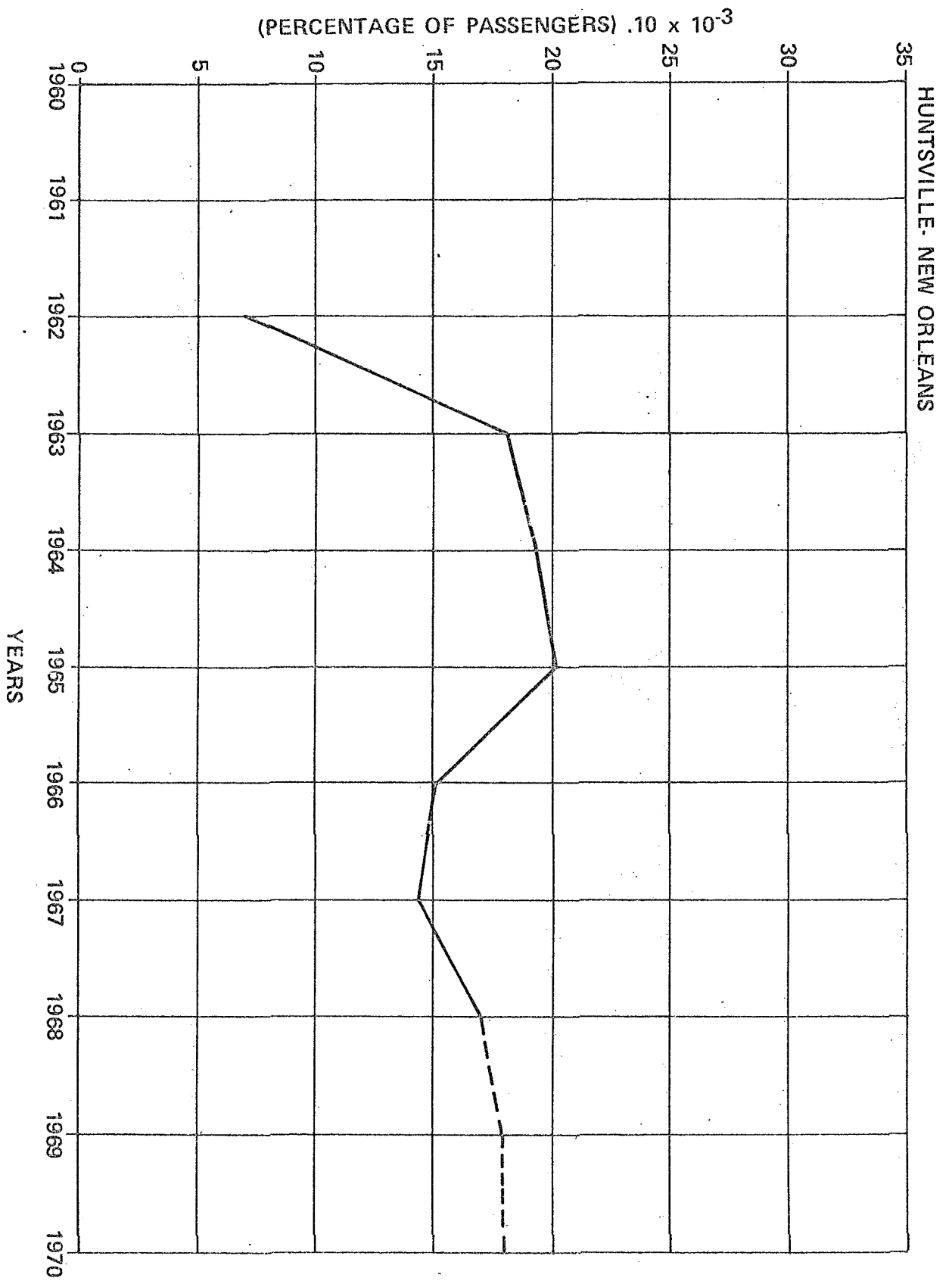


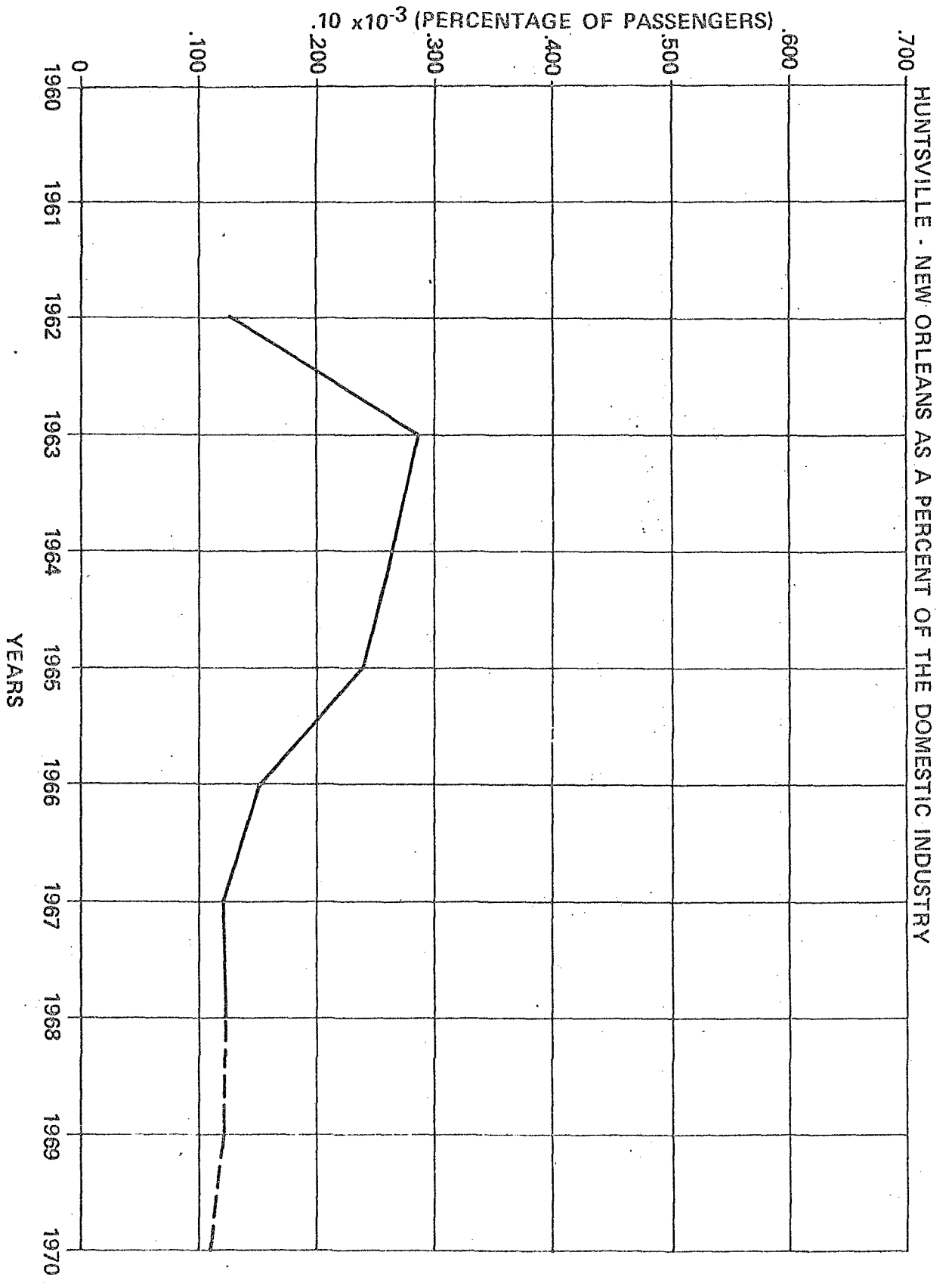
.10 x 10⁻³ (PERCENTAGE OF PASSENGERS)



.10 x 10⁻³ (PERCENTAGE OF PASSENGERS)







SUMMARY TABLES

HUNTSVILLE PRIMARY MARKETS-
PERCENT OF HUNTSVILLE ORIGIN AND DESTINATION

	60	61	62	63	64	65	66	67	68	FORECAST			
										69	70	75	80
Atlanta	5.4	7.2	6.1	5.3	5.4	5.2	5.8	5.8	6.1	6.2	6.4	6.2	5.9
Baltimore/ Washington	13.0	12.9	10.3	9.5	9.1	8.9	10.4	10.5	10.7	10.7	11.3	10.8	10.5
Chicago	2.3	2.2	1.6	2.3	2.9	2.6	3.0	2.9	3.3	3.3	3.4	3.4	3.3
Los Angeles	3.5	5.5	7.1	7.2	6.0	6.9	6.9	6.1	5.5	5.7	6.3	6.4	6.4
New Orleans	-----	-----	4.2	8.0	6.8	6.0	4.3	3.6	4.3	4.3	4.4	4.1	3.7
New York	13.7	11.3	8.8	7.9	7.9	8.1	7.6	7.2	8.2	8.6	9.4	9.6	9.6
Orlando/ Melbourne/ Titusville	4.1	2.9	2.8	4.0	6.0	7.3	5.8	6.0	6.5	6.5	6.4	6.6	6.3
TOTAL	42.0	42.0	40.9	44.2	44.1	45.0	43.8	42.1	44.6	45.3	47.6	47.1	45.7

