

RIGHT OF WAY EFFECTS OF CONTROLLED ACCESS
TYPE HIGHWAY ON A RANCHING AREA
IN MADISON COUNTY, TEXAS

BY

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Right of Way Acquisition Effects on the
Remaining Rural Farms and Ranches

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TABLE OF CONTENTS

	Page
ACKNOWLEDGMENT	iv
LIST OF FIGURES	v
LIST OF TABLES	vi
SUMMARY AND CONCLUSIONS	1
INTRODUCTION	4
Statement of the Problem	
Objectives	
Methodology	
Selection of Study Area	
Personal Interviews	
MADISON COUNTY AREA	10
MADISON COUNTY STUDY AND CONTROL AREAS	18
DEGREE OF PARTICIPATION IN THE STUDY	20
Study Area	
Control Area	
CHARACTERISTICS OF ALL OPERATORS	26
Acreage and Tenure of Right of Way Tracts	
Disposition of Money Received for Right of Way	
OPERATIONS OF 15 STUDY AND 16 CONTROL AREA OPERATORS	47
Land Use on Right of Way Study and Control Tracts	
Ranch Operations	
Land Use	
Intensity of Land Use	
Distribution of Tracts by Size	
Crop Production in Study and Control Areas	
BEEF CATTLE PRODUCTION	75
Inventory	
Livestock Purchases	
Livestock Sales	
Operating Expenses	
Change in Income	

	Page
TRAVEL PATTERNS	102
Travel to Nearest Shopping Center	
Travel Connected With Operations	
Trips and Mileage Required to Operate Severed Tracts	
Travel Patterns of Control Operators	
LAND VALUES	118
APPENDIX	122

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The opinions, findings, and conclusions expressed in this publication are those of the author and not necessarily those of the Texas Highway Department or Bureau of Public Roads.

LIST OF FIGURES

Figure		Page
1	General Location of Study and Control Areas in Madison County	19
2a	Northern Part of Madison County Showing Study Area Tracts Numbered by Operator	21
2b	Southern Part of Madison County	22

LIST OF TABLES

Table		Page
1	Number and Characteristics of Farms in Madison County in 1954, 1959, and 1964 Based on Census of Agriculture	11
2	Acreage and Production of Major Crops in Madison County in 1954, 1959, 1964 Based on Census of Agriculture	13
3	Number of Livestock and Value of Livestock Products Sold in Madison County in 1954, 1959, 1964 Based on the Census of Agriculture	15
4	Tenure and Off-Farm Work of Farm Operators in Madison County in 1954, 1959 and 1964 Based on Census of Agriculture	16
5	Degree of Participation of Study Area Operators During 1962, 1964 and 1966 Interviews	23
6	Degree of Participation of Control Area Operators During 1962, 1964 and 1966 Interviews	25
7	Off-Farm Work and Sources of Income of 23 Study Area and 23 Control Area Operators in Madison County in 1964	27
8	Number and Acreage in Right of Way Tracts of 23 Study Area and 23 Control Area Operators in 1962, 1964 and 1966	29
9	Number, Size and Arrangement of Right of Way Tracts Before and After Location of Highway	33
10	Size of Right of Way Takings Related to Individual Tracts and Total Operations (23 Operators)	34
11	Major Use of Land Acquired For Right of Way of Interstate 45 Through Madison County from 29 Tracts of 23 Operators	37
12	Kinds and Amounts of Payments Received by 23 Operators For Right of Way For Interstate 45 Through Madison County	39

Table	Page
13 Tenure and Size of the 24 Right of Way Tracts of 20 That Were Divided by Interstate 45	41
14 How 21 Operators Spent Money Received For Interstate 45 Right of Way	45
15 Off-Farm and Sources of Income of 15 Study and 16 Control Area Operators	48
16 Changes in Land Owned and Rented by 15 Study Area Operators in 1962, 1964, 1966	50
17 Changes in Land Owned and Rented by 16 Control Area Operators in 1962, 1964, 1966	51
18 Changes in Land Use of Right of Way Study and Control Tracts of 15 Study Area and 16 Control Area Operators	54
19 Changes in Land Use of 19 Right of Way Tracts in the Study Area and 16 Right of Way Control Tracts in the Control Area	55
20 Changes in Owned and Rented Land of 15 Study Area and 16 Control Area Operators Before and After the Highway, 1962-1966	58
21 Comparison of Land Use of Total Operations of the 15 Study Area and 16 Control Area Operators in 1962, 1964, 1966	60
22 Changes in Land Use in Total Operations of 15 Study Area and 16 Control Area Operators Between 1962 and 1966	64
23 Use of Commercial Fertilizer and Lime by 15 Study Area and 16 Control Area Operators in 1962, 1964, 1966	65
24 Size Distribution of Tracts in Total Operations of 15 Study Area and 16 Control Area Operators in 1962, 1964, 1966	68
25 Acreage and Value of Crops Produced by 15 Study and 16 Control Area Operators in Madison County	71
26 Frequency Distribution of 15 Study Area and 16 Control Area Operators by Value of Crops Raised in 1962 and 1966	73

Table		Page
27	Number and Value of Livestock on Hand in December 31 of 1962, 1964, and 1966 by 15 Study Area and 16 Control Area Operators	76
27.1	Frequency Distribution of Study Area and Control Area Operators Based on Increases and Decreases in Breeding Herds	78
28	Livestock Purchases of 15 Study Area and 16 Control Area Operators in 1962, 1964, 1966	81
29	Livestock Sales of 15 Study Area and 16 Control Area Operators in 1962, 1964, 1966	83
29.1	Frequency Distribution of 15 Study Area and 16 Control Area Operators Based on Number of Calves Sold in 1962, 1964, 1966	85
30	Changes in Operating Expenditures of 15 Study Area Operators in Madison County from 1962 to 1964 and 1962 to 1966	88
31	Changes in Operating Expenditures of 16 Control Area Operators in Madison County from 1962 to 1964 and 1962 to 1966	89
32	Agricultural Income and Expenses of the 15 Study Area and 16 Control Area Operators in 1962, 1964, and 1966	91
33	Percent Changes in Income and Operating Expenses in the Study and Control Areas For the Years 1962, 1964, and 1966	92
34	Distribution of 15 Study Area and 16 Control Area Operators Based on Net Cash Operating Income from Agricultural Production For 1962 and 1966	98
35	Distribution of 15 Study Area and 16 Control Area Operators Based on Their Income from Off-Farm Work, Retirement, and Oil and Gas Rental Income	98
36	Income From All Sources For 15 Study Area and 16 Control Area Operators For 1962, 1964, 1966	100
37	Distances by Type of Road to Nearest Shopping Center (Madisonville) For the 13 Study Area Operators That Were Affected By the Construction of Interstate 45	104

Table		Page
38	One-Way Distances of Trips to Various Tracts of Land of 21 Study Area Operators Before and After the Construction of Interstate 45 Through Madison County	106
39	Changes in Travel Distances to 12 Severed Right of Way Tracts Still Being Used For Agricultural Production by Nine Operators in 1966	110
40	Extra Travel Required Annually to Operate 12 Severed Tracts of Nine Operators (1966)	113
41	Travel Distance of 11 Control Area Operators With Multiple Tract Operations in 1962 and 1966	115
42	Opinions of Study Area and Control Area Operators As to the Value of Land in Their General Area and Along Interstate 45 Before and After Construction of the Highway	119
A1	Changes in Land Use of 19 Right of Way Tracts Operated by 15 Study Area Operators in 1962, 1964, and 1966	123
A2	Changes in Land Use of 16 Right of Way Tracts Operated by 16 Control Area Operators in 1962, 1964, and 1966	124
A3	Changes in Use of All Agricultural Land Operated by 15 Study Area Operators in 1962, 1964, and 1966	125
A4	Changes in Use of All Agricultural Land Operated by 16 Control Area Operators in 1962, 1964, and 1966	126
A5	Copy of Questionnaire Used to Gather Information in the After Period	127

SUMMARY AND CONCLUSIONS

This study was focused on how livestock operators in Madison County, Texas, adjusted to the loss of land acquired for the right of way of Interstate 45 by the Texas Highway Department. Operators in the right of way area and in a nearby control area were interviewed and information gathered covering their 1962, 1964, and 1966 operations.

A summary of the findings relative to changes in land tenure, land use, income, and travel patterns of the operators affected by the highway being routed through their land is presented below:

1. The study is based on information gathered from 23 study area operators with 29 tracts affected by the highway and 22 control area operators. The right of way tracts ranged in size from 68 to 1,245 acres, with the average being 362 acres. After the highway was located, there were 54 separate tracts averaging 182 acres each. Twenty-four of the 29 original tracts were divided forming two or more tracts and the other five had land acquired from only one side of the tracts. Of the 23 operators, 21 were owner-operators and two rented two tracts of over 1,000 acres each.
2. The operators received an average of about \$9,000 each for land, damages, improvements, and easements. About 55 percent of the money received was for the 683 acres of land acquired. The other 45 percent was for damages, improvements, and easements. Twenty-one of the operators reported that on an average they invested nearly 40 percent of the money in savings. Another 19 percent was spent on pasture improvements and a little over 14

percent was spent on fencing, corrals, water supply, and small barns or sheds on the severed tracts.

3. In 1966, the study area operators were operating all of the main portions of the original right of way tracts, but were operating only 14 of the 25 severed tracts. Of the 11 severed tracts not being used by the original operators in 1966, five small tracts containing a total of 60 acres were idle and the other six tracts ranging from two to 40 acres had been sold. Two of the six parcels that sold were also idle in 1966. The other four were being used by the new owners.

4. Based on agricultural operations of the 15 study area and 16 control area operators that cooperated all three years, 1962, 1964, and 1966, it appeared that the income of the agricultural study area operators was adversely affected in 1964 compared to the income of the control operators. However, by 1966 the operators in the study area appeared to have made the necessary adjustments in their livestock operations to offset the loss of the acreage to right of way and showed an increase in income.

5. It is evident that the study area operators did intensify the use of land on the right of way tracts as well as on other tracts in their operations by establishing more improved pastures between 1962 and 1966. This allowed the operators to reduce the acre-animal ratio from 10.1 acres per cow in 1962 to 7.4 in 1966. The control area had a 9.6 ratio in 1962 compared to 8.7 for 1966.

6. On trips to and from Madisonville, the new highway shortened the distance for a few operators while it increased the distance

for others. For eight other operators using Highway 75 on trips to town, trip distances were not changed, but their travel was over a much less congested route after the through traffic was shifted to Interstate 45. Despite the increased distances to town for seven operators, the new highway may yield a net benefit for the entire group in their day-to-day travel in terms of safety, comfort, and economy.

7. Travel connected with the operation of right of way tracts was increased when the highway divided some tracts of land. Those study area operators that fully cooperated still using the severed portions of 12 right of way tracts in 1966, reported that they each had to travel an average of 393 extra miles each year or 295 miles per tract, in order to continue livestock operations on their severed tracts.

INTRODUCTION

A study was begun in 1963 of the effects of right of way acquisition on the remaining portions of rural farms and ranches in three areas of Texas.

The first area selected was the Madison County area which represents an area of small ranches. This report will cover this area. A second area along Interstate 35E in Ellis County was selected to represent an intensive farming area. This area is just south of Dallas, Texas. The third area is a 10-mile section along Interstate 10 in Colorado and Fayette Counties and is located about equidistant from San Antonio and Houston. This area represents a diversified farming area. The second and third areas will be covered in later reports.

This report presents findings developed through personal interviews with the control area operators and operators of land affected by right of way acquisition for Interstate 45 in Madison County. Since the area is primarily a ranching area, the study was concerned with trying to determine the effects of right of way acquisition on the remaining livestock operations along the 18-mile section of Interstate 45 which is all on new location.

Statement of the Problem

When highways are constructed on new locations, the right of way in most instances is purchased from private owners. In rural areas these tracts of land are usually being operated as farms or ranches. The taking of land for right of way purposes may affect operating units in a number of ways. It will, of course, reduce the size of the individual

operation. This reduction may be in proportion to the amount of land taken, or it may divide original property in such a manner that the effective operating size of the unit is reduced by more than or less than proportionately to the amount taken. The right of way taking may also cause recombinations of existing operating units into new units of different sizes and with different levels of efficiency. By providing extra capital, an acquisition may stimulate efficiency of the operation and increase productivity. A new highway may also cause a change in the highest and best use of land and thus change its overall value.

Being responsible for appraising and acquiring right of way, it is in the best interest of the Highway Department to understand better the probable effects of right of way acquisition on farm and ranch operations. Increased knowledge of values, adjustments that may be required, and other economic consequences should enable more thorough appraisals for right of way purposes and should also be of assistance in right of way negotiations and highway location.

Objectives

In view of information obtained from owners and operators of land affected by right of way acquisition in Madison County, the following objectives appear to be the most logical to emphasize in this report.

To determine the effects of right of way acquisition on:

1. Changes in kind and intensity of rural land use;
2. Changes in number of farm and ranch units, tenure and intensity of operations;
3. Cost of adjustments to new farm and operating conditions; and

4. Changes in farm income caused by decreasing farm acreage and division of units into separate tracts.

Methodology

The study was designated to use a modified "before" and "after" approach along with the comparative control method in developing the desired information. In this approach, farm management information was gathered from the operators covering a full year's operation in 1962 before the highway affected them in any way; this information should reflect "before" period conditions. Similar information gathered from the operators on their 1964 operations represents the period during construction, referred to as the "during" period. Following a full year of operation under the influence of the completed highway, data were collected on operations in 1966 which serves as the "after" period.

To take into account external or general influences during the study periods, information regarding operators affected by the right of way acquisition is compared with data collected from operators in a similar or "control" area. This procedure involves the selection of a control group of operating units in the vicinity of the study group area but outside the direct influence of the new highway.

An attempt was made to interview each operator three times to obtain detailed questionnaires for each of the three study years. A copy of the questionnaire used to gather the 1966 information is included in the Appendix. The questionnaires used in 1962 and 1966 were basically the same with the exception of open end questions

relating to adjustments. Data sought pertained to the operators' entire operations and were primarily of a farm management nature. For operators having more than one tract, data were gathered on each tract in their operation. This information is used to show the relative importance of the right of way tract to an operator's entire operation. In some cases the tract cut by the right of way was the only tract in an operation, but very often it represented only a small part of an operation.

Selection of Study Area

In the selection of the study area, it was necessary to establish certain criteria in order to satisfy the objectives of the study. These criteria were as follows: The highway must have a design equivalent to Interstate standards and have sizable segments constructed on new right of way or newly aligned highways of similar widths. Also, agriculture along these study segments should be fairly uniform as to type, size, and quality of farms; and segments should be long enough to permit observations of a fairly large number of farms.

The three areas in Texas were selected with the counsel of the Texas Highway Department. After conferences with staff members of the Right of Way Division of the Highway Department, a number of sites were selected for consideration as potential study areas. These potential sites were inspected and additional information obtained from the Highway Department District offices. When suitable areas were found and approved by the Highway Department personnel, maps were obtained

from the Highway Department to determine number of parcels, size of area, size of takings, and other facts pertaining to the right of way acquisition.

Information was then gathered from the local Agricultural Stabilization and Conservation county offices relative to operatorship, type of agriculture and production practices. With the help of ASC officials a comparable area in the general vicinity of the study area was selected in each case to serve as the control area.

ASC records were also used in determining the nature of a given rancher's operation. The records contained information on the number of tracts owned or rented by an operator, the amount of cropland and pastureland in each tract, and acres planted in crops under governmental control. For operators in the study or control areas who operated several tracts, ASC records provided the location and land use of each tract. With this background information on each tract and operator, personal contacts with operators were begun.

Personal Interviews

Before being interviewed, each farm or ranch operator in the study and control areas was mailed a letter informing him of the study and asking for his cooperation. Concurrently, an article was released to the local papers explaining the purpose of the study.

Interviewing followed the normal procedure of contacting each operator and, if possible, completing a questionnaire at that time. In most cases it was found that the operators were glad to discuss the proposed highway and its effects on their operations; however, when

questioned regarding the purchases of supplies or the sales of farm produce, they were more reluctant to respond. After they were assured that the information given would be held in confidence, complete cooperation was usually achieved.

MADISON COUNTY AREA

The Madison County study area is located about 100 miles north of Houston on Interstate 45. It is principally in the Post Oak Belt of East Texas with slightly rolling surfaces sloping to the Trinity River on the east and the Navasota River on the west. Most of the county has a sandy loam soil, but is adaptable for grazing. Soils in the Trinity and Navasota River bottoms provide large expanses of good farm land. In its native state, much of the sandy loam section of the county was covered with post oak and other hardwood timber; however, considerable quantities of land have been cleared and planted in improved grasses for permanent pasture.

In the past 10 or 15 years, farm operators in the area have been gradually shifting from a combination of cash crop and livestock farming to strictly livestock operations. In the livestock operations of today, most operators try to raise enough hay for wintering cattle. A few raise a small amount of grain for use in fattening calves. A common and growing practice that is being expanded is the production of hay, such as coastal bermuda grass from improved pastures. With this improved grass, operators can cut one to two crops of hay a year and still have a number of months of grazing before winter.

To obtain a general picture of agricultural operations and trends in Madison County, information was taken from the agricultural census for the years 1954, 1959, and 1964, the latest census available at the time of the study. Some of the more significant information relating to agricultural in the county is presented in Table 1. The county has

Table 1
 Number and Characteristics
 of Farms in Madison County in 1954, 1959,
 and 1964 Based on Census
 of Agriculture^{1/}

	1954	1959	1964
Farms (Number)	1,145	874	696
Land in Farms (Acres)	292,682	303,213	257,880
Average Size of Farm (Acres)	255	347	371
Average Value Per Acre (Dollars)	58	87	148
Average Value Land & Bldgs (Dollars)	14,453	24,820	56,734
<u>Cropland</u>			
Total (Acres)	63,876	58,721	75,546
Harvested (Acres)	29,867(61)	18,110(53)	15,198(50)
Pastured (Acres)	30,889(29)	35,308(11)	56,137(11)
Not Harvested or Pastured (Acres) ^{2/}	3,122(7)	5,303(30)	4,211(61)
<u>Pastureland</u>			
Total (Acres)	223,567	238,255	178,243
Woodland (Acres)	99,785(62)	86,309(64)	53,558(60)
Cleared (Acres)	93,178(69)	97,514(75)	50,158(48)
Improved (Acres) ^{3/}	30,604(13)	54,432(26)	74,527(34)
<u>Other Land</u>			
Land in Lakes, Roads, Etc. (Acres)	5,239	6,237	4,091

^{1/} Figures in parentheses represent the percent of operators reporting.

^{2/} Includes cropland that is in soil building crops, idle, or in some type of Government program.

^{3/} Pastureland that has been fertilized, weeds controlled and in most cases planted in improved varieties of grasses.

followed the national trend of fewer and larger operating units. The average size of farms in 1954 was 255 acres compared to 371 acres in 1964. During this time the value of land almost tripled and the combined values of land and improvements per farm increased even more.

The sizeable decrease in acres of total land shown in Table 1 and acres in pastureland reported in 1964 does not appear to be logical. However, data for the year 1964 were taken from a preliminary report of the agricultural census. Also, it is possible that changes in definition of farms accounted for some of the difference. (No definition of terms is presented in the preliminary report.)

According to census data trends, operators in the county are diverting a great deal of cropland to use as grazing land for livestock. Another significant change was the decrease in woodland acres from 1954 to 1964. During this period it was common practice for an operator to clear 10 to 20 acres of woodland a year with financial aid from the government. Much of this land was planted in improved grasses, such as coastal bermuda, which accounts for some of the increase of land in improved pastures in 1964. Operators were also establishing improved pastures on cropland and land that was previously cleared but unimproved. Operators had been improving and intensifying the use of their land for a long period but the rate has accelerated since 1960.

Presented in Table 2 is information regarding the four major crops produced in the county. These crops are corn, small grain, hay, and cotton. Cotton, an important crop 10 to 15 years ago, had decreased substantially as a source of farm income by 1964. Corn and small grain are raised on a small scale to be used as feed for livestock. The

Table 2

Acreage and Production of Major Crops in Madison County
in 1954, 1959, 1964 Based on Census of Agriculture

Major Crops	1954	1959	1964
<u>Corn</u>			
Acres	11,198	5,435	3,082
Bushels	206,123	105,645	113,829
<u>Hay</u>			
Total Acres	5,093	4,054	8,022
Total Tons	3,104	4,453	12,947
Small Grain Hay Acres	1,590	746	1,648
Small Grain Hay Tons	1,029	579	1,903
Wild Hay Acres	1,188	2,150	741
Wild Hay Tons	718	2,320	1,099
Other Hay Acres	2,315	1,158	5,633
Other Hay Tons	1,357	1,554	9,945
<u>Cotton</u>			
Farms Reporting	429	180	26
Acres	8,862	4,760	1,826
Bales	3,137	2,435	1,103

production of hay is widespread and is used for wintering cattle.

There has been a shift in hay crops from cultivated varieties to perennial grasses, such as coastal bermuda, that do not require cultivation each year.

Residents of Madison County like to publicize the county's cattle population. According to them, Madison County has more cattle per acre than any other Texas county. Table 3 presents information on the cattle population in the county and cattle and milk sales in 1954, 1959, and 1964. The number of cattle in the county remained relatively stable at about 40,000 from 1954 to 1964, even though the number of operators with cattle decreased from 1,033 to 683 over the period. The numbers sold increased each of the periods covered in Table 3. Due to a drop in cattle prices, in 1964 the average price per head was \$73 compared to \$102 per head in 1959. Dairy operations in the county decreased over the 10 year period but volume of milk sold was up significantly.

Characteristics of farm operators are shown in Table 4. The downward trend in the number of operatorships in the county continued from 1954 to 1964. There was a decrease in the number of operators in each of the four tenure categories listed in Table 4, but full owner operators increased proportionately to 73 percent of all operators in 1964 from 58 percent in 1954. Part owners represented about the same percentage of operators in 1964 as in 1954. Full tenants almost disappeared as a tenure group in the county declining from 218 to 37 in number from 1954 to 1964. Managers have never been a large tenure class.

