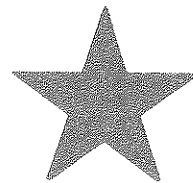


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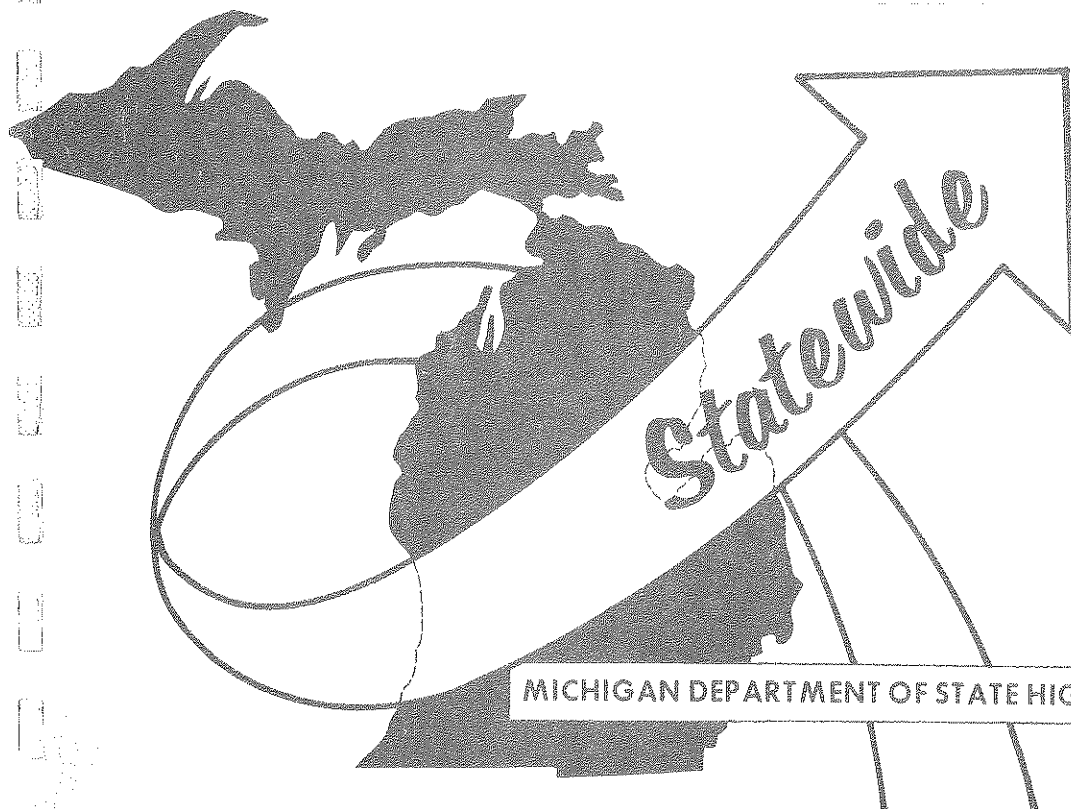
Transportation Analysis & Research

Michigan's Statewide
Transportation Modeling System

CONVERSION OF THE
AGRICULTURAL CENSUS FILE

Statewide Transportation
Planning Procedures

Volume IX-B



MICHIGAN DEPARTMENT OF STATE HIGHWAYS AND TRANSPORTATION

MICHIGAN DEPARTMENT OF TRANSPORTATION

BUREAU OF TRANSPORTATION PLANNING

Michigan's Statewide
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Volume IX-B

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JOHN P. WOODFORD, DIRECTOR

November 8, 1976

Mr. Sam F. Cryderman, Deputy Director
Michigan Department of State
Highways and Transportation
Bureau of Transportation Planning
P.O. Box 30050
Lansing, Michigan 48909

Dear Mr. Cryderman:

This report analyzes the impact transportation has on the agricultural community and farm production. The analysis was conducted using the Statewide Transportation Modeling System, breaking down the data to the zone level. Data used consisted of agricultural information, from the Bureau of Census, the socio - economic file, and the facility file. An actual application of this data as input was the analysis of the accessibility of railroad stations to agricultural centers and the impact of rail abandonment on agriculture in Michigan. While the railroad system is one application of the agricultural census file, air and highway networks offer multi-modal capabilities.

This report was prepared by Tom Franklin of the Statewide Transportation Planning Procedures Section under the supervision of Richard E. Esch.

Sincerely,

R. J. Lilly, Administrator
Highway Planning Division



CONVERSION OF THE AGRICULTURAL CENSUS FILE

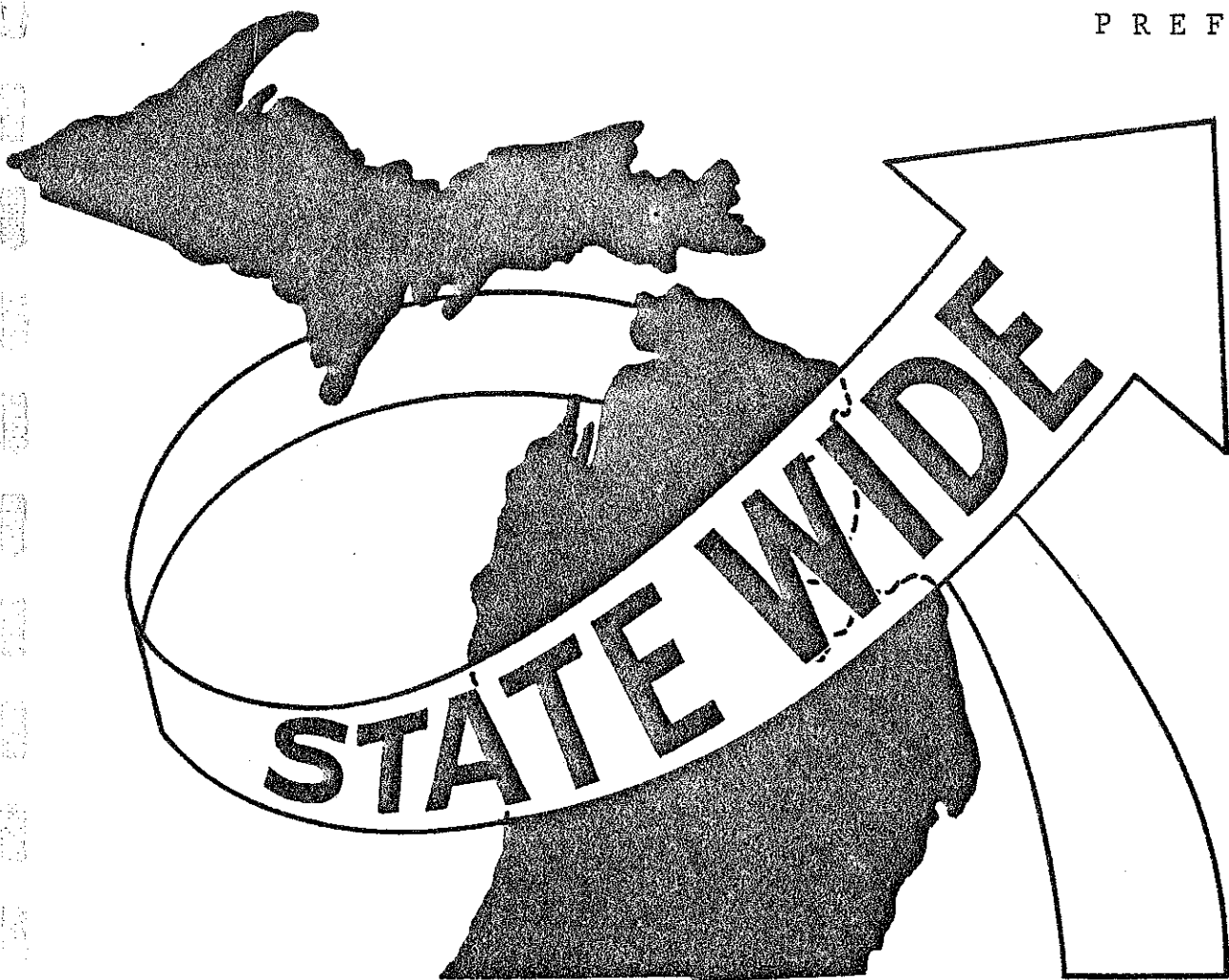
by

W. Thomas Franklin

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Introduction	5
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P R E F A C E



P R E F A C E

This is Volume IX, Part B of the Michigan Statewide Traffic Forecasting Model series of reports entitled CONVERSION OF THE AGRICULTURAL CENSUS FILE. The report deals with the steps taken in converting the Bureau of the Census agricultural data file into the Michigan 547 Statewide Zone System.

The entire series of reports is listed on the following pages:

SYSTEM DEVELOPMENT REPORTS

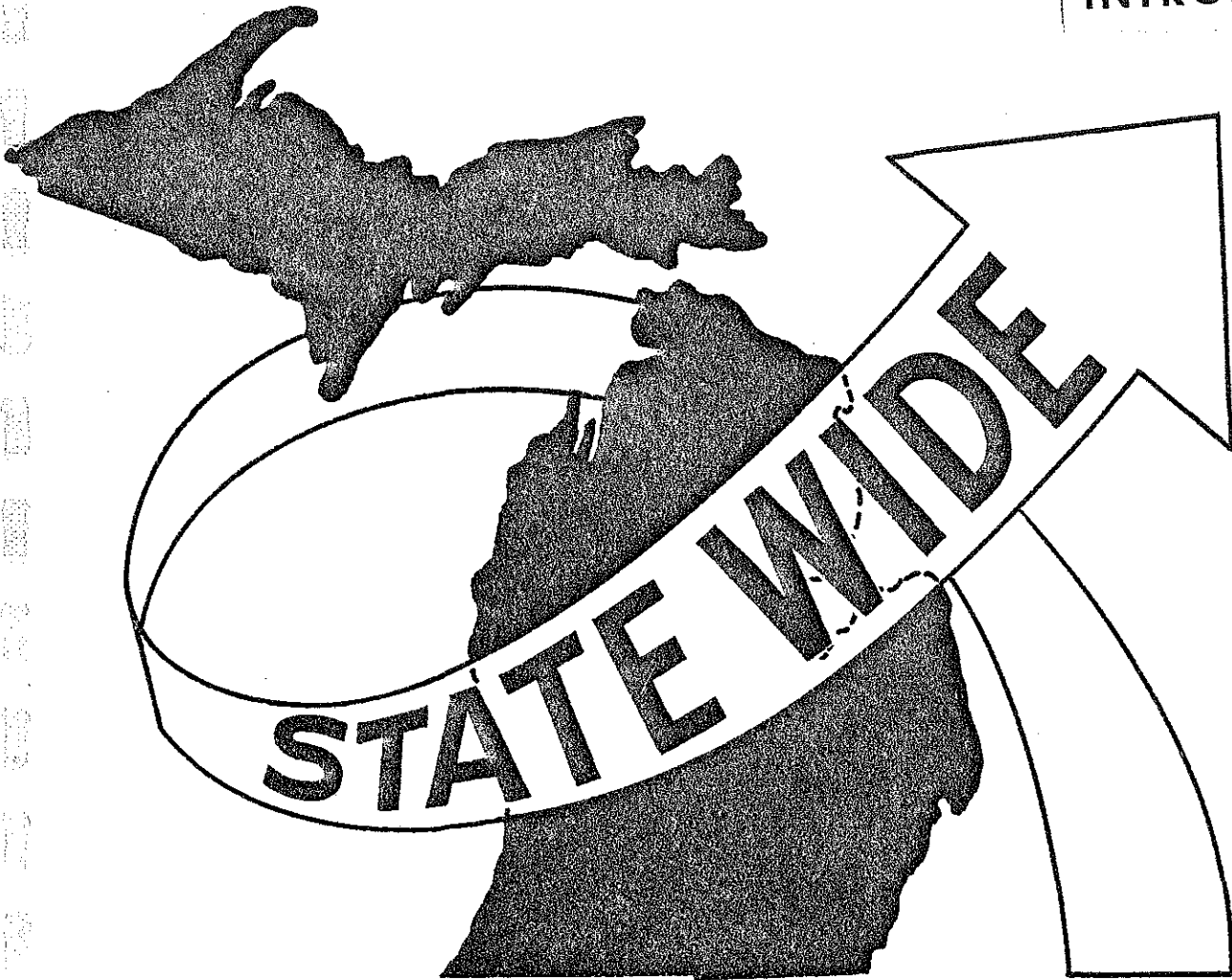
- Volume I - Objectives and Work Program
- Volume I-A - Region 4 Workshop Topic Summaries
- Volume I-B - Single and Multiple Corridor Analysis
- Volume I-C - Turnbacks
- Volume I-D - Proximity Analysis
- Volume I-E - Model Applications: Cost-Benefit Analysis
- Volume I-F - Air and Noise Pollution
- Volume I-G - Psychological Impact Model
- Volume I-H - Level of Service Model
- Volume I-I - Statewide Socio-Economic and Transportation Resources and Their Role in Intercity Transportation Decisions
- Volume I-J - Service Area Model
- Volume I-K - Effective Speed Model
- Volume I-L - System Impact Analysis Graphic Display
- Volume I-M - Modeling Gasoline Consumption
- Volume I-O - Accident Rates 547 Zone System
- Volume I-P - Population Projections 547 Zone System
- Volume II - Development of Network Models
- Volume II-A - Efficient Network Updating with Interactive Graphics
- Volume II-B - Tree Plotting with Interactive Graphics
- Volume III - Segmental Model
- Volume III-A - Semi-Automatic Network Generator Using a "Digitizer"
- Volume III-B - Automatic Network Generator Using Interactive Graphics
- Volume IV - AASHTO Report
- Volume IV-A - Michigan Statewide Modeling System - Synopsis
- Volume V - Part A - Reformation - Trip Data Bank Preparation
- Volume V - Part B - Development of Socio-Economic Data Bank for Trip Generation - Distribution
- Volume V-A - Single Station O & D Procedures Manual
- Volume V-B - External O & D Procedures Manual
- Volume VI - Corridor Location Dynamics
- Volume VI-A - Environmental Sensitivity Computer Mapping
- Volume VII - Design Hour Volume Model
- Volume VII-A - Capacity Adequacy Forecasting Model
- Volume VII-B - Modeling Major Facility Opening Impact on DHV
- Volume VIII - Public and Private Facility File
- Volume VIII-A - Conversion of Industrial Expansion File
- Volume IX - Socio-Economic Data File
- Volume IX-A - Mapping Socio-Economic Data with SYMAP
- Volume IX-B - Conversion of the Agricultural Census File
- Volume IX-C - Tax Rate and Assessed Valuation Information
- Volume IX-D - School District Data File
- Volume X-A - Travel Impact Analysis Procedures
- Volume X-A-1 - Automated Desireline Plotting
- Volume X-B - Social Impact Analysis Procedures
- Volume X-C - Economic Impact Analysis Procedures
- Volume XI - Computer Run Times
- Volume XIII - Michigan Goes Multi-Modal
- Volume XIII-A - Multi-Modal Mobility and Accessibility Analysis
- Volume XIII-B - 1972 Statewide Rail Network - Summary Tabulations
- Volume XIV-A - Commodity Flow Matrix - Ann Arbor Railroad
- Volume XIV-B - Commodity Flow Matrix - Penn Central Railroad

- Volume XIV-C - Commodity Flow Matrix - Michigan Railroads 1% Sample
- Volume XV-A - Railroad Financial Impact Analysis
- Volume XV-B - Railroad Community Impact Analysis
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STATEWIDE SYSTEM APPLICATION REPORTS

- Report #1 - Community College Service - Area Analysis
- Report #2 - Proximity of People to General Purpose Hospitals
- Report #3 - Industrial Park Proximity Analysis
- Report #4 - Proximity of Automobile Injury Accidents to Hospitals
- Report #5 - Proximity of Airports with Scheduled Service to Population
- Report #6 - Regional Park Proximity Analysis
- Report #7 - Rifle Range Proximity Analysis
- Report #8 - Ambulance Service - Area Analysis
- Report #9 - Comprehensive Statewide Planning
- Report #10 - Graphic Display of Fixed-Object Accident Data
- Report #11 - Preliminary Investigation: A Technique for the Projection of Accident Rates
- Report #12 - Impact of 50, 55, or 60 M.P.H. Statewide Speed Limit
- Report #13 - A Method for Functionally Classifying Rural Arterial Highways
- Report #14 - Economic and Travel Impacts of Speed Limit Reduction Using a Statewide Transportation Modeling System
- Report #15 - I-69 Impact on the Accessibility of Health, Fire, and Ambulance Services to Residential Areas
- Report #16 - Crisis and Opportunity: Application of an Operational Statewide Transportation Modeling System
- Report #17 - US-23 Corridor Location Study - Preliminary Travel Impact Analysis
- Report #19 - Graphic Display of Accident Data
- Report #20 - Demographic Information for the Northwest Region
- Report #21 - AMTRAK Market Area Analysis - System Application

INTRODUCTION

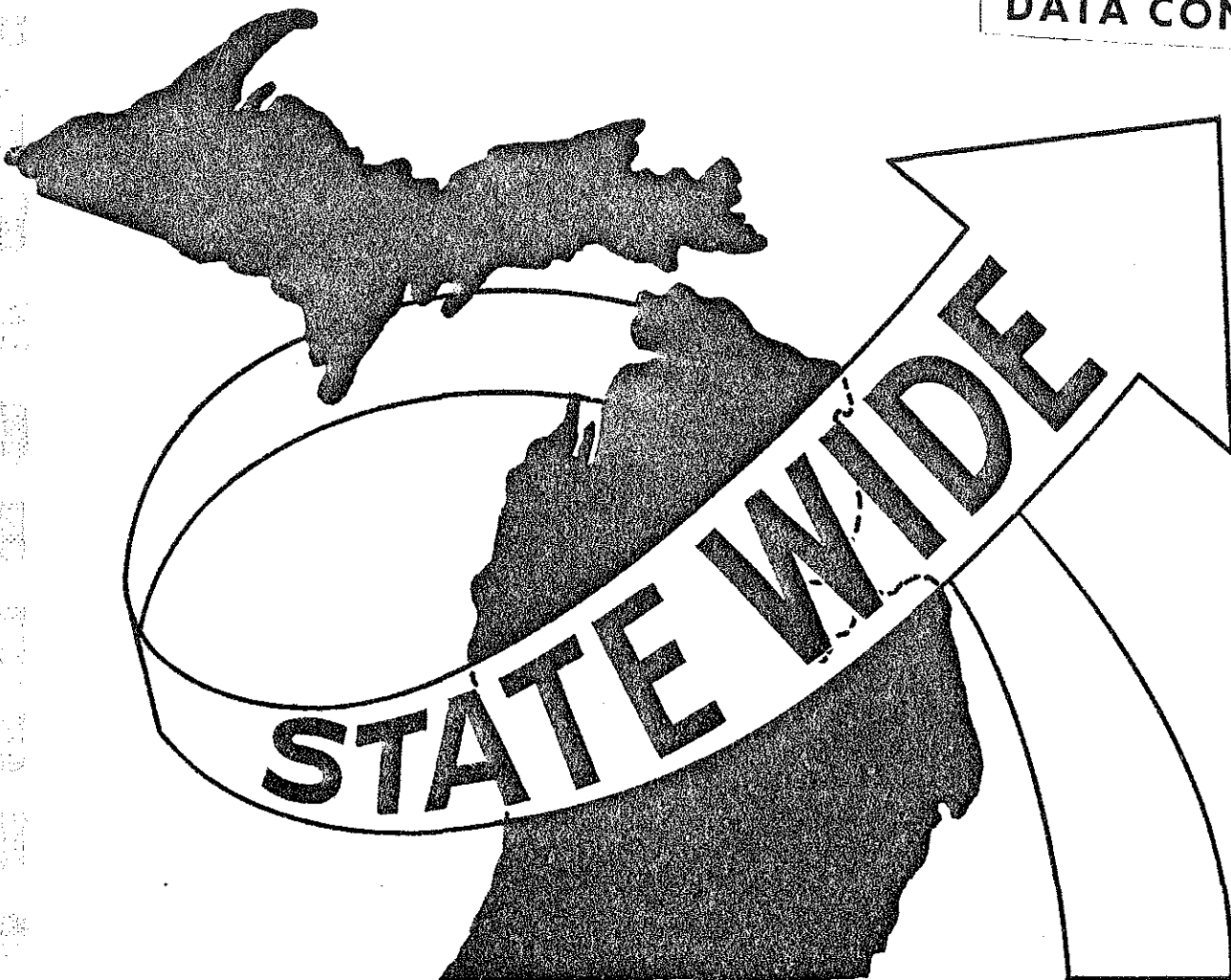


INTRODUCTION

It has come to the attention of the personnel within the Statewide Transportation Planning Procedures Section of the Michigan Department of State Highways and Transportation that it is relatively difficult to do complete research in the area of agriculture and its relationship to transportation in the State of Michigan. One of the reasons for this has been the inability to break down existing county level data on agriculture to a finer level of detail. This interest has been stimulated recently because of the controversy surrounding alternate highway plans and their impact on the farming community. Examples of this are the issues raised in the US-27 corridor north of Lansing and the present concern in the I-69 corridor northeast of Charlotte in Eaton County. Development of a statewide railroad network within the section has also spurred an interest in the possibilities of rail service to key agricultural centers.