SUMMARY TABLES (Continued)

HUNTSVILLE PRIMARY MARKETS - ORIGIN AND DESTINATION (0)

	60	61	62	63	64	65	66	67	68	FORECAST			
										69	70	75	80
Atlanta	566	884	1008	1211	1542	1762	2040	2337	2536	2590	2580	3470	6250
Baltimore/ Washington	1355	1573	1703	2158	2581	3054	3655	4215	4432	4500	4580	6885	11030
Chicago	241	270	268	521	820	862	1044	1163	1348	1400	1380	2170	5500
Los Angeles	363	671	1179	1630	1713	2327	2410	2454	2288	2400	2250	4105	6675
New Orleans	-----	-----	703	1817	1928	2005	1514	1448	1706	1800	1800	2645	3920
New York	1403	1329	1462	1804	2248	2717	2653	2867	3390	3620	3800	6120	10085
Orlando/ Melbourne/ Titusville	432	356	470	906	1695	2436	2018	2393	2684	2750	2600	4185	6588
TOTAL	4360	5133	6793	10047	12527	15163	15334	16887	18384	19060	19290	29530	45855

SUMMARY TABLES (Continued)

HUNTSVILLE - PRIMARY CONNECTING POINTS (0)

	60	61	62	63	64	65	66	67	68	FORECAST			
										69	70	75	80
Atlanta	1749	2583	3338	3718	4565	5879	6589	6033	7330	8963	8880	13980	22320
Baltimore/ Washington	463	712	996	1126	2549	1304	1443	2156	2370	2525	2645	3975	6370
Chicago	138	162	460	1009	1298	1311	1284	1381	1314	1300	1250	1347	1451
Los Angeles	----	----	----	----	----	----	----	----	105	?	?	?	?
Memphis	794	1470	2417	2684	2621	2737	2811	2572	2272	2083	1515	2104	3191
New Orleans	----	----	118	95	485	588	720	1017	1646	2365	2742	4475	7760
Saint Louis	----	----	----	----	227	598	1788	3219	3122	3210	2990	3960	5090
TOTAL													

SUMMARY TABLES (Continued)

HUNTSVILLE - PRIMARY MARKETS AND CONNECTING POINTS -
LOCAL PASSENGERS AS A PERCENT OF O AND D

	60	61	62	63	64	65	66	67	68	FORECAST			
										69	70	75	80
Atlanta	99.8	99.7	99.1	99.1	99.2	98.9	99.2	98.9	99.1	99.2	99.2	99.2	99.2
Baltimore/ Washington	93.5	92.9	99.4	97.9	98.8	99.6	96.7	98.4	97.9	98.2	98.2	98.2	98.2
Chicago	60.6	44.1	60.1	82.1	88.4	84.5	73.9	76.4	81.8	82.6	82.6	85.0	87.0
Los Angeles	*	*	*	*	*	*	*	*	10.4				
Memphis	98.9	99.5	100.0	99.0	99.3	98.2	99.2	98.1	99.1	99.0	99.0	99.0	99.0
New Orleans	*	*	81.4	*	95.4	95.1	96.9	97.8	98.2	98.5	99.0	99.0	99.0
New York	78.4	75.2	69.6	61.2	62.0	59.7	46.2	67.2	64.2	62.0	62.0	62.0	62.0
Orlando/ Melbourne Titusville	34.5	12.6	*	72.6	89.6	89.7	90.4	95.9	96.7	97.0	97.0	97.5	98.0
Saint Louis	*	*	*	*	28.8	84.7	76.5	89.7	93.2	95.0	97.0	98.0	98.2

SUMMARY TABLES (Continued)

