# Changes in Land Value, Land Use, and Business Activity Along a Section of the Interstate Highway System in Austin, Texas

*An Interim Report on One of a Series of Studies of the Economic Impact of the Interstate Highway System on Local Areas*

by

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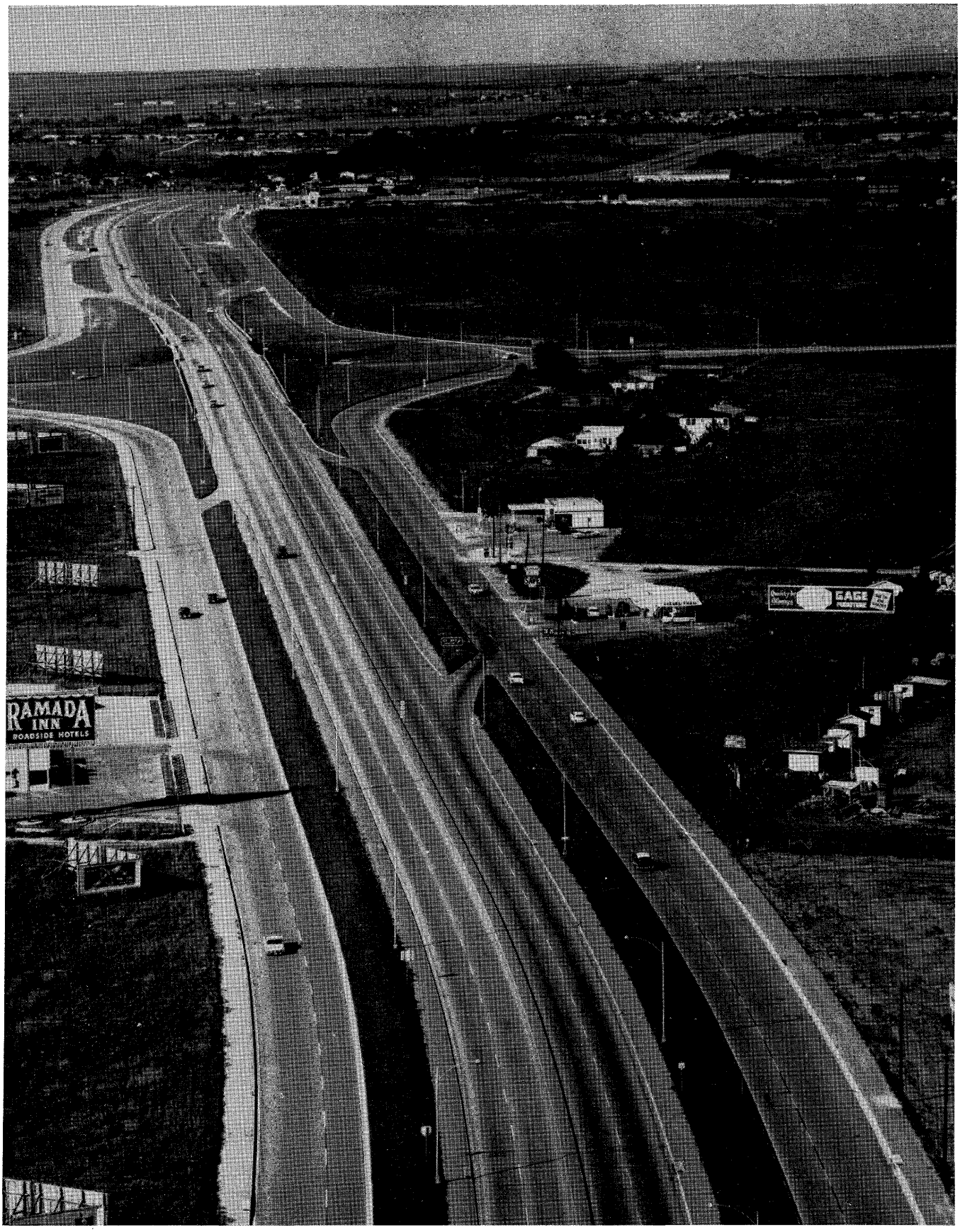


AUSTIN STUDY AREA—Looking north from Southern boundary. The main business district is to the South. *(Photo courtesy Texas Highway Department.)*

## Acknowledgement

The authors wish to express appreciation to all those who helped in both formulating and conducting this study. Special thanks are due to the two sponsoring agencies—the Texas Highway Department and the U. S. Bureau of Public Roads—for their continued support and guidance. Mr. Travis A. Long, Mr. Joe Wright, Mr. Paul Tutt, and Mr. Mac Shelby of the Texas Highway Department and Mr. Ted Hawley and Mr. Frank Anderlitch of the U. S. Bureau of Public Roads have been most helpful in guiding this project through their efforts on its Advisory Committee.

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# FOREWORD

In November of 1957, the U. S. Bureau of Public Roads and the Texas Highway Department authorized the Texas Transportation Institute to conduct an economic impact study along sections of the Interstate Highway System in Texas. This authorization called for joint financial support by the Bureau of Public Roads and the Texas Highway Department.

The study was to include an analysis of the economic impact on local areas of the Interstate Highway System. The specific objectives were to measure the changes in land value, land use, business activity, travel habits, and general community development that could be associated with this new highway facility.

At the time the study was authorized, very little of the Interstate System had been constructed within the state. There were, however, several sections of expressway-type roadway which had already been constructed and which, with minimum alterations, would meet the Interstate construction standards. It was decided to select three sections of expressway-type roadway which had been completed for a minimum of two years as the starting point for this study. This would allow a "before-and-after" study to be conducted within these areas while basic data were being accumulated from other sites.

With the advice of the Project Advisory Committee, three such sites were selected: one each in or near the cities of Austin and Temple, and one in Rockwall County. Field work was initiated immediately in order to establish base period land value, land use, and business activity information as soon as possible.

At the time the study was authorized, it was requested that a preliminary report of findings be submitted to the Bureau of Public Roads by July 1, 1958. These findings were to be used by the Department of Commerce in its report to Congress on nonvehicular benefits as required under Section 210 of the Highway Revenue Act of 1956. This report includes much of the data included in the Austin Section of that preliminary report.

# CONTENTS

# *Summary*

This is an attempt to isolate, measure, and analyze some of the effects that the construction of the Interstate Highway System has had on a local area. The area considered here is a section along IH 35 in the northern part of Austin, Texas. It is composed of a strip approximately one mile in width which extends from the intersection with U. S. 290 north to Walnut Creek, a distance of some five miles.

The effect to date of new Interstate Highway 35 on this particular section of Austin has indeed been striking. Furthermore, there is every reason to believe that some of the major changes within this area are only now beginning to become apparent.

These changes are noticeable through all the measurement methods used. In measuring changes in land values, for example, it was found that land in the study area increased in price by more than $1,100.00 per acre between the "before" and "after" periods, while control area properties increased by only $185.00 per acre during the same time period. Further comparisons of changes in property values showed that location with respect to the new facility was a major influencing factor on land prices. Land abutting the facility had a much larger demand and consequently increased in price much faster than did land away from the facility.

Distance from the downtown area was also found to have an influence on the rate of property price increases. Here, however, it was largely a case of the new facility wiping out old distance price differentials that had favored properties closer in to the downtown area. Within the limits of this study area, five miles, distance no longer appeared to be a significant factor.

Land use also changed radically during and after construction of the new highway. In general this change was away from the extensive uses toward the more intensive ones. Much of the land was still being used for agricultural purposes just prior to construction of the new road in 1948. Ten years later, in 1957, a considerable portion of the land had been converted to residential, commercial, industrial, speculative, or investment uses.

The relationship between the changes in land use and land value were quite interesting, and, along with the other measurements, reflected a substantial change. As would be expected, properties being sold to the more intensive uses generally recorded the largest increases in price while those sold for less intensive purposes usually showed correspondingly lower price increases. Speculatively held land did not follow this pattern, however, since ultimate use potential, rather than immediate use, appeared to be the primary price determinant in these cases.

The economic changes in the area, while less apparent to the eye, were fully as dramatic as the physical changes. Over-all business volumes of retail stores in the area, while not measured directly, were not felt to be greatly changed from 1953—the last year prior to the opening of the new road—to 1957—the last full year of operation during the study period. Individual firms, however, were affected to varying degrees by the change in traffic flow. Several businesses had their sales volumes severely restricted while others were less affected and some even recorded sales increases over the period.

In the more detailed analysis of traffic-serving firms, it was found that the losses sustained by firms on the old route were more than offset by the additional sales of new firms along the new route. This would seem to indicate that from the standpoint of sales volumes alone, the area as a whole was better off in 1957 than 1953. Such an analysis and conclusion does not, of course, consider returns on the investment, effects on property values, etc.

Neither does it adequately cover the plight of firms along the old route, which were often severely affected by the traffic diversion. As a group, traffic serving firms along the old route suffered a 17 percent loss in sales volume between 1953 and 1957. Those businesses which depended most heavily on transient trade were the most severely affected. Restaurants and motels, additionally encumbered by a relatively short remaining economic life, were the types of businesses most severely hurt. They reported collective net losses in sales of 34 and 31 percent respectively. Service stations, on the other hand, were able to continue to increase their sales volumes by concentrating their sales efforts on the still expanding local area. As a group their sales increased more than three percent during the study period.

The area included in this study has shown evidence of continued economic growth and change since this study was completed. Additional data are being gathered concerning these growth patterns and will be treated at a later date.

# AUSTIN AREA

## General

Austin, the capitol of Texas, is a city with an estimated 1957 population of about 185,000 located in Travis County, in southeastern-central Texas. The city has a diversified economy based on State Government payrolls, educational and eleemosynary institutions, industry, agriculture, and tourist trade. Since its economy is well diversified, the city and its surrounding areas have shown a more stable pattern of growth than has been evidenced in many other cities of the State. Its rate of growth, however, has been substantial, as evidenced by an estimated population increase of over 50,000 or some 37 percent between 1950 and 1957.

Austin is served by four major U. S. Highways. U. S. 290, carrying traffic between Houston and El Paso, traverses the city from east to west. U. S. 183, extending from Refugio near the coast through western Oklahoma, runs through the city from north to south. U. S. 79 comes from Shreveport, Louisiana, and joins with U. S. 81 about 25 miles north of Austin. Interstate Highway 35 (U. S. 81) is a major traffic artery between Laredo on the Mexican border and Texarkana in the extreme northeast. It also serves San Antonio to the south and Dallas to the north. U. S. 81 extends through Austin from north to south.

### *STUDY AREA*

The Austin study area is located along a 5-mile section of U. S. 81, beginning at the intersection with U. S. 290 and extending north to Walnut Creek. Because of the irregular nature of the city limits, only the first 1.2 miles of this area are wholly within the city. The next 1.6 miles are partially within the city, and the most northern 2.2 miles are completely outside the city limits (Figure 1). The area included in this study averages slightly over one mile in width. The exact boundaries were determined by existing property lines and the proximity to Old U. S. 81. A total of 3,250 acres of land are included within the area.

This section of roadway was not originally constructed as a part of the Federal Interstate System. The section near Austin was planned and constructed as a relocated four-lane divided expressway-type highway, designed to facilitate the movement of north-south traffic into and through the city. Its new location was considerably east of the old highway.

Purchases of rights-of-way for the new facility were begun in late 1948, and were largely completed in 1951. The City of Austin furnished all rights-of-way within the city limits, and Travis County furnished those outside the city. The 300-foot, minimum-width right-of-way was acquired at an estimated cost of about $500,000 for the 5-mile section included in this study.

Construction was begun in late 1951, and the entire section was officially completed in June, 1954. The completed facility consists of four traffic lanes divided by a median strip, with two-lane frontage roads along either side. Full control of access has not yet been achieved, since several crossovers and at-grade crossings are still in use. Complete control of access will be achieved, however, as this section is brought to Interstate standards.

### *CONTROL AREAS*

In order to isolate the influence of the new facility on surrounding property values from general price appreciation due to the normal expansion of the city, it was necessary to select control areas. Ideally, a control area should have all the characteristics of the study area, with the exception of the variable being measured—in this case the new facility. The differences in price movements between the study and control areas would then reflect the net influence of the facility on property values. It is, of course, impossible to find a perfect control area. A concerted attempt was made, however, to locate control areas with the same general characteristics of land ownership, use, quality, and accessibility as the study area. To do this, it was necessary to select several different sections of land—each with slightly differing characteristics.

Technical considerations in the field made it necessary to select entire land surveys as controls. Property transactions are carried in the records of abstract companies by surveys, and all sales within a given survey are recorded by years. By using these records, it is possible to obtain all the property transactions within a given area for a number of years without tracing individual land owners through the county deed books.

Six different land surveys were finally selected as a control for the Austin study area. These were the Mariquita Castro and William Caldwell surveys lying northeast of the study area; the James Burleson and Phillip McElroy surveys to the east and southeast; the William Lewis Sr. survey to the south and the Theodore Bissel survey to the southwest (Figure 1). These surveys were each approximately one Spanish League in size and collectively included over 27,000 acres of land.

The land included in these surveys was quite similar to that in the study area during the base period. It was all outside the city limits, but fairly near the city. Most of the land was open, much of it was being used in agricultural production, and very little commercial or industrial development had taken place.

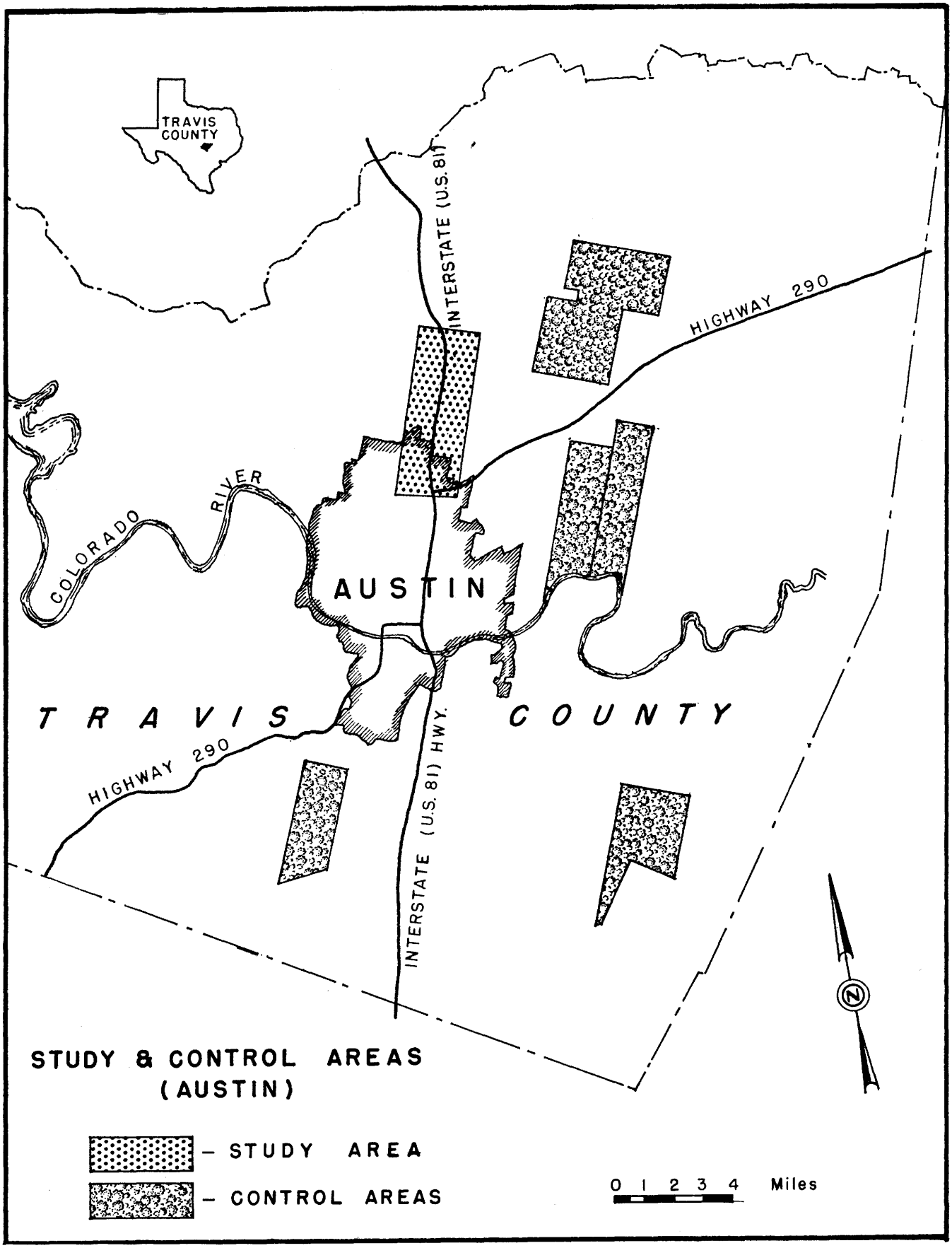

TRAVIS COUNTY
INTERSTATE (U.S. 81)
HIGHWAY 290
COLORADO RIVER
AUSTIN
TRAVIS COUNTY
HIGHWAY 290
INTERSTATE (U.S. 81) HWY.
N
STUDY & CONTROL AREAS
(AUSTIN)
– STUDY AREA
– CONTROL AREAS
0 1 2 3 4 Miles

Figure 1.

# Land Values

The comparative method of analysis was used to show changes in land prices between the three periods under study. Prices within the study area were compared with control area prices, and certain interior classifications were compared within the study area proper. The interior classifications were devised so as to relate changes in value to the proximity of the land to the facility (abutting and nonabutting) and proximity to the central business district of Austin (section 1 and section 2).

As is explained in detail in Appendix A, the seventeen-year period under study was divided into three separate periods. The first period covered the years 1941-1948 inclusively and served as the base period in determining changes in land values. Property values during this period are not considered to be influenced by the facility. The second period, years 1949-1953 inclusive, was the period during which rights-of-way were purchased and construction work performed. Changes in land values during this period measure, to a large degree, the extent to which realtors and land owners within the area expected land values to be effectuated as a result of the new facility. Price changes within the third period, years 1954-1957 inclusive, reflect changes that have occurred since completion of the new facility.

The tables in this section of the report present the land value data by two methods. First, the actual or unadjusted per acre prices and changes in prices per acre are shown. Then these per acre prices and changes are adjusted and placed upon a common-dollar base. This adjustment has the effect of weighting each year's sales. The adjusted data will be used primarily in the following discussion of changes in land values.