It is with these ideas in mind that the agricultural census conversion was initiated. Using this information in connection with existing computer programs and data files will give an added dimension to the planning capabilities in use at the present time. Future use of the agricultural census file will hopefully shed more light on an area whose importance has finally been realized in the transportation planning process.

DATA CONVERSION



DATA CONVERSION

The agriculture division, Bureau of the Census, collects data and prepares a report containing agricultural information for each state in the nation. This data is tallied and published every five years at the county level of detail. This information was acquired by the Michigan State University Laboratory of Computer Science for the year 1969, and requested in turn by personnel within the Statewide Transportation Planning Procedures Section for use with the latter's 547 analysis zone traffic modeling system.

Because of the structure and size of the original file, it was decided to select only key pieces of information from the tape and reformat them for input to existing programs used by personnel within the section. Figure 1 illustrates a portion of the agricultural data file as it originally appeared.

Since all the information was summarized and stored at the county level, which is often too coarse for most regional and even some statewide planning purposes, a method for breaking down the data to zonal level was necessary. Figure 2 shows the 508 instate zones of the 547 analysis zones used in the statewide transportation modeling system and the following paragraph explains the method used in splitting the county level information to that zone system.

The statewide socio-economic data file contains information from the 1970 Census Fourth Count Population and Housing Tallies by Minor Civil Division for Michigan. Residing within this file is data pertaining to employed persons 14 years of age and older.

Attachment 1. Detailed record layout

1969 Census of Agriculture County Data

All Farms

Table 1. Farms, Land in Farms, and Land Use: 1969 and 1964

	1969		1964			1969		1964	
	Field	Entry	Field	Entry		Field	Entry	Field	Entry
Field 1 - Block 1									
1,2 State 3 Block 4,5,6 County									
7,8 Table Number 9-12 No. Fields/Table	Field	Entry	Field	Entry		Field	Entry	Field	Entry
All farms	2	Blank	3	Blank	Number of farms by acres harvested:	4	Blank	5	Blank
Land in farms	6	Blank	7	Blank	50 to 99 acres	8	Blank	9	Blank
Average size of farm (TEXTS)	10	Blank	11	Blank	100 to 199 acres	12	Blank	13	Blank
Approximate land area	14	Blank	15	Blank	200 to 499 acres	16	Blank	17	Blank
Proportion in farms (TEXTS) percent	18	Blank	19	Blank	500 to 999 acres	20	Blank	21	Blank
Value of land and buildings	22	Blank	23	Blank	1,000 acres and over	24	Blank	25	Blank
Average per farm	26	Blank	27	Blank	Cropland used only for pasture	28	Blank	29	Blank
Average per acre	30	Blank	31	Blank	or grazing	32	Blank	33	Blank
Land in Farms According to Use	34	Blank	35	Blank	Acres	36	Blank	37	Blank
Total cropland	38	Blank	39	Blank	All other cropland (see text)	40	Blank	41	Blank
Harvested cropland	42	Blank	43	Blank	Acres	44	Blank	45	Blank
Number of farms by acres harvested:	46	Blank	47	Blank	Woodland including woodland	48	Blank	49	Blank
1 to 9 acres	50	Blank	51	Blank	pasture	50	Blank	51	Blank
10 to 19 acres	54	Blank	55	Blank	Acres	52	Blank	53	Blank
20 to 29 acres	58	Blank	59	Blank	All other land (see text)	54	Blank	55	Blank
30 to 49 acres	62	Blank	63	Blank	Acres	56	Blank	57	Blank
	66	Blank	67	Blank	Irrigated land	58	Blank	59	Blank
	70	Blank	71	Blank	Acres	60	Blank	61	Blank
	74	Blank	75	Blank		64	Blank	65	Blank
	78	Blank	79	Blank		68	Blank	69	Blank
	82	Blank	83	Blank		72	Blank	73	Blank
	86	Blank	87	Blank		76	Blank	77	Blank
	90	Blank	91	Blank		80	Blank	81	Blank
						84	Blank	85	Blank
						88	Blank	89	Blank
						92	Blank	93	Blank

NA Not Available

All Farms

Table 2. Farms, Land in Farms, and Land Use, by Size of Farm: 1969 and 1964

	Number	1969					1964						
		Farms with harvested cropland			Farms with irrigated land		Number	Acres in farms	Farms with harvested cropland				
		Number	Acres in farms	Total acres in farms	Acres of harvested cropland	Number			Total acres in farms	Acres of irrigated land	Number	Acres of harvested cropland	
Field 94 - Block 1													
Same as Field 1 above													
All farms	95	96	97	98	99	100	101	102	103	104	105	106	106
Farms with 100-119 Blank	107	108	109	110	111	112	113	114	115	116	117	118	118
1 to 9 acres	119	120	121	122	123	124	125	126	127	128	129	130	130
10 to 49 acres	131	132	133	134	135	136	137	138	139	140	141	142	142
50 to 99 acres	143	144	145	146	147	148	149	150	151	152	153	154	154
100 to 199 acres	155	156	157	158	159	160	161	162	163	164	165	166	166
200 to 299 acres	167	168	169	170	171	172	173	174	175	176	177	178	178
300 to 499 acres	179	180	181	182	183	184	185	186	187	188	189	190	190
500 to 999 acres	181	182	183	184	185	186	187	188	189	190	191	192	192
1,000 to 1,999 acres	203	204	205	206	207	208	209	210	211	212	213	214	214
2,000 acres and over	215	216	217	218	219	220	221	222	223	224	225	226	226
	227	228	229	230	231	232	233	234	235	236	237	238	238
	239	240	241	242	243	244	245	246	247	248	249	250	250
	251	252	253	254	255	256	257	258	259	260	261	262	262
	263	264	265	266	267	268	269	270	271	272	273	274	274

All Farms

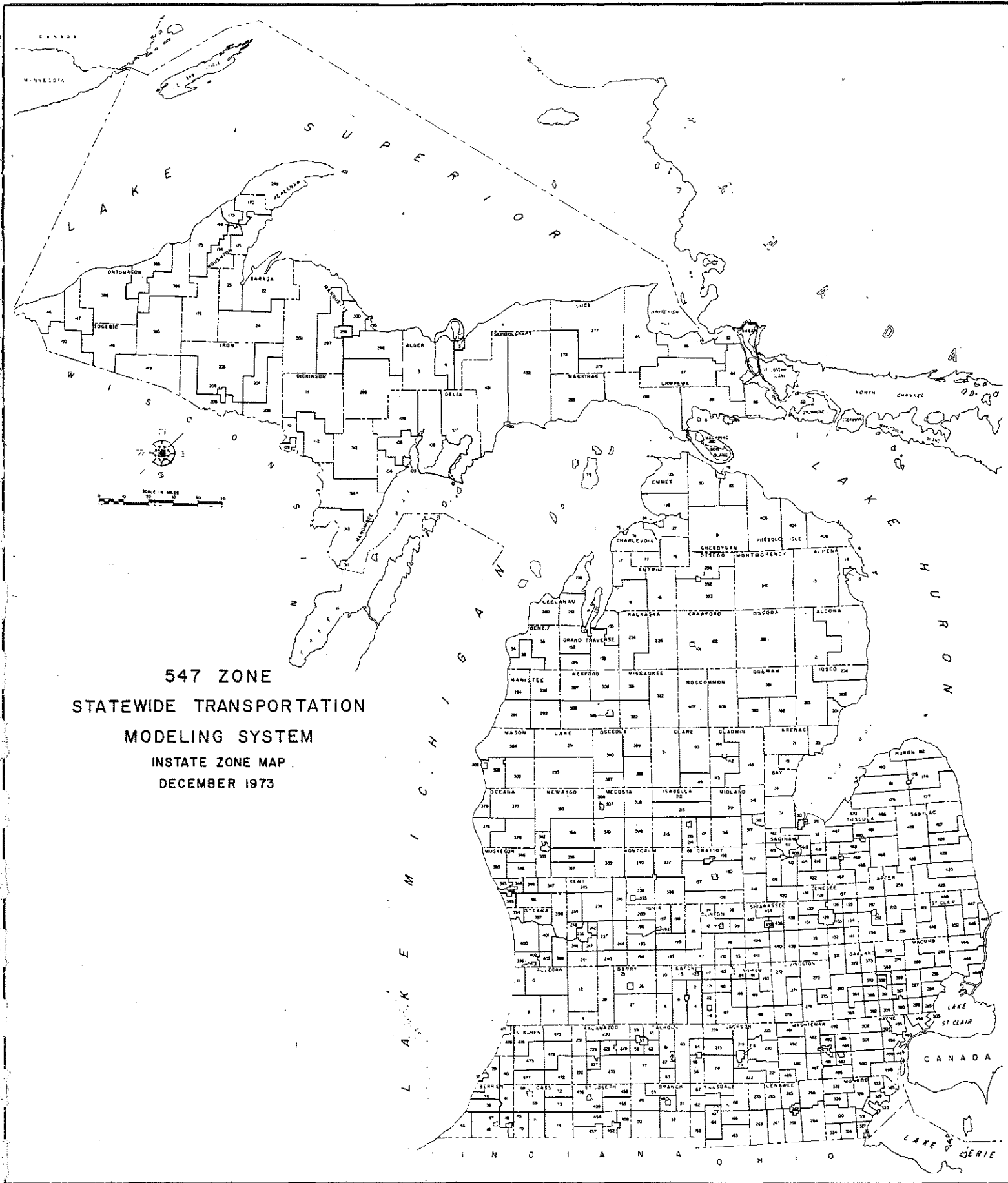
Table 3. Farm Operators--Tenure and Characteristics: 1969 and 1964