HUNTSVILLE PRIMARY MARKETS AND CONNECTING POINTS -
LOCAL PASSENGERS AS A PERCENT OF CONNECTING PASSENGERS

	60	61	62	63	64	65	66	67	68	FORECAST				
										69	70	75	80	
Atlanta	32.3	34.1	29.9	32.3	33.5	29.6	30.7	38.3	34.3	34.5	34.7	35.5	36.0	
Baltimore/ Washington	237.7	205.3	169.9	187.7	217.9	233.3	244.9	192.4	183.1	175.0	170.0	170.0	165.0	
Chicago	105.8	73.5	35.0	42.4	55.9	55.5	60.1	64.4	83.9	88.9	91.2	137.0	209.9	
Los Angeles	*	*	*	*	*	*	*	*	237.1					
Memphis	23.0	14.3	10.8	16.7	36.1	18.2	23.1	25.9	27.6	30.0	39.7	45.0	47.0	
New Orleans	*	*	484.7	*	379.2	324.1	203.9	139.2	101.8	75.0	65.0	60.0	50.0	
New York	504.0	487.0	617.0	428.0	314.0	416.0	481.0	626.0	633.0	598.0	599.0	600.0	600.0	
Orlando/ Melbourne	1655.7	642.9	142.9	854.5	1132.8	1409.0	1078.7	1214.3	1108.5	1067.0	970.0	1367.7	2167.7	
Titusville														
Saint Louis	*	*	*	*	30.4	33.4	27.9	23.6	23.8	24.0	25.0	30.0	35.0	

The preceding tables illustrate the following trends:

- * Huntsville's primary O and D markets are forecast to maintain their importance to the Huntsville airline market. However, it should be noted that these gains generally are not currently significant in terms of the growth rate of the domestic airline industry.
- * Atlanta is the major connecting point for Huntsville passengers and is forecast to continue that status. This projection is based on current route structures which for analytical purposes are assumed to remain unchanged through 1980. Additional single plane service to northeastern points or new single plane service to the midwest would tend to reduce Huntsville's dependence on the Atlanta connecting pattern.
- * An estimated thirty-eight percent of New York-Huntsville O and D passengers appear to be forced to connect in Atlanta or Washington in order to arrive at their destination despite the presence of single plane service between New York and Huntsville. Other major Huntsville markets appear better served by local service.
- * The viability of such Huntsville markets as Atlanta, Memphis, New Orleans, and Saint Louis appear to be directly dependent on their continued usage as connecting points for Huntsville passengers.
- * Single plane service to such places as Boston, Denver, Detroit, and Philadelphia would at once relieve Huntsville passengers of the burden of connecting flights, and also reduce the market appeal of relatively short-distanced connecting flights to Atlanta, Memphis, New Orleans, and Saint Louis. Future route awards run the risk of creating a diversionary influence from these regional connecting markets.

On the other hand, single-plane long-haul flights to emerging markets such as Dallas, Denver, Detroit and Boston may become necessary in the near future. This may be feasible if these flights originate in cities other than Huntsville or originate in Huntsville and stop in a more heavily traveled regional hub.

HUNTSVILLE AIR TRAFFIC SURVEY

The following tables reflect data gathered in a one-week in-flight survey in mid-May, 1970, of Huntsville departing passengers. Questionnaires were distributed to all airlines serving Huntsville for further dissemination on all flights. In most cases, the response of airlines and passengers alike was considered complete and reflective of actual operating conditions. However, there are certain obvious inaccuracies in the sample. Atlanta traffic is vastly underrepresented; possibly as low as 20 percent of its total. This is assumed to be a function of the difficulty of conducting a survey aboard high-density short haul flights. In like manner, some longer haul flights, to Los Angeles in particular, possibly reflect a greater response, in part because of the relative ease of survey completion and collection. In addition, the reader should approach "other" destinations with some caution because of a tendency of many respondents to report as "other" destinations suburbs of major urban areas included in the survey. In the section of the questionnaire dealing with occupational and destination patterns, high "other" figures denote originating passengers who usually reside in the city of their destination. Finally, it is hoped that the air traffic and occupational tables below will aid those interested in Huntsville to better evaluate transportation and economic factors intrinsic to continued growth of the area.