Table 3

Number of Livestock and Value of Livestock
Products Sold in Madison County in
1954, 1959, 1964 Based on the Census of Agriculture

	1954	1959	1964
<u>Farms with Livestock</u>			
Farms (Number)	1,033	834	683
Cattle and Calves (Number)	38,368	41,728	40,162
Cows (Number)	25,148	27,277	26,968
<u>Sales</u>			
Farms (Number)	784	762	647
Cattle and Calves Sold (Number)	16,603	19,590	21,643
Cattle Sold (Number)	2,902	3,091	4,116
Value of Cattle Sold (Dollars)	215,197	458,531	510,212
Average Value Per Head (Dollars)	74	148	124
Farms (Number)	765	721	629
Calves Sold (Number)	13,701	16,499	17,527
Value of Calves Sold (Dollars)	644,266	1,677,932	1,279,223
Average Value Per Head (Dollars)	47	102	73
<u>Dairy Cattle</u>			
Farms (Number)	43	32	22
Milk Sold (1,000 pounds)	5,714	5,026	13,321

Table 4

Tenure and Off-Farm Work of Farm Operators in
Madison County in 1954, 1959 and 1964
Based on Census of Agriculture

	1954		1959		1964	
	Operators		Operators		Operators	
	Number	Percent	Number	Percent	Number	Percent
<u>Total Farm Operators</u>	1145	100	874	100	696	100
<u>Tenure</u>						
Full Owners	664	58	570	65	500	73
Part Owners	255	22	202	23	157	23
Tenants	218	19	94	11	37	5
Managers	8	1	8	1	2	--
<u>Off-Farm Work</u>						
Total Working Off Farm	617	54	516	59	372	53
100 Days or More	438	38	364	42	326	48
<u>Retirement Benefits</u>						
Number Receiving	Not Available		221	25	170	24

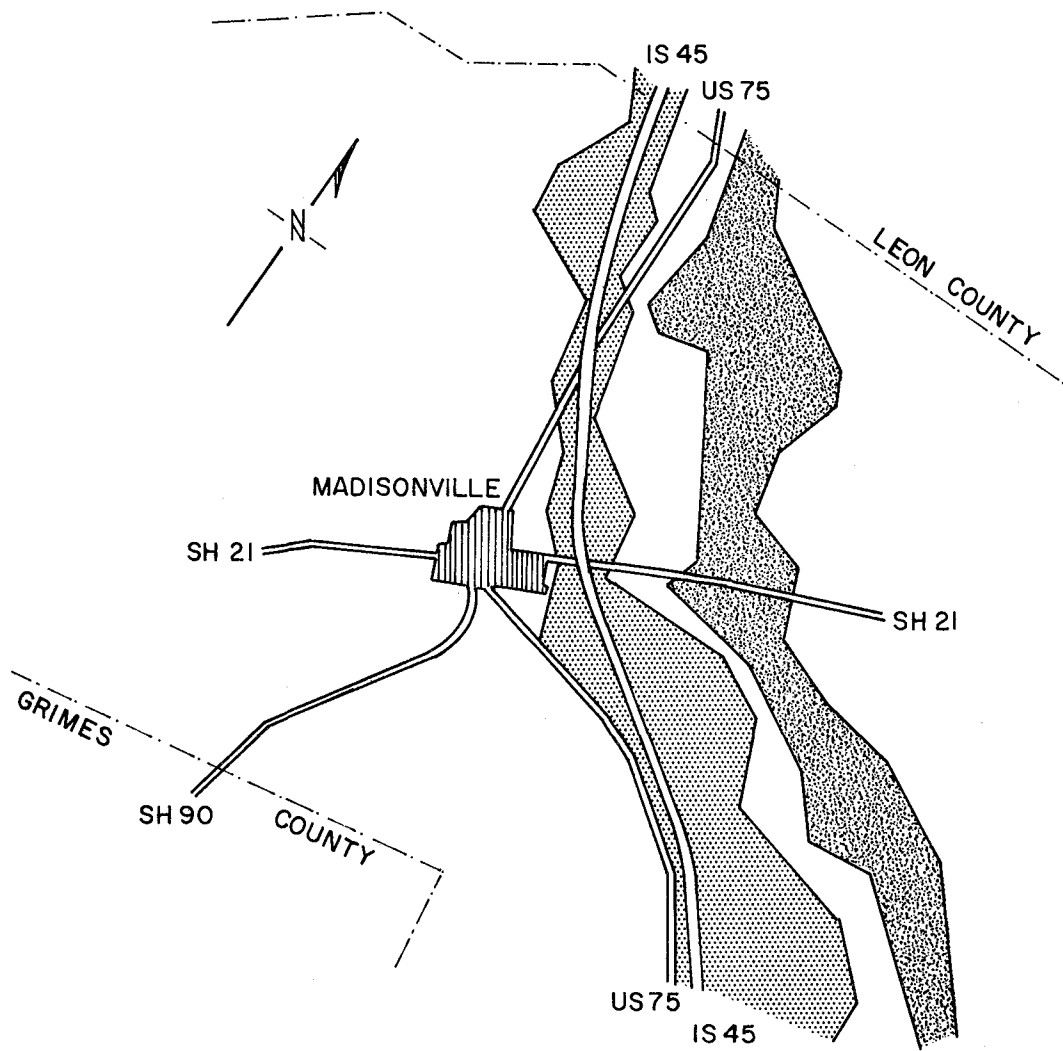
Another interesting characteristic of the Madison County operators, as shown in Table 4, is the number of operators engaged in outside employment in 1954, 1959, and 1964. A little over 50 percent of the operators reporting had off-the-farm employment. Those operators working more than 100 days off-the-farm showed a small percentage increase in 1959 and 1964. About 25 percent of the operators were receiving some sort of retirement benefits in 1959 and 1964.

MADISON COUNTY STUDY AND CONTROL AREAS

The study and control areas are approximately 18 miles in length, extending north and south through the county. The general location of the two areas is shown in Figure 1. These areas were very similar in characteristics when the study was begun, but as time passed, exploration for oil and gas was more prevalent in the control area. The activity gradually moved westward and by 1965 land owners in the study area were beginning to receive more oil and gas leasing arrangements. By 1966 a few wells had been drilled in the study area and were producing either oil or gas.

After obtaining production records covering the 1962 operations, it was noticed that the control area operations had a little more farming of cash crops than the study area. Also, there were a few more smaller operators in the control area than in the study area. Since the areas have many other similar characteristics, this was not considered to be of major importance. Since 1962, the amount of cash crops produced in the control area has shown a steady decline, and by 1966 the areas were very much alike with respect to crop production.

The two areas vary considerably in width depending on the size and shape of the tracts of land. Also, operators may own or lease additional tracts of land outside the boundaries of the immediate areas. These tracts are classified as non-right of way tracts, but are included in the study in order to show the relative importance of the right of way tracts to the operators' complete operations. Generally, the immediate study area and control area average about one mile in width.



STUDY AREA [Dotted Pattern Box]
 CONTROL AREA [Cross-hatched Pattern Box]

**GENERAL LOCATION OF STUDY AND CONTROL AREAS
 IN MADISON COUNTY**

FIGURE 1

DEGREE OF PARTICIPATION IN THE STUDY

Study Area

There were 33 operators in the study area who had one or more tracts affected by the right of way acquisition for Interstate 45. Figures 2a and 2b show the location of the Interstate through Madison County and the tracts of land affected by the highway. Figure 2a covers the route through the northern part of the county from U.S. Highway 21 north to Leon and Madison County line. The southern half of the county is shown in Figure 2b.

The tracts of land affected are numbered and shaded to show the degree of participation in the study by the operators. In cases where operators have more than one right of way tract, the multiple tracts are designated by letters a, b, etc.

The degree of participation by operators was also tabulated and presented in Table 5. Eleven operators were not contacted in 1962. The 11 were eliminated after preliminary information on each operator was gathered from various sources in the county. Three of the operators were omitted from the study because their operations were extremely small. Two other operators were not contacted after it was established that they lived in distant cities, making it difficult to conduct the interviews. Six additional operators were not interviewed in 1962 because they had not completed negotiations with the Highway Department. Negotiations were completed on all but one operator before the 1965 interviews. In 1965, when information on 1964 operations was gathered, an attempt was made to obtain information relating to 1962 operations

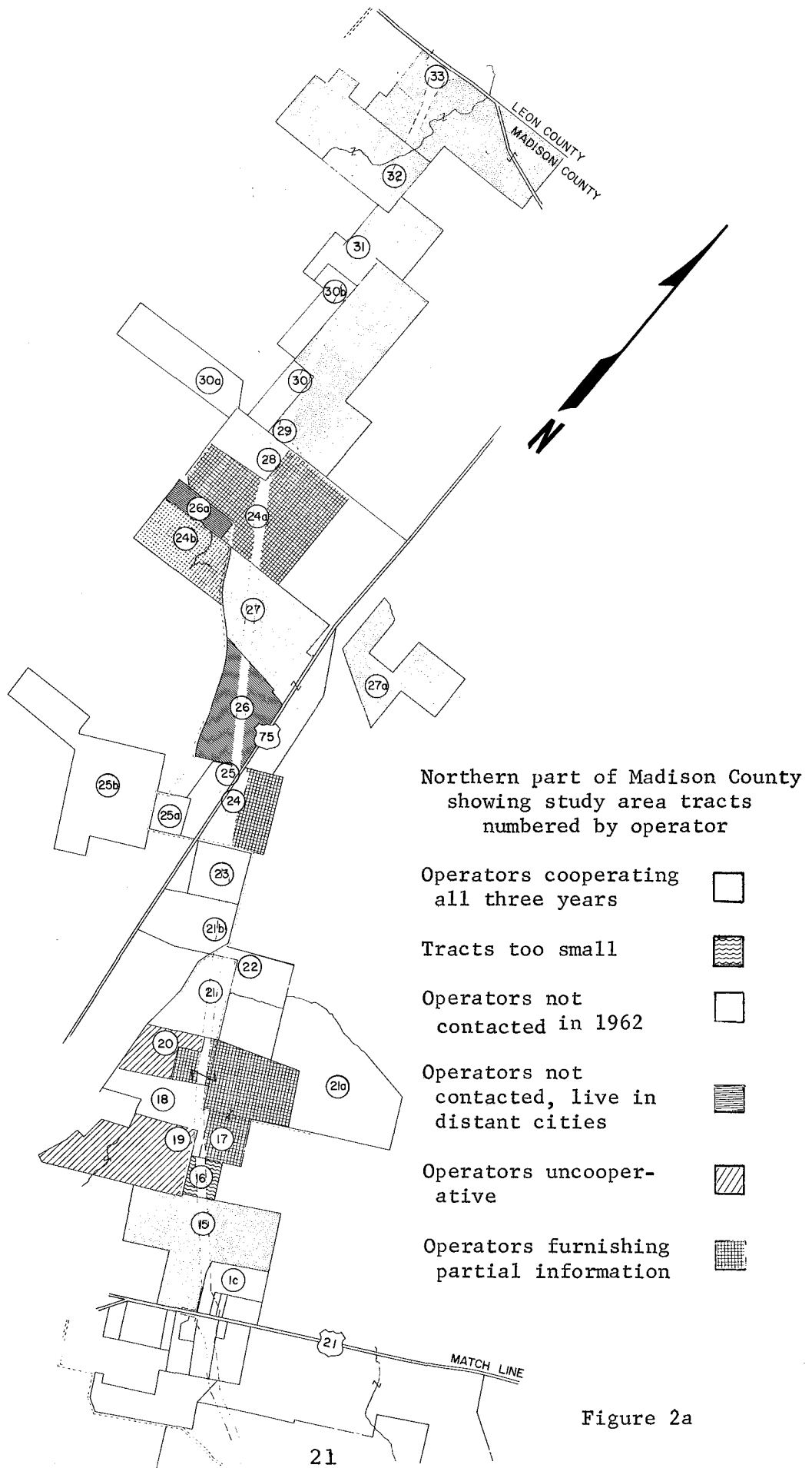
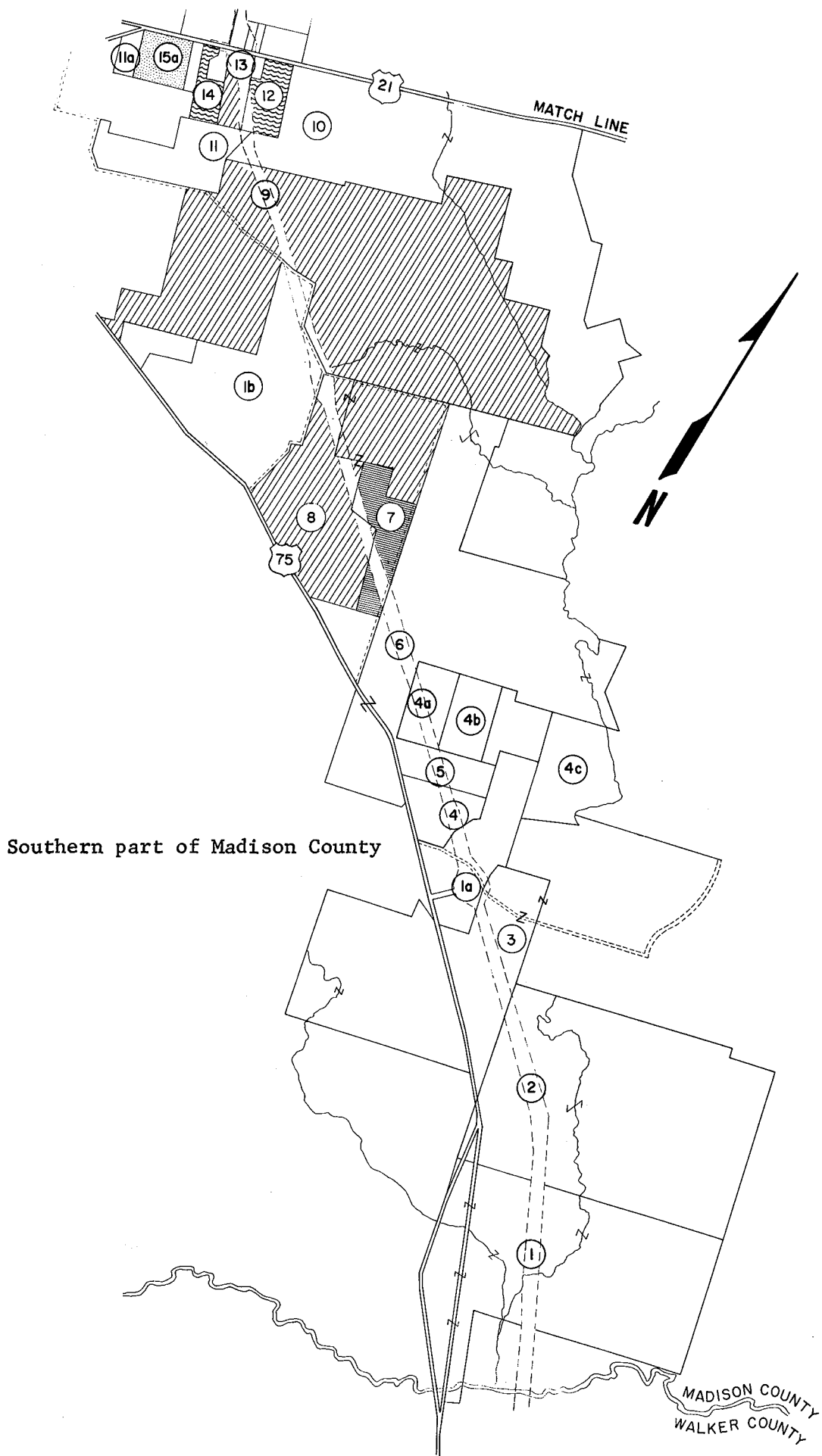


Figure 2a



Southern part of Madison County

MADISON COUNTY
WALKER COUNTY

Table 5

Degree of Participation of Study Area Operators
During 1962, 1964 and 1966 Interviews

	1962	1964	1966
Total number of operators affected by land acquisition for the highway right of way	33	33	33
Operators not contacted	11	5	5
Small operations (not within scope of study)	3	3	3
Operators who had not completed ROW negotiations	6	0	0
Operators living in distant city	2	2	2
Number of operators that were uncooperative	7	6	5
Number of operators supplying partial information	0	1	2
Number of operators that furnished complete information	15	21	21
Number of operators cooperating both years (1964-1966)	0	21	21
Number of operators cooperating all three years	15	15	15

for the latter six operators, but they were unable to document their operations from old records.

Seven more of the 33 study area operators either refused to participate or furnished only a limited amount of information on their operations. Two of these operators are included in some of the analyses in the report. These two operators are those who supplied only partial information in 1966.

After all questionnaires covering 1962, 1964, and 1966 operations were edited, it was found that complete and detailed information for each year was obtained from 15 study area operators. The six additional operators furnished complete information on their 1964 and 1966 operations. These are the six operators that were not contacted because right of way negotiations had not been completed at the time the 1962 information was gathered. Data on their 1964 and 1966 operations are combined with the 15 operators' 1964 and 1966 operations for presentation in the report.

Control Area

The control area also had 33 operators having property touched by an imaginary line drawn through the area. The degree of participation of these operators is shown in Table 6. In 1963, when information was gathered on 1962 operations, there were several operators that were not contacted. Two operators had operations that were considered too small to include in the study, and five others lived in distant cities and could not be reached. One of the five operators returned to his farm later and was included in the 1964 and 1966 operations. In the first

Table 6
 Degree of Participation of Control Area Operators
 During 1962, 1964, and 1966 Interviews

	1962	1964	1966
Total number of operators in the control area having land touching the control line through Madison County	33	33	33
Operators not contacted	7	6	8
Small operators (not within scope of study)	2	2	2
Operators living in distant cities	5	4	4
Operators ceasing operations (leased out land)	0	0	2
Number of operators that were uncooperative	4	2	3
Number of operators supplying partial information	5	2	0
Number of operators that furnished complete information	17	23	22
Number of operators cooperating both years (1964-1966)	-	22	22
Number of operators cooperating all three years	17	17	17

round of interviewing, four operators preferred not to participate in the study. Two of these operators agreed to cooperate when contacted the next time, but one would not cooperate in 1966. Only partial information was obtained from five operators in 1962, but more complete data were obtained in the last two years.

After eliminating the operators mentioned above for the various reasons there were 22 control area operators supplying complete information on their 1964 and 1966 operations, and 17 of these operators supplying detailed information for each of the three years. However, one of the 17 control area operators was a dairyman and is not included in the analysis covering the three years since the dairyman in the study area did not furnish data in 1962.

Characteristics of Operators

Although some operators furnished only a limited amount of information concerning their operations, they did supply some facts about their age, retirement, and work off the farm. Table 7 presents some such information on 23 study area and 23 control area operators completing this part of the questionnaire. Study area operators on the average were six years older than operators of the control group. The ages of the 23 study area operators ranged from 33 to 76 years, while the control group ranged from 31 to 69 years of age in 1964.

To gain a better understanding of the importance of agriculture to each operator, questions were asked pertaining to outside employment or income from sources other than farming.

Table 7

Off-Farm Work and Sources of Income of 23 Study
Area and 23 Control Area Operators in Madison County in 1964

	<u>Study</u>	<u>Control</u>
<u>Off-Farm Work</u>		
Operators with No Off-Farm Work (number)	16	13
Operators with Part-Time Jobs (number)	4	5
Operators with Full-Time Jobs (number)	3	5
<u>Percent of Income from Agriculture</u>		
Average for All Operators (percent)	60	57
Operators with 75% or More from Agriculture (number)	13	13
Operators with 50-74% from Agriculture (number)	3	4
Operators with Less Than 50% from Agriculture (number)	7	7
<u>Other Sources of Income</u>		
Social Security, Operators Receiving (number)	10	12
Oil and Gas Rental Operators Receiving (number)	15	13

Since the Madison County area is characterized primarily by ranching or livestock farming, the operators are not as continually required to be at their farms as in other types of farming. This allows some of the smaller operators an opportunity to supplement their income with outside employment. In fact, a number of the operators with full-time jobs were actually using their livestock operations to supplement their incomes.

The percentage of income from outside sources ranged from five percent to 95 percent for each of the two groups. The study area group received an average of 60 percent of their income from agriculture compared with 57 percent for the control group. Sixteen of the study area and 13 of the control area operators had no off-the-farm employment. Four of the study area operators had part-time jobs and three had full-time off-the-farm employment. The 10 control operators were equally divided between those with full-time jobs and those working off-the-farm part-time.

Operators received income from other sources over the years. The two most common were retirement income and oil and gas rentals. Ten operators in the study area and 12 in the control area received retirement benefits. Fifteen of the study area and 13 control area operators received income from oil and gas rentals and royalties.

Acreage and Tenure of Right of Way Tracts

Table 8 presents the acreage and tenure arrangements for 29 right of way tracts and 24 control tracts operated by the operators cooperating in this phase of the study. The 29 study area tracts affected by

Table 8

Number and Acreage in Right of Way Tracts of 23 Study Area
and 23 Control Area Operators in
1962, 1964 and 1966

	1962 (Before)			1964 (During)			1966 (After)		
	Operators (Number)	Tracts (Number)	Acres (Number)	Operators (Number)	Tracts (Number)	Acres (Number)	Operators (Number)	Tracts (Number)	Acres (Number)
<u>S T U D Y A R E A</u>									
<u>Total Land</u>	23	29	10,493	23	51	9,806	23	49	9,764
Land Owned	21	27	8,147	21	47	7,498	21	46	7,496
Land Rented	2	2	2,346	3	4	2,308	2	3	2,268
<u>Increased Acreage</u>				2	2	88	2	2	32
Land Purchased				2	2	48	2	2	32
Land Rented				1	1	40	0	0	0
<u>Reduced Acreage</u>				22	28	775	4	4	74
Right of Way Acquisition				22	28	683	0	0	0
Land Sold				3	3	84	3	3	33
Release of Rented Land				1	1	8	1	1	40
Owned Land Leased				0	0	0	1	1	1
<u>C O N T R O L A R E A</u>									
<u>Total Land</u>	23	24	7,361	23	24	7,211	22	23	7,111
Land Owned	20	20	5,921	20	20	5,771	21	20	5,771
Land Rented	4	4	1,440	4	4	1,440	3	3	1,340
<u>Increased Acreage</u>				0	0	0	0	0	0
<u>Reduced Acreage</u>				2	2	150	1	1	100
Land Sold				2	2	150	0	0	0
Release of Rented Land				0	0	0	1	1	100

right of way acquisition contained 10,493 acres, or an average of about 360 acres each, in 1962. Only two of these tracts were leased by the operators; those being two rather large tracts of about 1,100 acres each. The 24 control area right of way tracts contained 7,361 acres, or an average of 298 acres each.

The Highway Department acquired 683 acres of land for the right of way from 28 tracts operated by 22 operators. This amounted to about 24 acres average from each tract, or an average of approximately 33 acres acquired from each operator. One operator was affected only by a drainage easement being acquired.

After the route had been established, the operators began making certain adjustments with their remaining tracts. No major changes occurred in property ownerships between 1962 and 1966. Property transactions of right of way tracts were confined to the small remainder tracts severed from the original right of way tract. By 1964, four operators had sold remainders or severed tracts and two operators, numbers 29 and 30, traded small tracts of land on opposite sides of the highway. The two tracts involved in the trade were a four-acre tract and a three-acre tract.