All land prices referred to within this section of the report relate to unimproved land. In the cases where the sale included the cost of improvements, such improvement costs were removed, so as to reflect only unimproved land values. In most instances the improvement costs or values were segregated by application of adjusted tax valuation data or by other methods deemed applicable under the circumstances.

## *TOTAL LAND VALUES*

Table 1 presents the adjusted data relative to period sales within the study area and control area. Land within the study area increased an average of $1,104 per acre between the first and last periods, as opposed to an increase of only $185 per acre for land situated within the control area. This leaves an adjusted net change of $919 per acre for the study area over the control area.

Of the $1,104 per acre increase in the study area between the base and last periods, 56.7 percent occurred between the middle and last periods. During this same time period, however, 83.8 percent of the $185 per acre increase in the control area occurred. This difference can be partially explained by the fact that many realtors and land owners realized or at least surmised that land values would in all probability increase within the study area after construction of the new facility. As a result there was a certain degree of speculative buying involved during the period after the public was informed of the new highway. This type of purchasing probably caused land prices to increase at a greater rate during the 1949-1953 period than they normally would have done in the absence of any knowledge of impending new expressway construction.

Apparently the land owners' and realtors' expectations were fulfilled, since the land within the study area increased an average of $626 per acre during the years 1954-1957, while land within the control areas increased only $155 per acre during the same period.

Table 1-A presents the actual or unadjusted increases in price per acre between the three periods for both the study area and the control area.

Table 1

ADJUSTED TOTAL LAND PRICES FOR STUDY AND CONTROL AREAS IN AUSTIN

(Adjusted by Consumer Price Index—1947-49 = 100)

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | STUDY AREA | | | | |
| 1941-48 | 110* | 2,346 | $ 307 | | | | |
| | | | | $478 | | 155.7% | |
| 1949-53 | 47* | 1,065 | 785 | | $1,104 | | 359.6% |
| | | | | 626 | | 79.7 | |
| 1954-57 | 67* | 1,282 | 1,411 | | | | |
| | | | CONTROL AREAS | | | | |
| 1941-48 | 217 | 20,681 | 64 | | | | |
| | | | | 30 | | 46.9 | |
| 1949-53 | 154* | 10,824 | 94 | | 185 | | 289.1 |
| | | | | 155 | | 164.9 | |
| 1954-57 | 95* | 3,607 | 249 | | | | |

*Does not include number of sales within subdivisions.

Table 1-A
ACTUAL TOTAL LAND PRICES FOR STUDY AND CONTROL AREAS IN AUSTIN

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes for Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | STUDY AREA | | | | |
| 1941-48 | 110* | 2,346 | $ 268 | | | | |
| | | | | $629 | | 234.7% | |
| 1949-53 | 47* | 1,065 | 897 | | $1,415 | | 528.0% |
| | | | | 786 | | 87.6 | |
| 1954-57 | 67* | 1,282 | 1,683 | | | | |
| | | | CONTROL AREAS | | | | |
| 1941-48 | 217 | 20,681 | 52 | | | | |
| | | | | 78 | | 150.0 | |
| 1949-53 | 154* | 10,824 | 130 | | 241 | | 463.5 |
| | | | | 163 | | 125.4 | |
| 1954-57 | 95* | 3,607 | 293 | | | | |

*Does not include number of sales within subdivisions.

## *NONSUBDIVIDED LAND*

The previous section included a discussion of land values for properties in non-subdivided land and in subdivisions. With certain exceptions, the values for the subdivisions were computed after deducting all improvement and development costs from the sales price of the lots. The exceptions were those subdivisions which were in existence before the year 1949 or before announcement of the proposed new facility. Since those subdivisions had established values during the base periods, it was not necessary to eliminate or segregate development costs in order to show a true picture of their percentage appreciation of value. Improvement values were deducted from the selling prices of lots within these subdivisions, however.

Since subdivision value variances are more pronounced between different sections, it seemed desirable to segregate subdivided land and make a comparison between nonsubdivided or "open" land in the study and control areas.

Table 2 shows the influence of the expressway on prices of nonsubdivided land within the study area. There is a difference of more than 300 percent between the increases of land prices in the study area and control areas. This percentage figure relates to an adjusted dollar increase of $960 net. This means that nonsubdivided land values were approximately 300 percent higher in the study area than they would have been in the absence of the new facility. The greater portion of this increase occurred within the last four year period. The percentage increase in nonsubdivided land prices between the second and third periods was almost the same for the study area and the control area. The land within the study area, however, increased an average of $721 per acre compared to an average increase of $113 per acre for land located in the control area.

Table 2
ADJUSTED PRICES OF NONSUBDIVIDED LAND IN STUDY AND CONTROL AREAS IN AUSTIN
(Adjusted by Consumer Price Index—1947-49 = 100)

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | STUDY AREA | | | | |
| 1941-48 | 110 | 2,001 | $ 211 | | | | |
| | | | | $381 | | 180.6% | |
| 1949-53 | 47 | 675 | 592 | | $1,102 | | 522.3% |
| | | | | 721 | | 121.8 | |
| 1954-57 | 67 | 590 | 1,313 | | | | |
| | | | CONTROL AREAS | | | | |
| 1941-48 | 217 | 20,681 | 64 | | | | |
| | | | | 29 | | 45.3 | |
| 1949-53 | 154 | 10,735 | 93 | | 142 | | 221.9 |
| | | | | 113 | | 121.5 | |
| 1954-57 | 95 | 3,480 | 206 | | | | |

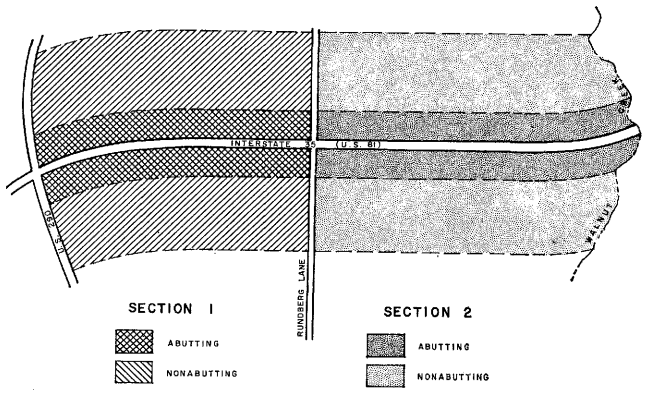
Table 2-A
ACTUAL PRICES OF NONSUBDIVIDED LAND IN STUDY AND CONTROL AREAS IN AUSTIN

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | STUDY AREA | | | | |
| 1941-48 | 110 | 2,001 | $ 176 | | | | |
| | | | | $484 | | 275.0% | |
| 1949-53 | 47 | 675 | 660 | | $1,340 | | 761.4% |
| | | | | 856 | | 129.7 | |
| 1954-57 | 67 | 590 | 1,516 | | | | |
| | | | CONTROL AREAS | | | | |
| 1941-48 | 217 | 20,681 | 52 | | | | |
| | | | | 52 | | 100.0 | |
| 1949-53 | 154 | 10,735 | 104 | | 190 | | 365.4 |
| | | | | 138 | | 132.7 | |
| 1954-57 | 95 | 3,480 | 242 | | | | |

## *COMPARISON OF SECTIONS 1 AND 2*

Two of the interior classifications within the study area relate to proximity of the land to the central business district of Austin. The study area was divided into two sections for this proximity analysis. Section 1 includes all property from the intersection of U. S. 290 north to Rundberg Lane (Figure 2). Section 2 includes those properties located north of Rundberg Lane and south of Big Walnut Creek. The division line between the two sections corresponds approximately with the present most northerly city limit line of the city of Austin.

It is apparent from a review of Table 3 that there were considerable differences in land values between the two sections during the base period of 1941-1948. One factor attributing to the value difference was the different land use in the two sections during that period. Section 1 had 345 acres of land that was subdivided during the base years. The values per acre for subdivided land were naturally greater than for the open land in section 2. The second factor involved can be surmised to be the distance factor. There was an actual dollar difference of $138 per acre between nonsubdivided lands in the two sections. Since the nonsubdivided land in




MAJOR DIVISIONS OF STUDY AREA

Figure 2.

Table 3
ADJUSTED LAND PRICES FOR SECTIONS 1 AND 2 IN AUSTIN STUDY AREA
(Consumer Price Index—1947-49 = 100)

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | SECTION 1 | | | | |
| 1941-48 | 74* | 1,781 | $ 375 | | | | |
| | | | | $445 | | 118.7% | |
| 1949-53 | 29* | 708 | 820 | | $1,180 | | 314.7% |
| | | | | 735 | | 89.6 | |
| 1954-57 | 25* | 583 | 1,555 | | | | |
| | | | SECTION 2 | | | | |
| 1941-48 | 36* | 565 | 94 | | | | |
| | | | | 620 | | 659.6 | |
| 1949-53 | 18* | 356 | 714 | | 1,197 | | 1,273.4 |
| | | | | 577 | | 80.8 | |
| 1954-57 | 42* | 700 | 1,291 | | | | |

*Does not include number of sales within subdivisions.

Table 3-A
ACTUAL LAND PRICES FOR SECTIONS 1 AND 2 IN AUSTIN STUDY AREA

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | SECTION 1 | | | | |
| 1941-48 | 74* | 1,781 | $ 330 | | | | |
| | | | | $561 | | 170.0% | |
| 1949-53 | 29* | 708 | 891 | | $1,478 | | 447.9% |
| | | | | 917 | | 102.9 | |
| 1954-57 | 25* | 583 | 1,808 | | | | |
| | | | SECTION 2 | | | | |
| 1941-48 | 36 | 565 | 75 | | | | |
| | | | | 834 | | 1,112.0 | |
| 1949-53 | 18* | 356 | 909 | | 1,505 | | 2,006.7 |
| | | | | 671 | | 73.8 | |
| 1954-57 | 42* | 700 | 1,580 | | | | |

*Does not include number of sales within subdivisions.

both sections was essentially the same type, and served by the same traffic facility, it may be generally concluded that the $138 difference in value was mainly an effect of the proximity factor.

After announcement of the proposed interstate route, land prices in general began to increase in the study area, but the prices in section 2 had greater increases than did section 1 land prices. The nonsubdivided land in section 1 increased an average of $184 per acre between the base and second periods, whereas prices in section 2 increased $673 per acre during the same period.

The over-all dollar increase in values per acre for all land was about the same for both sections, but the percentage figures show approximately four times as much increase for section 2 as for section 1.

With the placement of the new facility through this area, the distance from the central business district of Austin became less important. The travel time from many points within section 2 to in-city Austin became less than the previous travel time required from points within section 1. Obviously there are more factors involved in determining causes for the increased land values, but the primary ones seem to be the speed or decreased travel time and ease of accessibility furnished by the new highway. The accessibility feature provided or at least increased the opportunities available for land use changes and resulting land value changes.

Accepting the 289.1 percent increase in land values within the control area as a reflection of general land value increases in the Austin area, the new facility had a net influence on section 1 land prices of 25.6 percent and a net influence of 984.3 percent on section 2 land prices.

## *ABUTTING AND NONABUTTING PROPERTY*

The proximity of lands within the study area to the new facility dictated a comparison on that basis. The separate properties were classified as "abutting" and "nonabutting" parcels. All parcels of land that touched the frontage roads were classified as abutting properties.

Table 4 illustrates the fact that there was a considerable difference in the effect on land prices between the abutting and nonabutting property. The increase in abutting property prices was more than twice as great as for nonabutting property. The adjusted results show that the abutting property increased in value by 705.7 percent, while the nonabutting property increased by 350.2 percent. This relationship closely paralleled the expected pattern of value increases for the two classifications. It is to be expected that properties nearer the facility would receive maximum benefits in the form of value increases from the facility.

Because of its accessibility to the motoring public, property fronting on an expressway-type facility right of way understandably has a greater "value potential" than does property removed from the facility. Traffic serving enterprises need to be located where the motorists can see the establishments; therefore, locations on abutting properties are the natural choice for such businesses. Other commercial and industrial firms choose such sites because of the accessibility for delivery trucks and employees, and the advertising that can be obtained by having the firm name displayed to passing motorists.

Since there was no distinction made between abutting and nonabutting properties during the base period of 1941-1948, the land values for the total area were used as the base period values in both Table 4 and Table 4-A.

The expressway influence on abutting nonsubdivided property is computed at 483.8 percent, and the net influence on nonabutting, nonsubdivided property is computed at 128.3 percent. These net influence figures were determined by taking the algebraic difference between the respective percentage increases for abutting and nonabutting lands and the percentage increase in nonsubdivided land in the control area.

## *ABUTTING PROPERTIES IN SECTIONS 1 AND 2*

Since the previous discussion of land values in section 1 as compared to land values of section 2 included

Table 4
ADJUSTED PRICES OF ABUTTING AND NONABUTTING PROPERTIES IN AUSTIN STUDY AREA
(Consumer Price Index—1947-49 = 100)
Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | ABUTTING PROPERTY | | | | |
| 1941-48* | 110 | 2,001 | $ 211 | | | | |
| | | | | $530 | | 251.2% | |
| 1949-53 | 28 | 260 | 741 | | $1,489 | | 705.7% |
| | | | | 959 | | 129.4 | |
| 1954-57 | 53 | 285 | 1,700 | | | | |
| | | | NONABUTTING PROPERTY | | | | |
| 1941-48* | 110 | 2,001 | 211 | | | | |
| | | | | 288 | | 136.5 | |
| 1949-53 | 19 | 414 | 499 | | 739 | | 350.2 |
| | | | | 451 | | 90.4 | |
| 1954-57 | 14 | 305 | 950 | | | | |

*Figures for this period represent the totals for each classification since there was no distinction made between abutting and nonabutting property during the base period of 1941-48.

all land within each section, it was deemed desirable to segregate the classes of land within each section according to their proximity to the new facility and make a comparison of land value changes in accordance with such segregation. Tables 5 and 5-A present the adjusted and actual data relative to land value changes for abutting nonsubdivided properties in section 1, as compared to similar properties in section 2. Since there was no distinction between abutting and nonabutting properties during the base period of 1941-1948, the totals for each section were used as the base period data.

It is apparent from Table 5 that the market prices of abutting land soared upward in both sections. The percentage increase, however, was much greater for section 2 than for section 1. This can be explained by the fact that average land prices were substantially lower for section 2 properties during the base period.

Notice, however, the similarity of the per acre prices for each section during the last period. This similarity indicates that there was little actual market preference for property closer to the central business district after completion of the new highway than for property farther removed from the downtown area. It should be remembered, however, that the south beginning point of the study area was a considerable distance from downtown Austin. This helps to explain why an additional mile or so more travel on a good traffic-serving facility is of small influence on market values of the land along the facility. After completion of the new route, abutting land prices almost equalized along the entire study area

Table 4-A
ACTUAL PRICES OF ABUTTING AND NONABUTTING PROPERTIES IN AUSTIN STUDY AREA
Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | ABUTTING PROPERTY | | | | |
| 1941-48* | 110 | 2,001 | $ 176 | | | | |
| | | | | $ 648 | | 368.2% | |
| 1949-53 | 28 | 260 | 824 | | $1,794 | | 1,019.3% |
| | | | | 1,146 | | 139.1 | |
| 1954-57 | 53 | 285 | 1,970 | | | | |
| | | | NONABUTTING PROPERTY | | | | |
| 1941-48* | 110 | 2,001 | 176 | | | | |
| | | | | 382 | | 217.0 | |
| 1949-53 | 19 | 414 | 558 | | 916 | | 520.5 |
| | | | | 534 | | 95.7 | |
| 1954-57 | 14 | 305 | 1,092 | | | | |

*Figures for this period represent the totals for each classification since there was no distinction made between abutting and nonabutting property during the base period of 1941-48.

Table 5
ADJUSTED PRICES OF ABUTTING PROPERTIES IN SECTIONS 1 AND 2 OF AUSTIN STUDY AREA
(Consumer Price Index—1947-49 = 100)
Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | ABUTTING PROPERTY—SECTION 1 | | | | |
| 1941-48* | 74 | 1,436 | $ 258 | | | | |
| | | | | $ 333 | | 129.1% | |
| 1949-53 | 15 | 172 | 591 | | $1,443 | | 559.3% |
| | | | | 1,110 | | 187.8 | |
| 1954-57 | 20 | 208 | 1,701 | | | | |
| | | | ABUTTING PROPERTY—SECTION 2 | | | | |
| 1941-48* | 36 | 565 | 94 | | | | |
| | | | | 939 | | 998.9 | |
| 1949-53 | 13 | 88 | 1,033 | | 1,604 | | 1,706.4 |
| | | | | 665 | | 64.4 | |
| 1954-57 | 33 | 77 | 1,698 | | | | |

*Figures for this period reflect the totals for each section since no distinction was made between abutting and nonabutting property for the base period of 1941-48.

Table 5-A
ACTUAL PRICES OF ABUTTING PROPERTIES IN SECTIONS 1 AND 2 OF AUSTIN STUDY AREA
Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | ABUTTING PROPERTY—SECTION 1 | | | | |
| 1941-48* | 74 | 1,436 | $ 215 | | | | |
| | | | | $ 430 | | 200.0% | |
| 1949-53 | 15 | 172 | 645 | | $1,758 | | 817.7% |
| | | | | 1,328 | | 205.9 | |
| 1954-57 | 20 | 208 | 1,973 | | | | |
| | | | ABUTTING PROPERTY—SECTION 2 | | | | |
| 1941-48* | 36 | 565 | 75 | | | | |
| | | | | 1,099 | | 1,465.3 | |
| 1949-53 | 13 | 88 | 1,174 | | 1,885 | | 2,513.3 |
| | | | | 786 | | 67.0 | |
| 1954-57 | 33 | 77 | 1,960 | | | | |

*Figures for this period reflect the totals for each section since no distinction was made between abutting and nonabutting property for the base period of 1941-48.

strip. The actual average prices per acre were $1,973 and $1,960 respectively for section 1 and section 2 during the 1954-1957 period.

Accepting the 221.9 percent increase in nonsubdivided land prices in the control area as representing the general increases in value of similar land around Austin, the new expressway-type facility had a net influence of 337.4 percent on abutting nonsubdivided property in section 1 of the study area and a net influence of 1,484.5 percent on abutting property in section 2.