	1969		1964			1969		1964	
	Field	Entry	Field	Entry		Field	Entry	Field	Entry
Field 275 - Block 1									
Same as Field 1 above									
Farms and land in farms operated by:					Farm operators by age groups:				
All farm operators	276	277	278-279	Blank	Under 25 years	280	Blank	281	282-283
Harvested cropland	284	285	286-287	Blank	25 to 34 years	288	Blank	289	290-291
8-11 Blank	292	293	294-295	Blank	35 to 44 years	296	Blank	297	298-299
Full owners	300 (Block 2)	Blank	3-3	Blank	45 to 54 years	4	Blank	5	6-7
Harvested cropland	8	9	10-11	Blank	55 to 64 years	12	Blank	13	14-15
48-51 Blank	16	17	18-19	Blank	65 years and over	20	Blank	21	22-23
Part owners	24	25	26-27	Blank	Average age (TEXTS)	28	Blank	29	30-31
Harvested cropland	32	33	34-35	Blank	Farm operators by place of residence:	36	Blank	37	38-39
48-51 Blank	40	41	42-43	Blank	On farm operated	44	Blank	45	46-47
Part owners	48	49	50-51	Blank	Not on farm operated	52	Blank	53	54-55
Harvested cropland	56	57	58-59	Blank	Farm operators reporting days of work	60	Blank	61	62-63
48-51 Blank	64	65	66-67	Blank	off farm	68	Blank	69	70-71
Part owners	72	73	74-75	Blank	1 to 49 days	76	Blank	77	78-79
Harvested cropland	80	81	82-83	Blank	50 to 99 days	84	Blank	85	86-87
48-51 Blank	88	89	90-91	Blank	100 to 199 days	92	Blank	93	94-95
Part owners	96	97	98-99	Blank	200 days and over	100	Blank	101	102-103
Harvested cropland	104	105	106-107	Blank	1 to 49 days	108	Blank	109	110-111
48-51 Blank	112	113	114-115	Blank	50 to 99 days	116	Blank	117	118-119
Part owners	120	121	122-123	Blank	100 to 199 days	124	Blank	125	126-127
Harvested cropland	128	129	130-131	Blank	200 days and over	132	Blank	133	134-135
Percent of tenants (TEXTS)									

All Farms

Table 4. Farm Income and Sales: 1969 and 1964

	1969		1964			1969		1964	
	Field	Entry	Field	Entry		Field	Entry	Field	Entry
Field 136 - Block 2									
Same as Field 1, Block 1									
Number of farms by economic classes:					Market value of all agricultural				
Class 1 - Sales of \$40,000 and over	137	Blank	138	Blank	products sold (see text)	139	Blank	140	Blank
Class 2 - \$20,000 to \$39,999	141	Blank	142	Blank	dollars	143	Blank	144	Blank
Class 3 - \$10,000 to \$19,999	145	Blank	146	Blank	Average per farm	147	Blank	148	Blank
Class 4 - \$5,000 to \$9,999	149	Blank	150	Blank	dollars	151	Blank	152	Blank
Class 5 - \$2,500 to \$4,999	153	Blank	154	Blank	Crops including nursery	155	Blank	156	Blank
Class 6 (see text)	157	Blank	158	Blank	products and hay	159	Blank	160	Blank
Part time (see text)	161	Blank	162	Blank	farms	161	Blank	162	Blank
Part retirement (see text)	165	Blank	166	Blank	dollars	167	Blank	168	Blank
Abnormal (see text)	169	Blank	170	Blank	Forest products	171	Blank	172	Blank
	173	Blank	174	Blank	farms	173	Blank	174	Blank
	177	Blank	178	Blank	dollars	179	Blank	180	Blank
	181	Blank	182	Blank	Livestock, poultry, and	183	Blank	184	Blank
	185	Blank	186	Blank	their products	187	Blank	188	Blank
	189	Blank	190	Blank	farms	189	Blank	190	Blank
	193	Blank	194	Blank	dollars	193	Blank	194	Blank
	197	Blank	198	Blank		197	Blank	198	Blank
	201	Blank	202	Blank		201	Blank	202	Blank



The two categories chosen to base the county-to-zone-level split were:

1) farmers and farm managers, and 2) farm laborers and foremen, because these two categories most typically represented agricultural production.

Figures 3a - 3h illustrate the actual counts of these two pieces of information for the 508 instate zones in the analysis system.

In order to determine whether one or both of these variables should be used to split the county level information to zonal level, the data in the above two categories was reviewed in the large urban areas of Michigan as we were most familiar with agricultural production in these areas. Eight urban areas were selected and Figure 4 is a list of the data for both variables in these zones. Reviewing this data, it was obvious that if we were to use farm laborers and foremen as the key variable in splitting the data it would be unreasonable as much of the agricultural production would be placed inside the city, such as Flint (Zone 128) or Kalamazoo (Zone 226). Another factor in determining which of these variables to use was the concept that in the majority of cases, farmers tended to actually live at the farm site, whereas farm laborers and foremen were more mobile.

Because of the random manner in which the data was stored on the master tape, existing utility programs were of little use in selecting specified pieces of information. Figure 5 is an example of the way in which the original data appeared when we received it. It is obvious that this information was keypunched from the original interview form, across the page, which leads to unrelated pieces of information occupying adjoining data fields. Thus, data pertaining to number of farms by acres harvested were placed in volume fields 8 & 9, 12 & 13, 16 & 17, 20 & 21, and 24 & 25 with data related to

ZONE	FARMERS & MANAGERS	LABORERS & FOREMEN
100	0000001.0	0000042.0
200	0000002.0	0000022.0
300	0000003.0	0000000.0
400	0000004.0	0000013.0
500	0000005.0	0000103.0
600	0000006.0	0000000.0
700	0000007.0	0000040.0
800	0000008.0	0000150.0
900	0000009.0	0000099.0
1000	0000010.0	0000318.0
1100	0000011.0	0000038.0
1200	0000012.0	0000325.0
1300	0000013.0	0000000.0
1400	0000014.0	0000005.0
1500	0000015.0	0000128.0
1600	0000016.0	0000043.0
1700	0000017.0	0000101.0
1800	0000018.0	0000044.0
1900	0000019.0	0000056.0
2000	0000020.0	0000027.0
2100	0000021.0	0000061.0
2200	0000022.0	0000000.0
2300	0000023.0	0000039.0
2400	0000024.0	0000000.0
2500	0000025.0	0000004.0
2600	0000026.0	0000219.0
2700	0000027.0	0000151.0
2800	0000028.0	0000089.0
2900	0000029.0	0000006.0
3000	0000030.0	0000000.0
3100	0000031.0	0000130.0
3200	0000032.0	0000186.0
3300	0000033.0	0000171.0
3400	0000034.0	0000000.0
3500	0000035.0	0000058.0
3600	0000036.0	0000010.0
3700	0000037.0	0000009.0
3800	0000038.0	0000133.0
3900	0000039.0	0000114.0
4000	0000040.0	0000174.0
4100	0000041.0	0000105.0
4200	0000042.0	0000181.0
4300	0000043.0	0000076.0
4400	0000044.0	0000144.0
4500	0000045.0	0000005.0
4600	0000046.0	0000033.0
4700	0000047.0	0000005.0
4800	0000048.0	0000000.0
4900	0000049.0	0000100.0
5000	0000050.0	0000075.0
5100	0000051.0	0000121.0
5200	0000052.0	0000100.0
5300	0000053.0	0000067.0
5400	0000054.0	0000012.0
5500	0000055.0	0000006.0
5600	0000056.0	0000101.0
5700	0000057.0	0000084.0
5800	0000058.0	0000031.0
5900	0000059.0	0000000.0
6000	0000060.0	0000216.0
6100	0000061.0	0000051.0
6200	0000062.0	0000028.0

6300	0000063.0	0000011.0	0000020.0
6400	0000064.0	0000004.0	0000000.0
6500	0000065.0	0000016.0	0000011.0
6600	0000066.0	0000003.0	0000022.0
6700	0000067.0	0000007.0	0000000.0
6800	0000068.0	0000000.0	0000024.0
6900	0000069.0	0000079.0	0000029.0
7000	0000070.0	0000031.0	0000015.0
7100	0000071.0	0000019.0	0000032.0
7200	0000072.0	0000059.0	0000047.0
7300	0000073.0	0000061.0	0000017.0
7400	0000074.0	0000101.0	0000030.0
7500	0000075.0	0000004.0	0000008.0
7600	0000076.0	0000015.0	0000003.0
7700	0000077.0	0000030.0	0000005.0
7800	0000078.0	0000074.0	0000030.0
7900	0000079.0	0000000.0	0000007.0
8000	0000080.0	0000038.0	0000014.0
8100	0000081.0	0000009.0	0000005.0
8200	0000082.0	0000023.0	0000010.0
8300	0000083.0	0000016.0	0000014.0
8400	0000084.0	0000038.0	0000017.0
8500	0000085.0	0000000.0	0000000.0
8600	0000086.0	0000000.0	0000000.0
8700	0000087.0	0000006.0	0000011.0
8800	0000088.0	0000010.0	0000007.0
8900	0000089.0	0000066.0	0000017.0
9000	0000090.0	0000063.0	0000006.0
9100	0000091.0	0000009.0	0000008.0
9200	0000092.0	0000000.0	0000009.0
9300	0000093.0	0000005.0	0000000.0
9400	0000094.0	0000171.0	0000046.0
9500	0000095.0	0000282.0	0000071.0
9600	0000096.0	0000134.0	0000022.0
9700	0000097.0	0000111.0	0000024.0
9800	0000098.0	0000047.0	0000005.0
9900	0000099.0	0000061.0	0000039.0
10000	0000100.0	0000045.0	0000027.0
10100	0000101.0	0000000.0	0000000.0
10200	0000102.0	0000005.0	0000000.0
10300	0000103.0	0000005.0	0000005.0
10400	0000104.0	0000043.0	0000000.0
10500	0000105.0	0000011.0	0000005.0
10600	0000106.0	0000033.0	0000013.0
10700	0000107.0	0000006.0	0000000.0
10800	0000108.0	0000059.0	0000057.0
10900	0000109.0	0000006.0	0000005.0
11000	0000110.0	0000000.0	0000017.0
11100	0000111.0	0000018.0	0000012.0
11200	0000112.0	0000044.0	0000014.0
11300	0000113.0	0000000.0	0000000.0
11400	0000114.0	0000130.0	0000048.0
11500	0000115.0	0000119.0	0000009.0
11600	0000116.0	0000054.0	0000012.0
11700	0000117.0	0000010.0	0000000.0
11800	0000118.0	0000070.0	0000027.0
11900	0000119.0	0000101.0	0000025.0
12000	0000120.0	0000091.0	0000018.0
12100	0000121.0	0000011.0	0000009.0
12200	0000122.0	0000000.0	0000004.0
12300	0000123.0	0000000.0	0000000.0
12400	0000124.0	0000004.0	0000000.0
12500	0000125.0	0000034.0	0000004.0
12600	0000126.0	0000030.0	0000014.0
12700	0000127.0	0000026.0	0000004.0