Two other adjustments dealing with leased land were made by operators between 1962 and 1964. Operator 31 leased a 40-acre tract severed from his main tract to Operator 30 who had land across the highway adjoining the 40-acre tract. This arrangement was for only one year as Operator 30 surrendered the land at the end of 1964 and the owner then leased the tract to an operator outside the study area. The other adjustment was the termination of a lease agreement by

Operator 10 on an eight-acre tract severed from an original 1,000-acre tract at the time of right of way acquisition. The eight-acre tract has been idle since it was cut off by the highway.

Between 1964 and 1966 operators made additional adjustments with remaining right of way tracts. In all cases the land transactions by the operators involved small remainders created by the highway dividing the original tracts. Two operators purchased small tracts containing 32 acres. One of these tracts was a resale of a 30-acre remainder tract on the east side of the highway that was originally part of tract 23. This resale was to Operator 21 who owns the adjoining tract 21b. The other sale was a three-acre tract purchased by Operator 24 from Operator 28 in 1965. The three-acre remaining parcel located on the east side of the highway that was severed from the main tract of Operator 28 was contiguous to the property of Operator 24.

The other changes dealt with four small tracts of about one acre each out of larger tracts. In each case an oil company acquired land for a service station site near one of the interchanges. Three tracts were purchased; the other one was leased under a long-term arrangement.

Compared to the study area, the control area right of way tracts changed very little. There were two sales of land between 1962 and 1964, and the lease of one right of way tract was terminated. The first two sales were two 75-acre tracts sold off of a larger right of way tract. The other change, occurring in 1965, was of a tract containing 100 acres of land. This operator continued his operation as he had other tracts. Based on the difference in the number of sales and lease

agreements between the two groups of right of way tracts, it is evident that the study area operators had more property changing hands during the period following right of way acquisition.

Table 9 describes the 29 right of way tracts before and after the highway route was located. Before right of way taking the 29 tracts ranged in size from 68 acres for the smallest to 1,245 for the largest. The tracts averaged 362 acres in size, with the highway acquiring an average of about 23 acres from each tract.

After the highway was located, the 29 tracts were formed into 54 separate tracts ranging in size from two acres to 1,085 acres. In only five cases was the original right of way tract not divided by the highway, those being tracts 1c, 3, 11, 22, and 25. With the exception of tract 3, the highway route required a side or corner of the tract. Tract 3 was affected only by an easement.

Due to the realignment of a county road at its intersection with Interstate 45, tract 1b was formed into three separate parcels of 34 acres, 29 acres, and 122 acres. The other 23 right of way tracts cut into by the highway were formed into 46 separate tracts.

Acreage acquired for right of way ranged from two acres taken off the corner of a 166-acre tract, listed as tract 7 in Table 10, to a 62-acre strip across tract 2 which was originally a 1,245 acre tract before being divided into two tracts of 280 and 903-acres. Twenty-two of the 29 tracts affected by the highway had 15 acres or more acquired for right of way, and 12 tracts lost 25 acres or more to the highway.

The "M" after the remaining tracts in Table 9 designates that portion of the original tract used by the operator as point of entry or

Table 9
 Number, Size and Arrangement
 Of Right of Way Tracts Before and
 After Location of Highway

Tracts	Acres in Tract Before Acquisition	Acres Acquired for ROW	Tracts After Location of Highway		
			Number	Acres <u>1/</u> West	East
1a ^{2/}	1,019	48	2	381M	590
1b	224	39	3	34 29	122M
1c	334	9	1	325M	-
1d	80	16	2	58M	6
2	1,245	62	2	280M	903
3	489	Easement	1	-	489M
4	89	15	2	57M	15
5	81	12	2	29M	40
6	1,036	28	2	86	922M
11	166	2	1	164M	-
10	1,101	8	2	8	1085M
15	417	32	2	231M	154
18	152	17	2	133M	2
21a ^{2/}	180	25	2	122M	33
21b	191	14	2	165M	12
22	137	3	1	-	134M
23	100	16	2	55M	29
25	73	15	1	58M	-
27	334	31	2	76M	227
28	110	22	2	85M	3
29	520	40	2	9	471M
30	171	27	2	141M	3
31a ^{2/}	159	22	2	10	127M
31b	68	20	2	40M	8
32	354	24	2	297M	33
33	542	43	2	225	274M
17	319	22	2	15	282M
24a ^{2/}	164	33	2	20M	111
24b	640	38	2	353M	249
Totals:	10,493	683	54	3975	5835
Average Acreage Per Tract	362	24		137	233

1/ Location of tract with respect to highway. M designated portion of the right of way tract originally used by the operator as point of entry or headquarters before location of highway.

2/ Operators with more than one right of way tract.

Table 10
Size of Right of Way Takings Related To
Individual Tracts and Total Operations
(23 Operators)

Operators and Tracts ^{1/}	Operation	Right of Way Tract		Right of Way Taking		
	Number of Acres	Number of Acres	Percent of Total Operation	Acres Acquired	Percent of ROW Tract	Percent of Total Operation
1	2,985	1,657	55.5	112	6.8	3.8
a	-	1,019	34.1	48	4.7	1.6
b	-	224	7.4	39	17.4	1.3
c	-	334	11.2	9	2.7	0.3
d	-	80	2.6	16	20.0	0.5
2	1,773	1,245	70.2	62	5.0	3.4
3 ^{2/}	636	489	76.9	-	NA	NA
4	421	87	19.2	15	18.5	3.6
5	81	81	100.0	12	14.8	14.8
6	1,163	1,036	89.0	28	2.7	2.4
11	182	166	91.2	2	1.2	1.1
10	1,101	1,101	100.0	8	0.7	0.7
15	762	417	54.7	32	7.7	4.2
18	1,728	152	8.8	17	11.2	1.0
21	770	371	48.2	29	7.8	3.8
a	-	180	23.4	25	13.9	3.2
b	-	191	24.8	14	7.3	1.8
22	137	137	100.0	3	2.2	2.2
23	602	100	15.6	16	16.0	2.7
25	738	73	9.9	15	20.5	2.0
27	1,249	334	26.7	31	9.3	2.5
28	185	110	59.5	22	20.0	11.9
29	756	520	68.8	40	7.7	5.3
30	940	171	18.2	27	15.8	2.9
31	227	227	100.0	42	18.5	18.5
a	-	159	70.0	22	13.8	9.7
b	-	68	30.0	20	29.4	8.8
32	354	354	100.0	24	6.8	6.8
33	617	542	87.8	43	7.9	7.0
17	319	319	100.0	22	6.9	6.9
24	804	804	100.0	71	8.8	8.8
a	-	164	20.4	33	20.1	4.1
b	-	640	79.6	38	5.9	4.7
Totals	18,530	10,493	56.7	683	6.5	3.7

^{1/} Some operators had more than one ROW tract.

^{2/} Only an easement was acquired from this operator.

headquarters for the particular tracts before the highway route was established. In practically all cases these tracts were the larger of the two remaining tracts and the operator continued to use the same point of entry to reach the tracts. However, Operator number 2 has built corrals on his 903-acre tract and because of its size, now considers it as headquarters for this original right of way tract. Before the highway was constructed it was considered the back side of his place.

Table 10 shows the significance of the right of way taking to the right of way tract and to the total operation and the relationship of the right of way tract to the total operation.

The 23 operations varied in size from 81 acres for the smallest to an operation using six tracts containing 2,985 acres. The right of way tracts represented 56 percent of the total acreage operated at the time the highway was routed through the area. The 683 acres acquired for right of way represented 6.5 percent of the acreage in all the right of way tracts and 3.7 percent of total land in the 23 operations.

Operators 1, 21, 24, and 31 had more than one right of way tract from which land was acquired. Operators 1 and 21 had additional non-right of way tracts, but Operators 31 and 24 had two right of way tracts each which constituted their total operation. The 43.2 acres acquired from the two tracts containing 227 acres owned by Operator 31 represented 18.5 percent of the original acreage. The taking from the other operation, number 24, amounted to only 8.8 percent of the total acreage as the tracts were considerably larger. In seven instances the right of way tracts represented an operator's total operation. In nine

other cases the right of way tracts represented over 50 percent of an operator's total acreage. This group includes Operator 1 who had four tracts affected by the highway. These four tracts contained 55.5 percent of the total land in his operation. In seven cases the right of way tracts represented less than 50 percent of an operator's total land. The right of way tracts of five of these operators accounted for less than 25 percent of their total land.

Summarizing Table 10, in most cases the amount of land acquired from each operator was a rather small percentage of his total operation. But, for individual tracts, the right of way taking frequently reduced the useable acreage for ranching more than the actual loss of acreage might indicate. In these cases, operators with small remainder tracts of 15 acres or less not contiguous to any of their other operations found it uneconomical to fence and use the small remainder. Some of these small tracts have been sold, but five others were still idle in 1966.

In order to have a better understanding of each operation and how it was affected by the highway, it is important to establish the types of land acquired for the new highway. This is shown in Table 11. According to operators of the right of way tracts, no cropland was acquired. There were cases, however, in which land was taken that had been cropland years ago but which operators had long been using as pastureland and was, therefore, no longer classified as cropland.

Only one rural residence was acquired. The new highway route cut through the occupant's operation taking 16 acres of land, his home, and

Table 11

Major Use of Land Acquired for
Right of Way of Interstate 45 through Madison County
from 29 Tracts of 23 Operators

Type of Land	Number of Tracts ^{1/}	Land Acquired for Right of Way		
		Acres	Percent of Total Acres	Average Acres per Tract
<u>Pastureland</u>	29	681	99.7	23
Woodland	8	104	15.2	13
Cleared Unimproved	24	462	67.7	19
Improved	6	115	16.8	19
<u>Rural Residence</u>	1	2	.3	2
<u>Cropland</u>	0	0	0	0
<u>Totals</u>	29	683	100.0	24

^{1/} The number of tracts from which the specified type of land was acquired. Some right of way tracts had more than one type of land in the right of way.

all improvements, such as barns and a well, that were located on some two acres of the land.

Cleared pastureland was taken from 24 tracts and accounted for 67.7 percent of the land acquired. Some of this land had been cleared of timber in recent years, but for the most part it had been previously used as cropland years ago. The path of the highway cut across eight tracts with woodland and acquired an average of 13 acres from each operator. The improved pastureland was the land operators most cherished at the time of right of way acquisition. Some operators with improved pastures reported that they had spent from \$30 to \$75 per acre clearing timber, fertilizing, and establishing improved grasses. The right of way included 115 acres of improved pastureland from six tracts.

Information was obtained from the Texas Highway Department regarding payments to land owners for right of way acreage. This includes both the fee taking, land for drainage easements, and damages to remaining property. Table 12 lists the 23 operators, the acreage acquired, and the amount each received for land and damages. Of the 23 operators listed in Table 12, only two were not owner-operators of the right of way tracts. These were Operators 2 and 10.

The operators received an average of about \$186 per acre for the land taken and an average of about \$63 per acre in damages or a combined total of about \$249 per acre lost. On the other hand, damages are not paid on land taken but on the damage to remaining land caused by the highway. Therefore, 23 operators with 49 remainder tracts containing 9,810 acres of land received an average of \$4.90 per acre in damages to their remaining land. Payments received ranged from \$.46 per acre for

Table 12

Kinds and Amounts of Payments Received by 23 Operators For
Right of Way For Interstate 45 Through Madison County

Operators	Size of ROW Tract Acres	Land Acquired For		Payment Received				
		ROW (Fee) Acres	Easement Acres	Land Dollars	Damage Dollars	Improvements Dollars	Easement Dollars	Total Dollars
1	1,657 ^{1/}	112	3.8	14,091	10,284	5,358	397	30,130
2 ^{2/}	1,245	62	3.7	10,270	-	3/	273	10,543
3	489	-	4.2	-	-	-	264	264
4	87	15	1.8	1,881	891	3	215	2,990
5	81	12	-	2,000	529	-	-	2,529
6	1,036	28	0.5	4,770	1,350	470	60	6,650
11	166	2	-	252	210	-	-	462
10 ^{2/}	1,101	8	1.0	1,035	502	4	68	1,609
15	417	32	2.6	10,746	2,000	3/	-	12,746
18	152	17	2.5	4,035	847	139	-	5,021
21	371 ^{4/}	39	-	8,000	3,600	320	-	11,920
22	137	3	-	314	118	-	-	432
23	100	16	-	2,733	1,350	6,916	-	10,999
25	73	15	-	5,320	-	232	-	5,552
27	334	31	-	7,617	2,619	-	-	10,236
28	110	22	-	4,448	1,012	22	-	5,482
29	520	40	0.6	9,075	3,193	-	90	12,358
30	171	27	1.0	5,349	2,624	-	155	8,128
31	227 ^{5/}	42	0.5	8,362	2,300	241	79	10,982
32	354	24	0.5	4,154	2,665	4	62	6,885
33	542	43	0.9	9,650	2,720	-	100	12,470
17	319	22	0.2	2,673	888	460	-	4,021
24	804 ^{6/}	71	0.6	10,133	3,800	900	80	14,913
Totals	10,493	683	24.4	126,908	43,502	15,069	1,843	187,322

^{1/} Consists of four tracts of 1,019, 224, 334, and 80 acres each.

^{2/} Operator did not own right of way tract but leased it.

^{3/} Adjustments on stock passes. Money operators received was used for enlarging drainage structures for cattle passes.

^{4/} Consists of two tracts of 180 and 191 acres each.

^{5/} Consists of two tracts of 159 and 68 acres.

^{6/} Consists of two tracts of 164 and 640 acres.

Operator 10 with two tracts remaining containing 1,093 acres and eight acres each to \$18.22 per acre for Operator 30, also with two remaining tracts of 141 acres and three acres. Distribution of operators based on damages received per acre of remaining land is as follows: three operators no payments; six operators received from \$1 to \$5 per acre; nine operators \$5 to \$10 per acre, three operators \$10 to \$15 per acre, and two operators \$15 to \$20 per acre.

Table 13 presents the status of the 24 right of way tracts divided by the highway immediately after acquisition and three years later. Also shown are the average size of the remaining tracts and the sales of land occurring during the period of study.

The remaining right of way tracts are classified into two groups; those considered by the operators as the main remainder of the right of way tract and those tracts considered severed from the original tract. Right of way acquisition divided the 24 original tracts into 49 separate tracts, 24 main tracts, and 25 severed tracts. The average size of the two groups was 248 acres and 107.3 acres respectively. The distribution of the two groups of remaining tracts was considerably different. Distribution of tracts by size is shown below:

24 Main Tracts (Tracts)	Acreege (Acres)	25 Severed Tracts (Tracts)
1	0 - 25	11
2	26 - 50	6
10	51 - 150	2
6	151 - 300	3
5	300 & Over	3

Table 13

Tenure and Size of the 24 Right of Way Tracts of 20
That were Divided by Interstate 45

	Main Portion of Right of Way Tract			Severed Portion of Right of Way Tract		
	Tracts Number	Total Acres	Average Size Acres	Tracts Number	Total Acres	Average Size Acres
<u>Characteristics of Tracts</u>						
<u>Immediately After</u>						
<u>Right of Way Acquisition</u> ^{1/}						
All Tracts	24	5,957	248	25	2,683	107.3
Owned	22	4,592	208.7	23	1,772	77.0
Rented	2	1,365	682.5	2	911	455.5
<u>Characteristics of Tracts In</u>						
<u>1966</u>						
Tracts Being Used by Original Operators	24	5,957	248	14	2,518	179.9
Owned	22	4,592	208.7	13	1,615	124.2
Rented	2	1,365	682.5	1	903	903.0
<u>Tracts Being Used by Others</u> ^{2/}						
Owned	-	-	-	3	20	6.7
<u>Idle Land</u>	-	-	-	5	60	14.5
Owned	-	-	-	4	52	16.7
Rented	-	-	-	1	8	8

^{1/} Twenty-four of the 29 right of way tracts were divided into 49 separate tracts by the highway.

^{2/} Small tracts on opposite side of highway from main parcel and being used in 1966 by other operators with land adjacent to the small tracts. Two of the three tracts are used by two operators on trade.

Seventeen of the remaining severed tracts were of less than 50 acres in size as compared to only three of the main tracts. Eleven of these severed tracts were smaller than 25 acres, while only one of the main right of way tracts was less than 25 acres in size. Twenty-one of the main tracts were over 50 acres in size as compared to only eight of the severed tracts.

At the end of 1966 the operators were still using 14 of the severed tracts and all of the main right of way tracts. The increase of some 73 acres in the average size of the 14 severed tracts in 1966 is due to the operators disposing of, or failing to use the smaller remainders.

Seven severed tracts were involved in a change in ownership or operatorship. Four tracts totaling 87 acres were sold between 1962 and 1966. This includes only those severed tracts where the entire tract was sold. In a number of cases small tracts of an acre or less were leased or sold off of both the severed as well as off the main right of way tracts. These sales are not shown in Table 13. Three of the tracts, a three acre, a 19-acre, and a 29-acre tract, were purchased by other study area operators with property adjoining the small tracts. The 29-acre tract changed hands twice. First it was purchased from Operator 23 by Operator 3 for an investment. Operator 3 sold grass sod and fill dirt to the highway contractor, then resold the land later to study area Operator 21 in 1965 with property adjoining the 29 acres. The other two tracts changing hands, a 15- and a 40-acre tract, were purchased by persons from Houston for future use as retirement home sites. Ownership was retained on the other three small tracts, but neighbors across the

highway were using the small severed remainders. In each of these cases the tracts were unimproved pastureland. Two of the operators exchanged the use of small remainders of three and nine acres located on opposite sides of the highway from their main right of way tract. The other tract of eight acres was being used by a relative, rent free.

Five operators had severed tracts that had been idle since the highway route cut through their property. Three of these tracts were relatively small and the operators felt it was uneconomical to fence and provide stock water for such small acreages. At the time of the last interview, the operators reported they had no plans to use the land. None of the tracts were for sale in 1966 but probably will be sold in three to five years. The tracts consisted of a two-, five-, eight-, 15-, and 30-acre parcel. The 30-acre tract was cleared of timber in 1964 and sodded in coastal bermuda. The tract still had not been fenced along the right of way. The operator reported that he planned to fence it later but had problems getting hired labor and also the grass needed time to become well established. The owner of this tract sold dirt to the highway contractor and the excavation formed a two acre farm pond providing an adequate water supply for livestock.

Disposition of Money Received For Right of Way

The 21 owner-operators reported that their major expense following right of way acquisition was the construction of fences along the highway. Two operators used part of the money received for land and damages to enlarge drainage structures across the highway to permit their use as cattle passes.

What does a property owner do with the money he receives for land acquired by the Highway Department for right of way? More knowledge on this subject was one of the objectives of this study. Since the Highway Department has no further contact with the land owner, it should benefit negotiators to know just how the property owner uses his money.

At the time of the interviews, the operators had some difficulty in tracing the flow of money after it was deposited in the bank. However, in many cases the operators were able to provide detailed allocations of the money received since they kept records for tax purposes on the disposition of the right of way money. Others reported allocations as a percentage of total money received.

A detailed accounting of how the operators used their compensation is shown in Table 14. More than half of the 21 operators deposited some or all of the money in savings accounts. Money placed in savings accounts in 1963 but checked out later (before 1966 interviews) and used was not included in this category. Savings represented 39.2 percent of total money received. The next largest sum of money was spent on the improvement of agricultural land. Ten operators spent some \$33,000 or 19 percent of the money on pasture improvements such as clearing timber, planting and fertilizing improved varieties of permanent grasses. Those improvements enable the operators to graze more cattle on fewer acres. The next largest expenditure was made by two operators that used their money to buy other land.

Operators spent about 14 percent of their compensation on items that were necessitated to continue the use of right of way tracts for

Table 14

How 21 Operators Spent Money Received for
Interstate 45 Right of Way

Items	Number of Operators	Percent of Operators	Amount of Money Used	Percent of Money Received for ROW
Improve Land				
Agricultural Purposes	10	47.6	33,282	19.0
Commercial Purposes	1	4.8	8,643	4.9
Construct Buildings or Corrals				
Severed Tracts	6	28.6	4,932	2.8
Other Tracts	1	4.8	1,033	.6
Purchased Livestock	1	4.8	708	.4
Purchased Land	2	9.5	20,186	11.5
Fencing				
Right of Way	20	95.2	14,091	8.0
Other	3	14.2	565	.3
Improve or Construct Home	2	9.5	10,509	6.0
Water Supply	4	19.0	2,181	1.2
Paid on Land Note	2	9.5	6,049	3.5
Improve Cash Position Saving and Loan	13	61.9	68,628	39.2
Cattle Passes	2	9.5	4,381	2.6
Total			175,188*	100.0

* An additional \$18,934 received by two operators was not included because they would not reveal how the money was used.

livestock operations. Money was spent on corrals and buildings on severed tracts by six operators. Twenty operators spent \$14,091 for right of way fencing, and four operators spent \$2,181 for construction of reservoirs for stock water on the six severed tracts. The other expense directly associated with the highway was that of enlarging two drainage structures to enable their use as cattle passes.

Two operators used their money to replace or improve their homes. One operator purchased a home in town to replace his rural home taken by the right of way acquisition. The other used all his money as partial payment on a new brick home, although his older frame home was not taken by the right of way.

An operator with land located at the intersection of Interstate 45 and Highway 21 excavated dirt and built up the area near the intersection making it suitable for commercial property. The excavation also formed a three to four acre lake. This has proved to be a wise investment as the owner has leased land to two traffic serving businesses which have located on part of the elevated area.

Table 14 indicates that the operators used about 80 percent of their money to either improve their cash positions or to make various types of improvements to their remaining property. In most cases the improvements were made to the remaining right of way tracts.

OPERATIONS OF 15 STUDY
AND 16 CONTROL AREA OPERATORS

This section of the report deals only with the 15 study area and 16 control area operators that furnished detailed information on their total operations for all three years; 1962, 1964, and 1966. (One control area operator was removed from the 17 control area operators that cooperated all three years. His operation as a dairyman was not comparable to the 15 study area operations.)

The average age of operators in the two areas was about the same. The ages of the study and control operators in 1964 also compared closely with the average age (54) of the 696 Madison County farmers reporting in the 1964 census of agriculture. In 1964, ages of operators ranged from 33 to 75 for the study area compared to 38 to 67 years for the control group.