## *NONABUTTING PROPERTIES IN SECTIONS 1 AND 2*

The nonabutting, nonsubdivided land prices in section 2 increased 907.4 percent between the base and last periods compared to a 312.0 percent increase in land prices of nonabutting land in section 1. However, it is apparent from a glance at Table 6 or 6-A that the dollar increases in price per acre were not too different between the two sections. The nonabutting property in section 1 increased an average of $805 per acre, as compared to an average increase of $835 per acre for section 2. The unadjusted price data shows an even lower variance between sections—only $4 per acre.

The greater increase in section 1 occurred between the middle and last periods, whereas the greater increase in section 2 occurred between the first two periods. Because of the relatively small number of nonsubdivided land sales for these classifications during the latter two periods, dogmatic conclusions cannot be drawn as to the reasons for and the significance of the increases between periods. It will be noticed, however, that the abutting

Table 6

ADJUSTED PRICES OF NONABUTTING PROPERTIES IN SECTIONS 1 AND 2 OF AUSTIN STUDY AREA

(Consumer Price Index—1947-49 = 100)

Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Change Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | NONABUTTING PROPERTY—SECTION 1 | | | | |
| 1941-48* | 74 | 1,436 | $ 258 | | | | |
| | | | | $ 48 | | 18.6% | |
| 1949-53 | 14 | 191 | 306 | | $ 805 | | 312.0% |
| | | | | 757 | | 247.4 | |
| 1954-57 | 5 | 9 | 1,063 | | | | |
| | | | NONABUTTING PROPERTY—SECTION 2 | | | | |
| 1941-48* | 36 | 565 | 94 | | | | |
| | | | | 569 | | 605.3 | |
| 1949-53 | 5 | 224 | 663 | | 853 | | 907.4 |
| | | | | 284 | | 42.8 | |
| 1954-57 | 9 | 296 | 947 | | | | |

*Figures for this period reflect the totals for each section since no distinction was made between abutting and nonabutting property for the base period 1941-48.

Table 6-A

ACTUAL PRICES OF NONABUTTING PROPERTIES IN SECTIONS 1 AND 2 OF AUSTIN STUDY AREA

Nonsubdivided Land Only

| Periods | Number Sales | Number Acres | Average Price Per Acre | Price Changes Per Acre | | Percentage Changes | |
|---|---|---|---|---|---|---|---|
| | | | | Between Periods | Between 1st & 3rd Periods | Between Periods | Between 1st & 3rd Periods |
| | (Number) | (Acres) | (Dollars) | (Dollars) | (Dollars) | (Percent) | (Percent) |
| | | | NONABUTTING PROPERTY—SECTION 1 | | | | |
| 1941-48* | 74 | 1,436 | $ 215 | | | | |
| | | | | $ 110 | | 51.2% | |
| 1949-53 | 14 | 191 | 325 | | $1,009 | | 469.3% |
| | | | | 899 | | 276.6 | |
| 1954-57 | 5 | 9 | 1,224 | | | | |
| | | | NONABUTTING PROPERTY—SECTION 2 | | | | |
| 1941-48* | 36 | 565 | 75 | | | | |
| | | | | 681 | | 908.0 | |
| 1949-53 | 5 | 224 | 756 | | 1,013 | | 1,350.7 |
| | | | | 332 | | 43.9 | |
| 1954-57 | 9 | 296 | 1,088 | | | | |

*Figures for this period reflect the totals for each section since no distinction was made between abutting and nonabutting property for the base period 1941-48.

nonsubdivided land in section 2 also increased more between the first two periods than did the abutting property in section 1. One possible explanation for the greater increase in values for section 2 between the base and middle periods is that the market overcapitalized values within that section during this time period. If this were the case, the smaller increase between the second and third periods would be more understandable. If the increased values between the first and second periods were premature, it stands to reason that such great percentage increases would be dampened until the prices paid and utility values came closer to an equalization level.

Many factors are involved in land value changes; therefore, the preceding statement of possible cause can be considered as only a possibility, not a specific conclusive fact

# Land Use

This section of the report is devoted to a discussion of land use patterns both before construction of relocated U. S. 81 and during a period of time after completion of the new facility. A study of land use is beneficial in explaining land value changes, and also in developing a picture of the physical changes in land use that have occurred within the study area.

The last year of the base period was chosen as the date for the "before" period. This was the year 1948 for the Austin study. The time used for the "after" period was as of the end of 1957, the close of the study period. This gave an interim period of nine years. The new facility had been opened to traffic for about three and one-half years of that time. The period of time from late 1948 to 1954 was the period of right of way purchasing and construction of the facility.

Information relating to land use in 1948 was obtained from several sources, the primary source being interviews with realtors, local residents and other individuals who were familiar with the study area at that time. Land use in 1957 was determined by visual inspection of the land, supplemented when necessary by conferences with property owners within the study area.

Two land use maps were prepared to facilitate the presentation of the land use data for the "before" and "after" periods. Each map shows the major property division lines as they existed in the respective years.

### *LAND USE IN 1948*

During the year 1948, there were only five primary land uses apparent within the Austin study area. These included the following land use classifications: (1) agricultural land; (2) land held for future use; (3) rural residential; (4) urban residential; and (5) institutional-municipal land.

The largest portion of the total study area acreage was classified as "agricultural land" in the "before" period. Much of the land so classified was used primarily as pasturage rather than for other more intensified agricultural purposes. The second most prevalent land use type in 1948 was "urban residential" lands. This classification included the subdivisions located within section 1 of the study area and other dwelling units (maximum size of five acres) located within the city limits.

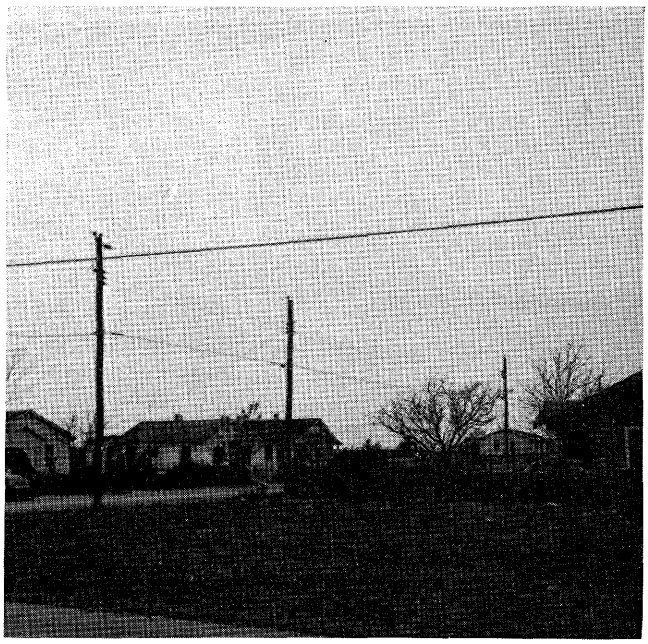
By 1948 there were four subdivisions in the study area—all located within section 1. Two of these subdivisions were relatively low-priced areas, with graded streets which lacked surface treatment of any type. The improvements within these areas were, for the most part, substandard in both appearance and value. The remaining two subdivisions could be classed as middle-priced areas, with most improved lot sales being within a $6,000 to $9,000 price range.

Another prevalent land use type within the area was "land held for future use." Most of this land was originally agricultural land which was now idle. This land was generally considered to be held for future use rather than for its utility at the particular time.

The rural residential land areas were scattered and contained a relatively small amount of total acreage. This land type included those tracts which were being used primarily as places of dwelling, and were located outside the city limits.

The fifth land use type, "institutional-municipal," included three parcels of property in 1948. One parcel, containing more than 360 acres of land, was owned by the St. John's Orphans Home. The other two tracts were relatively small, each containing approximately five

**Much of the land along the new route was still being used for grazing at the time the new route was completed.**



**Urban residences in this section of Austin are typified by these homes in the St. John's Home Addition.**

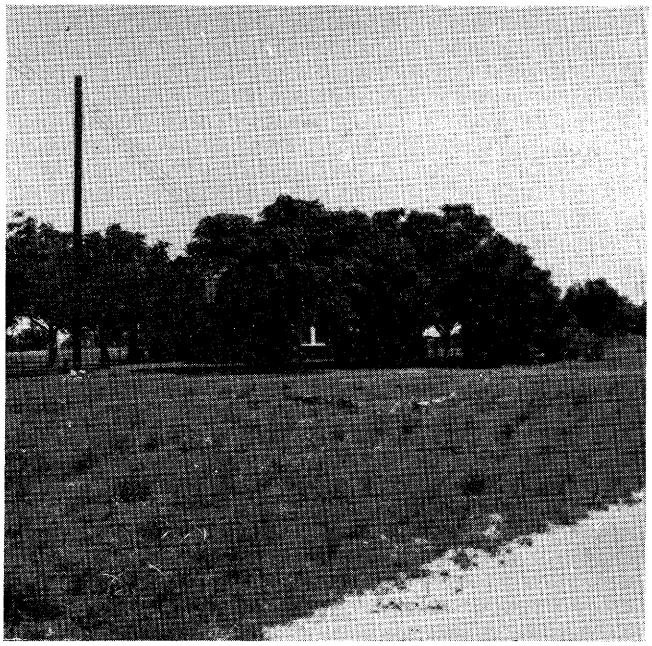

**Other land had already been taken out of agricultural use and was being held for future use.**

**After the road was opened many new commercial sites were created and land values increased rapidly.**

acres of land. One of these tracts, abutting the old Middle Fiskville Road, was owned by the State Department of Public Safety; and the other tract, located east of the Middle Fiskville Road, was used as a local cemetery.

### *LAND USE IN 1957*

By the end of 1957 considerable changes in land use patterns had occurred within the study area. Whereas the "before" land use map (Figure 3) shows only five major classifications of land use, it will be noticed that eight major land use classifications are present on the "after" land use map (Figure 4).



**Rural homesites were more common during the "Before" Period. As land became more valuable it shifted out of this use class.**

**New construction was carried on at a rapid rate.**

The most noticeable change, of course, was the extent to which the amount of land previously used for agricultural purposes had decreased through changing to other uses. It can be assumed that the agricultural land was converted into other uses which had a higher utility value or price potential. Otherwise, it is doubtful that the land would have been retired from production. Much of the land that was previously used for agricultural purposes is now lying vacant and idle. The owners of such lands are simply riding the upswing in land values, waiting until they think the time is right to sell their properties. Other owners of similar properties are

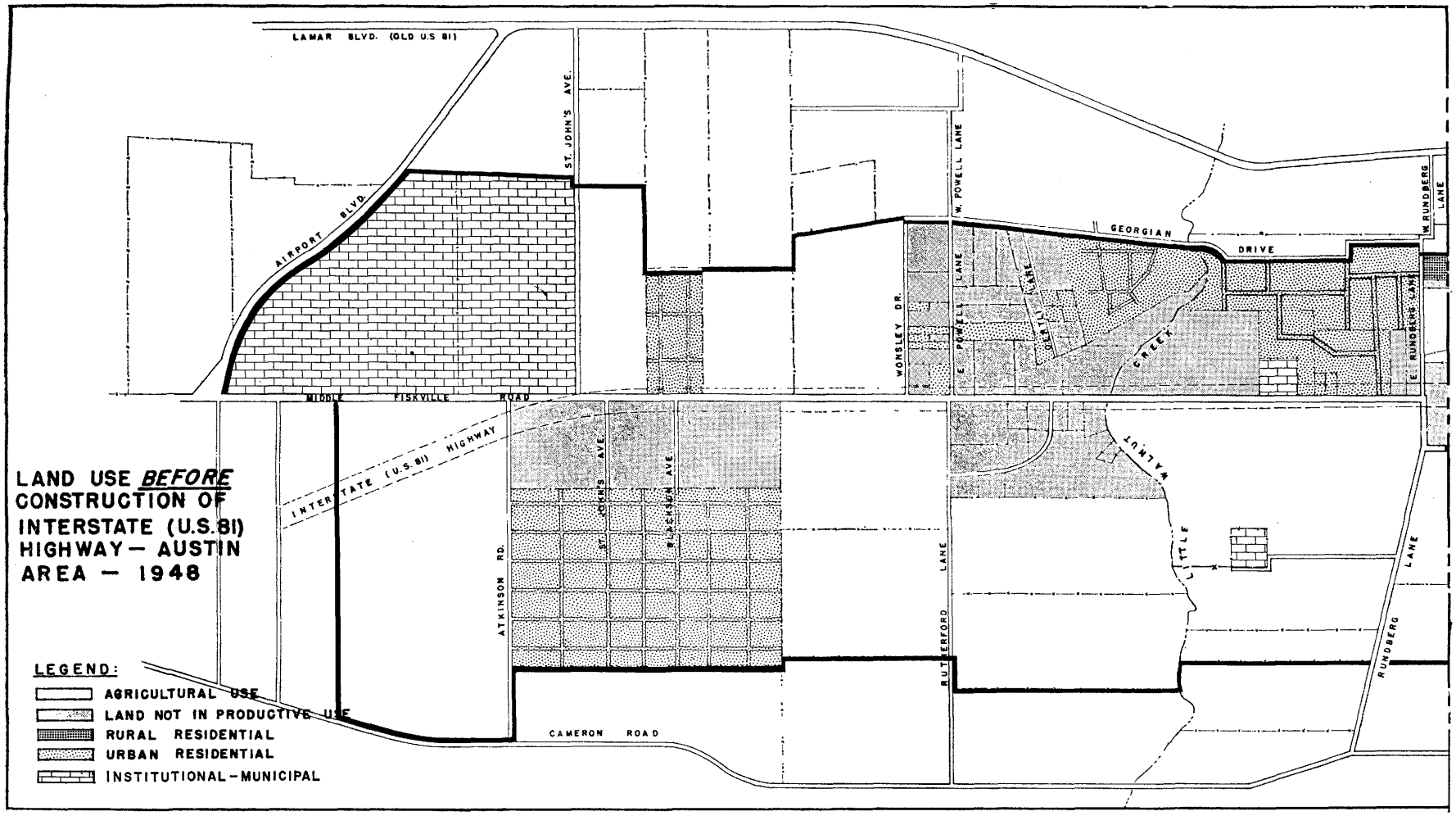

LAMAR BLVD. (OLD U.S 81)
AIRPORT BLVD.
ST. JOHN'S AVE.
W. POWELL LANE
GEORGIAN DRIVE
W. RUNDBERG LANE
WONSLEY DR.
E. POWELL LANE
BEATTIE LANE
CREEK
E. RUNDBERG LANE
MIDDLE FISKVILLE ROAD
INTERSTATE (U.S. 81) HIGHWAY
ST. JOHN'S AVE.
RICHARD AVE.
WALNUT
ATKINSON RD.
RUTHERFORD LANE
LITTLE
RUNDBERG LANE
CAMERON ROAD
LAND USE BEFORE CONSTRUCTION OF INTERSTATE (U.S.81) HIGHWAY — AUSTIN AREA — 1948
LEGEND:
AGRICULTURAL USE
LAND NOT IN PRODUCTIVE USE
RURAL RESIDENTIAL
URBAN RESIDENTIAL
INSTITUTIONAL-MUNICIPAL

Figure 3.

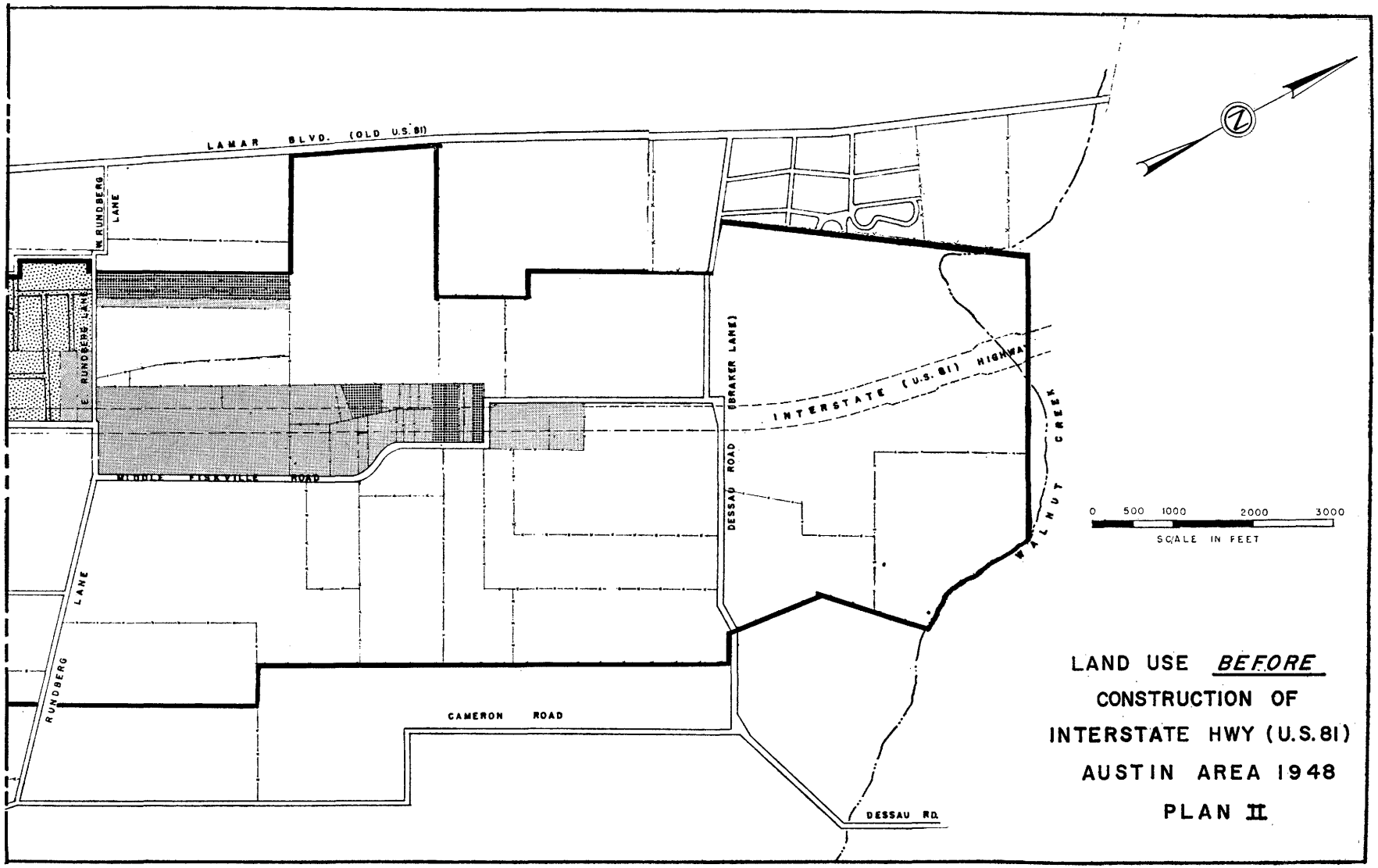

LAMAR BLVD. (OLD U.S. 81)
W. RUNDBERG LANE
E. RUNDBERG LANE
MIDDLE FISKVILLE ROAD
INTERSTATE (U.S. 81) HIGHWAY
DESSAU ROAD (BRAKER LANE)
WALNUT CREEK
RUNDBERG LANE
CAMERON ROAD
DESSAU RD.
0 500 1000 2000 3000
SCALE IN FEET
LAND USE BEFORE
CONSTRUCTION OF
INTERSTATE HWY (U.S. 81)
AUSTIN AREA 1948
PLAN II

Fig. 3 Cont.