12800	0000128.0	00000005.0	00000023.0
12900	0000129.0	00000013.0	00000000.0
13000	0000130.0	00000018.0	00000019.0
13100	0000131.0	00000024.0	00000018.0
13200	0000132.0	00000011.0	00000005.0
13300	0000133.0	00000022.0	00000000.0
13400	0000134.0	00000024.0	00000000.0
13500	0000135.0	00000007.0	00000005.0
13600	0000136.0	00000015.0	00000005.0
13700	0000137.0	00000049.0	00000037.0
13800	0000138.0	00000006.0	00000017.0
13900	0000139.0	00000053.0	00000010.0
14000	0000140.0	00000036.0	00000020.0
14100	0000141.0	00000028.0	00000032.0
14200	0000142.0	00000000.0	00000000.0
14300	0000143.0	00000050.0	00000000.0
14400	0000144.0	00000066.0	00000034.0
14500	0000145.0	00000040.0	00000011.0
14600	0000146.0	00000042.0	00000019.0
14700	0000147.0	00000000.0	00000000.0
14800	0000148.0	00000000.0	00000000.0
14900	0000149.0	00000000.0	00000000.0
15000	0000150.0	00000010.0	00000011.0
15100	0000151.0	00000077.0	00000030.0
15200	0000152.0	00000018.0	00000049.0
15300	0000153.0	00000020.0	00000028.0
15400	0000154.0	00000022.0	00000009.0
15500	0000155.0	00000029.0	00000020.0
15600	0000156.0	00000006.0	00000011.0
15700	0000157.0	0000321.0	00000056.0
15800	0000158.0	00000078.0	00000053.0
15900	0000159.0	0000116.0	00000012.0
16000	0000160.0	00000012.0	00000015.0
16100	0000161.0	00000000.0	00000004.0
16200	0000162.0	00000087.0	00000035.0
16300	0000163.0	0000168.0	00000012.0
16400	0000164.0	00000090.0	00000005.0
16500	0000165.0	0000127.0	00000010.0
16600	0000166.0	00000050.0	00000023.0
16700	0000167.0	0000129.0	00000028.0
16800	0000168.0	0000120.0	00000035.0
16900	0000169.0	00000015.0	00000020.0
17000	0000170.0	00000018.0	00000025.0
17100	0000171.0	00000030.0	00000000.0
17200	0000172.0	00000011.0	00000006.0
17300	0000173.0	00000018.0	00000015.0
17400	0000174.0	00000022.0	00000022.0
17500	0000175.0	00000000.0	00000000.0
17600	0000176.0	00000000.0	00000000.0
17700	0000177.0	0000351.0	00000049.0
17800	0000178.0	0000245.0	00000079.0
17900	0000179.0	0000204.0	00000076.0
18000	0000180.0	00000092.0	00000056.0
18100	0000181.0	0000198.0	00000052.0
18200	0000182.0	0000131.0	00000051.0
18300	0000183.0	0000132.0	0000158.0
18400	0000184.0	00000031.0	00000027.0
18500	0000185.0	00000035.0	00000012.0
18600	0000186.0	00000077.0	00000061.0
18700	0000187.0	0000132.0	00000077.0
18800	0000188.0	00000068.0	00000071.0
18900	0000189.0	0000115.0	00000063.0
19000	0000190.0	0000107.0	00000064.0
19100	0000191.0	00000070.0	00000039.0
19200	0000192.0	00000005.0	00000005.0

19300	0000193,0	0000100,0	0000047,0
19400	0000194,0	0000161,0	0000016,0
19500	0000195,0	0000086,0	0000007,0
19600	0000196,0	0000053,0	0000028,0
19700	0000197,0	0000028,0	0000066,0
19800	0000198,0	0000050,0	0000020,0
19900	0000199,0	0000159,0	0000084,0
20000	0000200,0	0000096,0	0000020,0
20100	0000201,0	0000006,0	0000015,0
20200	0000202,0	0000010,0	0000005,0
20300	0000203,0	0000073,0	0000036,0
20400	0000204,0	0000000,0	0000000,0
20500	0000205,0	0000000,0	0000000,0
20600	0000206,0	0000006,0	0000010,0
20700	0000207,0	0000005,0	0000000,0
20800	0000208,0	0000016,0	0000011,0
20900	0000209,0	0000015,0	0000000,0
21000	0000210,0	0000017,0	0000058,0
21100	0000211,0	0000038,0	0000007,0
21200	0000212,0	0000074,0	0000062,0
21300	0000213,0	0000198,0	0000096,0
21400	0000214,0	0000063,0	0000049,0
21500	0000215,0	0000094,0	0000051,0
21600	0000216,0	0000005,0	0000008,0
21700	0000217,0	0000000,0	0000009,0
21800	0000218,0	0000151,0	0000071,0
21900	0000219,0	0000049,0	0000021,0
22000	0000220,0	0000066,0	0000042,0
22100	0000221,0	0000030,0	0000029,0
22200	0000222,0	0000055,0	0000040,0
22300	0000223,0	0000052,0	0000013,0
22400	0000224,0	0000081,0	0000031,0
22500	0000225,0	0000099,0	0000048,0
22600	0000226,0	0000023,0	0000121,0
22700	0000227,0	0000036,0	0000123,0
22800	0000228,0	0000054,0	0000092,0
22900	0000229,0	0000038,0	0000011,0
23000	0000230,0	0000053,0	0000044,0
23100	0000231,0	0000076,0	0000052,0
23200	0000232,0	0000090,0	0000037,0
23300	0000233,0	0000155,0	0000100,0
23400	0000234,0	0000010,0	0000000,0
23500	0000235,0	0000004,0	0000025,0
23600	0000236,0	0000042,0	0000095,0
23700	0000237,0	0000060,0	0000042,0
23800	0000238,0	0000088,0	0000064,0
23900	0000239,0	0000128,0	0000156,0
24000	0000240,0	0000067,0	0000037,0
24100	0000241,0	0000125,0	0000161,0
24200	0000242,0	0000000,0	0000011,0
24300	0000243,0	0000045,0	0000025,0
24400	0000244,0	0000089,0	0000052,0
24500	0000245,0	0000101,0	0000047,0
24600	0000246,0	0000032,0	0000015,0
24700	0000247,0	0000005,0	0000011,0
24800	0000248,0	0000019,0	0000054,0
24900	0000249,0	0000000,0	0000000,0
25000	0000250,0	0000033,0	0000010,0
25100	0000251,0	0000011,0	0000012,0
25200	0000252,0	0000000,0	0000008,0
25300	0000253,0	0000119,0	0000155,0
25400	0000254,0	0000178,0	0000090,0
25500	0000255,0	0000088,0	0000049,0
25600	0000256,0	0000037,0	0000038,0
25700	0000257,0	0000068,0	0000072,0

25800	0000258,0	0000155,0	0000158,0
25900	0000259,0	0000114,0	0000046,0
26000	0000260,0	0000005,0	0000047,0
26100	0000261,0	0000057,0	0000023,0
26200	0000262,0	0000005,0	0000005,0
26300	0000263,0	0000064,0	0000032,0
26400	0000264,0	0000217,0	0000057,0
26500	0000265,0	0000089,0	0000007,0
26600	0000266,0	0000102,0	0000035,0
26700	0000267,0	0000063,0	0000012,0
26800	0000268,0	0000056,0	0000052,0
26900	0000269,0	0000066,0	0000046,0
27000	0000270,0	0000069,0	0000012,0
27100	0000271,0	0000089,0	0000066,0
27200	0000272,0	0000195,0	0000062,0
27300	0000273,0	0000131,0	0000074,0
27400	0000274,0	0000032,0	0000018,0
27500	0000275,0	0000036,0	0000019,0
27600	0000276,0	0000051,0	0000048,0
27700	0000277,0	0000000,0	0000000,0
27800	0000278,0	0000023,0	0000004,0
27900	0000279,0	0000000,0	0000000,0
28000	0000280,0	0000000,0	0000000,0
28100	0000281,0	0000013,0	0000004,0
28200	0000282,0	0000020,0	0000006,0
28300	0000283,0	0000024,0	0000017,0
28400	0000284,0	0000044,0	0000093,0
28500	0000285,0	0000024,0	0000051,0
28600	0000286,0	0000027,0	0000020,0
28700	0000287,0	0000082,0	0000049,0
28800	0000288,0	0000148,0	0000081,0
28900	0000289,0	0000130,0	0000102,0
29000	0000290,0	0000175,0	0000061,0
29100	0000291,0	0000027,0	0000044,0
29200	0000292,0	0000000,0	0000005,0
29300	0000293,0	0000013,0	0000023,0
29400	0000294,0	0000011,0	0000042,0
29500	0000295,0	0000000,0	0000015,0
29600	0000296,0	0000005,0	0000009,0
29700	0000297,0	0000000,0	0000000,0
29800	0000298,0	0000000,0	0000016,0
29900	0000299,0	0000000,0	0000017,0
30000	0000300,0	0000000,0	0000000,0
30100	0000301,0	0000007,0	0000005,0
30200	0000302,0	0000000,0	0000000,0
30300	0000303,0	0000088,0	0000016,0
30400	0000304,0	0000091,0	0000031,0
30500	0000305,0	0000050,0	0000032,0
30600	0000306,0	0000000,0	0000017,0
30700	0000307,0	0000063,0	0000034,0
30800	0000308,0	0000084,0	0000039,0
30900	0000309,0	0000095,0	0000058,0
31000	0000310,0	0000032,0	0000021,0
31100	0000311,0	0000014,0	0000006,0
31200	0000312,0	0000096,0	0000047,0
31300	0000313,0	0000144,0	0000072,0
31400	0000314,0	0000156,0	0000069,0
31500	0000315,0	0000011,0	0000006,0
31600	0000316,0	0000015,0	0000007,0
31700	0000317,0	0000026,0	0000014,0
31800	0000318,0	0000027,0	0000012,0
31900	0000319,0	0000005,0	0000005,0
32000	0000320,0	0000097,0	0000024,0
32100	0000321,0	0000011,0	0000011,0
32200	0000322,0	0000110,0	0000041,0