Shown in Table 15 are the employment patterns of the 15 study and 16 control area operators considered in this section. There was no change in the status of the operators earning over 75 percent of their income from agriculture over the three study periods. Nine of the 15 study operators and five of the control group were in the over 75 percent category. Actually, these operators depended almost entirely on their ranching operations for their livelihood. A few of these operators that were receiving social security or retirement benefits appeared to be waiting for an opportunity to phase out their operations. This was done between 1962 and 1966 by two study area operators. One reduced his operation from a 150-cow operation to a 30-cow operation in 1963 when the highway acquired all improvements on his headquarters

Table 15

Off-Farm and Sources of Income of 15 Study
and 16 Control Area Operators

	<u>Study</u>	<u>Control</u>
<u>Off-Farm Work</u>		
Operators with No Off-Farm Work (number)	8	6
Operators with Part-Time Jobs (number)	4	6
Operators with Full-Time Jobs (number)	3	4
<u>Percent of Income from Agriculture</u>		
Average for All Operators (percent)	58	51
Operators with 75% or More from Agriculture (number)	9	5
Operators with 50-74% from Agriculture (number)	0	3
Operators with Less than 50% from Agriculture (number)	6	8
<u>Other Sources of Income</u>		
Social Security, Operators Receiving (number)	7	6
Oil and Gas Rental, Operators Receiving (number)	13	4

tract. The other reduced his operation between 1964 and 1966 as he leased out 1,100 acres of land. In general, both the study and control area operators reported that they were depending less on agriculture as their primary source of income in 1964 than in 1962. In 1964 the operators in the study area reported that an average of 58 percent of their income came from agriculture compared to 51 percent in the control area. Seven study area and 10 control area operators depend on outside employment to supplement their agricultural income. In the study area three operators had full-time and four had part-time off-the-farm jobs compared to four control area operators with full-time jobs and six with part-time off-farm employment. There was little variation in their work pattern during the years of the study. Thirteen of the study area and four control area operators reported receiving additional income from oil and gas rentals and royalties.

Tables 16 and 17 present a breakdown on acreage and tenure of 15 study and 16 control area operators in 1962, 1964, and 1966. The acreage figures are based on the total land area operated. The study area acreage shown in Table 16 is somewhat larger than that of the control area shown in Table 17. There were six operators in the study area with operations of over 1,000 acres as compared to only three in the control area. These rather large operators were primarily responsible for the extra large amount of acreage in the study area.

Study area and control area farmers were operating an average of 2.9 and 1.9 tracts of land respectively in 1962. In 1964, the "during" period, the study area operators had 3.7 tracts to 2.2 for the control operators. The large increase in number of tracts operated by the study

Table 16

Changes in Land Owned and Rented by
15 Study Area Operators in 1962, 1964, 1966

	1962 Before			1964 During			1966 After		
	Operators Number	Tracts Number	Acres Number	Operators Number	Tracts Number	Acres Number	Operators Number	Tracts Number	Acres Number
<u>Total Land</u>	15	43	13,442	15	56	12,963	15	52	12,708
Land Owned	14	30	9,437	14	42	9,026	14	38	8,463
Land Rented	7	13	4,005	7	14	3,937	7	14	4,245
<u>Increased Acreage</u>					7	559	3	4	1,334
Land Purchased				3	4	165	1	1	34
Land Inherited				-	-	-	1	1	600
Land Rented				2	3	392	2	2	700
<u>Reduced Acreage</u>				14	25	1,036	4	7	1,589
Right of Way Acquisition				14	19	378	-	-	-
Land Sold				3	3	75	3	3	97
Release of Rented Land				1	2	283	2	3	392
Reduced Operations				1	1	300	1	1	1,100
Net Change Between Years				-	13	-479	-	-4	-255
Net Change Between 1962-1966							-	9	-734

Table 17

Changes in Land Owned and Rented by
16 Control Area Operators in 1962, 1964, 1966

	1962 Before			1964 During			1966 After		
	Operators Number	Tracts Number	Acres Number	Operators Number	Tracts Number	Acres Number	Operators Number	Tracts Number	Acres Number
<u>Total Land</u>	16	30	9,236	16	35	9,598	16	35	9,838
Land Owned	15	23	7,557	15	24	7,389	16	26	7,627
Land Rented	5	7	1,679	8	11	2,209	6	9	2,211
<u>Increased Acreage</u>				4	6	718	1	2	440
Land Purchased				2	2	178	1	2	440
Land Rented				4	4	530	-	-	-
<u>Reduced Acreage</u>				1	1	356	2	2	200
Land Sold				1	1	356	-	-	-
Release of Rented Land				-	-	-	2	2	200
Net Change Between Years				-	+5	+362	0	0	+240
Net Change Between 1962-1966								+5	+602

area group in 1964 was caused primarily by the highway creating extra tracts when some of the original right of way tracts were divided into non-contiguous parcels. There was no change in the number of tracts between 1964 and 1966 for the control group, but the study area operators reduced their tracts from 56 to 52 during the period.

Considering all the exchanges of land, the study area operators in Table 16 experienced small decreases in the amount of land operated over the years as compared to an increase in acreage of the 16 control area operators shown in Table 17. Study area operators had 734 acres less land in 1966 than they had in 1962, compared to the control area operators increasing their operations by 602 acres. A big factor in the decrease of the study area acreage in 1964 was the 1,036 acres acquired for the highway.

In 1962, owner-operators held about 70 percent of the land, the study area with the other 4,005 acres shown in Table 16 being leased or rented land. In the control group about 82 percent of the land was owner-operated and 18 percent was leased land. The ratio of owner-operator acreage showed no significant change, but in each area there was a small percentage decrease in the owner-operator acreage.

The reduction of study area acreage in 1964 and 1966 resulted from the selling of land, a decrease in rented land, and two operators cutting back their operations. Poor health caused both of these operators to reduce their operations, but they retained ownership of their 300- and 1,100-acre tracts. In each case they leased the tracts to operators outside the study area. Seven tracts containing 559 acres were added by study area operators in 1964, but at the same time 1,036

acres were subtracted from their operations. About one-third of this land was purchased for the highway right of way. One might have expected study area operators to have purchased more land than those in the control group in an effort to replace the land acquired for right of way. This was not the case. Study area operators may have felt it was to their advantage to invest right of way compensation in improving their remaining land rather than in expanding their operations.

With a few minor exceptions, there appear to be no differences in tenure patterns of the 15 study area and 16 control area operators. Property sales were more prevalent in the study area than in the control area. These sales were influenced by the highway as all but one of the tracts selling after 1962 were small remainders along the highway.

Land Use on Right of Way Study and Control Tracts

One of the primary concerns of this study is the effect of the highway on land use of the right of way tracts. Table 18 shows the land use of the 19 right of way tracts along Interstate 45 and of the 16 tracts touched by the line drawn through the control area. This presentation includes right of way tracts of only those 15 study and 16 control operators that cooperated for three years. Land was classified in such a way as to show any changes in use or the degree of intensity of use.

The decrease of 428 acres of land from 1962 to 1964 in Table 18 is a result of acreage acquired for highway right of way and the sale of three small remainder tracts. The additional decrease from 1964 to 1966 results from the sale of three small tracts.

Table 18

Changes in Land Use of Right of Way Study and
Control Tracts of 15 Study Area
and 16 Control Area Operators*

	1962		1964		1966	
	Percent of Total Land Study	Percent of Total Land Control	Percent of Total Land Study	Percent of Total Land Control	Percent of Total Land Study	Percent of Total Land Control
<u>Cropland</u>	4.4(6)	21.0(12)	4.7(7)	17.2(12)	4.3(5)	17.4(12)
Harvested	2.3(3)	3.3(6)	0.7(2)	1.9(4)	1.8(2)	1.0(4)
Harvested & Grazed	0.7(2)	16.6(8)	2.6(4)	14.7(10)	1.0(2)	14.0(8)
Government Program	1.4(1)	1.1(2)	1.4(1)	1.8(4)	1.5(1)	2.4(5)
<u>Pastureland</u>	95.1(15)	78.4(16)	93.9(15)	82.3(16)	95.3(15)	82.1(16)
Woodland	16.3(12)	49.4(14)	15.6(9)	49.4(13)	15.0(8)	46.0(13)
Cleared Unimproved	66.9(15)	18.0(9)	59.1(14)	21.7(10)	46.5(12)	20.3(11)
Cleared Improved	11.9(8)	11.1(4)	19.2(11)	11.2(4)	32.8(13)	15.8(8)
<u>Other Land</u> ^{1/}	0.5(11)	0.5(12)	1.4(10)	0.5(12)	1.4(10)	0.5(12)
Total Acreage	6,967	4,089	6,539	4,082	6,522	4,048

*Figures in parentheses represent number of operators.

^{1/} Includes idle land and land in buildings and roads.

Table 19

Changes in Land Use of 19 Right of Way
Tracts in the Study Area and 16 ROW^{1/}
Control Tracts in the Control Area^{1/}

	Study Area			Control Area		
	Acreage		Percent Change	Acreage		Percent Change
	Before	After		Before	After	
<u>Cropland</u>	307	280	- 8.8	856	703	-17.9
Harvested	162	120	-25.9	133	41	-69.2
Harvested & Grazed	45	65	44.4	679	564	-16.9
Government Program	100	95	- 5.0	44	98	122.0
<u>Pastureland</u>	6,627	6,153	7.2	3,212	3,324	3.5
Woodland	1,137	979	-13.4	2,022	1,864	- 7.8
Cleared	4,662	3,037	-34.9	738	822	11.4
Improved	828	2,137	158.1	452	638	41.2
<u>Other Land</u> ^{2/}	33	89	170.0	21	21	0
Totals	6,967	6,539	- 6.1	4,089	4,048	- 1.0

^{1/}"Before" and "after" periods refer to years 1962 and 1966.

^{2/} Includes idle land and land in buildings and roads.

On a percentage basis there appears to be no significant change in the amount of cropland and pastureland acres for the study and control area operators. It is evident, however, the study area operators did not depend heavily on crop production for income as only about four percent of their right of way tracts were in cropland. The control tracts touching the line had more land classified as cropland in each of the three years. They had diverted some cropland to pasture and were using more of the cropland for grazing in 1966.

There was a noticeable trend to a more intense use of pastureland in both areas from 1962 to 1966. However, the trend in the study area was more pronounced. The two areas had approximately the same percentage of land (between 11 and 12 percent) in improved pastures in 1962, but in 1966 almost one-third of the land in right of way tracts along Interstate 45 was in improved pastures as compared to 15.8 percent of the control area land in the same category. This major difference between the two areas can probably be related to a compensation received for right of way land. In adjusting for the loss of acreage, the study area operators were more aggressive in improving their pastureland. These operators might not have been as aggressive if they had not had the extra capital available from the right of way sale. The importance of the major increase in improved pastures is their grazing potential compared to that of unimproved pastures. The amount of grazing provided by one 10-acre plot of coastal bermuda properly managed and fertilized is remarkable. Operators can also harvest one to two cuttings of hay per year and still get three to five months of grazing in Texas before frost. Most of the operators with severed tracts of 50 acres or more were able

to utilize the severed parcels without great difficulty. After some adjustments to these tracts, such as construction of corrals or providing stock water, these operators were able to use the tracts like any other separate tract in their operation. In multiple tract operations this added only one more stop to trips for the feeding or inspection of livestock. In cases, however, in which the right of way tract represents an operator's total operation, the noticeable effect of its division by the highway is somewhat greater.

Ranch Operations

Table 20 presents a brief comparison of the two areas and some of the changes occurring from 1962 to 1966 which represents the "before" and "after" periods.

In 1962, the study area operators were operating 43 separate tracts of land compared to 30 tracts operated by the 16 control operators. This is an average of 2.87 tracts and 1.87 tracts per operator for the two groups of operators respectively. From 1962 to 1966 the study group gained nine additional tracts to five for the control group. This represented a 20.9 and 16.7 percent increase in tracts for the two areas. The study area operators had an average of 3.47 tracts as compared to the 2.19 tracts for control operators. The operators in both areas own a large part of the land in their operations. They rent or lease additional land on a year-to-year basis.

The big difference between the study and control areas was in the number of right of way tracts. The study area experienced a 42.9 percent increase compared to no change in the control group. The highway was naturally responsible for the increased tracts.

Table 20

Changes in Owned and Rented Land of 15 Study Area and
16 Control Area Operators Before and After
the Highway, 1962-1966

	Study Area			Control Area		
	Before	After	Percent Change	Before	After	Percent Change
<u>All Tracts Operated</u>	43	52	20.9	30	35	16.7
Owned (Number)	30	38	26.7	23	26	13.0
Rented (Number)	13	14	7.1	7	9	28.6
<u>ROW Tracts</u>	21	31	42.9	16	16	0
Owned (Number)	19	27	42.1	13	13	0
Rented (Number)	2	3	50.0	3	3	0
<u>Total Land Operated (Acres)</u>	13,442	12,708	-5.5	9,236	9,838	6.5
Owned (Acres)	9,026	8,463	-6.2	7,557	7,627	0.9
Rented (Acres)	4,005	4,245	6.0	1,679	2,211	31.7
<u>Total Land in ROW Tracts (Acres)</u>	6,967	6,539	-6.1	4,089	4,048	-1.0
Owned (Acres)	4,637	4,271	-7.9	2,672	2,631	-1.5
Rented (Acres)	2,330	2,268	-2.7	1,417	1,417	0
Average Tracts Operated (Number)	2.87	3.47	20.9	1.87	2.19	17.1
Average Land Operated (Acres)	896.0	847.0	-5.5	577.0	615.0	6.5

The study area experienced a 5.5 percent decrease in total acreage while the control group had a 6.5 increase in acreage. This change in acreage affected the average size of the operation. The study area operations decreased from 896 acres per operator in 1962 to 847 acres in 1966, while the control group showed an increase from 577 acres per operator to 615 acres over the same period.

The right of way tracts in the study area followed the expected pattern with 6.1 percent reduction in acreage caused by the acquisition of land for the highway route. The sale of 41 acres in the control area caused a 1.0 percent drop in the acreage of the control group.

Land Use

Land use patterns of both the 15 study area and 16 control area operators generally followed those of Madison County as revealed by agricultural census data. Table 21 presents a comparison between the cropland and pastureland acreage based on degree of intensive use between the study area and control area operations. Land in each classification is shown as a percent of the total acres in the particular year's operation.

The study area operators classified only a small amount of land as cropland in 1962, while about 17 percent of the control area land was so classified. This does not necessarily mean that crops were harvested from this land during either of these years. Land may be classified as cropland even though it has not been farmed for a number of years. If the land has been used in the production of crops and is still suitable for such use, it may be classified as cropland. This is the status of

Table 21

Comparison of Land Use of Total Operations of the 15 Study Area
and 16 Control Area Operators in 1962, 1964, 1966*

	1962		1964		1966	
	Percent of Total Land Study	Control	Percent of Total Land Study	Control	Percent of Total Land Study	Control
<u>Cropland</u>	4.7(7)	17.3(13)	5.7(11)	17.0(15)	3.7(7)	18.8(15)
Harvested	1.3(3)	3.5(6)	1.0(4)	1.7(7)	0.9(2)	0.6(3)
Harvested & Grazed	0.9(2)	0(0)	2.7(7)	1.1(5)	0.7(3)	2.6(8)
Grazed	1.7(3)	13.3(8)	0.6(3)	13.3(13)	0.9(3)	13.6(12)
Government Program	0.8(1)	0.5(2)	1.4(3)	0.9(4)	1.2(3)	2.0(7)
<u>Pastureland</u>	95.0(15)	82.2(16)	94.0(15)	82.5(16)	96.0(15)	80.8(16)
Woodland	20.9(15)	30.8(16)	21.2(14)	27.8(15)	21.2(14)	23.6(14)
Cleared Unimproved	65.0(15)	14.7(12)	60.4(15)	16.3(11)	46.0(15)	15.4(12)
Improved	9.1(6)	36.7(5)	12.4(9)	38.4(6)	28.8(12)	41.8(10)
<u>Other Land</u> ^{1/}	0.3(12)	0.5(16)	0.3(12)	0.4(16)	0.3(12)	0.4(16)
Total Acreage	13,497	9,503	12,961	9,537	12,708	9,828

*Figures in parentheses represent the number of operators.

^{1/} Includes idle land and land in buildings and roads.

much of the designated cropland in the Madison County area. Study area operators had a smaller percentage of their land considered to be cropland than control operators. However, there is a possibility that some of the difference was caused by the difficulty of classifying old cropland fields that had long been in use as pastureland.

In both areas, acreage used for crop production decreased during the period of study. The amount of cropland grazed remained rather stable in both areas, with the control area operators reporting about 13 percent of their acreage used this way compared to about one percent for the study group. In most cases this land was used to furnish supplementary grazing in the winter and summer months. Small grains were planted for winter grazing and a hybrid sudan usually was planted for summer grazing. Much of the old cropland acreage has been planted in improved varieties of perennial grasses and is now classified as improved pastureland. These grasses, such as coastal bermuda, provide an abundance of grazing per acre as compared to native grasses in the unimproved pastures. Operators with improved pastures not only benefit from abundant grazing during the year, but also may harvest one or two cuttings of hay for winter forage.

A few operators in both areas participated in government programs and had small acreages in the "soil bank" and grain programs. The increased number of participants in the government programs in 1964 was the result of a new deferred grain acreage program that was not in effect in 1962. In this program, farmers receive an acreage payment for reducing grain acreage. This was one of the reasons for the decline of crop production as crops cannot be harvested from this land. It can

be used from November 1 until April 30 for grazing. Thus, the program provides the livestock operators an opportunity to plant small grains on deferred acres and graze the grain during the winter months.

The trend in the area has been to clear woodland and establish improved pastures. This practice was evident in both areas. The control area had a reduction in woodland acreage of about seven percent between 1962 and 1966. While the study area had fewer actual acres of woodland in 1966, woodland as a percentage of total land increased slightly.

The most significant land use change occurred among the 15 study area operators shown in Table 21. At the outset of this study, six study area operators had land classified as improved pastureland. This acreage accounted for only 9.1 percent of total land. The control group on the other hand had almost 37 percent of their land improved in 1962. From 1962 to 1966 there was a noticeable difference in the two areas with respect to the amount of land improved. The control area operators improved only 620 acres during the four year period compared to a little over 2,400 acres improved by the 15 study area operators. With this major increase in acreage of improved pastures, the 15 study area operators reported that the percent of their total acreage in improved pastures had risen from 9.1 percent in 1962 to 28.8 percent in 1966. It appears that the significant differences between the operations of the two areas can be related to the effects of the highway on the study area operators. This is a good example of land being used more intensively, possibly to offset the loss of right of way land. Later in this report it is shown that the 15 study area operators actually

increased their breeding herds in both 1964 and 1966 and with fewer acres of land in both cases.

Table 22 presents the amount of change in the various categories of agricultural land from 1962 to 1966 for the two groups of operators. As mentioned earlier in the report, operators in both areas were cutting back on cash crop production. Cropland that was previously harvested was being diverted to government programs or being used for supplementary grazing in both areas. This change from 1962 to 1966 is pointed out by the study area operators reducing the amount of cropland harvested by 30.2 percent, while the control area group cut back acreage harvested by 82.9 percent. The changes occurring in the use of cropland in the study and control areas appear to be following a normal pattern of the County and none of the changes should be attributed to the highway.

Intensity of Land Use

The study area operators reported that from 1962 to 1966 their acreage in improved pastures increased by 196.0 percent compared to only 17.8 percent for the control group. In order to maximize return from improved pastures, it is necessary to fertilize at least once a year. Table 23 shows the use of commercial fertilizer by the operators in the two areas. The use of fertilizer on cropland has been a common practice in Texas for a number of years, but only in the past five to seven years has the practice of fertilizing pastureland become widespread. Table 23 shows that in 1962 operators in both areas were using about the same amount of fertilizer. However, the study area operators

Table 22

Changes in Land Use in Total Operations of
15 Study Area and 16 Control Area Operators Between 1962 and 1966*

	Study Area			Control Area		
	Acreage		Percent Change	Acreage		Percent Change
	Before	After		Before	After	
<u>Cropland</u>	634(7)	476(7)	-24.9	1,647(13)	1,847(15)	-12.1
Harvested	172(3)	120(2)	-30.2	333(6)	57(3)	-82.9
Harvested & Grazed	127(2)	80(3)	-37.0	0(0)	257(8)	NA
Grazed	223(3)	120(3)	-46.2	1,270(8)	1,335(12)	5.1
Government Program	112(1)	156(3)	39.3	44(2)	198(7)	350.0
64 <u>Pastureland</u>	12,768(15)	12,197(15)	- 4.5	7,809(16)	7,938(16)	1.8
Woodland	2,806(15)	2,682(14)	- 4.4	2,923(16)	2,315(14)	-20.8
Cleared Unimproved	8,729(15)	5,800(15)	-33.5	1,400(12)	1,517(12)	- 8.4
Improved	1,233(6)	3,655(12)	196.0	3,486(5)	4,106(10)	17.8
<u>Other Land</u> ^{1/}	45(12)	95(12)	111.0	47(16)	43(16)	- 8.5
Totals	13,447(15)	12,708(15)	- 5.5	9,503(16)	9,828(16)	3.4

*Figures in parentheses represent the number of operators.

^{1/} Includes idle land and land in buildings and roads.

Table 23

Use of Commercial Fertilizer and Lime
by 15 Study Area and 16 Control Area Operators
in 1962, 1964, 1966

	<u>Study Area</u>			<u>Control Area</u>		
	1962	1964	1966	1962	1964	1966
<u>Cropland Acreage</u>						
<u>Fertilizer</u>						
Operators Using	5	7	5	5	12	9
Acres Fertilized	167	263	265	184	476	566
Tons Applied	22	34	27	19	65	75
<u>Pastureland</u>						
<u>Fertilizer</u>						
Operators Using	7	7	10	5	6	7
Acres Fertilized	227	1,062	2,677	250	375	500
Tons Applied	26	139	224	26	65	90
<u>Lime</u>						
Operators Using	0	5	1	1	2	1
Acres Limed	0	345	50	60	217	10
Tons Applied	0	375	40	60	197	10

showed a considerable increase in the combined acreage fertilized in 1964 and 1966. In 1964 the control group showed an increase in the number of operators fertilizing cropland, but their overall increase was less than the study area operators. The control area operators were gradually diverting the cropland acreage into improved pastures. In carrying out this practice the operators usually apply fertilizer to the new grasses. This is the major reason for the increased use of fertilizers on the cropland acreage.

The increased use on pastureland is an indication that more acres of improved pastures were being developed and maintained. This is especially true for the study area group. It should be noted that five study area and nine control area operators did not apply fertilizer to their pastureland in 1966. Some of the operators used lime on their pastures periodically, but not annually, since it has longer residue than commercial fertilizer and is not needed each year.

Statistical tests showed that both the change in the number of fertilized acres and the change in the ratio of fertilized to total acres were significantly higher in the study area than in the control area at the 95 percent level of confidence. This tends to uphold the assumption that the study area operators were improving more of their remaining land and carrying out a more intensive grazing practice than the control group to offset the loss of land.

An index of the acreage required to carry a cow is one measure that can be used to compare the degree of intensity of land use between the areas. Such an index may be obtained by dividing the total acreage by the number of breeding stock on hand each year. In 1962 the areas

had comparable acre-animal ratios of 10.1 and 9.6 acres per cow for the study and control areas respectively. During the short period from 1962 to 1966 the study area operators made steady progress in reducing the acre-animal ratio from 10.1 in 1962, 7.8 in 1964, to 7.4 in 1966.