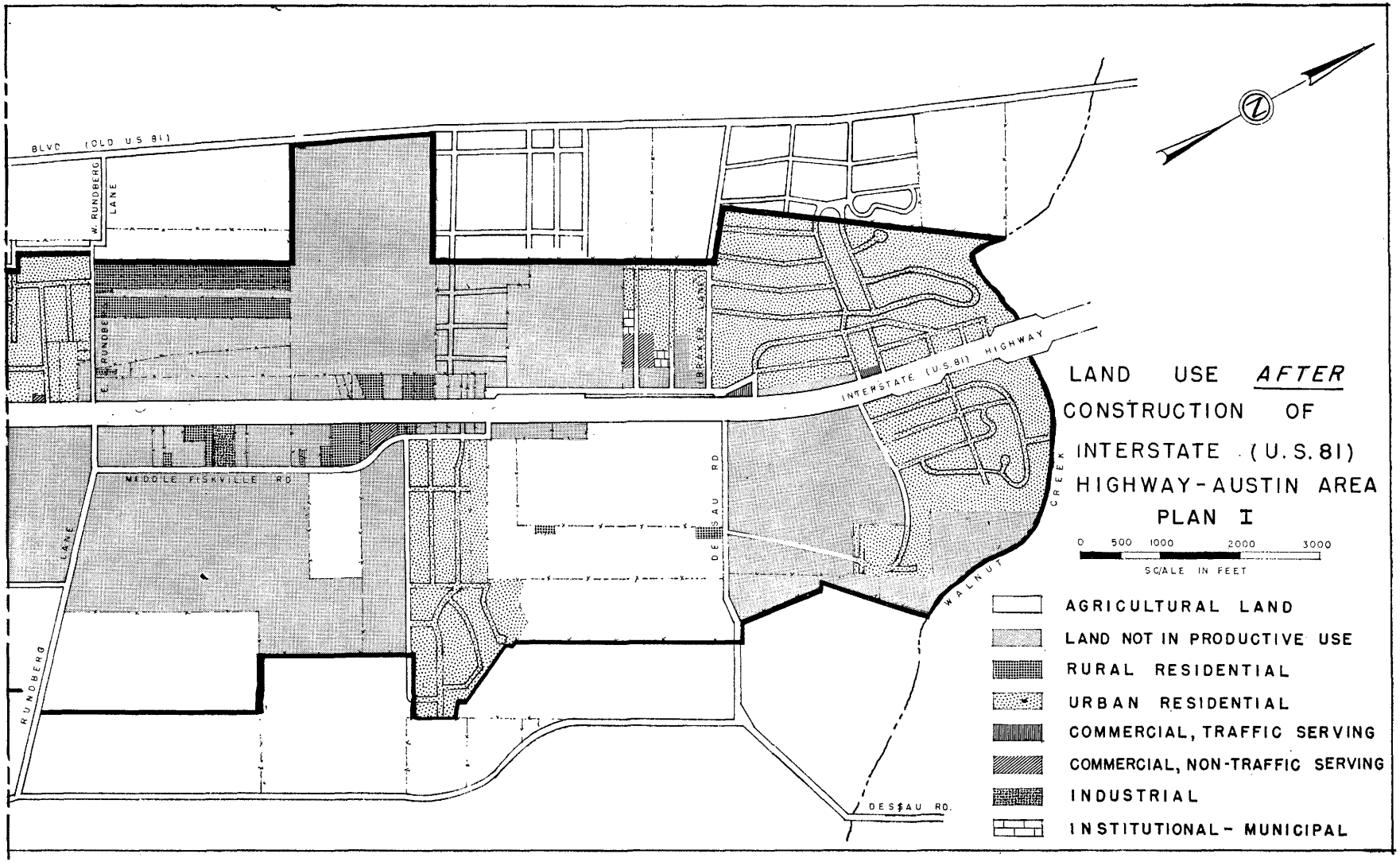

BLVD (OLD U.S. 81)
W. RUNDBERG LANE
E. RUNDBERG LANE
BRAKER LANE
INTERSTATE (U.S. 81) HIGHWAY
MIDDLE FISKVILLE RD.
DESSAU RD.
WALNUT CREEK
RUNDBERG LANE
DESSAU RD.
LAND USE AFTER CONSTRUCTION OF INTERSTATE (U.S. 81) HIGHWAY - AUSTIN AREA PLAN I
0 500 1000 2000 3000
SCALE IN FEET
AGRICULTURAL LAND
LAND NOT IN PRODUCTIVE USE
RURAL RESIDENTIAL
URBAN RESIDENTIAL
COMMERCIAL, TRAFFIC SERVING
COMMERCIAL, NON-TRAFFIC SERVING
INDUSTRIAL
INSTITUTIONAL - MUNICIPAL

Figure 4.

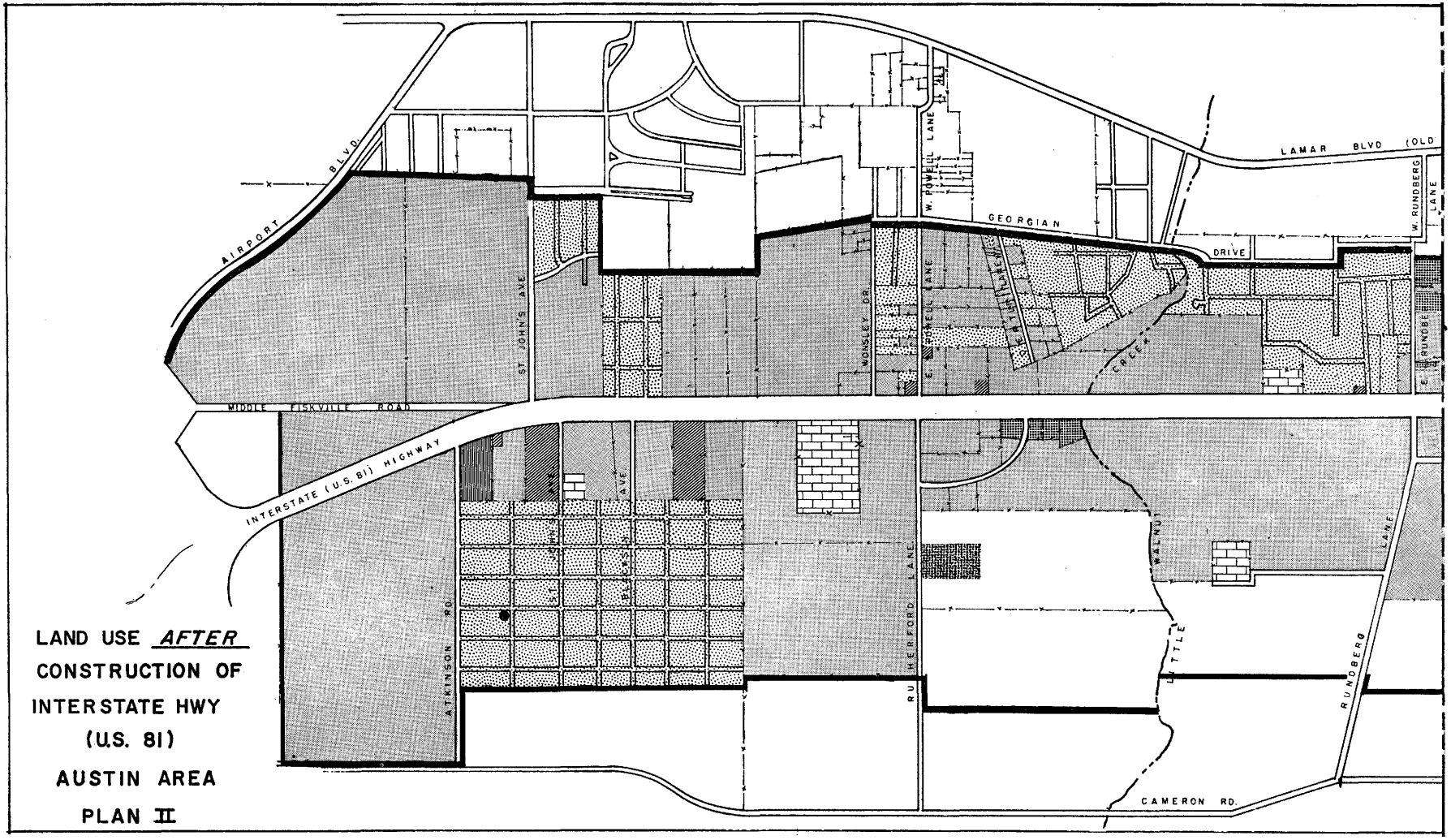
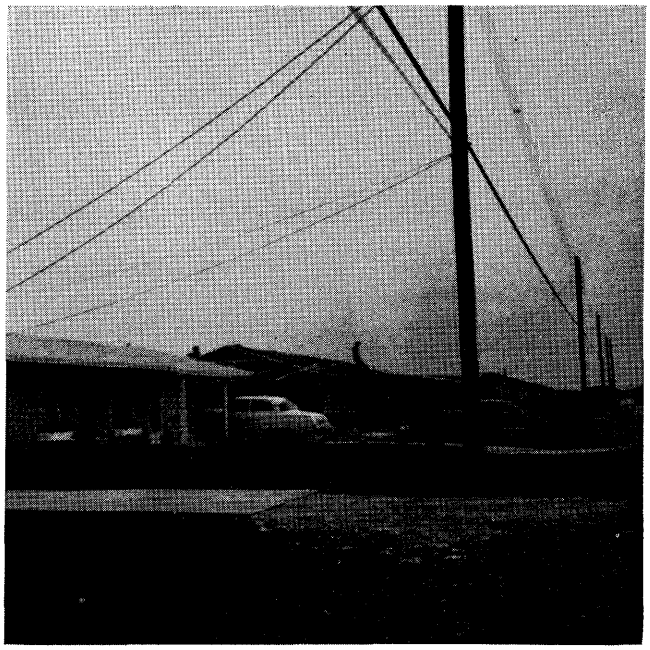

LAND USE AFTER
CONSTRUCTION OF
INTERSTATE HWY
(U.S. 81)
AUSTIN AREA
PLAN II
AIRPORT BLVD.
ST. JOHN'S AVE.
MIDDLE FISKVILLE ROAD
INTERSTATE (U.S. 81) HIGHWAY
ATKINSON RD.
HERFORD LANE
W. POWELL LANE
E. POWELL LANE
GEORGIAN
DRIVE
LAMAR BLVD (OLD
W. RUNDBERG LANE
E. RUNDBERG LANE
WOOSLEY DR.
CALE
WALNUT
LANE
LITTLE
RUNDBERG
CAMERON RD.

Fig. 4 Cont.


New subdivisions were also developed with time—not distance—to the downtown area as the selling point.



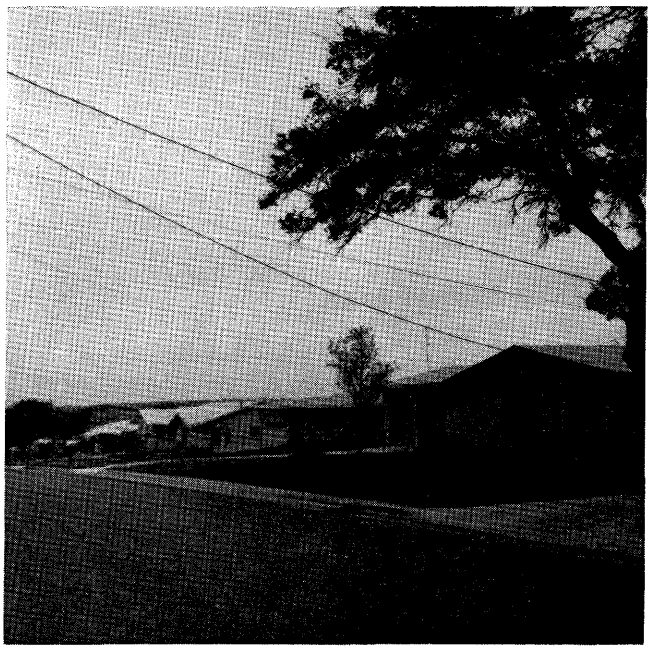
Several new subdivisions began to be created in the study area as soon as the new road was opened.

also holding the land primarily for future use, but during the interim period they are farming or grazing the land.

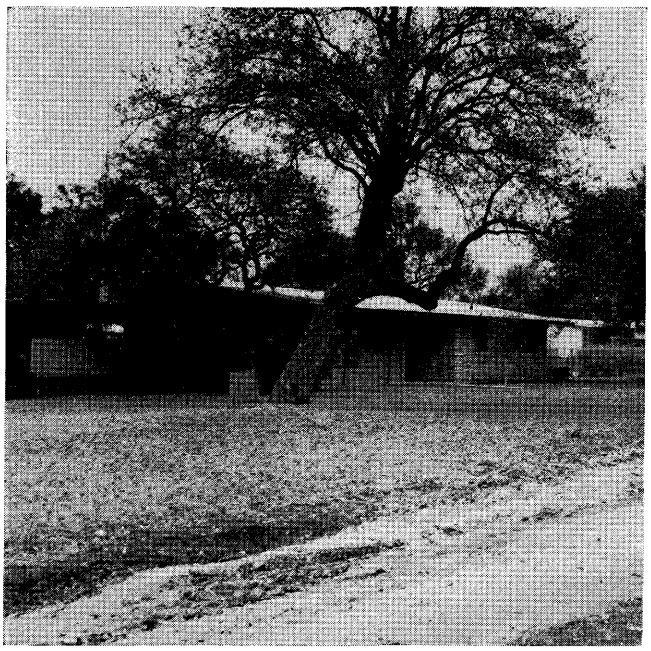
The major percentage of the total acreage in the study area was classified as "land held for future use" on the 1957 land use map. This indicates that many of the landholders within this area believe that land values haven't yet reached their peaks.

Several new subdivisions have been opened since 1948. The majority of these have been located within section 2 of the study area. Section 2 was the most logical area for the new subdivisions, since open land values in that section were lower than in section 1. Two relatively small subdivisions, however, were opened in section 1 during the 1948-1957 period. Only one of the newly-opened subdivisions is substandard in appearance and value of improvements. The other new subdivisions can broadly be classed as varying from "middle" price areas to "upper-middle" price areas. Prices of unimproved lots in this group of subdivisions varied between $12 to $27.50 per front foot at building set-back line.

A comparison between the "before" and "after" land use maps also reveals that there has been a considerable amount of land division since the end of 1948. A large amount of this land division has been for the



And new high type residential sections were created.



The Walnut Forest Addition at the northern end of the study area had some of the better houses.

In general they were located a considerable distance from the downtown area, but fairly close to the new highway.

This area is secluded, but since it abuts the new highway, it is only a few minutes from downtown Austin.

Table 7
BUSINESSES LOCATED WITHIN THE AUSTIN STUDY AREA AT END OF 1957

| Abutting Expressway | | Nonabutting Expressway | |
|---|---|---|---|
| Type Business | Number | Type Business | Number |
| Traffic-Serving | | Nontraffic-Serving | |
| Service Stations | 3 | Electric Shop | 1 |
| Cafes | 3 | Sheet Metal Shop | 1 |
| Motels | 2 | Welding and Metal-work Shop | 1 |
| Nontraffic-Serving | | Used Tire Yard | 1 |
| Small Office Building | 2 | | |
| Motor Freight Line | 1 | | |
| Truck and Machinery Sales and Service | 1 | | |
| Light Manufacturing Concern | 1 | | |
| Rest Home for Aged Women | 1 | | |
| Junk Car Yard | 1 | | |
| Lawn and Garden Shop | 1 | | |

purpose of providing residential size plots, but several other divisions have also occurred.

As expected, several commercial traffic-serving establishments have located along the frontage roads of the new facility. These include service stations, motels, and cafes. Other businesses, including several commercial nontraffic-serving establishments and one industrial firm, have located on the new route.

Table 7 lists the types and number of business establishments located within the Austin study area as of January 1, 1958. None of these businesses were located within this area prior to 1948. Most of the concerns listed in the table have been established during the past two years, since the new facility has been opened to traffic.

Undoubtedly the next few years will show many more changes in land use patterns occurring along this facility. The development of commercial sites has just now become active and the rate of establishment of additional commercial establishments is expected to accelerate as the land development ripens.

# Relationship Between Changes in Land Use and Land Values

Since in theory every parcel of land has a highest and best use at a given point in time and under a given set of circumstances, it is obvious that there is a relationship between land use and land value, and that changes in land use which progress toward the theoretical highest and best use for any given area should be reflected in land values.

In any area, of course, there are many factors which may be utilized in order to determine the highest and best use of a given tract of land. In urban and suburban areas, location is frequently a major factor, since, as has been indicated, tracts of land in urban or near-urban areas and abutting major traffic arteries tend to have higher values for commercial use than do tracts which are not so located.

If it can be assumed that in the majority of land transactions involving a change in use, the land transferred is to be put to a higher and better use, then it should logically follow that the values of the land transferred should rise. It is also logical, then, that the market prices of the property should move correspondingly. The purpose of this section of this study is to evaluate the changes in land use as these changes are reflected by changes in price.

An attempt has been made to view the relationship between land use and land prices from three different standpoints. First, all sales were grouped according to the use being made of the property at the time of the sale (sales of a particular class of land to all uses combined). Next, the sales were grouped according to the use to be made of the property after it was sold (sales from all uses combined to a particular land use). And lastly, sales were grouped to show price differences when specific use changes were made (sales from a specific use class to another specific use class).

Sales from specific use classes are shown graphically in Figures 5 and 6. These charts show the average adjusted price per acre paid for property within each class. These prices are shown by study periods in order to portray graphically the movements between periods.