32300	0000323,0	0000000,0	0000015,0
32400	0000324,0	0000033,0	0000039,0
32500	0000325,0	0000044,0	0000005,0
32600	0000326,0	0000032,0	0000025,0
32700	0000327,0	0000038,0	0000024,0
32800	0000328,0	0000144,0	0000045,0
32900	0000329,0	0000067,0	0000050,0
33000	0000330,0	0000104,0	0000036,0
33100	0000331,0	0000040,0	0000023,0
33200	0000332,0	0000068,0	0000023,0
33300	0000333,0	0000040,0	0000032,0
33400	0000334,0	0000066,0	0000047,0
33500	0000335,0	0000005,0	0000015,0
33600	0000336,0	0000207,0	0000083,0
33700	0000337,0	0000080,0	0000083,0
33800	0000338,0	0000058,0	0000032,0
33900	0000339,0	0000068,0	0000028,0
34000	0000340,0	0000108,0	0000054,0
34100	0000341,0	0000065,0	0000013,0
34200	0000342,0	0000022,0	0000065,0
34300	0000343,0	0000022,0	0000007,0
34400	0000344,0	0000000,0	0000006,0
34500	0000345,0	0000019,0	0000019,0
34600	0000346,0	0000014,0	0000007,0
34700	0000347,0	0000068,0	0000027,0
34800	0000348,0	0000006,0	0000013,0
34900	0000349,0	0000000,0	0000009,0
35000	0000350,0	0000022,0	0000022,0
35100	0000351,0	0000034,0	0000049,0
35200	0000352,0	0000000,0	0000008,0
35300	0000353,0	0000091,0	0000038,0
35400	0000354,0	0000040,0	0000008,0
35500	0000355,0	0000127,0	0000084,0
35600	0000356,0	0000023,0	0000008,0
35700	0000357,0	0000167,0	0000080,0
35800	0000358,0	0000000,0	0000018,0
35900	0000359,0	0000005,0	0000006,0
36000	0000360,0	0000021,0	0000053,0
36100	0000361,0	0000005,0	0000005,0
36200	0000362,0	0000037,0	0000009,0
36300	0000363,0	0000048,0	0000038,0
36400	0000364,0	0000015,0	0000010,0
36500	0000365,0	0000060,0	0000041,0
36600	0000366,0	0000005,0	0000006,0
36700	0000367,0	0000012,0	0000005,0
36800	0000368,0	0000031,0	0000047,0
36900	0000369,0	0000000,0	0000004,0
37000	0000370,0	0000010,0	0000015,0
37100	0000371,0	0000049,0	0000040,0
37200	0000372,0	0000033,0	0000027,0
37300	0000373,0	0000036,0	0000012,0
37400	0000374,0	0000021,0	0000032,0
37500	0000375,0	0000042,0	0000055,0
37600	0000376,0	0000084,0	0000069,0
37700	0000377,0	0000176,0	0000108,0
37800	0000378,0	0000051,0	0000034,0
37900	0000379,0	0000004,0	0000000,0
38000	0000380,0	0000074,0	0000058,0
38100	0000381,0	0000026,0	0000004,0
38200	0000382,0	0000104,0	0000058,0
38300	0000383,0	0000000,0	0000013,0
38400	0000384,0	0000011,0	0000000,0
38500	0000385,0	0000048,0	0000040,0
38600	0000386,0	0000004,0	0000000,0
38700	0000387,0	0000029,0	0000010,0

38800	0000388.0	0000077.0	0000025.0
38900	0000389.0	0000107.0	0000025.0
39000	0000390.0	0000056.0	0000026.0
39100	0000391.0	0000055.0	0000000.0
39200	0000392.0	0000000.0	0000008.0
39300	0000393.0	0000032.0	0000005.0
39400	0000394.0	0000012.0	0000000.0
39500	0000395.0	0000020.0	0000061.0
39600	0000396.0	0000227.0	0000109.0
39700	0000397.0	0000146.0	0000043.0
39800	0000398.0	0000141.0	0000141.0
39900	0000399.0	0000009.0	0000023.0
40000	0000400.0	0000068.0	0000144.0
40100	0000401.0	0000108.0	0000107.0
40200	0000402.0	0000052.0	0000130.0
40300	0000403.0	0000106.0	0000069.0
40400	0000404.0	0000085.0	0000042.0
40500	0000405.0	0000019.0	0000028.0
40600	0000406.0	0000107.0	0000111.0
40700	0000407.0	0000000.0	0000000.0
40800	0000408.0	0000000.0	0000000.0
40900	0000409.0	0000005.0	0000013.0
41000	0000410.0	0000080.0	0000031.0
41100	0000411.0	0000074.0	0000006.0
41200	0000412.0	0000047.0	0000028.0
41300	0000413.0	0000049.0	0000017.0
41400	0000414.0	0000084.0	0000014.0
41500	0000415.0	0000032.0	0000016.0
41600	0000416.0	0000056.0	0000043.0
41700	0000417.0	0000111.0	0000045.0
41800	0000418.0	0000132.0	0000043.0
41900	0000419.0	0000051.0	0000024.0
42000	0000420.0	0000081.0	0000011.0
42100	0000421.0	0000063.0	0000031.0
42200	0000422.0	0000082.0	0000028.0
42300	0000423.0	0000126.0	0000116.0
42400	0000424.0	0000127.0	0000054.0
42500	0000425.0	0000260.0	0000079.0
42600	0000426.0	0000298.0	0000087.0
42700	0000427.0	0000231.0	0000093.0
42800	0000428.0	0000187.0	0000065.0
42900	0000429.0	0000094.0	0000063.0
43000	0000430.0	0000005.0	0000000.0
43100	0000431.0	0000018.0	0000000.0
43200	0000432.0	0000006.0	0000006.0
43300	0000433.0	0000000.0	0000005.0
43400	0000434.0	0000043.0	0000008.0
43500	0000435.0	0000047.0	0000020.0
43600	0000436.0	0000015.0	0000013.0
43700	0000437.0	0000172.0	0000084.0
43800	0000438.0	0000061.0	0000025.0
43900	0000439.0	0000104.0	0000013.0
44000	0000440.0	0000053.0	0000054.0
44100	0000441.0	0000050.0	0000019.0
44200	0000442.0	0000009.0	0000025.0
44300	0000443.0	0000082.0	0000021.0
44400	0000444.0	0000010.0	0000019.0
44500	0000445.0	0000011.0	0000018.0
44600	0000446.0	0000046.0	0000012.0
44700	0000447.0	0000043.0	0000034.0
44800	0000448.0	0000083.0	0000027.0
44900	0000449.0	0000071.0	0000022.0
45000	0000450.0	0000010.0	0000004.0
45100	0000451.0	0000103.0	0000053.0
45200	0000452.0	0000037.0	0000005.0

45300	0000453.0	0000096.0	0000045.0
45400	0000454.0	0000095.0	0000031.0
45500	0000455.0	0000100.0	0000039.0
45600	0000456.0	0000096.0	0000000.0
45700	0000457.0	0000035.0	0000032.0
45800	0000458.0	0000050.0	0000000.0
45900	0000459.0	0000006.0	0000010.0
46000	0000460.0	0000008.0	0000007.0
46100	0000461.0	0000034.0	0000025.0
46200	0000462.0	0000043.0	0000046.0
46300	0000463.0	0000039.0	0000010.0
46400	0000464.0	0000068.0	0000016.0
46500	0000465.0	0000125.0	0000021.0
46600	0000466.0	0000054.0	0000013.0
46700	0000467.0	0000061.0	0000016.0
46800	0000468.0	0000066.0	0000011.0
46900	0000469.0	0000000.0	0000000.0
47000	0000470.0	0000052.0	0000015.0
47100	0000471.0	0000000.0	0000009.0
47200	0000472.0	0000171.0	0000090.0
47300	0000473.0	0000089.0	0000151.0
47400	0000474.0	0000107.0	0000096.0
47500	0000475.0	0000095.0	0000012.0
47600	0000476.0	0000038.0	0000022.0
47700	0000477.0	0000078.0	0000086.0
47800	0000478.0	0000146.0	0000134.0
47900	0000479.0	0000000.0	0000026.0
48000	0000480.0	0000005.0	0000000.0
48100	0000481.0	0000043.0	0000027.0
48200	0000482.0	0000081.0	0000023.0
48300	0000483.0	0000000.0	0000004.0
48400	0000484.0	0000034.0	0000034.0
48500	0000485.0	0000039.0	0000000.0
48600	0000486.0	0000111.0	0000045.0
48700	0000487.0	0000175.0	0000012.0
48800	0000488.0	0000158.0	0000066.0
48900	0000489.0	0000042.0	0000030.0
49000	0000490.0	0000107.0	0000044.0
49100	0000491.0	0000037.0	0000003.0
49200	0000492.0	0000072.0	0000033.0
49300	0000493.0	0000007.0	0000088.0
49400	0000494.0	0000016.0	0000014.0
49500	0000495.0	0000010.0	0000108.0
49600	0000496.0	0000008.0	0000089.0
49700	0000497.0	0000006.0	0000022.0
49800	0000498.0	0000025.0	0000032.0
49900	0000499.0	0000055.0	0000083.0
50000	0000500.0	0000047.0	0000044.0
50100	0000501.0	0000066.0	0000090.0
50200	0000502.0	0000051.0	0000051.0
50300	0000503.0	0000005.0	0000027.0
50400	0000504.0	0000009.0	0000000.0
50500	0000505.0	0000000.0	0000000.0
50600	0000506.0	0000015.0	0000011.0
50700	0000507.0	0000021.0	0000000.0
50800	0000508.0	0000012.0	0000006.0
50900	0129286.5	0029439.5	0016362.5