Control area operators were also making progress at lowering the ratio from the 1962 level, but due to a decrease in the number of cows in 1966 and a small increase in land, the control operators' ratio was increased to 8.7 from the 1964 low of 7.5.

Considering all factors involved in the acre-animal ratio, it appears that the study area operators were more aggressive in their ranching operations. By increasing the production capacity of their remaining land, the study area operators have more than offset the loss of land to highway right of way.

Distribution of Tracts by Size

Table 24 presents a comparison of the size of individual tracts for the 15 study area operators and 16 control area operators in 1962, 1964, and 1966. In 1962 the two areas were not greatly different in the percentage of tracts between 50 and 250 acres in size. Somewhat over 50 percent of the tracts of both areas in 1962 were between 50 and 250 acres in size. The control area operators had more small tracts of less than 50 acres in their 1962 operations, but fewer than the study area operators had in 1964. In 1962 the control group had seven tracts of 50 acres or less and the study area only one. After the highway was located, the study area had 14 tracts of 50 acres or less and the control area had cut back to five such tracts. This change can be charged

Table 24

Size Distribution of Tracts in Total Operations
of 15 Study Area and 16 Control Area
Operators in 1962, 1964, 1966 ^{1/}

Tract Size Acre	1962		1964		1966	
	<u>Percent of Tracts</u> Study	<u>Control</u>	<u>Percent of Tracts</u> Study	<u>Control</u>	<u>Percent of Tracts</u> Study	<u>Control</u>
0 - 25	2.3	10.0	12.5	8.6	11.6	8.6
26 - 50	0	13.3	12.5	5.7	9.6	5.7
51 - 100	30.2	20.0	23.2	31.4	23.1	25.6
101 - 250	34.9	36.7	23.2	34.2	25.0	40.0
251 - 500	18.6	3.3	17.8	2.9	15.4	2.9
501 - 750	0	6.7	1.8	8.6	7.7	8.6
751 - 1,000	0	3.3	3.5	2.9	3.8	2.9
1,000 and Over	14.0	6.7	5.5	5.7	3.8	5.7
Totals	100.0	100.0	100.0	100.0	100.0	100.0

^{1/}Total tracts by years: Study area - 43 tracts 1962, 56 tracts 1964, and 52 tracts 1966.
Control area - 30 tracts 1962, 35 tracts 1964, and 35 tracts 1966.

directly to right of way effects. By 1966 the study group had disposed of three of the small tracts, leaving them with six tracts of less than 25 acres in size and five tracts of between 25 and 50 acres. Study area operators will probably continue to dispose of such small tracts by selling, trading, or termination of leases. One trade of two small tracts of nine and three acres between two operators with adjoining land was being negotiated at the time of the last interview. Two of the 15 study area operators have benefited from the sale or lease of a small tract out of the larger remainder at intersections for commercial use.

Some of the larger tracts in the study area were divided into smaller tracts by the highway. Generally these remainder tracts were rather large and the operators continued to operate them as separate parcels of land. In the case of Operator 10, an eight-acre remainder has not been fenced or used since it was isolated from the 1,085-acre main tract. The highway also acquired eight acres of land from the tract, thereby decreasing the size of the original 1,101-acre tract by 16 acres. Since this is a leased tract, the operator now pays rent for only the 1,085 acres he uses. The operator reported that the loss of the 16 acres has had no noticeable effect on his operation. On the other hand, an operator like Operator 28, having 25 acres taken from his 185-acre operation, notices the effect of reducing his acreage more than the larger operators.

The increase in the number of tracts for the 15 study area operators created a number of problems connected with managing the additional smaller tracts. In order to use a smaller tract of 25 to

50 acres in livestock operations, four operators had to spend about \$400 each for stock water and \$100 each for corrals on tracts of less than 40 acres. These same improvements would have been satisfactory for a tract 100 to 200 acres in size. Likewise, the cost is just as great on trips to inspect or feed 10 or 20 head of cattle on small tracts as it is on trips to care for 50 to 60 head on somewhat larger tracts. This also applies to the movement of machinery to or from the tracts for the purpose of fertilizing, mowing, or spraying the pastures. Therefore, a small tract is not as desirable as one of 100 acres or more.

Crop Production in Study and Control Areas

Table 25 shows changes in crop production in the two areas. The trend is toward less acreage planted in cash crops. This trend began years ago, according to the Census of Agriculture. Few of the operators had cash crops in 1962, 1964, or 1966. No cotton was produced in the study area. Only two operators produced cotton in the control area in 1962 and 1964, and none was produced in 1966.

There was a reduction in acres harvested in practically all crops except hay. Much hay was produced from land the operators classified as pastureland and is accounted for in the bales harvested in Table 25. Acreage of hay harvested given in Table 25 refers to hay cut only from cropland. There was a significant increase in the number of bales of hay produced by both the study and control area operators. It appears that over the four-year period operators needed more hay for wintering livestock and planted less small grain for winter grazing.

Table 25

Acreage and Value of Crops Produced by 15 Study and
16 Control Area Operators in Madison County^{1/}

	1962			1964			1966		
	Acres	Production ^{2/}	Value	Acres	Production ^{2/}	Value	Acres	Production ^{2/}	Value
<u>S T U D Y A R E A</u>									
Corn	(1) 50	1,000	\$ 1,250	(1) 20	400	\$ 515	(1) 75	3,000	\$ 4,050
Oats	(1) 74	2,300	1,530	(1) 75	3,750	2,250	0	0	0
Seed	(1) 42	3,500	350	0	0	0	0	0	0
Hay ^{3/}	(7) 133	12,500	9,370	(8) 395	22,685	15,635	(9) 105	21,600	15,430
Totals	(8) 299		\$12,500	(9) 490		\$18,400	(9) 180		\$19,480
<u>C O N T R O L A R E A</u>									
Cotton	(2) 40	11	\$ 1,510	(2) 27	13	\$ 1,850	0	0	\$ 0
Corn	(4) 55	1,460	1,990	(6) 95	3,040	4,350	(3) 57	2,100	2,750
Seed	(1) 119	279	975	0	0	0	0	0	0
Hay ^{3/}	(7) 127	5,318	4,900	(7) 148	13,360	12,250	(9) 222	15,500	13,400
Totals	(7) 341		\$ 9,375	(8) 270		\$18,450	(10) 279		\$16,150

^{1/} Figures in parentheses represent number of operators

^{2/} Units of crop production are as follows: corn and oats in bushels, seed in pounds, hay in bales.

^{3/} A number of operators harvested grass hay from their improved pastures. These acreages were not recorded, but amount produced was included.

All small grain (oats) produced was used by the operators for livestock feed. In fact, the only crops sold were cotton, a small amount of hay, and vetch seed, the latter to other operators in the area for use in overseeding their pastures for winter and early spring grazing.

Table 26 shows the frequency distribution of operators by value of crops raised for feed and those sold in 1962 and 1966. Seven operators in the study area and eight in the control area produced no crops in 1962. In 1966, six operators in the study area and six in the control area had no crops. The term "crops" in this table includes hay harvested from improved pastures. This type of agriculture accounts for the additional operators harvesting crops in both areas in 1966.

Only three of the study area operators sold crops in 1962 and 1964 and two operators in 1966. In the control group, five operators in 1962 and four in 1964 and 1966 sold crops. The value of crops sold is shown in Table 32.

In 1962 the eight operators in the study and control areas producing crops were distributed identically, four, three, and one, in the first three \$1,000 groups. However, in the "after" period a number of the operators produced crops on a higher level. This was especially true in the study area where five operators in 1966 produced crops valued at \$2,000 or more compared to only one operator in 1962. The study area had four operators in the \$3,000 to \$4,000 range in 1966, while the control area had only two operators. In 1962 two control area operators had cash crops that put them in a higher category. They produced no cash crops in 1966 and fell in the category of less than \$1,000 with the production only of hay for their livestock.

Table 26

Frequency Distribution of 15 Study Area and 16 Control Area
Operators by Value of Crops Raised
in 1962 and 1966

Value of Crops ^{1/}	Study Area Operators				Control Area Operators			
	Before		After		Before		After	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
None	7	46.6	6	40.0	8	50.0	6	37.5
\$1 - \$1,000	4	26.7	3	20.0	4	25.0	7	43.7
\$1,001 - \$2,000	3	20.0	1	6.7	3	18.7	0	0
\$2,001 - \$3,000	1	6.7	4	26.6	1	6.3	2	12.5
\$3,001 - \$4,000	0	0	1	6.7	0	0	1	6.3
Totals	15	100.0	15	100.0	16	100.0	16	100.0

^{1/} Includes hay harvested from improved pastures.

However, \$1,000 of hay should be sufficient to carry a herd of 60 to 70 cows through the winter months.

Even though the operators in the study area reacted somewhat differently in 1966 than the operators in the control group, it does not appear that the differences can be attributable to the new highway in any way.

The highway had no direct effects on crop production in the study area in that it did not acquire any cropland. The highway did take 115 acres of improved pasture from six operators, but no operator had reported cutting hay from that portion of his land.

BEEF CATTLE PRODUCTION

Inventory

Beef cattle provide the study and control areas with their major sources of income. Table 27 presents an inventory of beef cattle owned by the 15 study area and 16 control area operators at the end of 1962, 1964, and 1966. The full-time operators in both areas depend heavily on their cattle enterprises for their income.

At the end of 1962 the ranchers in the study area reported that they owned 1,817 head of cattle of all kinds, including young calves, as compared to 1,200 head owned by the 16 control area operators. The study area operators had somewhat larger operations than the control area group. Study area operators had an average of 130 head of livestock each compared to 75 head for the control group. One study area operator in poor health in 1962 sold a large part of his herd in the fall of 1962. He replaced 30 head in 1963 and continued operating in 1964 and 1966, but on a much smaller scale. By 1966 the 15 study area operators reported they had increased their total head of livestock to 2,738 as compared to 1,342 head for the control group. This is an increase per operator from 130 head in 1962 to 183 head in 1966 for the study group and an increase of 95 to 114 head per control area operator.

All cattle operations in both areas can be classified as cow-calf enterprises which involve a foundation herd of cows to produce calves. It is generally more meaningful to compare changes in inventories of foundation herds than total cattle numbers. Foundation herds include cows, bulls, and replacement heifers. The calf population can vary a

Table 27

Number and Value of Livestock on Hand in December 31 of 1962, 1964, and 1966
by 15 Study Area and 16 Control Area Operators

Type of Cattle	1962 ^{1/}			1964			1966		
	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)
<u>Study Area Operators</u>									
Cows	14	1,275	161,010	15	1,406	138,083	15	1,516	230,610
Calves	14	484	17,240	14	580	22,914	15	1,015	42,210
Heifers	-	-	-	14	180	18,730	10	143	18,220
Bulls	13	58	14,750	15	74	15,035	15	64	19,470
Totals	14	1,817	193,000	15	2,240	194,762	15	2,738	310,510
Total Breeding Stock		1,333	-		1,660	-		1,723	-
<u>Control Area Operators</u>									
Cows	16	913	113,890	16	1,122	109,990	16	961	128,535
Calves	15	208	8,000	16	207	8,560	13	216	10,800
Heifers	4	35	3,440	10	96	7,920	11	105	11,550
Bulls	16	44	9,145	14	62	14,075	14	60	14,730
Totals	16	1,200	134,475	16	1,487	140,545	16	1,342	165,615
Total Breeding Stock		992	-		1,280	-		1,126	-

^{1/} Due to illness one of the 15 study area operators sold his herd in 1962 and restocked again in 1963. Therefore, his 1962 operation was not included in calculations of acres per animal in 1962.

great deal from year to year depending on certain breeding practices, conditions, and market prices. Calves are usually sold at six to eight months of age, but operators sometimes will vary this practice depending on prevailing conditions.

The study area experienced a gradual increase in the number of breeding stock per operator over the four-year period, while the control group showed an increase from 1962 to 1964 but a decrease from 1964 to 1966. Study area operators had an average of 95, 111, and 114 head of breeding stock for the years 1962, 1964, and 1966 respectively. The control group averaged 62, 80, and 72 head of breeding stock for the same years. Since this is a comparison of overall operations, it reflects the changes between all operators in both areas, but not individually. Table 27.1 presents a frequency table showing the number of operators increasing and decreasing their breeding herds and the degree of change. Some of the study area operators had fewer cattle after the highway cut through their operations as did some of the control area operators, while others in both areas added cattle to their herds. Table 27.1 indicates that 12 of the study area operators had increased their herds from 1962 to the end of 1964. Ten of these operators each added 30 head or less with two others increasing their herds by more than 30 head, of which one increased his herd by 169 head, the other by 58 head. The control area operators were also increasing their herds over this same period and at a similar rate. Each area had two operators with fewer cattle at the end of 1964, with one operator in the study area reporting no change.

Table 27.1

Frequency Distribution of Study Area and Control
Area Operators Based on Increases and Decreases in Breeding Herds

	End 1962 to End 1964		End 1964 to End 1966		End 1962 to End 1966	
	Study	Control	Study	Control	Study	Control
Over 30	2	4	2	1	4	3
+10 to 30	6	3	3	4	3	4
+ 1 to 10	4	7	1	2	4	4
No Change	1	0	2	0	0	1
- 1 to 10	1	1	2	3	2	1
-10 to 30	1	1	1	4	1	2
Over 30	0	0	4	2	1	1

During the period from the end of 1964 to the end of 1966 about half of the operators in both areas reported a reduction in their inventory. Most of these decreases were rather small, while others were sizeable reductions. The decreases were caused by operators culling and selling part of their breeding herds, and they had not replaced them by the end of the year. Operators sometimes prefer waiting until late winter to restock to avoid the extra feeding. Four of the study area operators reduced their herds by over 30 head each. One of these operators reduced his herd by 150 head as he decided to cut back and semi-retire. The other operator, a contractor, released 500 acres of land and reduced his herd in 1966 by about 80 head. The other two operators reporting reductions were control area operators in the category of an over 30 head decrease from the end of 1964 to the end of 1966. One of these operators cut back operations due to the loss of leased land, the other due to normal culling, and had not restocked.

Six of the study area operators increased their herds between 1964 and 1966, with two operators increasing their herds by 136 head and 227 head from the end of 1964. These were large operators with herds of nearly 200 head in 1964. One operator added some 1,200 acres of land and over 200 head of cattle; the other operator did not add any extra land, but had improved a large amount of his pasture since 1962, enabling him to carry more cattle on the same amount of acreage.

Between 1962 and the end of 1966 the operators performed similarly, except those on the extremes. These represent the larger operators and they sometimes vary their inventory a great deal. The four study

area operators in the plus 30 head or more category added 31, 73, 134, and 238 head of breeding stock to their herd between 1962 and 1964. These large increases in inventories by a few operators tend to overshadow the smaller operators that only have minor fluctuations in their inventory. Based on the livestock inventories, it appears that the highway cutting through this area did not cause the study area operators to reduce their foundation herds. However, in the second interview with the study area operators they were asked if they had to reduce their herds after the right of way taking. Nine of the 15 study area operators reported that they reduced their herds from one to 15 head each. The other six operators reported that they did not reduce their herds. This will be discussed in more detail later on in the report. It should be kept in mind that the acreage in right of way tracts represented 56 percent of the total land operated by the 15 study area operators and that the right of way took only about four percent of their total land.

During the four-year period the operators experienced low prices in 1964 and relatively higher prices in 1966. For example, the average value per cow was about \$125 in 1962, \$100 in 1964, and \$150 in 1966. The value per head also varied considerably among operators, depending on the quality of the foundation herd.

Livestock Purchases

Livestock purchases by operators in the two areas are shown in Table 28. It is evident that the operators in both areas purchased very few cattle in any of the three years. In fact, only about half of

Table 28

Livestock Purchases of 15 Study Area and 16 Control
Area Operators in 1962, 1964, 1966

Type of Cattle	1962			1964			1966		
	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)
<u>Study Area Operators</u>									
Cows	5	63	17,180	4	36	4,523	2	40	5,400
Cows With Calves	2	16	2,350	0	0	0	4	41	7,465
Calves	0	0	0	0	0	0	1	30	2,100
Bulls	5	7	2,360	5	5	756	0	0	0
Heifers	0	0	0	3	18	1,975	0	0	0
Totals	8	86	21,890	7	59	7,260	5	111	14,965
<u>Control Area Operators</u>									
Cows	2	13	1,515	6	72	6,800	2	41	5,940
Cows With Calves	1	2	350	1	5	750	2	12	1,900
Calves	4	11	685	2	2	25	3	8	725
Bulls	6	7	1,535	4	8	1,715	5	11	2,050
Heifers	0	0	0	2	14	650	1	10	920
Totals	8	33	4,085	9	101	9,940	8	75	11,535

the operators reported cattle purchases. The most frequent purchases by the operators were breeding bulls, but the majority of the livestock purchased were female cattle. This means that the operators either added to or replaced their foundation herds. Generally, as cows become old or non-productive they are sold and are replaced with heifers from the herds or by purchasing mature females. Most operators in the two areas save some of their best heifers each year to replace their old or non-productive cows. However, there appeared to be a trend developing among the operators to sell more heifer calves at six to eight months of age and buy more of their replacement stock as mature females. A small herd of registered cows purchased in 1962 is responsible for about \$15,000 of the \$21,890 of livestock purchases shown in Table 28. Otherwise, the other purchases, with the exception of bulls, were commercial type cattle.

Livestock Sales

Sales of beef cattle reported by the 15 study area and 16 control area operators are shown in Table 29. The sales of the study area operators during the three years were somewhat greater than those of the control group. This was a result of the control area having more smaller operators with herds of 15 to 25 mother cows.

Since all operators in the areas were cow-calf operators, most of the cattle sold were calves that ranged from six to eight months of age. The only other sale of significance was by a study area operator in poor health who sold around 150 head of mother cows with calves in 1962. Each group of operators reported selling a few cows, which were usually

Table 29

Livestock Sales of 15 Study Area and 16 Control Area
Operators in 1962, 1964, 1966

Type of Cattle ^{1/}	1962			1964			1966		
	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)	Operators (Number)	Cattle (Number)	Value of Cattle (Dollars)
<u>Study Area Operators</u>									
Cows	3 ^{2/}	18	1,388	8	97	8,025	8	132	14,585
Cows With Calves	1 ^{2/}	153	22,970	0	0	0	7	66	10,635
Calves	14	1,071	93,195	15	940	75,974	15	1,122	109,530
Bulls	2	26	6,125	4	29	5,795	1	25	5,625
∞ Totals	14 ^{3/}	1,268	123,678	15	1,066	89,854	15	1,345	140,375
<u>Control Area Operators</u>									
Cows	1	1	100	11	83	6,245	10	77	9,393
Cows With Calves	0	0	0	0	0	0	4	28	5,625
Calves	14	615	52,950	16	808	52,487	16	556	59,718
Bulls				7	9	1,576	3	3	870
Totals	15 ^{3/}	616	53,050	16	900	60,308	16	664	75,606

^{1/} No operators reported the sale of breeding heifers.

^{2/} Due to illness, this operator sold his herd in 1962 and restocked in 1963.

^{3/} One operator in the study area and two in the control area reported no sales in 1962 as they held their calves over and sold them in 1963.

old cows culled from the herds. These sales represented only a small percent of total sales. One study area and one control area operator reported no livestock sales in 1962. In each case, operators had restocked in 1962 and held their calves over for sale in 1963.

For a better understanding of the livestock receipts shown in Table 29, it is important to know the market price of cattle in each of the three years. The average prices for calves in Texas per hundred pounds of live weight were as follows: 1962, \$24.30; 1964, \$18.60; and 1966, \$24.60.^{1/}

Livestock sales in the two areas did not follow any particular pattern. Study area operators sold 131 fewer calves in 1964 than they did in 1962. This 12.2 percent decrease in calf sales may have been caused by the loss of right of way land in 1963, but the control group sold 252 fewer head, or 31.2 percent less, in 1966 than in 1964. Such variations in operations are caused by decisions of management either to sell the calves at a younger age or to hold them until the next year. These decisions might be based on a number of factors, such as price of livestock, range conditions, financial problems, or tax purposes.

Table 29.1 shows the distribution of operators based on the number of calves sold during each of the three years. In comparing the number of calves sold in the two areas, it is evident that the control area has more small operators than the study area. These small operators naturally do not depend solely on the calf sales for their livelihood. They usually have off-farm employment or are semi-retired. Some shift-

^{1/} U. S. Dept. of Agriculture, "Texas Cattle Statistics." Stat. Reporting Service, Texas Crop and Livestock Reporting Service, Bull. 35, May 1967 (Austin, Texas).

Table 29.1

Frequency Distribution of 15 Study Area and 16 Control
Area Operators Based on Number of Calves
Sold in 1962, 1964, 1966

Number of Calves	Study Area			Control Area		
	Number of Operators			Number of Operators		
	1962	1964	1966	1962	1964	1966
Over 75	6	5	5	2	3	2
51 - 75	3	2	2	0	1	0
26 - 50	1	1	2	3	0	4
11 - 25	3	4	3	5	5	5
1 - 10	2	3	3	6	7	5

ing of operators was caused by minor changes in the actual number of calves sold. For example, one operator might sell 48 calves in one year and 52 head the next year. This small change would show up on the frequency table, but is not important. There were some major changes between years in the number of calves sold by operators, but in all instances the large increases or decreases were not attributable to right of way acquisition. To illustrate the point, one of the two operators in the study area selling over 200 calves in 1966 inherited over 1,000 acres of land and expanded his operation in 1965. His calf sales increased from 150 to near 300 head in 1966. The other study area operator in the over 200 calf range in 1966 had been improving his pasture for years and had gradually increased his sales from 170 head in 1962 to 220 head in 1966. Two other study operators that had been selling around 85 and 150 calves per year prior to 1962 went into semi-retirement in 1965 and sold only 50 head and 35 head respectively in 1966. Therefore, management can make certain changes from year to year which would make it difficult to isolate the effects of the highway on the study area group. The large increase in sales by the two operators and the decrease by one operator had some effect on total livestock sales in 1966. However, the 11 other operators all sold more cattle in 1966 than they did in 1962. So, based on the number of cattle sold, it appears that the study area group had made the necessary adjustments by 1966 to more than offset the loss of land.

Operating Expenses

Tables 30 and 31 present the operating expenses of the 15 study and 16 control area operators, respectively, for the years 1962, 1964, and 1966. The expenses of the study group were somewhat greater during each of the three years. The average expenses per operator in the study area were from \$5,645 in 1962 and \$7,050 in 1966, compared to \$2,193 in 1962 and \$3,955 in 1966 for the control area operators. The major difference in the 1962 expenses resulted from some control area operators not reporting a few minor expenses relative to farming operations. The 1964 and 1966 expenses are more representative of the operations in both areas. Average expense per operator in 1964 was \$6,270 for the study area as compared to \$4,038 for the control area.