The most striking thing to be seen from Figures 5 and 6 is the almost uniform direction of price movements between time periods for each land use class. That is, sales of class 1 properties (agricultural land) increased in price from the first through the third period. Classes 2 and 3 (land held for future use and rural residential land), while differing in the magnitude of their movement, changed in the same direction during each period. Only in class 4 properties (rural residences) was this pattern distorted. Rural residential sales during period II showed a decline from the first period. This could perhaps be due to the difference in the average size of parcels selling in the two periods. Sales in the second period were about five times larger and consequently included a greater amount of less desirable land in each transaction.

As to the difference in prices paid for land in different uses, period I sales showed a general increase in price as the land was bid away from the more extensive uses. Sales from class 4, for instance, averaged $945 per acre, while agricultural land sold for $150 per acre. Since values are based largely on a combination of present and future utilizations or use potentials, a substantial price differential was to be expected. During period I, future development prospects were uninfluenced by the prospect of the new facility. Consequently, values were determined largely by present or immediate future uses. Since urban residence is a more intensive or higher type land use than farming, the higher price was to be expected.

During period II, on the other hand, the location of the facility had become known and the anticipated future uses became much more important as a determinant of total value. With the exception of agricultural land, which included a much greater proportion of non-abutting and consequently less desirable land, the use to which a piece of property was devoted at the time of sale seemed to have little bearing on its sales price. During the waiting period the prices of all lands other than agricultural lands seemed to reach a common plateau. In general, these lands were fairly close to the facility and probably had quite similar locational potentials. Their price level also appears to have been strongly influenced by the prices paid for class 2 lands. That is, all lands regardless of their use were competing on the basis of potential use as well as their present use.

SALES OF PROPERTIES FROM CLASS 1 and FROM CLASS 2
TO ALL USES COMBINED, BY PERIODS

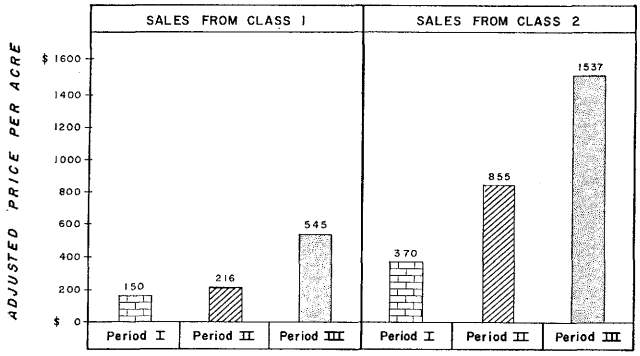



Figure 5.

SALES OF PROPERTIES FROM CLASS 3 and FROM CLASS 4
TO ALL USES COMBINED, BY PERIODS

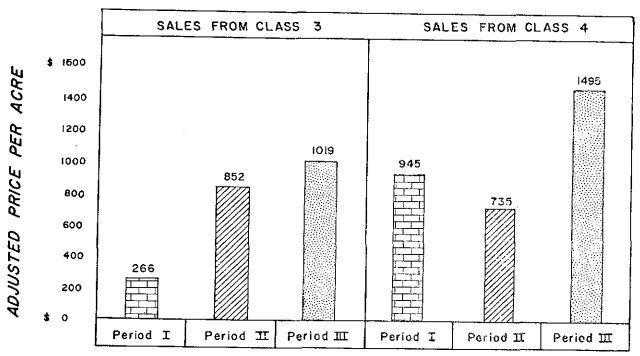



Figure 6.

It was during period II that substantial changes in use (other than from class 1 or 2) first became prevalent.

Potential usage became even more important in period III. After the facility was constructed, it became possible for prospective buyers to view each piece of property in light of location or site potential. The value of sites in their old uses were, of course, vastly increased. Present usage became meaningful as a price determinant, however, mainly to the extent of providing a floor below which the price would not easily fall. This was specifically true of the higher type nonhighway oriented uses such as use classes 3 and 4. The level of the floor was determined in large part by the availability and price of alternative site opportunities in comparable areas removed from the expressway.

For example, a two-acre tract classed as a rural residence in period I and priced at $500 competed in the land market with similarly located properties of similar characteristics throughout Austin. After the expressway was constructed, this piece of property became more desirable as a rural homesite. It no longer competed against its former competition but against rural homesites located in more desirable and higher priced areas in Austin. In addition to its newly acquired desirability as a homesite, it also became desirable for alternative uses such as a site for commercial establishment (class 5) or an urban subdivision (class 4). The ultimate price which was paid for the property was determined not only by competition within one use class but also by competition between alternative uses.

The grouping of sales in accordance with the use to be made of the property after the sale, are shown in Figures 7 and 8. Here all parcels of land which are to be used for a particular purpose subsequent to the sale are grouped together regardless of the use to which they were previously devoted. Again the general increase in price between time periods is noted for all classes except one—rural residence. This deviation is probably explainable by the fact that all these sales were within the class and involved no change in use. They could be considered as selling on the present use floor rather than for higher type uses.

This method of viewing the sales highlights the difference in prices paid for land for each of the major uses. During period I the tracts of land being transferred to, or within, use class 4 sold at a much higher average price per acre than did lands in any of the other classes. However, the largest number of sales and acreages transferred occurred in use class 2. There were over 1,000 acres transferred to this latter class, whereas only 410 acres were transferred to the urban residential use.

During periods II and III highest prices were paid for land to be devoted to one of the commercial or industrial uses while urban residential uses remained the closest alternative use in each case. Again, the higher prices were paid for smaller quantities of land. Only about forty acres were transferred to the commercial-industrial uses compared to some 1,430 acres transferred to use class 4.

Figures 9, 10, and 11 show the breakdown of sales from specific uses to specific uses. Here the prices reflect market conditions applying to parcels within different uses as they are bid away for either the same or different specific uses. No attempt has been made to analyze or discuss each of these categories individually. Rather the discussion is confined to general observations regarding the more typical relationship.

For example, when agricultural land was transferred to the class "land held for future use" in both periods I and II, the average price per acre was higher than the average price per acre of similar agricultural land which was transferred with no change in use (Figure 9). There

SALES OF PROPERTIES TO CLASS 2 and TO CLASS 3
FROM ALL USES COMBINED, BY PERIODS

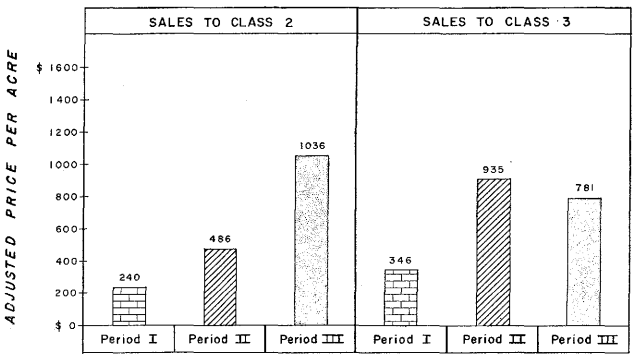



**Figure 7.**

SALES OF PROPERTIES TO CLASS 4 and CLASSES 5, 6, & 7
FROM ALL USES COMBINED, BY PERIODS

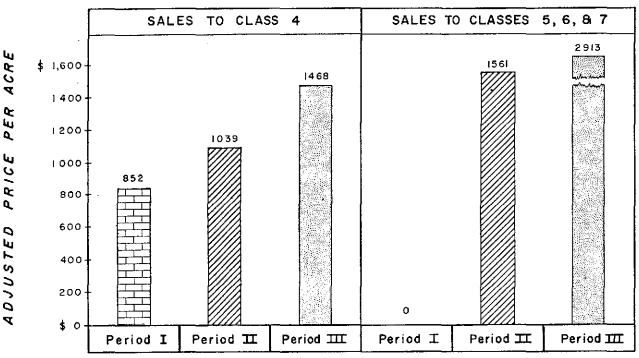



**Figure 8.**

SALES OF CLASS I PROPERTIES TO SPECIFIC USES
BY PERIODS

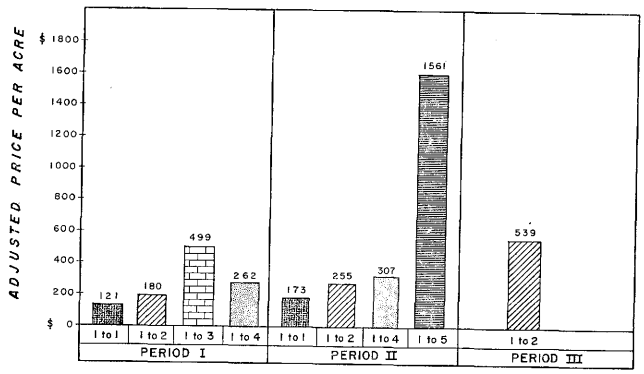



**Figure 9.**

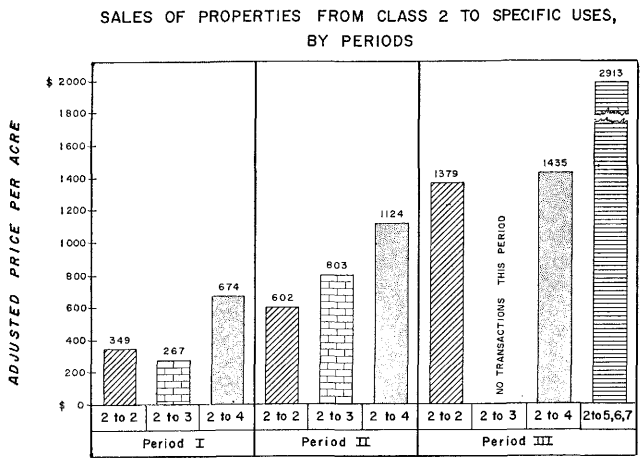



**Figure 10.**

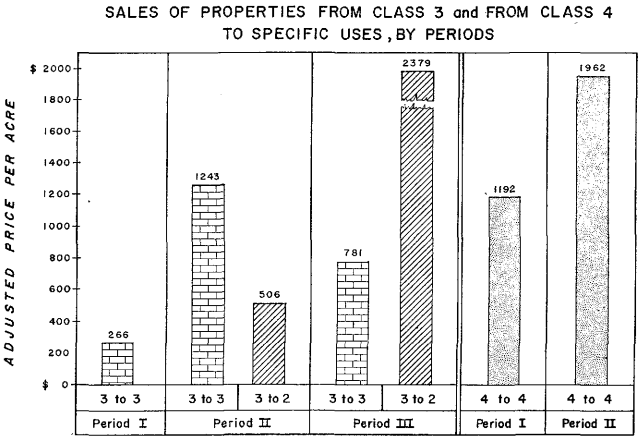



**Figure 11.**

are two apparently related reasons for the increased rate of appreciation of agricultural lands which are transferred to the category of land held for future use. First, the more desirable tracts of agricultural land (insofar as location with respect to the highway facility is concerned) were the first to be transferred to the class of lands held for future use. Second, realtors and land speculators were aware of the potential for appreciation in values of such tracts of agricultural land, and were willing to assume the higher costs and the risks incidental to the ripening period. Such buyers were willing to pay more than the average agricultural based price for desirable agricultural lands in order to obtain these parcels for future use. It must also be assumed that the open-market competitive bidding between such speculative purchasers also had some effect upon the prices paid for such tracts of agricultural land.

Actually, these realtors and land speculators acted as middlemen by temporarily holding nonproductive lands for future resale. When they sold these lands, they commonly realized a gain on the transaction. Thus, as these land parcels were transferred to other uses by the middlemen, the prices paid for them tended to vary according to the use to which the land was to be put, and according to the economic utility potential of each parcel.

In Figure 10 it can be seen that the more intensive use of class 2 land for urban residential sites (use class 4, primarily urban subdivisions) was reflected in the higher prices paid for such land, as compared with similar land which was transferred to lower type uses. Further, lands of this class being transferred to commercial or industrial uses (class 5, 6, 7, and 8) commanded the highest prices per acre of all uses. This result is, of course, partially a normal product of the location and economic potential of the particular tracts of land put to such uses.

Sales from class 3 and 4 are shown in Figure 11. During period I, class 3 properties were not sold to any other use. In the construction period, however, some sales were made to land speculators, but at much lower prices. After the facility was completed rural residential properties were still sold to only those two uses. Sales to speculators, however, were made only at extremely high prices.

Urban residential properties were not sold to any other use in any of the three periods. Perhaps one reason is that this is already a high type land use and adequate sites were available from less intensively used properties. Another reason may be that the criteria for good sites for even higher type uses (class 5, 6, 7, and 8) are not necessarily the same as those for urban residences. For instance, most of the urban residence properties do not abut the facility and others have poor site distances for the traveling public.

If all these relationships are taken together, perhaps a generalization can be drawn—that in this area the price of land was influenced by the use to which it was devoted at the time of sale, but, except in the case of very high type or intensive uses, the potential use was an even more important factor in determining its ultimate price. The less intensive a property's present use the more its sales price depended on its potential for a different and higher or more intensive use.

In an area such as this, where land is plentiful, largely undeveloped, and relatively inexpensive, land was bid away from the less intensive uses first. That is, the great majority of sales occurred as transfers from less intensive to more intensive uses. The exception, of course, is in use class 2 where the land is not put to a true physical use. In this case speculative activity can be considered as an intermediate stage in the movement to higher uses.

# Business Activity

In addition to the previously discussed impacts upon land values and land development, the new interstate highways may also have a marked impact upon business activities within local areas.

The business activity benefits or disbenefits accruing to an area may be either a short-term effect or be of a more permanent nature. The short-term effects are primarily those that occur during the construction period. The benefits here would usually result from the expenditures of funds for construction labor, materials, and other local purchases created as a result of the construction process. The disbenefits would arise through constructing a new facility along an existing thoroughfare so that the existing route would be either closed or partially inaccessible to traffic during part or all of the construction period. This would be expected to result in a decrease in business activity for the establishments located along the route.

Since this facility had already been completed for a considerable period of time prior to the initiation of this study, no attempt was made to isolate and analyze the short-term effects resulting from the construction itself. Instead, it was decided to concentrate on categorizing and analyzing the longer-term economic influences.

These longer-term effects may be either benefits, disbenefits, or both, depending upon the particular circumstances in each case. And, whether the construction of a particular facility will result in either a benefit or a disbenefit usually depends upon both the scope and point of view of the analyst.

If one limits his analysis to a particular business, as is usually the case with the individual businessman, then the effect can usually be definitely categorized as either good or bad—a benefit or a disbenefit. If this viewpoint is broadened to include all the similar businesses within an area, such as all the service stations or motels along the bypassed road, it becomes much more difficult to determine both the direction and extent of the effect. Different businesses, even within the same class, will be affected differently and different business managers will react differently in their attempt to adjust to the changed conditions. This usually results in a mixture of benefits and disbenefits which must be carefully analyzed before conclusions can be drawn.

The expansion of scope to include similar businesses within the entire study area and finally to include all related businesses within the area further complicates the problem of analysis. In the first instance, businesses along the old roadway are combined with like businesses on the new route to determine the area-wide influence and, in the second instance, these groups are further combined to permit over-all area analysis.

In this study, the analysis of individual businesses was largely confined to determining the reasons for changes in business activity by each firm. The primary reason for this was to try to discover which of the changes were chargeable to the facility and which were chargeable to management practices or other exterior conditions. The results of these individual business analyses are not reported in detail. For the most part this report deals with the analysis of similar types and classes of firms located in the two sections of the study areas.

Businesses located in two separate areas were evaluated, in an effort to determine the effects upon business activity of the new highway facility. First, a study was made of the businesses located along the old route of U. S. 81. This area began at the intersection of Guadalupe Street and Lamar Boulevard, and extended north about nine miles, to that point at which the old route joined the new route of U. S. 81. The second study area was the new route of U. S. 81, from its intersection with the old route of U. S. 81 (Lamar Boulevard) south along new U. S. 81 (Interregional Highway) to the intersection of U. S. 290, a distance of approximately seven miles (see Figure 12).

The business activity data was collected during the summer of 1958, by personal interview. Volume figures were obtained for two one-year periods, with 1953 serving as the period before construction of the new U. S. 81 facility, and 1957 serving as the comparable after period. It may be noted that 1953 was the business year immediately prior to the opening of the new facility, and 1957 the last year of the study for which volume data covering a full year of business operation could be obtained.

For the purposes of this study, businesses located along both the old and new routes of U. S. 81 were divided into two classifications — "traffic-serving" and "nontraffic-serving" businesses. The traffic-serving businesses were broadly subdivided into service stations, motels, and restaurants and other food service establishments. All other retail business firms interviewed were classified as nontraffic-serving enterprises.

In order to compare the effect of the new highway on the traffic volume along the old route, average daily traffic volumes were obtained for specific locations on both routes from the Highway Planning Survey Division of the Texas Highway Department. Traffic along each

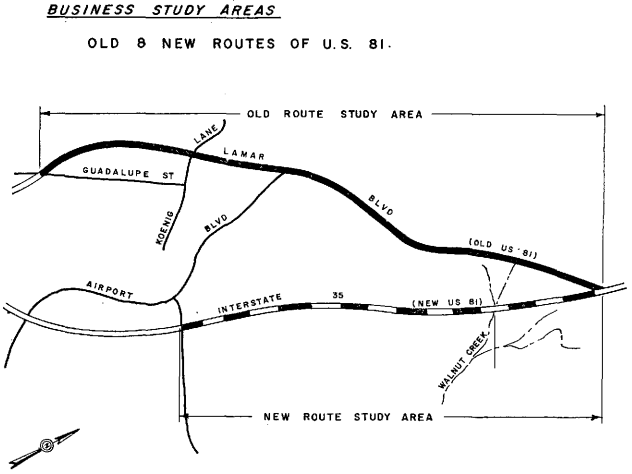
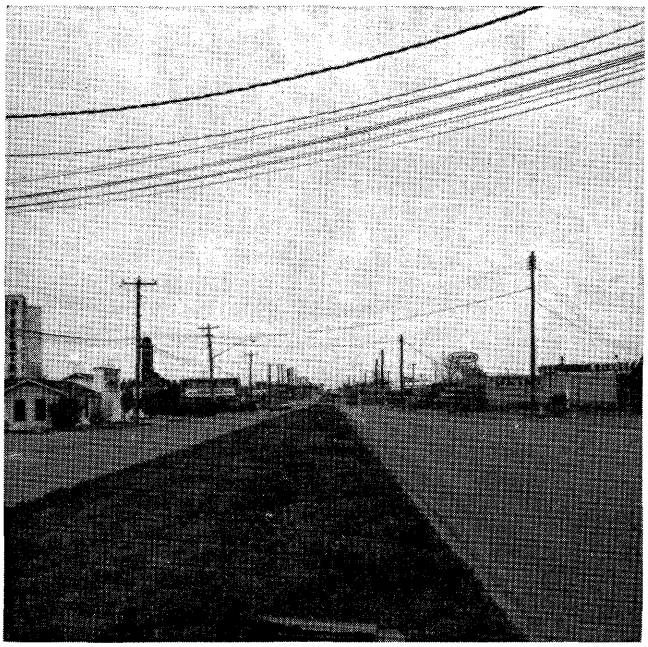



**Figure 12.**



A view of North Lamar (old U. S. 81) showing the type of commercial development that has grown up.