	FARMERS	LABORERS	
ZONE	& MANAGERS	& FOREMEN	
2900	000029.0	000006.0	000020.0---BAY CITY
12800	0000128.0	000005.0	000023.0---FLINT
22600	0000226.0	000023.0	0000121.0---KALAMAZOO
23600	0000236.0	000042.0	0000095.0---GRAND RAPIDS
35800	0000358.0	000000.0	0000018.0---PONTIAC
39500	0000395.0	000020.0	0000061.0---HOLLAND
47900	0000479.0	000000.0	0000026.0---ANN ARBOR
49300	0000493.0	000007.0	0000088.0---DETROIT(METRO)
49500	0000495.0	000010.0	0000108.0---DETROIT(METRO)
49600	0000496.0	000008.0	0000089.0---DETROIT(METRO)

Detailed Record Layout

ALL FARMS

Table 1. Farms, Land in Farms, and Land Use: 1969 and 1964

Field 1 - Block 1 1, 2 State Blank 4,5,6 County 7,8 Table Number 9-12 No. Fields/Table		Field	1969 Entry	Field	1964 Entry		Field	1969 Entry	Field	1964 Entry
All farms	number	2		3		Number of farms by acres harvested	4	Blank	5	Blank
Land in farms	acres	6	Blank	7	Blank	50 to 99 acres	8		9	
Average size of farm	TENTHS acres	10		11		100 to 199 acres	12		13	
Approximate land area	acres	14		15		200 to 499 acres	16		17	
Proportion in farms	TENTHS percent	18	Blank	19	Blank	500 to 999 acres	20		21	
Value of land and buildings	dollars	22		23		1,000 acres and over	24		25	
Average per farm	dollars	26		27		Cropland used only for pasture	28	Blank	29	Blank
Average per acre	CENTS dollars	30	Blank	31	Blank (NA)	or grazing	32	Blank	33	Blank
Land in Farms According to Use		34		35		All other cropland (see text)	36		37	
Total cropland	farms	38		39			40		41	
Harvested cropland	farms	42		43			44	Blank	45	Blank
	acres	46	Blank	47	Blank	Woodland including woodland	48		49	
	acres	50	Blank	51	Blank	pasture	52		53	
Number of farms by acres harvested		54	Blank	55	Blank		56	Blank	57	Blank
1 to 9 acres		58		59		All other land (see text)	60	Blank	61	Blank
10 to 19 acres		62		63			64		65	
20 to 29 acres		66		67		Irrigated land	68		69	
30 to 49 acres		70		71			72	Blank	73	Blank
		74	Blank	75	Blank		76		77	(NA)
		78		79			80		81	
		82		83			84	Blank	85	Blank
		86		87			88		89	
		90		91			92		93	

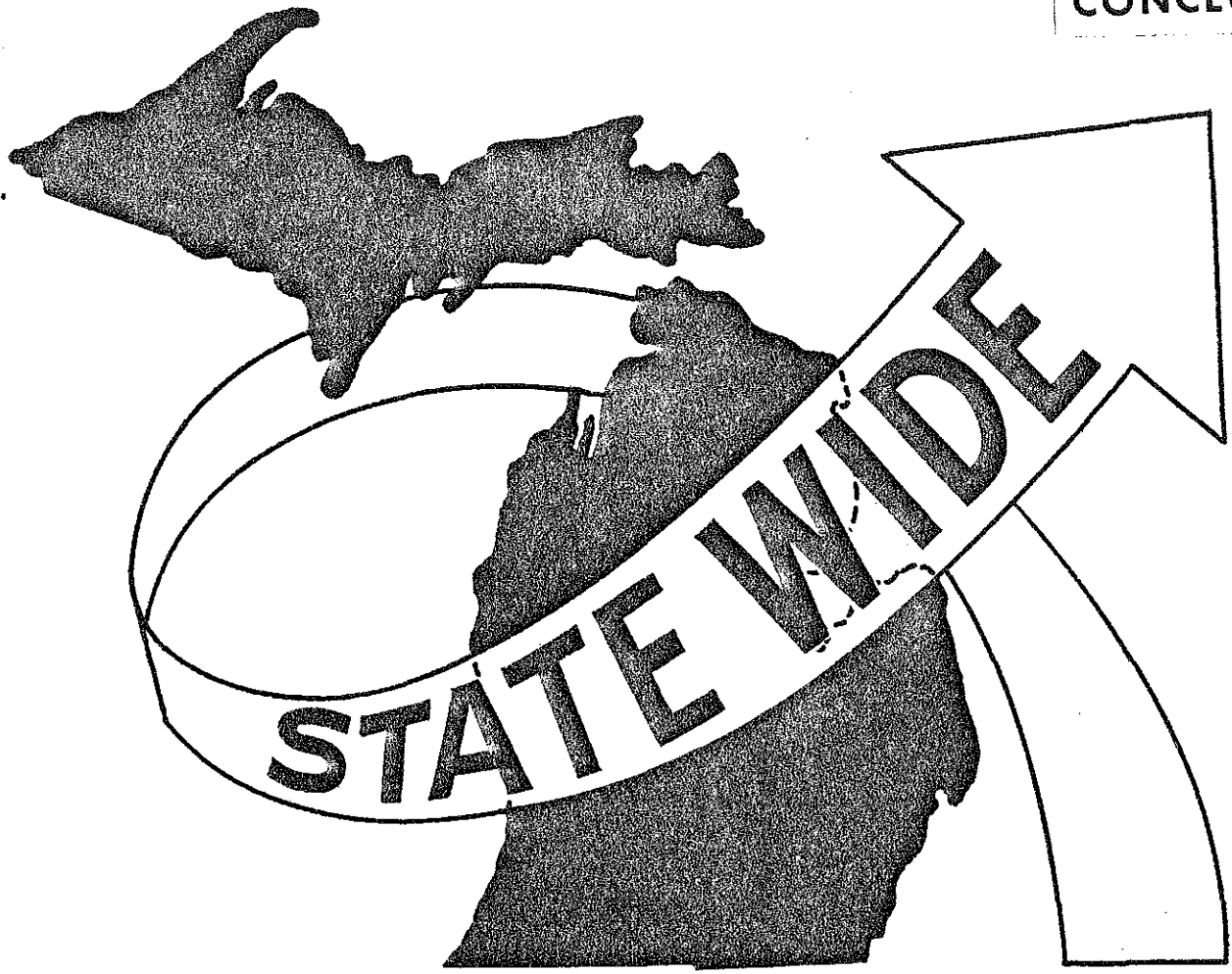
farm size occupying the fields in between. The program titled AGDATA was written to allow only selected pieces of information to be chosen from the original tape. Figures 6a and 6b is a list of these elements.

Another program, ANPCT, was written to actually create the zone level agricultural file which now resides as a part of the master socio-economic data file within the Statewide Transportation Planning Procedures Section. Basically, this program used the above mentioned data containing the categories farmers and farm managers as input. This data was summed for each zone within each county giving a county total. This total was then divided into the individual zones giving a zonal percentage of the total county. Each percentage was then multiplied by the original county data and the result was a 508 zone level agriculture file.

1. zone number
2. all farms (number of)
3. land in farms (acres)
4. average size (tenths, acres)
5. total cropland (number of farms)
6. total cropland (acres)
7. woodland including woodland pasture (number of farms)
8. harvested cropland (number of farms)
9. woodland including woodland pasture (acre)
10. harvested cropland (acres)
11. farms operated by all farm operators (number of farms)
12. farms operated by all farm operators (acres)
13. full owners (number of farms)
14. full owners (acres)
15. part owners (number of farms)
16. part owners (acres)
17. farm operators by place of residence - on farm
18. farm operators by place of residence - not on farm
19. tenants (number of farms)
20. tenants (acres)
21. number of farms by economic class - sales \$40,000 and over
22. market value of products sold (dollars)
23. number of farms by economic class - sales \$20,000 - \$39,999
24. market value of products sold (average/farm - dollars)
25. number of farms by economic class - sales \$10,000 - \$19,999
26. crops including nursery production and hay (number of farms)
27. number of farms by economic class - sales \$5,000 - \$9,999
28. crops including nursery production and hay (dollars)
29. number of farms by economic class - sales \$2,500 - \$4,999
30. forest products (number of farms)
31. forest products (dollars)
32. livestock, poultry, and their products (number of farms)
33. livestock, poultry, and their products (dollars)
34. farm production expenses - total (number of farms)
35. farm production expenses - total (dollars)
36. farm production expenses, commercial fertilizer (number of farms)
37. farm production expenses, commercial fertilizer (dollars)
38. farm production expenses, gasoline, petroleum and oil
(number of farms)
39. farm production expenses, gasoline, petroleum and oil (dollars)
40. farm production expenses, livestock and poultry (number of farms)
41. farm production expenses, livestock and poultry (dollars)
42. farm production expenses, commercially mixed feed (number of farms)
43. farm production expenses, commercially mixed feed (number of tons)
44. farm production expenses, commercially mixed feed (dollars)
45. market value of machinery and equipment - total (number of farms)
46. market value of machinery and equipment - total (dollars)
47. cattle, hogs, and sheep (number of farms)
48. cattle, hogs, and sheep (number)
49. cattle, hogs, and sheep - sales (number of farms)