FINAL DESTINATION OF 1263 LOCAL PASSENGERS

CITY	PASSENGERS	PERCENTAGE
Atlanta	22	1.7
Boston	0	.0
Chicago	72	5.7
Cleveland	30	2.4
Dallas	1	.1
Denver	0	.0
Detroit	0	.0
Houston	22	1.7
Knoxville	37	2.9
Los Angeles	180	14.3
Melbourne	11	.9
Memphis	21	1.7
Mobile	0	.0
Montgomery	0	.0
New Orleans	41	3.2
New York/Newark	120	9.5
Orlando	98	7.8
Philadelphia	33	2.6
Pittsburgh	23	1.8
Seattle	13	1.0
St. Louis	103	8.2
Titusville	21	1.7
Washington/Baltimore	294	23.3
Other	121	9.6

FINAL DESTINATION OF 1137 CONNECTING PASSENGERS

CITY	PASSENGERS	PERCENTAGE
Atlanta	10	.9
Boston	64	5.6
Chicago	19	1.7
Cleveland	6	.5
Dallas	15	1.3
Denver	87	7.7
Detroit	6	.5
Houston	16	1.4
Knoxville	8	.7
Los Angeles	24	2.1
Melbourne	9	.8
Memphis	6	.5
Mobile	3	.3
Montgomery	0	.0
New Orleans	4	.4
New York/Newark	62	5.5
Orlando	12	1.1
Philadelphia	22	1.9
Pittsburgh	16	1.4
Seattle	25	2.2
St. Louis	11	1.0
Titusville	0	.0
Washington/Baltimore	78	6.9
Other	634	55.8

POINT OF CHANGE FOR 975 CONNECTING PASSENGERS

CITY	PASSENGERS	PERCENTAGE
Atlanta	114	11.7
Chicago	78	8.0
Knoxville	126	12.9
Los Angeles	164	16.8
Memphis	90	9.2
New Orleans	23	2.4
New York	12	1.2
Orlando	4	.4
Philadelphia	0	.0
St. Louis	195	20.0
Washington/Baltimore	169	17.3

FINAL DESTINATION OF 2400 LOCAL AND CONNECTING PASSENGERS

CITY	PASSENGERS	PERCENTAGE
Atlanta	32	1.3
Boston	64	2.7
Chicago	91	3.8
Cleveland	36	1.5
Dallas	16	.7
Denver	87	3.6
Detroit	6	.2
Houston	38	1.6
Knoxville	45	1.9
Los Angeles	204	8.5
Melbourne	20	.8
Memphis	27	1.1
Mobile	3	.1
Montgomery	0	.0
New Orleans	45	1.9
New York/Newark	182	7.6
Orlando	110	4.6
Philadelphia	55	2.3
Pittsburgh	39	1.6
Seattle	38	1.6
St. Louis	114	4.7
Titusville	21	.9
Washington/Baltimore	372	15.5
Other	755	31.5

NOTE: There are 622 Through Passengers

FINAL DESTINATION OF 2183 ORIGINATING (OD) PASSENGERS

CITY	PASSENGERS	PERCENTAGE
Atlanta	31	1.4
Boston	61	2.8
Chicago	92	4.2
Cleveland	39	1.8
Dallas	15	.7
Denver	66	3.0
Detroit	6	.3
Houston	36	1.6
Knoxville	40	1.8
Los Angeles	194	8.9
Melbourne	12	.5
Memphis	24	1.1
Mobile	3	.1
Montgomery	0	.0
New Orleans	43	2.0
New York/Newark	184	8.4
Orlando	104	4.8
Philadelphia	52	2.4
Pittsburgh	39	1.8
Seattle	30	1.4
St. Louis	111	5.1
Titusville	21	1.0
Washington/Baltimore	361	16.5
Other	619	28.4

PURPOSE OF TRIP FOR 2177 ORIGINATING PASSENGERS

REASON	PASSENGERS	PERCENTAGE
Business	1671	76.8
Pleasure	322	14.8
Other	184	8.5

OCCUPATION OF 1651 ORIGINATING PASSENGERS TRAVELING FOR BUSINESS

OCCUPATION	PASSENGERS	PERCENTAGE
Military Employee	395	23.9
NASA Employee	164	99.9
Military Contractor/Vendor	267	16.2
NASA Contractor/Vendor	231	14.0
Other Business/Profession	594	36.0

RESIDENCE (COUNTY) OF 2132 ORIGINATING PASSENGERS

COUNTY	PASSENGERS	PERCENTAGE
Cullman	19	.9
Jackson	19	.9
Lawrence	8	.4
Limestone	56	2.6
Madison	773	36.3
Marshall	38	1.8
Morgan	122	5.7
Colbert/Lauderdale	29	1.4
Other, Tennessee	45	2.1
Other	1023	48.0