North Lamar has a median dividing the opposing traffic lanes, and commercial businesses have developed in a strip fashion.

of the routes separately and along both routes together is shown below by years.

| Year | Old Route U. S. 81 ADT | New Route U. S. 81 ADT | Total ADT |
|---|---|---|---|
| 1953 | 10,110 | Under Construction | 10,110 |
| 1954 | 5,220 | 6,920 | 12,140 |
| 1955 | 5,100 | 7,140 | 12,240 |
| 1956 | 4,900 | 7,190 | 12,090 |
| 1957 | 5,170 | 7,240 | 12,410 |
| 1958 | 5,310 | 7,890 | 13,200 |
| 1959 | 5,310 | 8,410 | 13,720 |

As can be seen by these figures, the average daily traffic flow on Old U. S. 81 (Lamar Ave.) was cut approximately in half by the opening of the new road in 1954. Furthermore, the level of traffic flow has not increased substantially since that time. There has been, however, an increase in traffic on the new route to the extent that total traffic flow over the two roads has also increased. The distribution of traffic between the two routes—as well as the total traffic flow—is of significance to the traffic-serving businesses located in the study area.

### *Old Route (U. S. 81)--Businesses Interviewed*

Along the 9.1 miles of study area following the old route of U. S. 81 there are located 120 businesses of all

Looking north on new Interstate Highway in study area. A few crossings at grade are still present in the road.

The lack of development along the new route is revealed by this view along the new Interstate Highway.

types. Of these businesses, 43, because of the nature of the enterprise (architectural firms, construction companies, ventilating contractors, stone works, storage warehouses, etc.) were felt to be disassociated with the study, and were not interviewed. In addition, some 16 taverns, dance halls, drive-in movies, etc., while classed as retail businesses, were considered marginal insofar as this study was concerned because of the irregular hours of their operation. Of such establishments, those which were open for business during a reasonable number of daylight hours were interviewed, but those which opened at 4 p.m. or later were not interviewed.

Of the 120 businesses, a total of 51 were classified as retail establishments whose gross operations were considered to reflect the influences of the opening of the new highway facility on U. S. 81, and were therefore held to be suitable subjects for interviews. Of the 51 businesses, 14 were for various reasons (change in management, poor bookkeeping methods, unwillingness to cooperate, etc.) unable to furnish all the information requested. However, such information as was available from these has been included in the tabular data.

## *TRAFFIC-SERVING BUSINESSES*

### *Service Stations (Old Route)*

Of the traffic-serving class of businesses, gasoline service stations are felt to reflect very accurately the effects of changes in traffic volumes and patterns. For that reason, the comparison of business done by stations along the old route in the two periods 1953 and 1957 and the relation of this business to that done by stations located along the new route of U. S. 81 was felt to be a valuable indicator of the effect of the new highway facility upon the highway-oriented business of the area.

There was a total of 21 service stations located along the old route of U. S. 81 (North Lamar) within the boundaries of the study area. Three of these stations had been built after 1953 while the remaining 18 were in operation both in 1953 and 1957. In addition, one new station has been constructed since the study was completed. There were no stations in operation in 1953 which were not in operation in 1957.

Each of the 21 stations which was in operation in 1957 was personally interviewed. Two of the station owners refused to cooperate in the study, and the information obtained from one additional station was not considered reliable. In addition, 1953 dollar sales volume information was not available from three of the stations. Therefore, of the 18 stations which were in operation in both 1953 and 1957, all except dollar volume information was obtained from 15. The dollar sales volume data was obtained from 12 stations for both years.

The following observations concerning the economic and operational characteristics of the stations along Old U. S. 81 were considered to be of importance to the analysis of the economic impact on the area. Of the 18 stations in operation during the entire period, 16 were considered as "major oil company" affiliates, while 2 were classed as independents. One of the major oil company stations was remodeled during 1956. Prior to the remodeling, the station had sold gasoline at a 2¢ per gallon discount to all customers. After remodeling, it began selling at the established price for the Austin area. Two other major oil company stations sell gasoline at a 2¢ per gallon discount. One has been discounting gasoline prices for many years while the other started after the route change.

The 19 interviewed stations along the old route have changed hands a total of 20 times between 1953 and the end of 1957. These figures are somewhat distorted, however, since one station changed hands seven times during that time. Only one station changed brands of gasoline during the study period.

Eight of the stations were owned by the operators. Leases on the others ranged from 1¢ to 1½¢ per gallon with the exception of two stations which paid a flat monthly rental. There were no significant changes in lease or rental arrangements observed during the study period.

Seven of the 19 stations operate some other business in addition to their service station front. Five of these seven are grocery stores which have only limited service station facilities available. Of the remaining two, one has a cafe and the other operates a garage in addition to the service station.

During the course of the interview, information was requested regarding the dollar volume of business for the two one-year periods (1953-1957) gasoline gallonage for the two periods (as estimated by station operators and later correlated with jobber records), station facilities, hours of operation, lease rates, location of the service station relative to the downtown business district, and the direct opinion of station operators as to the effects upon their businesses of the new highway facility nearby.

In the course of analysis, some of these elements were determined to be of little or no significance in determining the effects of the new highway facility upon general area business. Others when examined in detail, were felt to reflect with considerable accuracy the effects which the new facility had upon the highway oriented businesses of the area. Of the latter group, the most significant are the findings regarding the dollar volumes of business done by the stations, and the comparable gasoline gallonages retailed by the stations.

#### *Dollar Volumes of Business*

Only 12 of the 21 service station operators interviewed were able to supply dollar volume figures for both the full operational years 1953 and 1957. There are no requirements, other than federal income tax regulations (which are not available for use in research) which require a station to keep gross sales information. As a consequence, whenever a station changes ownership, there is usually no way to check back on the previous operators' dollar sales records.

In spite of these restrictions, the comparative dollar volume information shown by comparing changes in gross dollar sales volumes permits some interesting general conclusions to be drawn. The unadjusted dollar volume of business done by the 12 reporting stations shows a gross of $820,000 during 1953. After traffic had been routed over the new highway, these same 12 firms recorded a gross of $730,900 for 1957. The distribution of the over-all 10.9 percent decrease among firms is shown in Table 8.

Table 8
CHANGES IN DOLLAR VOLUME OF TWELVE SERVICE STATIONS LOCATED ON OLD U. S. 81 BETWEEN 1953 AND 1957

| Station* | 1953 | 1957 | Dollar Change | Percent Change |
|---|---|---|---|---|
| | (Dollars) | (Dollars) | (Dollars) | (Percent) |
| 1 | $ 84,000 | $ 36,500 | $—47,500 | —56.5% |
| 2 | 84,000 | 84,000 | | 0.0 |
| 3 | 12,000 | 14,000 | + 2,000 | +16.7 |
| 4 | 66,000 | 48,000 | —18,000 | —27.3 |
| 5 | 16,000 | 24,000 | + 8,000 | +50.0 |
| 6 | 99,000 | 72,000 | —27,000 | —27.3 |
| 7 | 54,000 | 58,000 | + 4,000 | + 7.4 |
| 8 | 36,000 | 63,000 | +27,000 | +75.0 |
| 9 | 117,000 | 86,400 | —30,600 | —26.2 |
| 10 | 117,000 | 90,000 | —27,000 | —23.1 |
| 11 | 72,000 | 108,000 | +36,000 | +50.0 |
| 12 | 63,000 | 47,000 | —16,000 | —25.4 |
| Total Stations | $820,000 | $730,900 | $—89,100 | —10.9 |
| Average Per Station | 68,334 | 60,908 | — 7,425 | |

*Numbers are used rather than station names in order to prevent identification of individual stations. The numbers are changed from table to table for the same reason.

New service stations in operation on the new route are generally of modern design and construction.

The extent of which this loss in business volume can be attributed to the decline in traffic volume is not readily discernible. Since this was an older section of town, many of the commercial establishments were not in the best position to compete with newer facilities which would have entered the area as a part of the normal competitive actions of a free-choice society. In fact, even with the prospect of sharply reduced traffic volumes, three new service stations were built within this area after 1953.

Further study of Table 8 also indicates that not all service stations along the old route of U. S. 81 suffered business losses after the opening of the new facility. Of the 12 stations reporting dollar volume estimates for both 1953 and 1957, 5 reported increases in the gross dollar volume of their business for 1957 over that of 1953. Percentage of increases for these 5 stations ranged from just over 7 percent to 75 percent in dollar volume. One station reported no change in dollar volume for the two years in question. Six stations reported decreases in dollar volume of business in 1957 as compared to 1953, with percentages ranging from 23.1 percent to 56.5 percent.

The seven old stations for which dollar volume information was not available were closely inspected by


One of the newer service stations located along the old route.

Many of the service stations on the old route were combined with other businesses.

**A service station specializing in service to truckers has located on the new route.**

field interviewers who called on all stations in the Austin study area. In the opinion of the interviewers, these stations as a group were not significantly different in size or appearance from those from which dollar volume information was obtained. In addition, from talking to the present operators and others who were familiar with the particular businesses, it was concluded that these stations had suffered no greater losses in volume than had the others in the area. In fact, three of the station managers indicated that their 1957 dollar volume was better than in 1953 while one indicated no change. Information gathered from other sources indicate that only one of the remaining three stations suffered a severe dollar volume decline, while losses at the other two were considered to be only moderate.

Of the three new stations built along the old route, 1957 dollar volume information was available from two.

**Table 9**
**CHANGE IN CALCULATED DOLLAR VOLUMES OF ALL STATIONS ON OLD U. S. 81 FOR PERIOD 1953-1957**

| Stations | Year 1953 | Year 1957 | Percent Change |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 12 Reporting Old Stations—Actual | $ 820,000 | $ 730,900 | —10.9% |
| 6 Nonreporting Old Stations—Calculated* | 410,000 | 365,450 | —10.9 |
| Total 18 Old Stations | 1,230,000 | 1,096,350 | —10.9 |
| 2 Reporting New Stations—Actual | | 117,000 | NA |
| 1 Nonreporting New Station—Calculated* | | 58,500 | NA |
| Total 3 New Stations | | 175,500 | NA |
| Total All 21 Stations | $1,230,000 | $1,271,850 | + 3.4% |

*As explained previously, for purposes of this comparison the average of nonreporting stations was assumed to be equal to the average for reporting stations in both 1953 and 1957.

The other was able to furnish gallonage information only. For purposes of this analysis, dollar volume of this station was considered to be equal to the average of the other two new stations. In order to show the over-all effects on all service station activity along the old route, the average volume per station was assumed to be the same for both reporting and nonreporting stations. Only in this way was it possible to calculate the net changes in total sales volumes for the two periods. Table 9 shows the calculated volumes for all stations in operation in 1953 and 1957 and the net percentage changes between the two periods. This comparison shows that the group of stations which were in operation in 1953 lost almost 11 percent of their business during the period covered. How much of this loss was due to the traffic moving to the new route and how much was due to increased internal competition from new stations is indeterminable. It can be seen, however, that the sales volume lost was more than compensated for by the sales of the new stations, and that the area as a whole showed an increase of 3.4 percent in total service station sales over the period studied.

It would appear from these figures that other factors besides the diversion of traffic to the new route of U. S. 81 entered into the picture of business operations of stations along the old route. A study of the hours of operation of the reporting stations (Table 10) and the relative locations of the stations from the downtown business area of Austin (Table 11) would indicate that these factors had no significant effect upon the gross dollar volume figures reported. Assuming that this is true, it would seem likely that such factors as increased competition, better-than-average management practices, the establishment of a local clientele as opposed to a clientele of primarily transient traffic, and discount selling may be reflected in the gross dollar volume figures reported by individual stations along the old route of U. S. 81 during the period studied.

*Gasoline Gallonage Sales*

In studying the changes in the economic conditions of service stations, it was easier to obtain gasoline gallonage sales data than dollar volumes. Most jobbers keep a complete record of the gallons of gasoline delivered to each station within their sales territory. It was possible to get comparative 1953 and 1957 gallonage figures from 15 stations within the old study area. In addition, 1957 gallonage data was obtained from all three of the new firms which had been built since 1953.

The several comparisons of changes in gasoline gallonage sales are shown in Table 12. The 15 stations which had records available for both 1953 and 1957 showed a decrease in gallonage sales of just over 20 percent during the study period. This amounted to an average drop of over 33,500 gallons per station.

As was the case with dollar sales, however, the expansion of gallonage sales to include all old stations and the addition of the three new stations changed the picture considerably. By estimating the volume sold by the three nonreporting stations to be equal to the average of the 15 reporting stations, a total gallonage figure for the 18 old stations was calculated as shown in Table 13. Total volume figures for the area were then derived by adding in the volumes sold by the three new stations

Table 10
COMPARISON OF OPERATING TIME PERIODS IN RELATION TO CHANGES IN DOLLAR BUSINESS VOLUME

| Station | Daily Hrs. of Operation 1953 | Days of Operation Per Week 1953 | Annual Hrs. of Operation 1953 | Daily Hrs. of Operation 1957 | Days of Operation 1957 | Annual Hrs. of Operation 1957 | Percent Change in Annual Hrs. of Operation 1953-1957 | % Change in Volume of Business 1953-1957 |
|---|---|---|---|---|---|---|---|---|
| | (Hours) | (Days) | (Hours) | (Hours) | (Days) | (Hours) | (Percent) | (Percent) |
| 1 | 14 | 7 | 5,096 | 14 | 7 | 5,096 | | |
| 2 | 17 | 7 | 6,188 | 17 | 7 | 6,188 | — | +16.7% |
| 3 | 14 | 7 | 5,096 | 14 | 7 | 5,096 | — | —27.3 |
| 4 | 12 | 6.5 | 4,056 | 12 | 7 | 4,368 | + 7.7% | +50.0 |
| 5 | 16 | 7 | 5,824 | 16 | 7 | 5,824 | — | +56.5 |
| 6 | 16 | 7 | 5,824 | 16 | 7 | 5,824 | — | —27.3 |
| 7 | 15 | 7 | 5,460 | 14 | 6 | 4,368 | —20.0 | + 7.4 |
| 8 | 16 | 7 | 5,824 | 16 | 7 | 5,824 | — | +50.0 |
| 9 | 24 | 7 | 8,736 | 24 | 7 | 8,736 | — | +75.0 |
| 10 | 14 | 7 | 5,096 | 14 | 7 | 5,096 | — | —25.4 |
| 11 | 16 | 7 | 5,824 | 16 | 7 | 5,824 | — | —26.2 |
| 12 | 24 | 7 | 8,736 | 16 | 7 | 5,824 | —33.3 | —23.1 |
| Total 12 Stations | 198 | 83.5 | 68,460 | 189 | 83 | 68,068 | — 0.57 | —10.9 |

in 1957. Using this basis of comparison, which seems to be most appropriate under the circumstances, it is shown that the total gasoline gallonage volume for the area increased slightly during the study period.

It also appears evident from a study of Table 12 that other factors besides the diversion of traffic to the new route operated to affect the business volume of individual stations. The fact that four of the stations showed increases in volume between the two periods and one showed no change, indicates the importance of management in adjusting to newly created conditions. Of particular significance also is the fact the three of the 18 stations for which jobber records of gasoline gallonage sales were available for 1957 opened for business after the development of new Route U. S. 81 was assured. It is evident that the operators of these stations did not feel that the existence of the new facility would in itself inhibit the successful operation of a service station located on Old U. S. 81.

### *Service Stations (New Route)*

In the study of the "after" conditions which were in effect in 1957, all retail businesses along the Interregional Highway from the intersection of U. S. 290 north to intersection with the previous route of U. S. 81 (Lamar Boulevard) were interviewed (Figure 12). Since this is a new roadway location, all these businesses were necessarily built after the new facility was completed in 1954. Their business volumes are included in the study in order to complete the picture of area-wide influences.

Three service stations were built within the study area along the new facility prior to 1957. The operators of the stations were interviewed and all three furnished complete dollar and gallonage volume data for the year 1957.

Except for their newer appearances, the physical facilities of these stations were not significantly different from those of stations along the route of Old U. S. 81. Their gross dollar and gasoline gallonage sales volumes were also very similar to the stations on the old highway. Each operator indicated, however, that the primary reason for locating on the new facility was the anticipation of good traffic volumes and the prospect of eventual residential development in the area.

### *Service Stations (New Route and Old Route)*

Tables 14 and 15 present a consolidation of the dollar volume and gasoline gallonage figures for all service stations along both routes for the two years under study. Of significance primarily is the fact that the over-all figures indicate a net increase of 21.5 percent in total dollar volume of business done, and a corresponding 22.4 percent increase in retailed gasoline gallonage of all stations in 1957 over 1953.