Since Madison County is primarily a ranching area, feed for livestock was one of the major expense items. All operators, except one control area operator in 1964, purchased feed each year. A value based on market price was calculated for feed raised and fed to livestock. This amount is also shown as a receipt in another part of this report dealing with crop production. The combined expense of feed raised and purchased accounted for approximately 40 percent of the total expenses each year.

Other expenses of major significance in the study area were hired labor, rent for pastureland, and fertilizer for pastureland. The large increase in fertilizer purchased by study area operators for pastureland compared to the small increase by the control group was typical of the study area operators' efforts to increase the grazing capacity of their land. Another indicator of intensity of land use

Table 30

Changes in Operating Expenditures of 15 Study Area Operators
in Madison County from 1962 to 1964 and 1962 to 1966^{1/}

Type of Expenditure	Amount of Expenditure			Changes in Expenditure			
	1962 (Dollars)	1964 (Dollars)	1966 (Dollars)	1962-1964		1962-1966	
				(Dollars)	(Percent)	(Dollars)	(Percent)
Feed (Purchased)	35,535 (15)	25,770 (15)	24,625 (15)	-9,765	- 27.4	-10,910	- 30.7
Veterinary	1,035 (9)	745 (13)	1,195 (13)	- 290	- 28.0	160	15.4
Fertilizer Pasture	4,275 (7)	12,675 (11)	21,180 (12)	8,400	196.4	16,905	395.4
Cropland	1,230 (3)	1,280 (4)	1,920 (4)	50	4.0	690	56.0
Herbicides	255 (3)	1,070 (7)	2,235 (10)	815	319.6	1,980	776.4
Seed	3,105 (6)	3,040 (7)	275 (2)	- 65	- 2.0	- 2,830	- 9.1
Gas and Oil	2,770 (9)	2,610 (10)	2,300 (12)	- 160	- 5.7	- 470	- 16.9
Repairs (Equipment)	950 (9)	1,115 (9)	2,200 (14)	165	17.3	1,250	131.5
Machine Hire	810 (4)	2,930 (7)	3,855 (7)	2,120	249.3	3,045	375.9
Labor	10,645 (9)	9,225 (9)	11,185 (15)	-1,420	- 13.3	540	5.0
Fence Repair	600 (7)	630 (8)	1,190 (10)	30	5.0	590	98.3
Interest	200 (1)	300 (1)	350	100	50.0	150	75.0
Insurance and Taxes	4,240 (12)	5,880 (14)	5,525 (14)	1,640	38.6	1,285	30.3
Rent	8,310 (4)	11,605 (9)	11,040 (8)	3,295	39.6	2,730	32.8
Totals	73,960	78,875	89,075	4,915	6.6	15,115	20.4

^{1/}

Numbers in parentheses are the numbers of operators reporting the particular expense.

Table 31

Changes in Operating Expenditures of 16 Control
Area Operators in Madison County from 1962 to 1964 and 1962 to 1966^{1/}

Type of Expenditure	Amount of Expenditure			Changes in Expenditure			
	1962 (Dollars)	1964 (Dollars)	1966 (Dollars)	1962-1964		1962-1966	
				(Dollars)	(Percent)	(Dollars)	(Percent)
Feed (Purchased)	10,965(16)	17,175(15)	16,370(16)	6,210	56.6	5,405	49.2
Veterinary	355(10)	1,360(10)	1,260(12)	1,005	283.1	905	254.9
Fertilizer: Pasture	3,130 (6)	4,885 (8)	3,840 (8)	1,755	56.1	710	22.7
Cropland	2,115 (7)	4,275(11)	3,480 (8)	2,160	102.1	1,365	64.5
Herbicides	0	1,140 (4)	985 (6)	1,140	-	985	-
Seed	440 (8)	2,540(13)	140 (4)	2,100	477.3	-300	-68.2
Gas and Oil	2,590 (8)	2,840(13)	4,275(15)	250	9.7	1,685	65.1
Repairs (Equipment)	2,840(13)	3,305(12)	4,680(13)	465	16.4	1,840	64.8
Machine Hire	1,385(17)	1,955 (7)	1,660 (4)	570	41.2	275	19.9
Labor	1,210 (7)	4,365 (9)	8,130(11)	3,155	260.7	6,920	571.9
Fence Repair	1,210 (9)	1,450(10)	1,360 (9)	240	19.9	150	12.4
Interest	1,405 (5)	1,330 (7)	1,945 (5)	- 75	-5.3	540	38.4
Insurance and Taxes	1,895(12)	3,820(15)	4,810(15)	1,925	101.6	2,915	153.8
Rent	1,550 (4)	2,260 (7)	1,925 (6)	939	60.6	375	24.2
Miscellaneous	200 (2)	290 (3)	600 (1)	90	45.0	400	200.0
Totals	31,290	53,000	55,460	21,929	84.1	24,170	80.5

^{1/} Numbers in parentheses are the numbers of operators reporting the particular expense.

shown in Tables 30 and 31 is the increased amount of herbicides used by the study group to eradicate weeds and brush on pastureland. This is a rather new practice in Texas, but the fact that 10 of the 15 study area operators spent \$2,235 in 1966 for herbicides as compared to only \$245 in 1962 illustrates the acceptance of this practice by the operators. Evidently the study area operators felt that it was more feasible to increase the beef production per acre by these practices than to buy additional land.

Change in Income

One of the objectives of this study was to determine the effects, if any, of decreased acreage on income of remaining operators that lost land to the highway right of way. To pursue this objective, cash receipts and cash expenses of the two groups of operators are compared during each of the years (Table 32). The year 1962 represents the "before" period in which expenses and receipts were not influenced in any way by the new highway. In 1964, which represents the period of construction, study area operators had had one year in which to make adjustments in their operations. Most of the operators had fenced the right of way remainder tracts and provided water where necessary in 1963.

Table 32 shows the various sources of income from agriculture and expenses for the study and control areas, while Table 33 shows the percent changes between years. The income includes livestock and crop sales, as well as government payments for diverted land and conservation practices.

Table 32

Agricultural Income and Expenses of the 15 Study Area and
16 Control Area Operators in 1962, 1964, and 1966^{1/}

Item	Study Area			Control Area		
	1962	1964	1966	1962	1964	1966
<u>Income</u>						
Livestock	\$123,678(14)	\$89,854(15)	\$140,375(15)	\$53,050(15)	\$60,308(16)	\$75,606(16)
Crops ^{2/}	1,785(3)	3,175(3)	2,770(2)	5,585(5)	6,835(4)	8,315(4)
Government Programs ^{3/}	3,500(10)	5,510(10)	5,490(12)	2,510(10)	5,435(13)	7,295(11)
Other Farm Income ^{4/}	16,000	0	0	0	0	0
Total Farm Income	144,963	98,539	148,635	61,145	72,578	91,216
Average Per Operator	9,664	6,569	9,909	3,822	4,536	5,701
<u>Expenses</u>						
Operating Expense	73,960(15)	78,875(15)	89,075(15)	31,290(16)	53,000(16)	55,460(16)
Livestock Purchased	21,890(8)	7,260(7)	14,965(5)	4,085(8)	9,940(9)	11,535(8)
Total Operating Expense	95,850	86,135	104,040	35,375	62,940	66,995
Average Expense Per Operator	6,390	5,742	6,936	2,211	3,934	4,187
Net Cash Operating Income	49,113	12,404	44,615	25,770	10,080	24,221
Average Per Operator	3,274	827	2,974	1,611	630	1,514

^{1/} Figures in parentheses represent number of operators.

^{2/} Represents value of crops sold.

^{3/} Includes government payments received for idle grain land and for conservation practices approved by the Agricultural Stabilization and Conservation Personnel.

^{4/} Sale of dairy products in 1962.

Table 33

Percent Changes in Income and Operating Expenses in the
Study and Control Areas For the Years 1962, 1964, and 1966

Receipts	Study Area			Control Area		
	Change Between Years			Change Between Years		
	1962-1964 (Percent)	1964-1966 (Percent)	1962-1966 (Percent)	1962-1964 (Percent)	1964-1966 (Percent)	1962-1966 (Percent)
<u>Income</u>						
Livestock	-27.3	56.2	13.5	13.7	25.4	42.5
Crops	77.9	-12.8	55.2	22.4	19.0	48.9
Government Programs	57.4	- 0.4	56.9	116.5	34.2	190.6
Other Farm Income	NA	NA	NA	0	0	0
Total Farm Income	-32.0	50.8	2.5	18.7	25.7	49.2
Average Per Operator	-32.0	50.8	2.5	18.7	25.7	49.2
<u>Expenses</u>						
Operating Expenses	6.6	19.9	20.4	69.4	4.6	77.2
Livestock Purchased	-66.8	106.1	-31.6	143.3	16.0	182.4
Total Cash Operating Expense	-10.1	20.8	8.5	77.9	6.4	89.4
Average Expense Per Operator	-10.1	20.8	8.5	77.9	6.4	89.4
Net Income	-74.7	259.6	- 9.1	-60.8	140.2	- 6.0
Average Income Per Operator	-74.7	259.6	- 9.1	-60.8	140.2	- 6.0

Expenses include total operating costs from Tables 30 and 31 and livestock purchases from Table 28. Therefore, Table 32 shows net cash operating income obtained by subtracting cash operating expenses from cash income.

Study area operators received \$144,963 total income from agricultural sources in 1962, \$98,539 in 1964, and \$148,635 in 1966 as compared to the control area's gross income from agriculture of \$61,145 in 1962, \$72,578 in 1964, and \$91,216 in 1966. Since the control group experienced an 18.7 percent increase from 1962 to 1964, as shown in Table 33, one would assume the 32.0 decrease in 1964 income of the study group could be related to the loss of land to right of way. A portion of the decrease in income shown for the study group can otherwise be explained. The \$123,678 revenue from cattle sales in 1962, shown in Table 32, was somewhat inflated by one operator selling a large part of his herd that year. One other operator switching from a dairy operation to beef cattle production in the fall of 1962 had much less gross income in 1964 from his beef cattle operation, but his net profit was about the same both years. Also, the study area operators showed an increase in their breeding herds in 1964 and 1966 and probably held back more of their heifer calves in 1964 to be used later as breeding stock. This is also pointed out in Table 28 which shows the study area operators had no heifers on hand at the end of 1962, 180 head at the end of 1964, and 143 in 1966.

The operators could have sold these heifers and increased their income in 1964 by \$18,000 or more. This would have partially offset

the drop in income in 1964.

The study area group had an average net cash operating income in 1962 of \$3,274, \$827 in 1964, and \$2,974 in 1966. The control group's income fluctuated the same way, but to a smaller degree. Their net cash operating income was \$1,611 in 1962, \$630 in 1964, and \$1,514 in 1966. The decrease from 1962 to 1964 was a 74.7 percent drop for the study area group compared to a 60.8 percent drop for the control group. This is almost a 14 percent difference between the two areas.

However, if the following adjustment was made on transactions of two operators the changes between the years and areas would be about the same. This adjustment would deduct the \$24,000 sale of breeding stock by one study area operator in 1962 and the \$15,000 purchase of livestock by another. This would reduce the 1962 net cash operating income of the study area operators to \$40,113. Then, by increasing the 1964 net cash operating income by \$18,000 for the study area and by \$9,600 for the control area, the new adjusted income for 1964 would be \$30,404 and \$19,680 respectively. These increases represent the estimated value of the 180 and 96 head of heifers the study and control area operators saved in 1964. Based on the adjusted net cash operating income of the two areas for 1962 and 1964, the study area group had a 24.2 percent decrease compared to a 23.6 percent decrease for the control group.

By adjusting total farm income only, the study area operators experienced a 3.7 percent drop compared to a 34.4 percent gain for the control group. This comparison is based on the subtraction of the \$24,000 from the \$144,963, 1962 study area farm income and the addition

of the value of the heifers mentioned above to the 1964 incomes of the study and control totals. This results in total farm income for the study area group of \$120,963 and \$116,539 for 1962 and 1964 respectively, and \$61,145 and \$82,178 for 1962 and 1964 respectively for the control group.

Because of the variations in operations it is difficult to put a value on the effect the relocation of the highway had on operators in the first two years (1963 and 1964) after right of way was acquired. However, based on a 3.7 percent drop in total farm income in 1964 for the study group as compared to the 34.4 percent increase for the control group, it does indicate that generally the study area operators did experience a set back in 1963 and 1964. Some operators were affected more than others as they reported herd reductions due to the loss of land.

In fact, 14 of the 21 operators interviewed reported that they had to reduce their herds in 1963 from one to 15 cows. The other seven operators reported that they did not reduce their operations. The reduction in cows by these operators ranged from two operators reducing their herds of around 25 head by one cow each; four operators, three cows each; and six operators, five cows each. Two other operators with herds of 150 head or more reported that they reduced their herds by 10 and 15 cows in 1963 due to the loss of land. However, eight of the 14 operators that were forced to cut back their herds in 1963 reported that they had built their herds back up by 1965. Of the 15 study area operators reporting in all years, 10 reported having to reduce their herds by a total of 55 head in 1963.

During this same period, based on the livestock inventory, five of the 16 control area operators reported a cut back of a total of 42 head. One of these reduced his herd by 19 head due to his semi-retiring in 1964. The other four operators gave no particular reasons for their cut backs, which ranged from four to seven head, in 1963.

In 1966 it appeared that the study area operators had made a substantial recovery from lower income in 1964 and were striving to increase their production. This indicates that the \$33,000 of the right of way money spent on pasture improvements by the study area operators had increased their crop production and the livestock carrying capacity of the remaining land. In comparison, the control area operators were slowly continuing to increase production.

Even though the study area showed a sizeable increase in beef production from 1964 to 1966, their net income from agriculture in 1966 was very little more than in 1962. To accomplish the gain in livestock sales they had to spend much more money on fertilizer and chemicals to attain the increased production. This added expense reduced their profits in 1966, but the effects of these practices are carried forward to future operations. The average net income from agricultural operations followed a similar pattern for both areas. In 1962 the average agricultural income for the study area operators was \$3,274 as compared to \$1,611 for the control area operators. The average fell to \$827 for study area operators and to \$630 for the control operators in 1964. In 1966 the average net income per operator increased to \$2,373 for the study group and to \$1,514 for the control group.

Table 34 shows the distribution of operators based on the net cash operating income, per operator, from agricultural operations. They are divided into various income groupings ranging from a net gain of \$4,500 or more to a net operating agricultural loss of \$3,000 or greater. During 1962 there were four study operators who had an agricultural income of over \$4,500 as compared to only two control area operators who had the same level of income. In 1966 there were only two operators in the study area and three in the control area who earned over \$4,500 on agricultural operations. In 1962 there were three study area and four control area operators reporting losses from agricultural operations. The loss of over \$3,000 reported by one study area operator was due primarily to large livestock purchases made during the year. In 1966 there were two study and four control area operators who reported a loss in the \$0 to \$1,500 range. Also, the large number of operators in both areas earning \$3,000 or less in 1962 and 1966 from agriculture do not depend entirely on agricultural income for their livelihood. All but three of these operators have income from other sources. In 1962 there were nine study and 13 control area operators earning \$3,000 or less from agriculture and in 1966 there was one fewer in each area. Of the nine study area operators, three had losses in 1962, compared to four of the 13 control area operators.

Table 35 illustrates the distribution of operators by the amount of income earned from other sources, such as oil and gas royalties and annual rentals, off-farm employment, and retirements. Each of the study area operators had some outside income, but two control area operators in 1962 and 1964 had none and one in 1966 had none. Most of the

Table 34

Distribution of 15 Study Area and 16 Control Area Operators
Based on Net Cash Operating Income from Agricultural
Production For 1962 and 1966

Income	Study Area		Control Area	
	Number of Operators		Number of Operators	
	1962	1966	1962	1966
Over \$4,501	4	2	2	3
+\$3,001 - \$4,500	2	5	1	1
+\$1,501 - \$3,000	2	3	2	4
+ \$1 - \$1,500	4	3	7	4
- \$1 - \$1,500	2	2	2	4
-\$1,501 - \$3,000	0	0	2	0
-\$3,001 - \$4,500	1	0	0	0
Totals	15	15	16	16

Table 35

Distribution of 15 Study Area and 16 Control Area Operators
Based on Their Income from Off-Farm Work, Retirement,
and Oil and Gas Rental Income

Income	Study Area			Control Area		
	Number of Operators			Number of Operators		
	1962	1964	1966	1962	1964	1966
Over \$4,500	2	3	5	2	1	5
\$3,001 - \$4,500	4	4	2	2	1	2
\$1,501 - \$3,000	5	5	4	6	4	5
\$1 - \$1,500	4	3	4	4	8	3
None	0	0	0	2	2	2
Totals	15	15	15	16	16	16

operators received \$4,500 or less in outside income, with around 50 percent or more earning less than \$3,000. From 1962 to 1966 operators in both areas moved up in the income brackets. In 1962 there were only two operators in each area earning \$4,500 or more, while in 1966 there were five in each of the areas.

Income received from the three sources mentioned above, and the net operating income from agriculture from Table 32 are shown in Table 36. The various incomes were accumulated for each year. Study area operators earned an average of \$2,880 each in 1962, \$3,202 in 1964, and \$3,779 in 1966 as compared to \$2,422 in 1962, \$2,339 in 1964, and \$4,456 in 1966 for the control area operators from sources other than agriculture. The study area group earned more in 1962 and 1964 than the control group, but due to a rather large increase in income from oil and gas royalties and off-farm employment in 1966, the control group earned an average of \$677 more than the study group.

The 15 study area operators had a total of \$92,312 from all sources or an average per operator of \$6,154 in 1962, compared to a total of \$64,520 or an average of \$4,032 for the control group. The earnings of both groups declined in 1964 but rebounded with increases in agricultural income and other income in 1966. From 1962 to 1964 control area operators experienced a 26.4 percent decline compared to a 34.5 percent decline by the study group. Both areas had a sizeable increase from 1964 to 1966. However, when comparing the change between 1962 and 1966, the control group has a 48.8 percent gain as compared to only a 9.7 percent gain by the study group. Since both areas had a decrease in agricultural income from 1962 to 1966, the increase in total

Table 36

Income From All Sources for 15 Study Area
and 16 Control Area Operators
for 1962, 1964, 1966

	1962 Dollars	1964 Dollars	1966 Dollars	1962-1964 Percent Change	1964-1966 Percent Change	1962-1966 Percent Change
<u>S T U D Y A R E A</u>						
Net Income from Agriculture	49,113(15)	12,404(15)	44,615(15)	-74.7	259.6	- 9.1
Other Income						
Oil & Gas Rental	6,089(13)	5,689(13)	6,789(13)	- 6.6	19.3	11.5
Retirement	10,710 (7)	12,894 (7)	13,894 (8)	20.4	7.8	29.7
Off-Farm Work	26,400 (7)	29,450 (7)	36,000 (8)	11.6	22.2	36.4
Total Non-Farm Income	43,199(14)	48,033(14)	56,683(15)	11.2	18.0	31.2
Average per Operator	2,880	3,202	3,779	11.2	18.0	31.2
Total-All Income	92,312	60,437	101,298	-34.5	67.6	9.7
Average per Operator	6,154	4,029	6,753	-34.5	67.6	9.7
<u>C O N T R O L A R E A</u>						
Net Income from Agriculture	25,770	10,080	24,221	-60.8	140.2	- 6.0
Other Income						
Oil & Gas Rental	7,250 (3)	7,500 (4)	18,930 (7)	3.4	152.4	161.1
Retirement	4,800 (5)	5,380 (6)	7,630 (7)	12.1	41.8	59.0
Off-Farm Work	26,700(10)	24,550(10)	44,760(10)	- 8.1	82.3	67.6
Total Non-Farm Income	38,750(14)	37,430(14)	71,320(14)	- 3.4	90.5	84.1
Average per Operator	2,422	2,339	4,456	- 3.4	90.5	89.1
Total-All Income	64,520	47,510	95,981	-26.4	102.0	48.8
Average per Operator	4,032	3,969	5,999	-26.4	102.0	48.8

* Numbers in parentheses represent number of operators.

income was a result of an increase of 90.5 percent in non-farm income for the control group compared to an 18 percent increase for the study group.

TRAVEL PATTERNS

One of the main concerns of an operator regarding right of way acquisition for a limited access type highway is the extent that his travel in the area will be affected. He is particularly concerned about his travel to severed tracts and also to nearby shopping centers. Travel patterns of the operators are divided into two categories; travel to the nearest shopping center and travel connected with their operations before and after the highway was built.

Travel to Nearest Shopping Center

The new Interstate Highway altered travel to Madisonville, the nearest shopping center, for some of the operators. To establish travel patterns of the operators, one-way distances on the before and after routes were measured for each study area operator. An analysis of each study area operator's travel distance and route to Madisonville revealed that 13 study area operators experienced changes in travel to town. The general location of these 13 operators is shown in Figures 2a and 2b. The other operators were not affected in any way as they either lived in town or on tracts from which the best routes to town were not changed. In most of these cases the operators' homes were located near old U.S. Highway 75 which they continued to use for trips to town.

In general, due to the geographical relationship between Madisonville and Interstate 45, operators along the northern segment of the new facility experienced a decrease in the distance to

Madisonville, while those operators along the central and southern segments experienced an increase.

The effects of the new highway on travel distances to and from Madisonville for the 13 operators are shown in Table 37. The general location of these operators can be found in Figures 2a and 2b. These distances are classified by the type of road used by each individual "before" and "after" the Interstate was completed. The combined saving for the 13 operators was only 1.5 miles, but of more significance was the reduction in distances traveled on unpaved roads by utilizing the new facility. Before the facility was built, this group had to travel 17.7 miles on unpaved roads as compared to only 4.3 miles after its completion. This is based on the assumption that the individual will use the shortest and best route to town even though the operators might continue to use old Highway 75 on trips to town.

The last seven operators in Table 37 are forced to travel an additional 5.5 miles on trips to Madisonville, but they will benefit by having 6.8 miles less on unpaved roads. This will be of some benefit in terms of time and comfort, as well as in the repair and maintenance of equipment. It will particularly benefit Operator 17 who was served by a county road that was almost impassable during wet weather. He has to travel 1.6 miles farther now, but has only 0.1 miles of unpaved road compared to 2.7 miles before the new route cut through his land.