TRANSPORTATION TO AIRPORT USED BY 2176 ORIGINATING PASSENGERS

TRANSPORTATION	PASSENGERS	PERCENTAGE
Taxi	50	2.3
Private Auto	1391	63.9
Rental Auto	530	24.4
Courtesy Car	95	4.4
Other	110	5.1

FINAL DESTINATION OF 394 MILITARY EMPLOYEES

CITY	PASSENGERS	PERCENTAGE
Atlanta	2	.5
Boston	17	4.3
Chicago	4	1.0
Cleveland	2	.5
Dallas	1	.3
Denver	12	3.0
Detroit	1	.3
Houston	0	.0
Knoxville	0	.0
Los Angeles	47	11.9
Melbourne	0	.0
Memphis	0	.0
Mobile	0	.0
Montgomery	0	.0
New Orleans	4	1.0
New York/Newark	30	7.6
Orlando	15	3.8
Philadelphia	1	.3
Pittsburgh	2	.5
Seattle	5	1.3
St. Louis	18	4.6
Titusville	5	1.3
Washington/Baltimore	110	27.9
Other	118	29.9

FINAL DESTINATION OF 164 NASA EMPLOYEES

CITY	PASSENGERS	PERCENTAGE
Atlanta	0	.0
Boston	0	.0
Chicago	0	.0
Cleveland	2	1.2
Dallas	0	.0
Denver	5	3.0
Detroit	0	.0
Houston	5	3.0
Knoxville	1	.1
Los Angeles	24	14.6
Melbourne	3	1.8
Memphis	2	1.2
Mobile	0	.0
Montgomery	0	.0
New Orleans	4	2.4
New York/Newark	5	3.0
Orlando	6	3.7
Philadelphia	0	.0
Pittsburgh	0	.0
Seattle	0	.0
St. Louis	24	14.6
Titusville	5	3.0
Washington/Baltimore	45	27.4
Other	33	20.1

FINAL DESTINATION OF 266 MILITARY CONTRACTORS/VENDORS

CITY	PASSENGERS	PERCENTAGE
Atlanta	0	.0
Boston	22	8.3
Chicago	3	1.1
Cleveland	0	.0
Dallas	3	1.1
Denver	4	1.5
Detroit	2	.8
Houston	3	1.1
Knoxville	0	.0
Los Angeles	51	19.2
Melbourne	0	.0
Memphis	0	.0
Mobile	0	.0
Montgomery	0	.0
New Orleans	2	.8
New York/Newark	20	7.5
Orlando	13	4.9
Philadelphia	9	3.4
Pittsburgh	1	.4
Seattle	4	1.5
St. Louis	9	3.4
Titusville	6	2.3
Washington/Baltimore	35	13.2
Other	79	29.7

FINAL DESTINATION OF 231 NASA CONTRACTORS/VENDORS

CITY	PASSENGERS	PERCENTAGE
Atlanta	1	.4
Boston	4	1.7
Chicago	1	.4
Cleveland	3	1.3
Dallas	1	.4
Denver	32	13.9
Detroit	1	.4
Houston	9	3.9
Knoxville	0	.0
Los Angeles	28	12.1
Melbourne	2	.9
Memphis	0	.0
Mobile	0	.0
Montgomery	0	.0
New Orleans	7	3.0
New York/Newark	12	5.2
Orlando	18	7.8
Philadelphia	3	1.3
Pittsburgh	2	.9
Seattle	1	.4
St. Louis	12	5.2
Titusville	2	.9
Washington/Baltimore	43	18.6
Other	49	21.2

FINAL DESTINATION OF 592 PEOPLE IN OTHER BUSINESSES/PROFESSIONS

CITY	PASSENGERS	PERCENTAGE
Atlanta	24	4.1
Boston	9	1.5
Chicago	40	6.8
Cleveland	18	3.0
Dallas	7	1.2
Denver	5	.8
Detroit	2	.3
Houston	8	1.4
Knoxville	19	3.2
Los Angeles	23	3.9
Melbourne	3	.5
Memphis	19	3.2
Mobile	2	.3
Montgomery	0	.0
New Orleans	17	2.9
New York/Newark	59	10.0
Orlando	20	3.4
Philadelphia	12	2.0
Pittsburgh	27	4.6
Seattle	5	.8
St. Louis	29	4.9
Titusville	0	.0
Washington/Baltimore	56	9.5
Other	188	31.8