These tables indicate that although individual operators along the old route may in some cases have been adversely affected by the divergence of traffic to the new Interregional, the gross service station business of the combined areas has shown a solid growth between 1953 and 1957. In addition, it is believed that those operators who have located along the new facility have not yet

Table 11
DISTANCE FROM DOWNTOWN BUSINESS AREA IN RELATION TO CHANGE IN BUSINESS VOLUME

| Distance | Station Number | Change in Dollar Business Volume 1953-1957 |
|---|---|---|
| | (Number) | (Percent) |
| Under 4 Miles | 1 | —56.5% |
| | 2 | +50.0 |
| 4-5 Miles | 3 | +75.0 |
| | 4 | —23.1 |
| | 5 | —23.3 |
| 5-6 Miles | 6 | 0.0 |
| | 7 | —25.4 |
| | 8 | +16.7 |
| | 9 | —26.2 |
| | 10 | + 7.4 |
| Over 6 Miles | 11 | +50.0 |
| | 12 | —27.3 |

Table 12
CHANGES IN GASOLINE GALLONAGE SALES OF 15 SERVICE STATIONS IN OPERATION ALONG OLD U. S. 81 DURING 1953 AND 1957

| Station | Gasoline Volume 1953 | Gasoline Volume 1957 | Gasoline Volume Change 1953-57 | Percent Change 1953-57 |
|---|---|---|---|---|
| | (Gallons) | (Gallons) | (Gallons) | (Percent) |
| 1 | 164,040 | 148,620 | — 15,420 | — 9.4% |
| 2 | 201,744 | 247,560 | + 45,816 | + 22.7 |
| 3 | 264,011 | 220,865 | — 43,146 | — 16.3 |
| 4 | 246,407 | 185,332 | — 61,075 | — 24.8 |
| 5 | 166,255 | 134,345 | — 31,910 | — 19.2 |
| 6 | 158,962 | 167,247 | + 8,285 | + 5.2 |
| 7 | 122,785 | 166,000 | + 43,215 | + 26.0 |
| 8 | 19,655 | 19,655 | | 0.0 |
| 9 | 26,323 | 19,101 | — 7,222 | — 27.4 |
| 10 | 166,000 | 78,000 | — 88,000 | — 53.0 |
| 11 | 24,000 | 208,383 | +184,383 | +768.0 |
| 12 | 267,537 | 241,043 | — 26,494 | — 9.9 |
| 13 | 491,000 | 42,373 | —448,627 | — 91.3 |
| 14 | 25,310 | 12,642 | — 12,668 | — 50.1 |
| 15 | 133,716 | 84,025 | — 49,691 | — 37.2 |
| Total 15 Stations | 2,477,745 | 1,975,191 | —502,554 | — 20.3 |
| Average Per Station | 165,183 | 131,679 | — 33,504 | |

reaped the full rewards of the location, inasmuch as the anticipated residential development of the area is still in its infancy.

The operators of stations along the old route of U. S. 81 have been forced by the shift of transient traffic to the new facility to utilize more efficient and aggressive management practices, to concentrate on the development of a local clientele, and to rely upon the build-up of nearby residential areas to compensate for the loss of transient traffic to the new facility.

Remarks by service station owners during interviews in 1957 support these beliefs. Some operators felt that their loss in volume was due to the fact that 1957 was a poor business year. Others felt that increases in business volume for 1957 over 1953 reflected improved management and bookkeeping practices. Some made a point of the fact that there is probably more traffic on North Lamar Boulevard now than during 1953, but said that the traffic is now composed primarily of local people living in nearby residential areas.

Complaints regarding the new facility dealt mainly with the approach to old route 81 from the Interregional.

Table 13
CHANGE IN CALCULATED GASOLINE GALLONAGE SALES OF ALL STATIONS ON OLD U. S. 81 FOR PERIOD 1953-1957

| Item | Year 1953 | Year 1957 | Percent Change |
|---|---|---|---|
| | (Gallons) | (Gallons) | (Percent) |
| 15 Reporting Old Stations—Actual | 2,477,745 | 1,975,191 | —20.3% |
| 3 Nonreporting Old Stations Calculated | 495,549 | 395,037 | |
| Total Old Stations | 2,973,294 | 2,370,228 | —20.3 |
| 3 Reporting New Stations—Actual | | 648,720 | |
| Total All 21 Stations | 2,973,294 | 3,018,948 | + 1.5 |

Table 14
COMPARISON OF DOLLAR VOLUME SALES FOR ALL SERVICE STATIONS IN AUSTIN STUDY AREA 1953-1957

| Item | Year 1953 | Year 1957 | Change From 1953 to 1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 18 Old Stations on Old Route | $1,230,000 | $1,096,350 | —10.9% |
| 3 New Stations on Old Route | | 175,500 | |
| Total Old Route | 1,230,000 | 1,271,850 | + 3.4 |
| 3 New Stations on New Route | | 222,000 | |
| Total All 24 Stations Within Study Area | $1,230,000 | $1,493,850 | +21.5 |

Some operators felt that this approach was unappealing, not marked properly, and was often overlooked by traffic, some of which originally intended to use the old route.

### *Motels (Old Route)*

Like service stations, motels are a type of traffic-serving establishment which is very sensitive to changes in traffic volumes and patterns. Hence changes in dollar volume of annual motel business, and increases or decreases in property values exclusive of improvement or addition values, tend to reflect very accurately the effect of the new highway facility upon the highway oriented businesses in the area under study.

A total of 13 motels are located along the old route of U. S. 81. All were called on for interviews, but of the 13 calls, only 10 yielded usable interviews. One of the smaller motels had gone out of business some time before, one had been recently closed by the State Health Department (after 1957) and one had just changed hands and no information was available. All of the 10 motels on which data were gathered were constructed prior to the completion of the new route of U. S. 81.

Of the 10 motel operators interviewed, 9 supplied dollar volume figures, 7 supplied property value figures, and 8 supplied data regarding average nightly occupancy and type of occupancy (i.e. local, tourist, commercial,

Table 15
COMPARISON OF GASOLINE GALLONAGE VOLUMES FOR ALL SERVICE STATIONS IN AUSTIN STUDY AREA, 1953-1957

| Item | Year 1953 | Year 1957 | Change From 1953 to 1957 |
|---|---|---|---|
| | (Gallons) | (Gallons) | (Percent) |
| 18 Old Stations on Old Route | 2,973,294 | 2,370,228 | —20.3% |
| 3 New Stations on Old Route | | 648,720 | |
| Total Old Route | 2,973,294 | 3,018,948 | + 1.5 |
| 3 New Stations on New Route | | 618,989 | |
| Total All 24 Stations Within Study Area | 2,973,294 | 3,637,937 | +22.4 |

etc.). Of the motels themselves, 7 of the 13 along the old route of U. S. 81 are classified as average, 4 as modest, and 2 as poor. None is classified as a luxury type motel. Present room rentals for a single room range from $2.50 to $4.00 per night. One rents rooms at present on a monthly basis, rather than overnight, but it is considered to be legitimately classified as a motel.

*Dollar Volume of Business (1953 and 1957)*

Nine motels located on the old route of U. S. 81 (Lamar Boulevard) reported dollar volumes of business for the years 1953 and 1957. These figures are tabulated in Table 16. The nine motels reported a gross volume of $183,500 in 1953, and of $125,800 in 1957, a net decrease in gross volume of business of 31.4 percent over the period studied.

Table 16
CHANGES IN DOLLAR VOLUME OF NINE MOTELS ALONG OLD U. S. 81 DURING PERIOD 1953-1957

| Motel Number | Dollar Volume 1953 | Dollar Volume 1957 | Change in Dollar Volume 1953-1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 1 | $ 4,000 | $ 4,000 | 0.0% |
| 2 | 40,000 | 35,000 | −12.5 |
| 3 | 38,000 | 27,000 | −28.9 |
| 4 | 14,500 | 13,000 | −10.3 |
| 5 | 20,400 | 8,000 | −60.8 |
| 6 | 21,600 | 9,000 | −58.3 |
| 7 | 14,000 | 10,000 | −28.6 |
| 8 | 22,000 | 14,000 | −36.3 |
| 9 | 9,000 | 5,800 | −35.6 |
| Total | $183,500 | $125,800 | −31.4% |

A study of Table 16 indicates that the diversion of transient traffic to the new facility has had a serious negative effect on motels along the old route of U. S. 81. Percentages of change in dollar volume of business reported by the nine motels ranged from no change in one instance to a maximum of 60.8 percent decrease. No motel reported an increase in dollar volume of business for 1957 over 1953.

The fact that all motels reporting dollar volume of business showed a decrease in 1957 over 1953, and that the average decrease in dollar volume of business per motel was over 31 percent, would indicate that factors such as management or motel quality as such had relatively little influence on dollar volume of business as compared to the more vital factor of traffic volume in the area. Three of the motel operators indicated that they had lowered both rates and standards in order to stay in business after the route change. Whether improvements of the luxury type would have counteracted the negative effects of traffic loss owing to the divergence of transient traffic to new U. S. 81 is open to question.

It is also possible, however, that without substantial improvements the motels in question would have experienced a decline in volume even without the new facility. This possibility is indicated by the fact that new luxury motels which were in competitive locations were attracting more than their proportionate share of total customers even before the new facility was opened. This conforms also to the national trend of upgrading motel accommodations—a practice conformed to by only one of the 13 motels.

Table 17
CHANGES IN ESTIMATED PROPERTY VALUE OF SEVEN MOTELS LOCATED ALONG OLD U. S. 81 DURING PERIOD 1953-1957

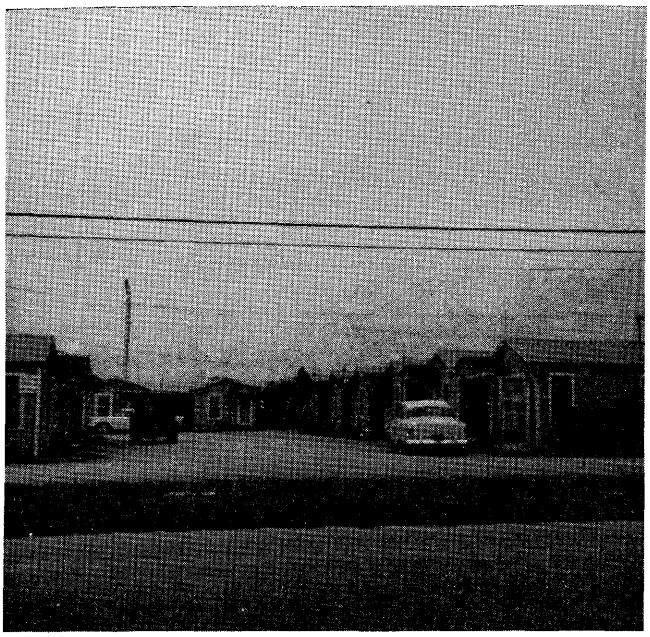
| Motel Number | Property Value 1953 | Property Value 1957 | Changes in Property Value 1953-1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 1 | $110,000 | $ 50,000 | −54.5% |
| 2 | 175,000 | 200,000 | +14.3 |
| 3 | 175,000 | 125,000 | −28.6 |
| 4 | 100,000 | 85,000 | −15.0 |
| 5 | 115,000 | 115,000 | 0.0 |
| 6 | 100,000 | 50,000 | −50.0 |
| 7 | 75,000 | 65,000 | −13.3 |
| Total | $850,000 | $690,000 | −18.8% |

*Property Values (1953 and 1957)*

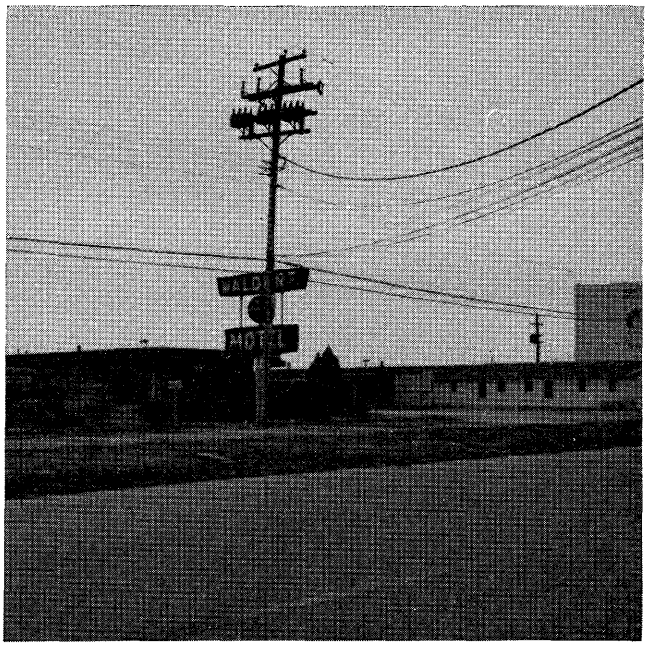
Seven of the motels along the old route of U. S. 81 reported changes in estimated property values (see Table 17). Of the seven motels reporting, only one indicated an increase in property values in 1957 as compared to 1953, and this reported increase included estimates made of the value of considerable improvements and remodeling. A second motel owner reported no change in the

Table 18
CHANGES IN OCCUPANCY OF EIGHT MOTELS ALONG OLD U. S. 81 DURING PERIOD 1953-1957

| Number | Normal Capacity | 1953 | | 1957 | | 1953-1957 |
|---|---|---|---|---|---|---|
| | | Avg. Nightly Occupancy Rate | Avg. Nightly Occupancy Rate | Avg. Nightly Occupancy Rate | Avg. Nightly Occupancy Rate | Change From 1953-1957 |
| | (Number) | (Percent) | (Number) | (Percent) | (Number) | (Percent) |
| 1 | 49 | 95% | 46.6 | 60 % | 29.4 | −35 % |
| 2 | 47 | 95 | 44.7 | 60 | 28.2 | −35 |
| 3 | 36 | 87 | 31.3 | 40 | 14.4 | −47 |
| 4 | 30 | 85 | 25.5 | 75 | 22.5 | −10 |
| 5 | 33 | 95 | 31.4 | 65 | 21.5 | −30 |
| 6 | 49 | 92 | 45.1 | 40 | 19.6 | −52 |
| 7 | 54 | 90 | 48.6 | 75 | 40.5 | −25 |
| 8 | 35 | 75 | 26.2 | 60 | 21.0 | −15 |
| Total | 333 | 89.9% | 299.4 | 59.2% | 197.1 | −34.2% |



Most motels on the old route are well along their economic life curve.



Daily single rental rates range from $2.50 to $4.00 per night.

property value of his motel. Over-all, the seven motels reported estimates of total gross property value of $850,000 in 1953, as opposed to a total gross property value of $690,000 in 1957, a net decrease of 18.8 percent during the period under study.

Estimated dollar losses in property value reported by the five motels estimating losses ranged from $10,000 to $60,000, and percentage losses in property values estimated by these five motel operators ranged from 13.3 percent to 54.5 percent.

It is clear that motels, as a group, suffered much more from the divergence of traffic from old U. S. 81 to the new Interregional expressway than did service stations. This appears to be due largely to the fact that motels are more dependent proportionately on transient traffic than are service stations, whose operators may concentrate on the development of a local clientele in the absence of transient trade.

*Occupancy (Types and Comparative Averages)*

The importance of transient traffic to motel operations is borne out by the reports of the eight motels along old route U. S. 81 which were able to supply data concerning occupancy (see Table 18).

One of the new independent motels that has been built along the new route since its construction.

The large motel chains have also moved into the study area.

A study of this table indicates a total loss in average nightly occupancy of 102 individuals by the eight reporting motels. This represents a percentage decrease in average nightly occupancy of 34.2 percent between 1953 and 1957. As the reporting motels were operating at an average of 89.9 percent capacity in 1953, this decrease lowered the entire base of operation in 1957 to 59.2 percent of capacity.

Not only did the motels suffer an over-all loss of business in 1957 as compared to the business of 1953, but the type of occupancy varied considerably, indicating the effect of the divergence in transient traffic to new U. S. 81. As may be seen from Table 18, tourist or transient trade made up 41.3 percent of all occupancy in 1953, but only 23.3 percent in 1957. There was little variance in local type patrons (semi-permanent residents, weekly patrons, etc.) as to relative percentage of total occupancy in 1953 and 1957, but the motels showed some slight gain in the percentage of total occupancy of commercial customers (salesmen, agency representatives, etc.). In 1953, commercial patrons comprised 40 percent of the total occupancy of the reporting motels, while in 1957 they comprised 55.6 percent. This is an apparent gain of 15.6 percent in total occupancy for commercial type patrons. This, however, is misleading in that the base (total occupancy) in 1957 represented only 59.2 percent of total motel capacities, whereas the base in 1953 represented 89.9 percent of total motel capacities. Since the total capacities did not change between 1953 and 1957, the apparent percentage gain in commercial-type motel patrons represented an actual numerical loss of such patrons!

### *Motels (New Route)*

At the time of the survey in 1957, two motels were located within the limits of the study area of the new route of U. S. 81 (Interregional expressway).

One of these motels, while new and modern with respect to facilities, is of the "good"—but not "luxury" classification. It was built on the Interregional highway in anticipation of heavy traffic and ready access to the travelling public. This particular site was originally chosen by the builder because the preliminary plans had indicated that a crossover would be built near that point on the Interregional. However when the highway was constructed, the crossover was located some 400 yards south. The owner indicated that in his opinion the motel had not done as well in 1957 as had been anticipated because of the change in crossover location plus the fact that traffic was somewhat lighter than had been anticipated. No other site was considered for the construction of the motel.

The second motel is of the "luxury" class, and the operator holds the Austin area franchise for use of the trade name of a nationally-known motel chain. This motel is located on the Interregional highway just north of its intersection with U. S. 290. The location was chosen because of the modern highway facility and the type and anticipated volume of traffic. A crossover is located in front of the motel, and the site was deliberately chosen for its close proximity to the U. S. 290 intersection. The motel is felt by the manager to have done as well in 1957 as was anticipated. This motel is much larger than any other within the study area and had the largest dollar volume of business reported by any of the motels surveyed.

Table 19
COMPARISON OF DOLLAR VOLUMES FOR ALL MOTELS IN AUSTIN STUDY AREA, 1953-1957

| Item | Year 1953 | Year 1957 | Change From 1953 to 1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 9 Reporting Motels On Old Route—Actual | $183,500 | $125,800 | −31.4% |
| 4 Nonreporting Motels On Old Route—Calculated* | 64,500 | 45,300 | −29.8 |
| Total All 13 Motels On Old Route | 248,000 | 171,100 | −31.0 |
| 2 Motels on New Route | | 162,200 | |
| Total All 15 Motels Within Study Area | $248,000 | $333,300 | +34.4% |

*Dollar volumes for nonreporting motels were calculated as follows:

1. Number of units were determined for each and 1953 volume per unit was assumed to be equal to the average of reporting motels.
2. 1957 volume of one motel was estimated by owner as unchanged from 1953. One motel was out of business, so had no volume in 1957. The other two were estimated to have per unit volumes equal to the reporting stations in 1957.

### *Motels (New Route and Old Route)*

Motels along the old route of U. S. 81, as has been noted, showed a net decrease of 18.8 percent in gross property values in 1957, as compared to 1953 property values. It was not possible to obtain property value for one of the motels located on new U. S. 81. Consequently, no combined valuation figures are available. It is believed, however, that if the information were available, it would show the valuation figures following the income data. Table 19 presents a consolidation of the dollar volume of business of all motels for the years under study, 1953 and 1957. Of primary interest here is the fact that even though motels along the old route of U. S. 81 showed a loss in dollar volume of 31 percent from 1953 to 1957, when figures from the two motels on the new route of U. S. 81 were added, the combined dollar volume showed an increase of 34.4 percent during the period.