The overall quality of roads used by the 13 operators was improved by the introduction of 41.7 round trip miles of Interstate Highway to and from Madisonville. It is likely, therefore, despite the increased

TABLE 27

Distances by Type of Road to Nearest Shopping Center (Madisonville)
For the 13 Study Area Operators that Were Affected By
the Construction of Interstate 45*

Operator	Type of Road										Miles Saved (+) or Lost (-) Due to the Construction of IS 45	
	Interstate	U. S.		State		County		Private		Totals		
	Highway	Highway	Highway	Highway	Road	Road	Road	Road	B	A		B
	After	B	A	B	A	B	A	B	A	B	A	
33	5.8	9.4	4.3	2.0	0.6			0.3	0.3	11.7	11.0	+ .7
32	4.2	8.5	4.3			3.3	1.6			11.8	10.1	+1.7
29	4.2	8.6	4.3			1.5	0.2			10.1	8.7	+1.4
31	4.2	8.5	4.3			1.3	0.4			9.8	8.9	+0.9
30	2.7	6.9	4.3			1.7	0.4			8.6	7.4	+1.2
28	2.7	6.9	4.3			1.8	0.6			8.7	7.6	+1.1
3	0.7	3.9	4.5			0.3				4.2	5.2	-1.0
17	2.2	1.2			3.2	2.7	0.1			3.9	5.5	-1.6
22	2.2	1.2			3.2	2.6	0.1			3.8	5.5	-1.7
6	3.8	5.2			1.9			0.7	0.4	5.9	6.1	-0.2
7	4.3	5.6			1.9			0.5	0.1	6.1	6.3	-0.2
5	4.7	5.6			1.9			0.3		5.9	6.6	-0.7
23		6.1	6.5		0.3			0.7	0.1	6.8	6.9	-0.1
TOTALS	41.7	77.6	36.8	2.0	13.0	15.2	3.4	2.5	0.9	97.3	95.8	+1.5

* The distances shown are assumed ones. They are based on the shortest possible route that a given operator could take to and from Madisonville.

distances experienced by seven of the operators, that the new highway may yield a net benefit for the entire group in their day-to-day travel in terms of safety, comfort, and economy. Also, the removal of through traffic, especially truck traffic, from old U.S. 75 has provided benefits to eight operators with residences or headquarters along or near the highway. The latter reported that driving on old U.S. 75 was less hazardous and much quieter.

The travel routes to and from Madisonville of the control area operators were not greatly affected by the new facility. One unpaved road serving three of the control operators was closed by the new highway. These operators changed their routes to the paved service roads of the Interstate Highway on trips to town. The distance to town was increased by 0.2 of a mile for these operators but was offset by fewer miles on unpaved roads. Generally, the control operators lived a little farther from Madisonville than the study area operators and utilized farm-to-market highways more on their regular routes to town.

Travel Connected With Operations

Because most operators travel frequently to the various tracts used in their operations, it was desirable to establish whether distances were affected by the Interstate Highway. Table 38 presents one-way trip distances for 21 study area operators before and after the highway was completed. These 21 operators had 25 right of way tracts and 22 other tracts before the highway was located. After the highway route

One Way Distances of Trips to Various Tracts of Land of 21 Study
Area Operators Before and After the Construction of
Interstate 45 Through Madison County

Operators	Number of Tracts				Distance in Miles to or from Headquarters					Changes in Miles to Tracts	
	Before		After		Before		After			ROW	Other
	ROW	Other	ROW	Other	ROW	Other	ROW		Other		
						Main	Severed				
1**	4*	2	7	2	16.1	13.4	13.3	5.8	13.4	+3.0	NC ^{2/}
2**	1*	3	2	4	7.4	28.1	7.4	2.9	33.2	+2.9	+5.1
3**	1*	1	1	1	6.1	17.1	6.1	0	17.1	NC	NC
4	1*	1	2	1	-	.5	-	1.3 ^{1/}	2.0	+1.3	+1.5
5	1*	0	1	0	-	0	-	Sold	0	NC	0
6	1*	1	2	1	-	1.0	-	3.0	3.0	+3.0	+2.0
10	1*	0	2	0	-	0	-	1.5 ^{1/}	0	+1.5	0
11**	1*	1	1	1	1.5	.5	1.5	-	.5	NC	NC
22**	1*	0	1	0	3.7	0	6.4	-	-	+2.7	
18**	1*	1	2	1	2.4	8.0	2.4	3.5 ^{1/}	8.0	+3.5	NC
21	1*	1	3	1	-	.5	-	4.3	2.4	+4.3	+1.9
28**	1*	1	1	1	8.7	3.0	7.6	Sold	3.0	-1.1	NC
30	1	2*	2	2	1.0	5.0	1.0	1.5 ^{1/}	5.0	+1.5	NC
25	1*	1	1	1	-	1.5	-	-	1.5	-	NC
23**	1*	1	1	1	-	5.5	4.0	Sold	5.5	+4.0	NC
31	2*	0	4	0	.1	0	.1	.4 ^{1/}	0	+0.4	0
27	1	2*	2	2	.1	.2	.1	2.1	.2	+2.1	NC
29	1*	0	2	0	-	0	-	1.1 ^{1/}	0	+1.1	0
32	1*	0	2	0	-	0	-	1.7	0	+1.7	0
33	1*	1	2	1	-	1.8	-	1.2	1.8	+1.2	NC
15**	1*	3	2	3	.1	6.6	.1	1.2	6.6	+1.2	NC
Totals	25	22	43	23	47.2	92.7	50.0	31.5	103.2	34.3	10.5
Average per operator					4.3	6.2	4.2	2.3	6.9	2.1	2.6

* Signifies headquarters tract.

** These operators live in town. Distances were measured from their residence to headquarters, then from headquarters to other tracts in cases of multiple tract units.

^{1/} Small severed tract, idle in after period.

^{2/} NC represents no change in distance.

was established these same operators had 43 right of way tracts and the same 22 other tracts classified as non-right of way tracts.

Nineteen of the operators shown in Table 38 reported that the tract of land affected by the highway was considered the headquarters for their operations. The other two operators designated one of the non-right of way tracts as the headquarters for their operations. In 10 cases operators were required to travel by public road in order to reach their right of way tracts before the highway was built. Eight of these operators lived in town and designated the right of way tracts as the headquarters for their operations. The other two lived on non-right of way tracts. Operator 15 lived on a right of way tract at the time of right of way acquisition, but his rural residence was acquired and he moved to town in 1963.

The 10 operators requiring some travel to reach their right of way tracts reported an average distance of 4.7 miles per operator to reach the right of way tracts before the facility was built. The mileage involved one-way trips to 14 right of way tracts.

Right of way tracts represented the entire operations for six operators. One of these had two right of way tracts. In four cases the right of way tract was the headquarters, so no extra travel was required before the acquisition. After the completion of the highway five operators were required to travel extra miles to reach their severed parcels. However, two operators ceased to use the severed tracts that were idle in 1967 and one sold his remainder immediately following the right of way acquisition.

The 92.7 miles shown in Table 38 represent the total miles from headquarters tracts required to the other 20 tracts of 15 operators. This was an average of 6.2 miles per operator. The average distance per tract from headquarters was 4.6 miles.

After the highway was completed, three of the severed tracts were sold and six were idle land at the time of the last interview. The idle tracts in all cases were small tracts of 10 acres or less, and the distance from headquarters to these tracts was less than 1.5 miles. Even though the operators were not using these tracts in 1966, they are included in the totals of Table 38.

To show the effects of the highway on travel patterns, distances were measured to the main portion of the right of way tract and then to the point of entry of the severed tract after the highway divided the original right of way tract. In three cases the distance to the main part of the right of way tract was affected by the new highway, but in most cases only travel to the severed tracts was affected. Operator 22 in Table 38 experienced an increase in the distance, while the operator of tract 1a and Operator 28 had shortened distances. After the completion of the highway the operators had to travel a total of 50 miles to reach the main portions of right of way tracts and another 31.5 miles to reach the severed tracts. This is an increase of 2.8 miles to the main right of way tracts, and an increase of 31.5 miles to severed tracts. This does not mean that in each case trips were made to severed tracts, as some of the small severed remainders were idle. The information in Table 38 shows distances to the severed tracts still owned by the operators and to other non-right of way

tracts in their operations. Travel distances to the non-right of way tracts were increased for three operators, but in 11 other cases there was no change in travel to other tracts. The increased distance of the three operators was caused by the necessity to use different routes in the "after" period because of Interstate 45 bisecting certain county roads.

If the operators used all the right of way tracts, based on distances shown in Table 38, 16 operators would have experienced increased travel ranging from 1.1 miles to 4.3 miles. In one case, Operator 28, who lives in town, had the distance to the original right of way tract shortened by 1.1 miles when using the service roads of Interstate 45 in the "after" period.

Trips to non-right of way tracts were affected very little, with only three operators reporting increased distances ranging from 1.5 to two miles. In all other cases the new highway had no effects on regular routes to the various non-right of way tracts.

No parcels in this area were landlocked as frontage roads were provided to all tracts. The frontage roads were not all continuous, but did provide access to all property. There were four full interchanges provided in this section of Interstate 45. In addition, there are three grade separations, one with access to frontage roads on both sides, and the other two with access to one frontage road.

Of the severed tracts, only 12 were still being used for agricultural production in 1966. These 12 tracts were being operated by nine of the 15 operators who supplied complete information for each of the three years. Distances to these tracts are shown in Table 39, "before"

Table 39

Changes in Travel Distances to 12 Severed Right of Way
Tracts Still Being Used For Agricultural
Production by Nine Operators in 1966

Operators and Tracts	Before Highway		After Highway		Change in Travel To Severed Tract
	Distances to ROW Tract		Distances to ROW Tract		
	Main Entrance ^{1/} (Miles)	Part to be Severed ^{2/} (Miles)	Main Entrance (Miles)	Severed Tract ^{3/} (Miles)	Net Change ^{4/} (Miles)
1a ^{5/}	4.4	0.6	4.4	2.8	2.2
1b	2.3	0.1	2.3	0.2	0.1
1c	5.8	0.6	3.0	2.8	-0.6
2	7.4	0.3	7.4	2.9	2.6
4*	0	0.2	0	1.3	1.1
6*	0	0.6	0	3.2	2.6
21a ^{5/}	0	0.2	0	2.0	1.8
21b	0.3	0.1	0.3	2.0	1.9
27	0.1	0.1	0.1	2.1	2.0
32*	0	0.5	0	1.7	1.2
33*	0	0.5	0	0.8	0.3
15	0.1	0.2	0.1	1.2	1.0
Totals	20.4	4.0	17.6	23.0	16.2
Averages	2.9	0.3	2.5	1.9	1.4

* Operators live on right of way tract.

1/ One-way distance to right of way tract from headquarters or place of residence.

2/ The distance required before the existence of the highway to reach the later point of entry to the severed remainder.

3/ Distance to severed remainder tract from main part of right of way tract.

4/ The difference between the before and after mileage.

5/ Operators 1 and 11 had more than one right of way tract.

and "after" the completion of the highway. The "before" distance was measured from headquarters or residence to the point of entry of the main right of way tract and then from the entrance of the right of way tract across the operator's property to the part later severed. This takes into account any travel necessary to manage that part of the right of way tract which was later isolated.

In the "before" period, seven of the operators listed in Table 39 had to travel an average of 2.9 miles each to reach the right of way tracts. The highway gave one of these operators with three right of way tracts a reduction of two miles from his headquarters tract to tract 1c and an overall saving of 0.6 miles.

After the highway divided the right of way tracts the operators had to use public roads in order to reach the severed tracts across the highway. These distances ranged from 0.2 miles to 0.9 miles. The unadjusted total distance to the severed tracts in the "after" period was 23 miles compared to four miles in the "before" period. The adjusted or net change amounted to an increase of 16.2 miles or an average of 1.4 miles per tract.

Trips and Mileage Required to Operate Severed Tracts

To determine the extent that livestock operators were affected by the extra travel, information was obtained from the operators regarding the number of trips required annually to maintain operations on the severed tracts. Table 40 presents trip frequencies and total miles driven annually to manage and feed livestock on the severed tracts.

Two methods or ways were used in calculating the mileage on trips to the severed tracts shown in Table 39. First, trips for the purpose of feeding or hauling livestock are measured from the main entrance or barn on the main right of way tract to the severed tract by public road. The second method used is the distance to the severed tracts less the distance the operator had to travel before the highway was constructed in order to reach that portion of the right of way tract later severed. Therefore, trips to the severed tracts for any reason other than feeding or hauling livestock were calculated by the shorter distance to the severed tracts.

The reason for the use of two different mileage calculations to the severed tracts is that when hauling or feeding livestock in the "before" period no extra travel was necessary as the livestock were fed or moved from the barn. This was not true with other travel connected with operating the severed tracts.

Seven of the nine operators in Table 40 reported that they made 604 round trips in 1966 to feed their cattle on the 12 severed tracts. This is an average of 86 extra trips per year for each operator. Three severed tracts required no feeding trips. One operator had a cattle pass so the livestock continued to come to the same feeding location using the structure.

All operators reported trips to the severed tracts for managing the operations on the severed tracts. The nine operators averaged around 58 trips each year or 44 trips per tract to maintain operations, excluding trips for feeding and hauling livestock. In one instance an operator's route was shortened by 0.6 miles. This was a result of

Table 40

Extra Travel Required Annually to Operate 12 Severed
Tracts of Nine Operators (1966)

Operators and Tracts	Requirements for Feeding ^{1/}		Other Travel Required ^{2/}		Distance Traveled to Operate Severed Tract ^{3/}		Extra Travel	
	Distance (Miles)	Trips (Number)	Distance (Miles)	Trips (Number)	To Feed (Miles)	Other Trips (Miles)	One-Way Trip (Miles)	Round Trip (Miles)
1a ^{4/}	2.8	60	2.2	45	168	99	267	534
1b	0.2	50	0.1	40	10	4	14	28
1c	0	0	-0.6	55	0	-33	-33	-66
2	2.9	84	2.6	36	244	94	338	676
4	1.3	115	1.1	64	150	70	220	440
6	3.2	40	2.6	35	128	91	219	438
21a ^{4/}	2.0	15	1.8	30	30	54	84	168
21b	2.0	90	1.9	30	180	57	237	474
27	2.1	80	2.0	40	168	80	248	496
32	1.7	0	1.2	10	0	12	12	24
33	0.8	70	0.3	40	56	12	68	136
15	1.2	0	1.0	100	0	100	100	200
Totals	20.2	604	13.6	525	1,134	640	1,774	3,548

^{1/} Trips required for feeding and moving livestock are based on mileage by public road to severed portion of right of way tract.

^{2/} Trips to inspect and manage livestock on severed tract are based on a shorter distance. This mileage is the distance in column two less the distance an operator had to travel to manage the area of his right of way tract before severed by the highway.

^{3/} Distance to severed tract multiplied by number of trips for feeding and managing livestock.

^{4/} Operators 1 and 11 had more than one right of way tract divided by the highway.

shortening the distance from his headquarters tract to other right of way tracts by using the frontage road of the new highway as a short cut. The distance before was 5.8 miles, but it was reduced to two miles when the highway was completed.

The seven operators with livestock on the right of way tracts during the winter months reported that they drove 2,268 miles to feed their cattle in 1966 and 1,280 miles for management purposes. The combined totals shown in Table 40 amounted to 3,548 miles that the operators of the 12 tracts drove in maintaining operations on the severed tracts. This is an average of 393 miles per operator or 295 miles of extra travel required per tract. When discussing the effects of the new highway on their operations, the operators with severed tracts most frequently mentioned the problem of the extra travel required in order to maintain livestock production on the severed tracts. At the rate of 300 miles of extra travel a year, the cost in terms of money and time becomes important to the operator.

Travel Patterns of Control Operators

Information was also gathered on travel distances in the control area. There were 11 of the 16 control area operators with multiple tract operations. Travel patterns of the 11 operators are shown in Table 41. The other five operators had only single tract operations and thus had no travel between tracts.

Only two of the 11 operators lived in town, with the other five residing on their headquarters tracts. The two operators living in

Table 41

Travel Distance of 11 Control Area Operators With
Multiple Tract Operations in 1962 and 1966^{1/}

Operator (Number)	Before Highway				After Highway				Change in Distance (Miles)
	Travel Required to Reach		Distance to		Travel Required to Reach		Distance to		
	Headquarters Tract	Other Tract	Headquarters Tract	Other Tract	Headquarters Tract	Other Tract	Headquarters Tract	Other Tract	
	(Number)	(Number)	(Miles)	(Miles)	(Number)	(Number)	(Miles)	(Miles)	
4	0	1	0	0.1		1		0.1	
5	0	3	0	9.0		3		9.0	
6	0	1		0.2		1		0.2	
12	0	1		0.2		1		0.2	
13	0	1		10.0		1		10.0	
14	0	3		30.8		4		28.9	-1.9
15	0	5		16.0		4		9.0	-7.0
17	0	2		1.3		2		1.3	
19	0	2		13.0		2		13.0	
22*	1	3	1.8	15.3	1	3	1.8	17.0	1.7
23*	1	1	10.9	15.9	1	2	10.9	16.1	0.2
Totals	2	23	12.7	111.8	2	24	12.7	104.8	-7.0
Averages			6.4	4.9			6.4	4.4	-1.8

* Operator lives in town.

^{1/} Travel distances were measured from the headquarters tract to other tracts in each operation. Travel distance for the two operators living in town was also measured from their home to their headquarters tract.

town had to drive 1.8 and 10.9 miles each on trips to their headquarters "before" and "after" the highway.

The 11 operators reported that they had 23 tracts in addition to their headquarters tracts in the "before" period. The average distance from the headquarters tracts to other tracts was 4.9 miles per tract and 10.2 miles per operator as compared to 4.2 miles per tract and 6.2 miles per operator for the study group. This is an indication of the dispersed operations in the area. In fact, some tracts were as much as 15 miles from the headquarters. There was some change in the control area as the average distance was 4.4 miles per tract and 9.5 miles per operator in the "after" period. In the "after" period the average distance to other tracts in the study area was 4.5 miles per tract and 6.9 miles per operator. The average distance to each tract was about the same for the study and control area operators, but the control area had more tracts per operator which increased the average distance per operator.

Four operators reported changes in their travel patterns. In one instance an operator experienced a change which was a result of the Interstate Highway bisecting a county road serving as the route from his headquarters to one of the other tracts. The county road was closed, as no crossover was provided, and the operator had to use the frontage road and another highway in order to reach the tract. (This is the road mentioned earlier in the report regarding travel to nearest shopping center.) This increased his distance by 1.7 miles. The changes in the distances of the other three operators were caused by the adding and dropping of rented tracts. Operator 15 released a tract,

reducing his travel by seven miles. The other two operators made changes in their operations that affected their travel. Operator 14 added two new tracts and released one, which actually reduced his travel in the "after" period by 1.9 miles. The other operator, number 23, added an extra tract in the "after" period which added 0.2 miles to this operation.

The other seven operators had the same 11 tracts in both periods and experienced no change in travel. The average distance from their headquarters to each tract was a little over three miles, an average of 4.8 miles per operator to all tracts in his operation.

The fact that 11 operators had to drive 104.8 one-way miles to reach their multiple tracts points out one of the problems connected with multiple tract operations. This amounts to an average distance of 4.4 miles to each tract and 9.5 miles traveled per operator. Operators in the study and control areas sometimes shortened this distance by arranging their trips in such a manner that they traveled from one tract to another without returning to headquarters.

LAND VALUES

Information was gathered from the operators and from county records regarding sales of land in the area and along the right of way of the new Interstate Highway. Also, 21 study area and 22 control area operators were asked their opinions of land values in their general areas in 1962 and 1966. Three operators in the study area and three in the control area reported that they were not well informed on land values in the area and would rather not estimate values.

Table 42 presents the average value of land in the general area and for the right of way tracts in 1962 and 1966 based on the opinions of 18 study area and 19 control area operators answering the questions. All operators reported that there had been an increase in land value from 1962 to 1966.

In 1962, 18 of the study area operators estimated that the average value of land in their general area was \$141 per acre compared to \$130 per acre for land in the control area. The 18 study area operators reported in 1962 the value of land in their area ranged from a low of \$75 per acre to a high of \$200 compared to \$100 to \$200 range for the control group.

In 1966 the operators reported the value per acre ranged from \$150 to \$300 for the study area and \$150 to \$350 for those in the control area. The average per acre value reported by the operators in 1966 was \$243 for the 18 study area and \$222 for the 19 control area. According to the estimates of land values furnished by the operators in the two areas, increases in values were very similar being \$102 and \$92 per

Table 42

Opinions of Study Area and Control Area Operators as to the Value of Land in Their General Area and Along Interstate 45 Before and After Construction of the Highway

Item	Study Area	Control Area
Number of Operators Responding	21	22
Number of Operators Stating Land in Their Community had		
Increased from 1962 to 1966	18	19
Decreased from 1962 to 1966	0	0
No opinion of Value	3	3
Average Value Per Acre in the General Area		
In 1962	\$141 (18)	\$130 (19)
In 1966	243 (18)	222 (19)
Average Increase Per Acre	\$102	\$ 92
Average Value Per Acre of ROW Tracts		
In 1962	\$153 (17)	\$140 (18)
In 1966	339 (17)	220 (18)
Increase Per Acre	\$186	\$ 80

acre respectively for the study and control groups. This amounts to a 72 and 71 percent increase from 1962 to 1966.

The operators in both areas were also asked to put a per acre value on their right of way tracts in 1962 and 1966. In 1962 the values varied from a low of \$100 to a high of \$200 per acre for the study area and \$100 to \$225 for the control group. Based on the estimates of 17 study area and 18 control area operators, the average values per acre of the right of way tracts in 1962 was \$153 and \$140 compared to \$339 and \$220 per acre in 1966. This indicates that the operators in the study area believe that land in their right of way tracts has increased an average of \$186 per acre in value from 1962 to 1966 as compared to an increase of \$80 per acre for land in the tracts designated as right of way tracts in the control area. This amounts to a 122 percent increase for the study area and an 80 percent increase for the control area.

The operators in the study area were also asked to list, in the order of importance, factors that they believed were responsible for the increased land values along Interstate 45. Five of the 21 operators had no opinions regarding increased land values. Twelve of the 16 operators answering the question listed the demand for land as the most important reason for the increase in land values. However, eight of the 16 operators felt that the new highway, by providing better access to and from Houston, has made the area more desirable for the Houston residents wishing to own rural land. Operators listed other reasons, but they were not generally mentioned by more than one or two operators. Some of the reasons listed are as follows:

increased oil activity in the area, availability of credit, desire of city people to own land, and the scarcity of land for sale. These factors have had some influence on land prices in the area but the operators also realize the impact the new highway has had on the area. However, some of the operators were reluctant to mention the new highway as a possible factor in land values increasing in the area.

Even though all of the study area operators felt that their land abutting the Interstate Highway was now more valuable, they were quick to point out, however, that only a few of the operators had actually realized any benefits from the increase in land values. Those were the operators with land near the two interchanges where traffic serving businesses had either purchased or leased small tracts for service stations and restaurants. In three instances, small tracts of an acre or less sold for \$24,000 to \$26,000 each. These tracts are now occupied by service stations. In other cases, the owners were leasing the tracts on long term arrangements for \$150 to \$200 a month.

Some of the small remainders located away from the interchanges sold to adjoining property owners. One 30-acre remainder sold twice for \$300 an acre each time. Two remainders of two and three acres each were sold for \$250 per acre to operators with adjoining property.