50. cattle, hogs, and sheep - sales (number)
51. chickens - 3 months or older (number of farms)
52. chickens - 3 months or older (number)
53. chickens - 3 months or older - sales (number of farms)
54. chickens - 3 months or older - sales (number)
55. field corn all purposes (number of farms)
56. for grain (number of farms)
57. for grain (acres)
58. for grain (bushels)
59. wheat for grain (number of farms)
60. wheat for grain (acres)
61. wheat for grain (bushels)
62. land in orchards (number of farms)
63. land in orchards (acres)
64. soybeans for beans (number of farms)
65. soybeans for beans (acres)
66. soybeans for beans (bushels)

CONCLUSION

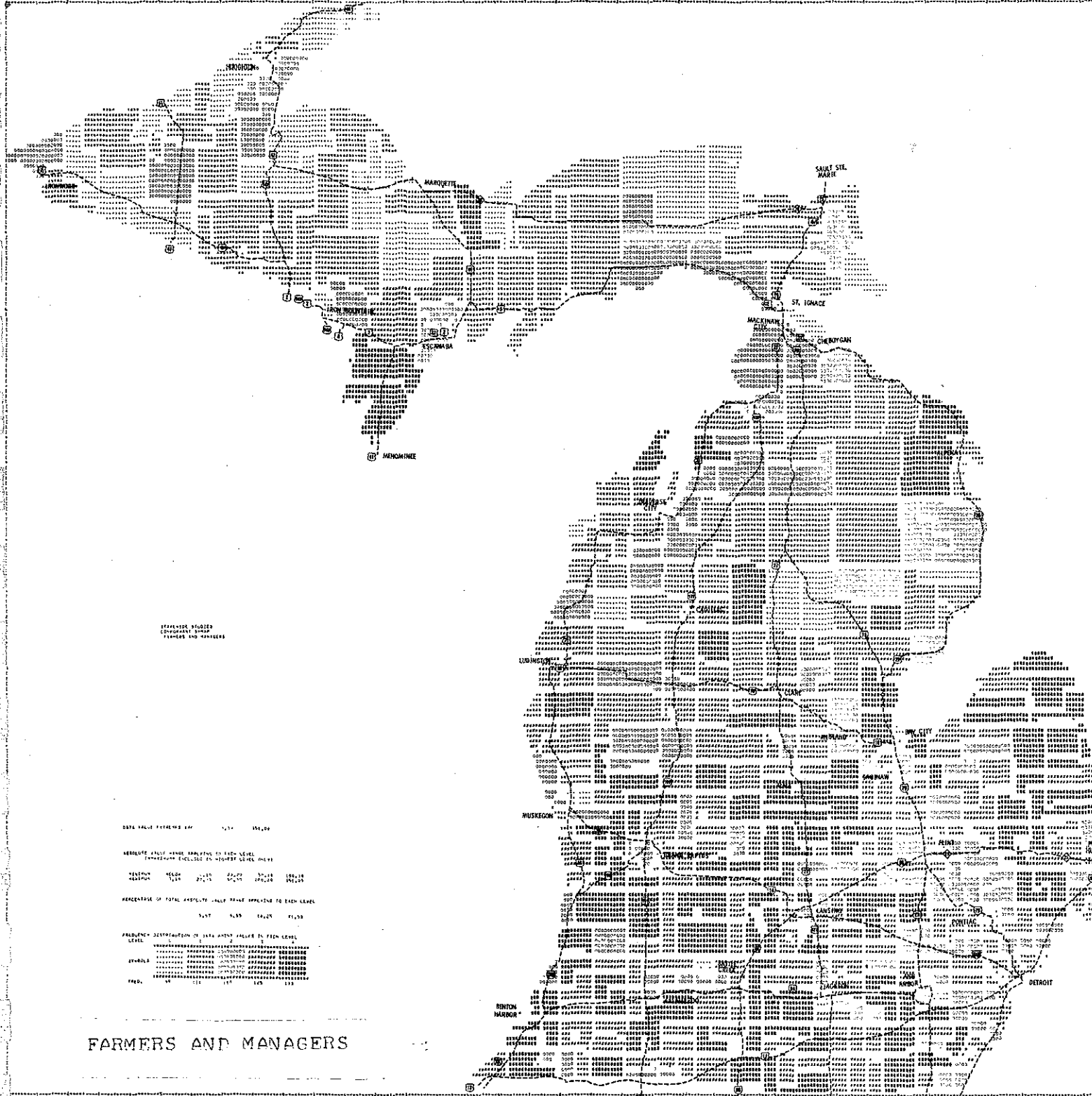


CONCLUSION

Because it is in its early stages of development, only a few programs have used this data as input, mostly graphic display programs. The following pages of this report contain illustrations of the output of these programs. However, through a more extensive use of this newly acquired informational file, it is hoped to achieve a broader view of the overall impact of the farming community on transportation in the State of Michigan. Air, rail, and highway networks give multi-modal capabilities. A recent application was the analysis of the accessibility of railroad stations to agriculture centers and the impact of railroad abandonment on agriculture in Michigan. When used with existing analytical and statistical programs and in connection with the statewide socio-economic and facility files, the agricultural census file becomes another tool in the planning process used within the Statewide Transportation Planning Procedures Section.

For more information on this report or other applications of the Statewide Transportation Modeling System, contact:

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POPULATION DENSITY
COUNTY TOTALS
TABLES AND FIGURES

DATA VALUE FREQUENCY

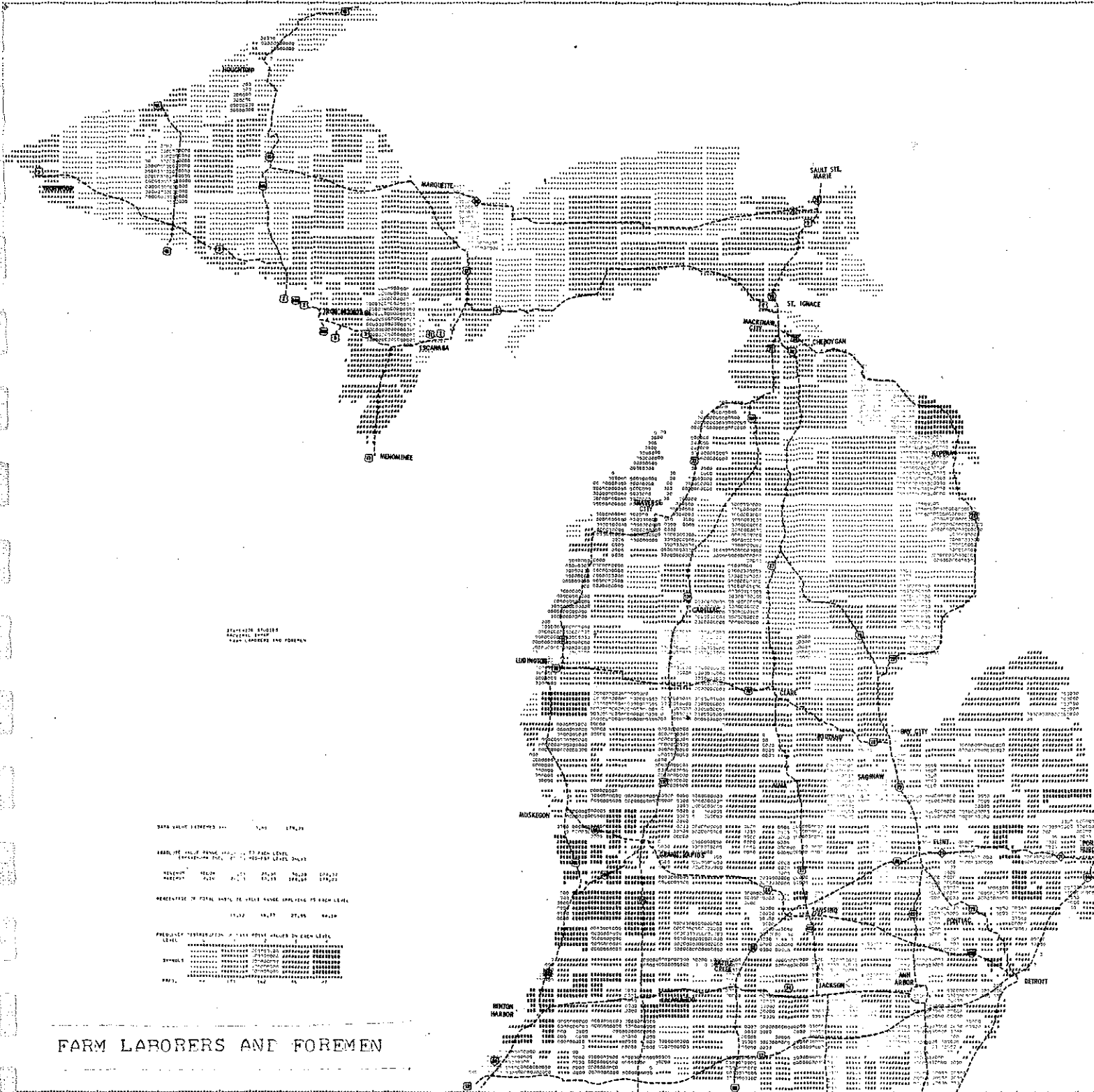
RESOLUTE LEVELS WERE ANALYZED TO EACH LEVEL
EXCEPT FOR LEVEL 4 WHICH WAS ANALYZED TO EACH LEVEL

PERCENTAGE OF TOTAL POPULATION WHICH APPLIED TO EACH LEVEL

FREQUENCY DISTRIBUTION OF DATA POINTS PLotted IN EACH LEVEL

FARMERS AND MANAGERS

LEVEL	L	1	2	3	4
SYMBOLS	.....	=====	00000000	*****	#####
FREQ.	59	111	110	125	103



SYMBOLS
 LEVEL
 FREQ.

FARM LABORERS AND FOREMEN

LEVEL	L	1	2	3	4
	====	====	00000000	#####	#####
	.....	====	00000000	#####	#####
SYMBOLS	.....	====	00000000	#####	#####
	.....	====	00000000	#####	#####
	.....	====	00000000	#####	#####
FREQ.	64	170	162	85	27