A P P E N D I X



Table A1

Changes in Land Use of 19 Right of Way Tracts
 Operated by 15 Study Area Operators
 in 1962, 1964, and 1966^{1/}

Type of Land	1962 (Before)			1964 (During)			1966 (After)		
	Operators	Land		Operators	Land		Operators	Land	
	Number	Acres	Percent	Number	Acres	Percent	Number	Acres	Percent
<u>Cropland</u>	6	307	4.4	7	308	4.7	5	280	4.3
Harvested	3	162	2.3	2	45	0.7	2	120	1.8
Harvested & Grazed	2	45	0.7	4	168	2.6	2	65	1.0
Government Program	1	100	1.4	1	95	1.4	1	95	1.5
<u>Pastureland</u>	15	6,627	95.1	15	6,142	93.9	15	6,153	94.3
Woodland	12	1,137	16.3	9	1,024	15.6	8	979	15.0
Cleared Unimproved	15	4,662	66.9	14	3,862	59.1	12	3,037	46.5
Cleared Improved	8	828	11.9	11	1,256	19.2	13	2,137	32.8
<u>Other Land</u> ^{2/}	11	33	0.5	10	89	1.4	10	89	1.4
Totals		6,967	100.0		6,539 ^{3/}	100.0		6,522	100.0

^{1/} The 15 operators furnished complete information in 1962, 1964, and 1966.

^{2/} Includes idle land and land in buildings and roads.

^{3/} Decreased acreage is a result of right of way acquisition and sale of three small remainder tracts.

Table A2

Changes in Land Use of 16 Right of Way Tracts
 Operated by 16 Control Area Operators
 in 1962, 1964, and 1966^{1/}

Type of Land	1962 (Before)			1964 (During)			1966 (After)		
	Operators	Land		Operators	Land		Operators	Land	
	Number	Acres	Percent	Number	Acres	Percent	Number	Acres	Percent
<u>Cropland</u>	12	856	21.0	12	702	17.2	12	703	17.4
Harvested	6	133	3.3	4	77	1.9	4	41	1.0
Harvested & Grazed	0	0	0	1	23	0.6	2	70	1.7
Grazed	8	679	16.6	10	526	12.9	8	494	12.3
Government Program	2	44	1.1	4	76	1.8	5	98	2.4
<u>Pastureland</u>	16	3,212	78.5	16	3,359	82.3	16	3,324	82.1
Woodland	14	2,022	49.4	13	2,017	49.4	13	1,864	46.0
Cleared Unimproved	9	738	18.0	10	885	21.7	11	822	20.3
Cleared Improved	4	452	11.1	4	457	11.2	8	638	15.8
<u>Other Land</u> ^{2/}	12	21	0.5	12	21	0.5	12	21	0.5
Totals	16	4,089	100.0	16	4,082	100.0	16	4,048	100.0

^{1/} The 16 operators furnished complete information for all three years of the study.

^{2/} Includes idle land and land in buildings and roads.

Table A3

Changes in Use of All Agricultural Land
 Operated by 15 Study Area Operators
 in 1962, 1964, and 1966^{1/}

Type of Land	1962 (Before)			1964 (During)			1966 (After)		
	Operators	Land		Operators	Land		Operators	Land	
	Number	Acres	Percent	Number	Acres	Percent	Number	Acres	Percent
<u>Cropland</u>	7	634	4.7	11	737	5.7	7	476	3.7
Harvested	3	172	1.3	4	135	1.0	2	120	0.9
Harvested & Grazed	2	127	0.9	7	355	2.7	3	80	0.7
Grazed	3	223	1.7	3	68	0.6	3	120	0.9
Government Program	1	112	0.8	3	179	1.4	3	156	1.2
<u>Pastureland</u>	15	12,768	95.0	15	12,191	94.0	15	12,197	96.0
Woodland	15	2,806	20.9	14	2,754	21.2	14	2,696	21.2
Cleared Unimproved	15	8,729	65.0	15	7,824	60.4	15	5,846	46.0
Cleared Improved	6	1,233	9.1	9	1,613	12.4	12	3,655	28.8
<u>Other Land</u> ^{2/}	12	45	0.3	12	33	0.3	12	35	0.3
Totals	15	13,447	100.0	15	12,961	100.0	15	12,708	100.0

^{1/} The 15 operators furnished complete information on their operations for all three years.

^{2/} Includes idle land and land in buildings and roads.

Table A4

Changes in Use of All Agricultural Land
 Operated by 16 Control Area Operators
 in 1962, 1964, and 1966^{1/}

Type of Land	1962 (Before)			1964 (During)			1966 (After)		
	Operators	Land		Operators	Land		Operators	Land	
	Number	Acres	Percent	Number	Acres	Percent	Number	Acres	Percent
<u>Cropland</u>	13	1,647	17.3	15	1,629	17.0	15	1,847	18.8
Harvested	6	333	3.5	7	164	1.7	3	57	0.6
Harvested & Grazed	0	0	0	5	106	1.1	8	257	2.6
Grazed	8	1,270	13.3	13	1,270	13.3	12	1,335	13.6
Government Program	2	44	0.5	4	89	0.9	7	198	2.0
<u>Pastureland</u>	16	7,809	82.2	16	7,865	82.5	16	7,938	80.8
Woodland	16	2,923	30.8	15	2,654	27.8	14	2,315	23.6
Cleared Unimproved	12	1,400	14.7	11	1,551	16.3	12	1,517	15.4
Cleared Improved	5	3,486	36.7	6	3,660	38.4	10	4,106	41.8
<u>Other Land</u> ^{2/}	16	47	0.5	16	43	0.4	16	43	0.4
Totals	16	9,503	100.0	16	9,537	100.0	16	9,828	100.0

1/ The 16 operators were operating 30 tracts of land in 1962, 35 tracts in 1964, and 35 tracts in 1966.

2/ Includes idle land and land in buildings and roads.

Year _____

Unit Code _____

T H E R U R A L S T U D Y
Texas Transportation Institute
Texas A&M University

A. Age ___ B. Sex ___ C. Health _____ D. Family Status _____

E. Major occupation: _____ % of income from
farming or ranching _____ %

F. Plans to quit farming within 3 years : Yes ___ No ___ Uncertain ___
I FARM REAL ESTATE (1966)

A. Tenure and Location (1966)

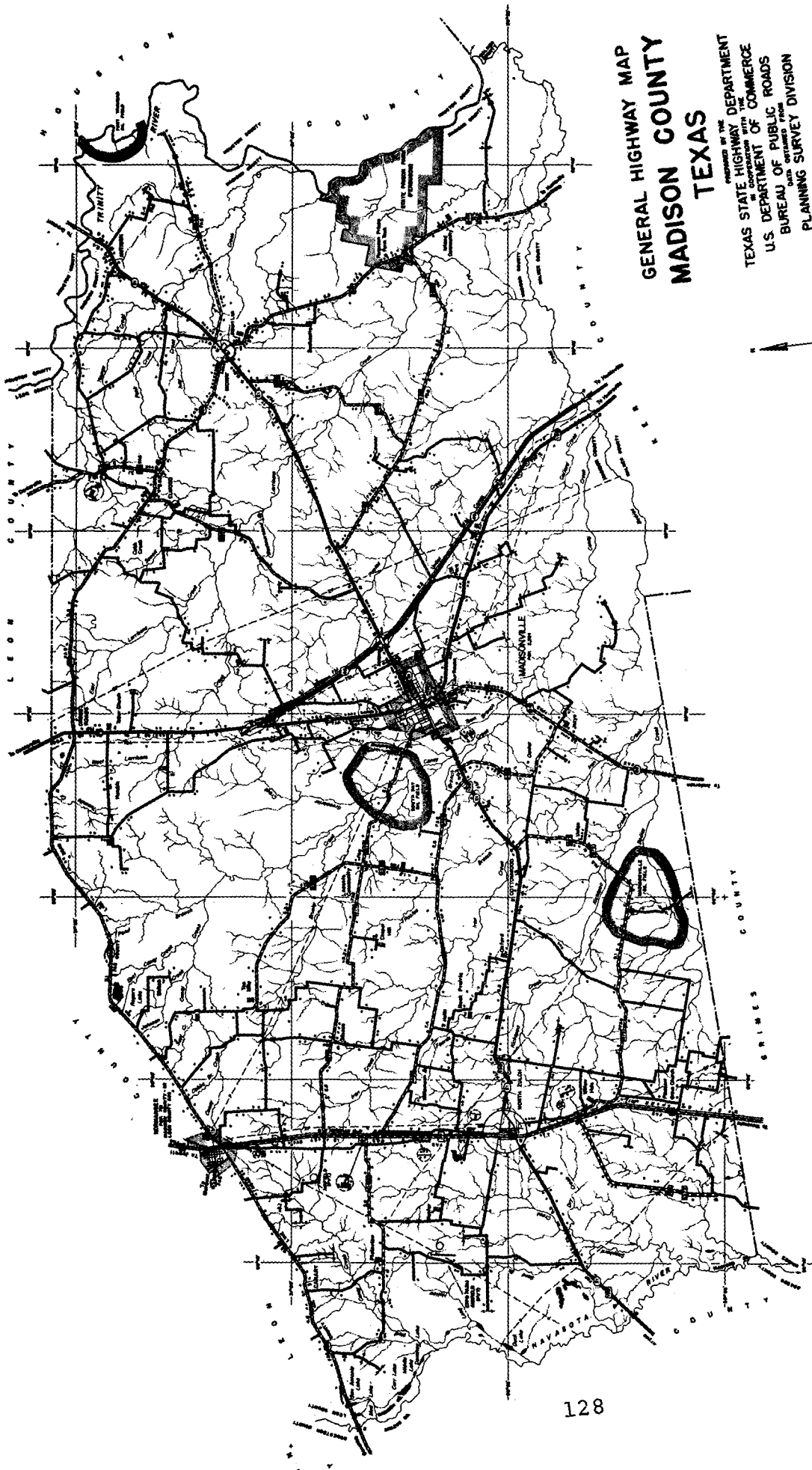
	All	Tract*						
	Land	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1. Land Operated (ac) -----								
2. Owned Land Operated (ac) ---								
3. Rented Land Operated (ac) --								
4. Land Managed for Others (ac)								
5. Headquarters Tract -(check) -	XXX							
6. Location of Land (locale) ---	XXX							
7. Distance to Hdq. (Mi.) -----	XXX							
8. Kind of Road Service -----	XXX							

9. Locate on each tract on attached map and identify by number.
Additional comments on operatorship: _____

10. If operator does not live on headquarters tract, where does he live?

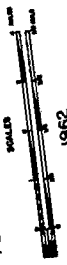
11. Note any changes in tracts operated from 64 to 66 _____

* A tract of land is distinguished by being noncontiguous or is under a different ownership from other operated land.



**GENERAL HIGHWAY MAP
MADISON COUNTY
TEXAS**

PREPARED BY THE DEPARTMENT
OF TRANSPORTATION IN
COOPERATION WITH THE
U.S. DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
DATA SUPPLIED FROM
PLANNING SURVEY DIVISION



1962

1960 CENSUS FRAMES

REVISED TO JANUARY 1, 1964

PLANNING SURVEY DIVISION, U.S. DEPARTMENT OF COMMERCE
U.S. GOVERNMENT PRINTING OFFICE: 1964 O-560-000
U.S. GOVERNMENT PRINTING OFFICE: 1964 O-560-000

II CROP PRODUCTION RECORD (LANDLORD'S SHARE INCLUDED)
 Yield Units - Corn, Oats & Wheat in bu., Grain Sorg. in cwt.
 Cotton 500 bales - Hay in tons or bales

Crops	Tract 1				Tract 2			
	Acres	Yield	Value	Fert.	Acres	Yield	Value	Fert.
Corn								
Sorghum								
Wheat								
Cotton								
Oats								
Hay								
Totals		XXX				XXX		

Crops	Tract 3				Tract 4			
	Acres	Yield	Value	Fert.	Acres	Yield	Value	Fert.
Corn								
Sorghum								
Wheat								
Cotton								
Oats								
Hay								
TOTALS		XXX				XXX		

Crops	Tract 5				Tract 6			
	Acres	Yield	Value	Fert.	Acres	Yield	Value	Fert.
Corn								
Sorghum								
Wheat								
Cotton								
Oats								
Hay								
Totals		XXX				XXX		

III GENERAL LAND USE OF EACH TRACT
(ACRES)

	1	2	3	4	5	6	7	TOTALS
A. CROPLAND								
1. Harvested (Get from other page)								
2. Harvested & Grazed (Get from other page)								
3. No Crops Harvested								
a. Grazed (Explain)								
b. A. S. C. Prog.								
c. Idle								
d. Water Ways								
e. Acres Fertilized								
B. PASTURE LAND								
1. Woodland								
2. Unimproved (cleared)								
3. Improved								
4. Idle								
5. Acres Fertilized								
C. OTHER LAND								
1. Buildings & Roads								
2. Unaccounted For								
TOTALS A, B, C.								

IV LIVESTOCK & OTHER OPERATIONS

A. CATTLE OPERATIONS	Cows & Calves		Cows		Bulls		Calves		Heifers	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
1. On hand January (1966)										
2. On hand January (1967)										
3. Sales (1966)										
4. Purchased (1966)										
5. Value of animals consumed at home - - - - -										\$ _____
6. Cost of feed purchased for cattle and calves - - - - -										\$ _____
7. Value of feed raised and fed to cattle and calves - - - - -										\$ _____
8. Other expense of cattle enterprise (vet & breeding)- - - - -										\$ _____

COMMENTS:

B. POULTRY, SHEEP, GOATS, HOGS, DAIRY AND HORSE OPERATIONS	No.	Value	No.	Value	No.	Value	Total Value
	1. On hand at end of (1965)						
2. On hand at end of (1966)							
3. Sale of livestock during year							
4. Sale of products (egg, milk)							
5. Consumed at home							
TOTAL VALUE	XX		XX		XX		
6. Livestock purchased							
7. Cost of feed purchased for livestock	XX		XX		XX		
8. Value feed raised & fed to livestock	XX		XX		XX		
9. Misc. livestock expense	XX		XX		XX		
10. TOTAL EXPENSE	XX		XX		XX		

C. LOCATION OF LIVESTOCK ENTERPRISES	TRACTS						
	1	2	3	4	5	6	7
1. Cattle							
2. Sheep & Goats							
3. Hogs & pigs							
4. Poultry, raised or kept							
5. Horses & Mules							

V EXPENSES

	<u>Total Expenses</u>	<u>If Tenant Landlord share</u>
A. <u>PRODUCTION</u>		
1. Fertilized pastured land: Acres _____ Tons _____	\$ _____	\$ _____
2. Fertilized cropland harvested: Acres _____ Tons _____	\$ _____	\$ _____
3. Specify tracts on which fertilizer was used _____	\$ XX	\$ XX
4. Insecticides \$ _____ Herbicides \$ _____ Total	\$ _____	\$ _____
5. Planting seeds-----	\$ _____	\$ _____
6. Gas and oil Total \$ _____ Rebates \$ _____ Net _____	\$ _____	\$ XX
7. Farm equipment repairs (incl. trucks)-----	\$ _____	\$ XX
8. Cotton Ginning (net after credited for cotton seed) (If tenant, value of landlord's share of cotton seed \$ _____)	\$ _____	\$ XX
9. Machine hire expense (Baling, Cotton picking & Combining)-----	\$ _____	\$ _____
10. Hired Labor-----	\$ _____	\$ XX
11. Fence repair (Wire, Posts)(Repairing Old Fences)---	\$ _____	\$ _____
12. Value of crops to share cropper (Wages in kind)----	\$ _____	\$ XX
13. Interest paid relating to farm business-----	\$ _____	\$ XX
14. Number of regular workers _____ Man days of hired labor _____	\$ XX	\$ XX
B. <u>RENTS</u>		
1. Total pasture land rents paid-----	\$ _____	
2. Cash rents and value of crop shares paid for cropland-----	\$ _____	
3. Other rents paid related to farm business: Specify _____	\$ _____	
C. <u>INSURANCE - OTHER FARM EXPENSES</u>		
Farm Buildings \$ _____ Farm Equipment _____ Total	\$ _____	
Farm Vehicles-----	\$ _____	
Other Insurance - Specify-----	\$ _____	
D. <u>TAXES</u>		
1. Farm real estate taxes (state, county, school)-----	\$ _____	
2. Personal (Chattel) taxes on farm property-----	\$ _____	
3. Registrations and fees on farm vehicles-----	\$ _____	

VI FARM EQUIPMENT INVENTORY

A. EQUIPMENT AT END OF YEAR:

	Number	Market Value
1. Automobiles-----		
2. Pickup Trucks-----		
3. Other Motor Trucks-----		
4. Trailers-----		
5. Tractors (incl. planters, busters, culti- vators-----		
6. Corn Pickers-----		
7. Grain Combines-----		
8. Cotton Strippers or Pickers-----		
9. Hay Balers-----		
10. Mowers and Shedders-----		
11. Fertilizer Distributors-----		
12. Grain Drills-----		
13. Planters (Drag)-----		
14. Plows-----		
15. Poisoning or Spraying Equipment-----		
16. Misc. Equipment-----		

B. EQUIPMENT PURCHASES, SALES AND RENTALS:

1. Equipment purchased (incl. hand tools, etc.)
allowing for value of trade-ins-----\$ _____
2. Equipment sold outright (not traded in)-----\$ _____
3. Equipment rentals received-----\$ _____

VII CHANGES IN LAND USE PRACTICES

	/ / / / / /					
Tracts	1	2	3	4	5	6
1. <u>Cover crops</u>						
2. <u>Cropland farmed on contour</u>						
3. <u>Land terraced</u>						
4. <u>Fertilizing or liming</u>						
5. <u>Improved pastures</u>						

Comments on changes in land use: _____

VII OTHER INCOME

	/ / / / / /					
Tracts	1	2	3	4	5	6
1. <u>Grain program payments</u>						
2. <u>Land in soil bank payments</u>						
3. <u>Conservation practices - tanks, dozing, drainage, terracing, planting grass</u>						
<u>Payment received</u>						

4. Income from custom work using own farm equipment _____
 5. Retirement income: Social Security _____ Other _____

IX CAPITAL IMPROVEMENT EXPENSES

- | | |
|-------------------------------------|------------------------------|
| 1. <u>New fencing expense</u> _____ | 2. <u>Barns, sheds</u> _____ |
| 3. <u>Tanks</u> _____ | 4. <u>Wells</u> _____ |
| 5. <u>Clearing land</u> _____ | 6. <u>Terracing</u> _____ |
| 7. <u>Planting grass</u> _____ | <u>COMMENTS:</u> _____ |

X. A. FENCING

1. Was the ROW tract fenced before the highway route was established?

Yes ___ No ___.

2. Have you fenced the ROW tract? Yes ___ No ___ Cost, etc. _____

3. Due to your place being divided, was it necessary for you to construct fences in addition to ROW fence? Yes ___ No ___ _____

B. CATTLE OPERATION

1. Did the taking of the ROW reduce the livestock carrying capacity of your ROW tract? Yes ___ No ___ _____

2. If it did reduce the carrying capacity, what improvements were required to maintain your level of operations? _____

3. Have there been any changes in livestock operations as a result of the highway? Yes ___ No ___ _____

4. If you had cattle on ROW tract did you have to provide extra water? Yes ___ No ___ Cost, etc. _____

XI. A. LAND VALUE

1. In general do you think the value of land in the county has increased ___ decreased ___ since 1961? Value per acre 1961 _____ 1967 _____.

XI. A. LAND VALUE (Cont'd)

2. Along the Interstate highway? 1961 _____ 1967 _____
3. Has your ROW tract increased ___ decreased ___ in value? How much per acre _____.
4. In your opinion what are some of the major factors that have affected land values in the area? _____

5. Have you sold any land off of the ROW tract? Yes ___ No _____.
If yes, acres _____ value _____.
6. Have you traded land with neighbors? Yes ___ No ____ Comment _____

7. Did you sell fill dirt to the contractor? Yes ___ No _____. If yes, about how many yards _____ price _____.
8. Did you sell sod for highway? Yes ___ No _____. If yes, how much?

9. Did the excavation of fill dirt provide you with a lake? Yes _____
No ___ Comment _____

B. LAND USE

1. How was the ROW tract being used at the time the highway route was purchased? _____

2. How have you been using it since highway acquired ROW? _____

XI. B. LAND USE (Cont'd)

3. If there has been any change in use explain why, etc. _____

4. Has there been a change in land use on other tracts? Yes ___ No ____.
If yes, was this caused by highway cutting through land? Comment _____

C. WATER PROBLEMS

1. Now that the highway has been completed do you have any water drain-
age or silting problems? Yes ___ No _____. If yes, explain _____

2. Did the construction of the highway (improve, hinder, did not affect)
water drainage on the ROW tract? _____

3. Did the new highway benefit you by diverting more water to your
tanks? Yes ___ No ____ Comment _____

XII. USE OF MONEY FROM ROW

A. OWNER OF ROW TRACT (USE PERCENT)

1. To improve land _____%
2. To build buildings, corrals. Severed tracts _____% Other _____%
3. Purchase farm equipment _____%
4. Purchase cattle _____%
5. Purchase land _____%
6. Fencing. ROW _____% Other _____%
7. Improve or build new home _____%

XII. A. OWNER OF ROW TRACT (USE PERCENT) (Cont'd)

- 8. Water supply. Severed tract _____ % Other _____ %
- 9. Pay off loan. Land _____ % Home _____ Other _____ %
- 10. Consumer goods _____ %
- 11. Improve cash position _____ %
- 12. Other _____ %

B. RENTER - CASH OR OTHER

- 1. Did landlord use any of the ROW money to improve the land? Yes _____
No _____. If yes, comment _____

- 2. Did landlord make any concessions to you for loss of ROW land?
Yes _____ No _____. If yes, comment _____

XIII. TRAVEL HABITS

A. LIVES (IN TOWN) (ON ROW) (ON OTHER TRACT)

- 1. Route and distance (to town) (to ROW tract) IS? _____

- 2. The distance has been (increased) (decreased) since IS to or from
town. Comment _____

- 3. How often do you travel to (town) (ROW tract) - weeks, months? _____

- 4. Has the frequency changed since the construction of IS? Yes _____
No _____ Comment _____

XIII. B. SEVERED TRACTS

1. If land was severed what is the one way distance to severed tract?
From headquarters tract _____ miles, from other ROW tract _____
2. Farming:
 - a. How many trips were required by farm machinery? _____
 - b. Trips for inspecting or managing crops? _____
3. Livestock:
 - a. How many trips required to feed cattle? _____
 - b. Trips to inspect cattle? _____
 - c. Trips to move cattle? _____

C. TRAVEL TO OTHER TRACTS

No effect _____ affected _____ in what way? _____