This simply means that although those motels on old U. S. 81 did suffer general and often severe losses through the shift in traffic patterns and volumes caused by the opening of the new facility, the Interregional stimulated sufficient new motel business to bring about a large over-all gain for the combined study areas, insofar as motel business was concerned. It is obvious that in this type of traffic-serving establishment, a relatively heavy volume of transient-type traffic is essential to successful business operation.

Comments by motel operators on both routes bear out this observation. The chief complaints of the operators of motels on old U. S. 81 had to do with the approach to the old route from the Interregional highway.

Table 20
CHANGES IN DOLLAR VOLUME OF RESTAURANTS ON OLD U. S. 81, 1953-1957

| Restaurant Number | Year 1953 | Year 1957 | Change From 1953 to 1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 1 | * | * | —30.4 |
| 2 | * | * | —44.4 |
| 3 | * | * | —45.7 |
| 4 | * | * | — 8.2 |
| 5 | * | * | —14.9 |
| Total | $595,600 | $392,800 | —34.0 |

*Individual volumes are not shown in order to preserve the anonymity of individual firms.

Like some service station operators, several of the motel operators felt that the approach was poorly marked, and was therefore often overlooked by traffic which had originally intended to follow the old route. It was felt also that marking the old route as the most direct approach to the Department of Public Safety and in particular to the State Hospitals would secure some business for the motels along the old route. By and large, however, the deciding factor in determining growth or decline of the dollar volumes of the motels' businesses appears without question to be the flow and volume of transient-type traffic.

## *Restaurants and Food Service Establishments (Old Route)*

Restaurants and food service establishments, like service stations and motels, may be expected to be relatively sensitive to changes in traffic volumes and patterns.

A total of 11 such establishments are located within the study area along the old route of U. S. 81. All were called on for interviews, but only five offered much useful information. Of the 11 establishments, four are primarily restaurants, two are drive-in restaurants, four are drive-in taverns, and one is primarily a tavern. Of those reporting, two are primarily restaurants, one is a drive-in restaurant and two are drive-in taverns.

Of the six establishments for which data were not available, one, located in the same building as a service station, was closed before 1957. One restaurant owner refused to cooperate in the study and information concerning the operation in either 1953, 1957, or both was either insufficient or nonexistent for the other four.

In the interviews of those restaurants and food service establishment owners who provided information, data were taken regarding the dollar volumes of business for 1953 and 1957, and changes in type of clientele (classified as "local" or "transient") served in the establishments in 1953 and 1957.

*Dollar Volume of Business (1953 and 1957)*

Table 20 indicates that the five reporting establishments presented an estimated dollar volume of business of $594,600 for 1953, and of $392,800 for 1957, an overall decrease in dollar volume of business of 34 percent.

An examination of these losses would indicate that the restaurants and food service establishments were seriously affected by the route change. However, several of the operators of these establishments were of the opinion that not all of the loss could be directly attributed to the change in traffic flow and patterns. Other factors such as "a bad business year for the Austin area," "change in customer habits," and "poor management" were suggested as explanations for a portion of the decrease in dollar volumes of business.

In the light of the fact that dollar volume losses were common to all restaurants along the old route of U. S. 81, as well as to other traffic-serving businesses such as service stations and motels, it is debatable as to the degree that traffic based losses are augmented by the factors mentioned above. It is certainly true, of course, that such factors as "poor management," etc., are worth consideration. Some explanation such as this is needed to explain the loss in local patronage. Logically, the highway relocation itself should not affect local trade.

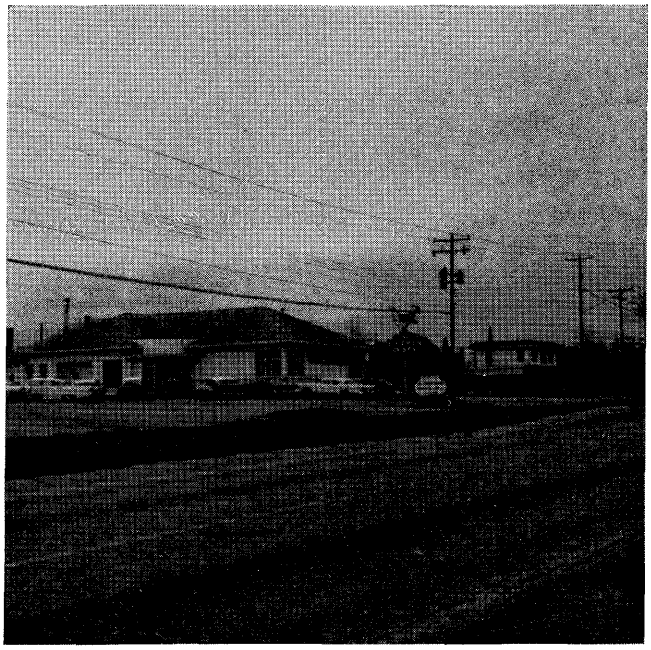
*Changes in Clientele (1953 and 1957)*

Changes in the type of clientele served by the restaurants and food service establishments may be of some significance in evaluating the effect of the relocation on such businesses. Table 21 indicates that of approximately 10,300 customers served per week by the reporting establishments in 1953, 73.7 percent were felt by owners to be "local" customers, while the remaining 26.3 percent were considered "transients."

In 1957, on the other hand, after the construction of the new Interregional expressway, the reporting estab-

Table 21
CHANGES IN PROPORTION OF LOCAL AND TRANSIENT CUSTOMERS SERVED BY STUDY AREA RESTAURANTS IN 1953 AND 1957

| Restaurant Number | 1953 | | | 1957 | | | Change From 1953 to 1957 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Total Weekly Customers | Percent Local | Percent Transient | Total Weekly Customers | Percent Local | Percent Transient | Total Weekly Customers | Number of Local Customers | Number of Transient Customers |
| | (Number) | (Percent) | (Percent) | (Number) | (Percent) | (Percent) | (Percent) | (Percent) | (Percent) |
| 1 | 3,500 | 70% | 30% | 2,550 | 85% | 15% | —28.2% | —12.8% | —64.1% |
| 2 | 1,800 | 75 | 25 | 1,000 | 90 | 10 | —44.4 | —33.3 | —77.8 |
| 3 | 750 | 75 | 25 | 600 | 90 | 10 | —20.0 | — 4.1 | —67.9 |
| 4 | 2,500 | 80 | 20 | 2,000 | 95 | 5 | —20.0 | — 5.0 | —80.0 |
| 5 | 1,700 | 70 | 30 | 1,400 | 95 | 5 | —17.6 | +11.8 | —86.3 |
| Total | 10,300 | 73.7 | 26.3 | 7,550 | 90.6 | 9.4 | —26.7 | — 9.9 | —73.8 |



Several restaurants are located along the old route.

lishments indicated that of an estimated 7,550 customers served per week, only 712, or 9.4 percent could be classified as transients. The decrease from 2,712 transient customers served weekly in 1953 to 712 such customers served weekly in 1957 amounts to a 77.4 percent decrease in this type of customer. The corresponding change in local customers was only 9.9 percent.

It would appear that restaurants and food service establishments along old U. S. 81 did receive negative effects from the route change, particularly to the degree that through and tourist traffic was diverted to the new facility.

### *Restaurants and Food Service Establishments (New Route)*

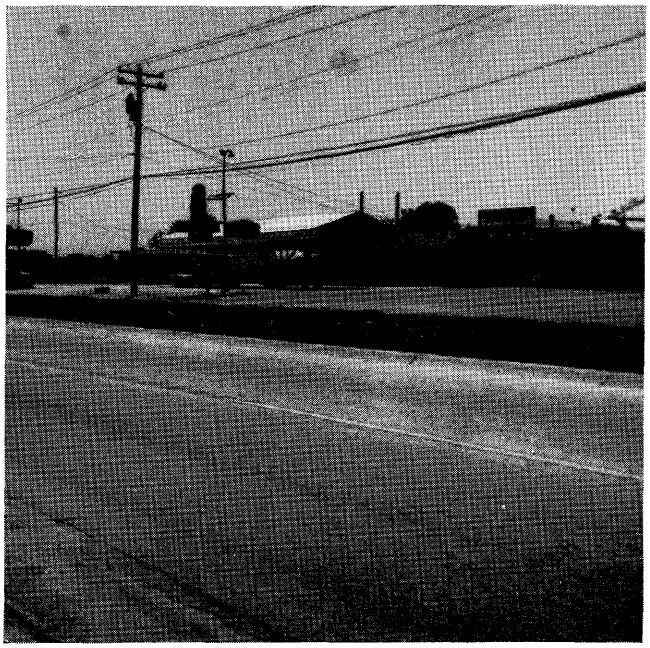
Only two establishments of this classification were located within the study area along the new route of U. S. 81 by 1957. Both were restaurants. Of these, one was located in the "luxury" type motel previously described, and the other was located next to a truck stop. The two establishments reported a gross dollar volume of business for 1957 of $234,000. No other data of significance was taken.

### *Restaurants and Food Service Establishments (New Route and Old Route)*

Table 22 presents a consolidation of the dollar volume of business of all reporting restaurants and food service establishments in the two study areas along the old and new routes of U. S. 81 for the years 1953 and 1957.

The five reporting establishments along the old route of U. S. 81 showed a net dollar loss of $202,800 for the period under study, or a net decrease of 34 percent. The six nonreporting businesses were assumed to have had volumes comparable to reporting businesses in both periods. Therefore, the total loss for all of this class business along the old route is estimated to have been $446,-160 or the same 34 percent. However, the dollar volume of business reported by the two new establishments on the new route of U. S. 81 added $234,000 to the combined 1957 dollar volume for the two study areas. This reduces the loss for the area as a whole to $212,160 or some 16.2 percent.

This percentage loss in the reported dollar volume of business of these restaurants and food service establishments might well be felt to indicate a gross negative effect of the route change on such businesses in the area. The probability is, however, that although there has



Many of these restaurants furnish drive-in service to their customers.

The Holiday Inn Restaurant is operated in conjunction with the motel on the new route.

Other restaurants are also being established in the area.

Table 22
CALCULATED CHANGES IN DOLLAR VOLUMES OF ALL RESTAURANTS IN THE AUSTIN STUDY AREA IN 1953 AND 1957

| Item | Year 1953 | Year 1957 | Percent Change |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| 5 Reporting Old Restaurants—Actual | $ 595,600 | $ 392,800 | —34.0% |
| 6 Nonreporting Old Restaurants—Calculated* | 714,720 | 471,360 | —34.0 |
| Total Old Restaurants | 1,310,320 | 864,160 | —34.0 |
| New Restaurants On New Route | | 234,000 | |
| Total All 13 Restaurants In Study Area | $1,310,320 | $1,098,160 | —16.2 |

*Nonreporting firms are estimated to have volumes equivalent to reporting firms in both 1953 and 1957.

indeed been a negative effect upon those establishments along the old route of U. S. 81, the new route has not been in existence long enough to develop its full potential in this line. Another survey in five to seven years might well develop altogether different data.

In general, owner comments tend to bear out this thinking, at least that concerning the negative effects of the route change on those restaurants and food service establishments along old U. S. 81. One owner of a restaurant which suffered a very substantial decrease in dollar volume between 1953 and 1957 attributed only one-fourth of his losses to the route change. Another, whose business loss was almost as great, attributed only one-fifth of his losses to the route change. Both of these and a large part of the other restaurant owners on the old route expect to regain a large part of their losses within the immediate future.

Complaints of restaurant and food service establishment owners, like those of service station and motel owners, centered around the maintenance of the old route, the approach from new U. S. 81, and unsatisfactory marking of the approach to old U. S. 81 from its intersection with the new Interregional expressway.

### *Traffic-Serving Establishments (New Route and Old Route)*

It will be noted from a survey of Table 23 that along the old route of U. S. 81, all traffic-serving establishments showed decreases of varying degrees in dollar volume of business in 1957, as compared to their dollar volumes of business of 1953. Restaurants and food service establishments along the old route showed the greatest decrease (34 percent); motels showed a considerable percentage of decrease (31 percent); and service stations showed a small increase (3.4 percent). Grouped together, all types of traffic-serving businesses along the old route of U. S. 81 showed a 17.3 percent decrease in dollar volume of business in 1957, as compared to 1953. This decrease of over one-sixth of the total dollar volume of business must in all probability be attributed primarily to the change in traffic volume and traffic patterns brought about by the route change on U. S. 81.

This conclusion is substantiated by the consideration that of the three groups of traffic-serving establishments, those types which are most dependent for business on transient traffic ("motels" and "restaurants and food service establishments") showed substantial decreases in dollar volumes of business. The service stations, which received a larger share of local trade, and which were positively affected by local residential area buildup (as opposed, for example, to motels), actually increased.

When the influences of new traffic-serving establishments on the new route of U. S. 81 are considered, it is seen that in the combined areas, traffic-serving establishments as a whole showed a small total increase in

Table 23
CHANGES IN TOTAL DOLLAR VOLUME OF ALL TRAFFIC-SERVING BUSINESSES IN THE AUSTIN STUDY AREA IN 1953 AND 1957

| Item | Year 1953 | Year 1957 | Change From 1953 to 1957 |
|---|---|---|---|
| | (Dollars) | (Dollars) | (Percent) |
| Service Stations: | | | |
| Old Route | $1,230,000 | $1,271,850 | + 3.4% |
| New Route | | 222,000 | |
| Total | 1,230,000 | 1,493,850 | +21.5 |
| Motels: | | | |
| Old Route | 248,000 | 171,000 | —31.0 |
| New Route | | 162,200 | |
| Total | 248,000 | 333,300 | +34.4 |
| Restaurants: | | | |
| Old Route | 1,310,320 | 864,160 | —34.0 |
| New Route | | 234,000 | |
| Total | 1,310,320 | 1,098,160 | —16.2 |
| Total Traffic-Serving Businesses: | | | |
| Old Route | 2,788,320 | 2,307,110 | —17.3 |
| New Route | | 618,200 | |
| GRAND TOTAL | $2,788,320 | $2,925,310 | + 4.9% |

Table 24
INDEX OF RETAIL SALES* AUSTIN, 1953 THROUGH 1957

| Year | Index | Percent Change From 1953 |
|---|---|---|
| 1953 | 100.00 | -0- |
| 1954 | 100.00 | -0- |
| 1955 | 110.00 | +10.00 |
| 1956 | 102.30 | + 2.30 |
| 1957 | 104.35 | + 4.35 |

*Constructed from data supplied by the Bureau of Business Research, Austin, Texas.

dollar volumes of business for 1957 over 1953 (Table 23). This increase of 4.9 percent compares quite favorably to the increase of 4.3 percent in total retail sales in Austin during the same period (Table 24).

Of the three types of establishments, motels showed the largest percentage of increase (34.4 percent) in 1957 over 1953. This may be at least partially explained by the existence in 1957 of the large luxury type motel on the new route—a business frankly attracted by the existence of the new highway facility. The service stations in the combined areas showed a gross increase in dollar volume of business of 21.5 percent in 1957 over 1953. Their increase was at least assisted by the build-up of residential areas in the vicinity. Restaurants and food service establishments, on the other hand, showed a net loss in dollar volume of some 16.2 percent. This may be attributed in part to the fact that to date only two restaurants have been located on the new facility. As the area continues to develop, additional new restaurants will probably be located along with the other developments on the new route.

Of primary significance, however, is the fact that when all the traffic-serving establishments along both routes within the study areas are taken together, they experienced a gross increase of 4.9 percent in dollar volume. From the broad point of view, this fact would indicate that the negative effects of the new highway facility upon the traffic-serving establishments of old route U. S. 81 were offset by the positive effects of the development of new businesses along the new facility. For the whole area, traffic-serving establishments showed a slight increase in total dollar volume of business done, and this increase took place within four years after the development of the new facility.

## *NONTRAFFIC-SERVING BUSINESSES*

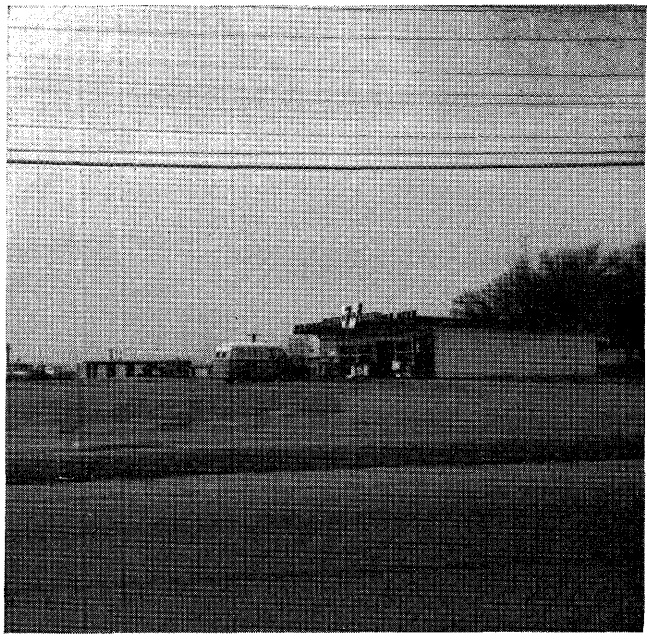
### *Nontraffic-Serving Businesses (Old Route)*

Along the old route of U. S. 81 there are 22 businesses which were classified as nontraffic-serving retail businesses. These businesses were interviewed, but with only limited success. Dollar volumes of business for 1953 and 1957 were available from only four of the businesses interviewed. Therefore, interpretations of the effect of the new highway facility on nontraffic-serving businesses along the old route of U. S. 81 must be made from a small number of firms. To be most meaningful, this data should be compared to similar data obtained from nontraffic-serving businesses along the new route. The total dollar volume of business reported by these four nontraffic-serving businesses was $981,000 in 1953 and $1,728,000 in 1957, a gain of 76.1 percent.


**Several nontraffic serving businesses are in operation along old U. S. 81.**

Although field interviewers could discern no significant differences between those businesses which furnished dollar volume information and those which did not, it is felt that the number of responding firms is too small to be used as a true sample. It is the feeling of the researchers concerned that, if available, nontraffic-serving retail sales figures would follow the pattern established by these four firms rather closely. That is, that sales would have increased significantly during the study period. Because of the lack of factual information, however, the data from these firms is not expanded to a total for the nontraffic-serving retail group.

**Many of the nontraffic serving businesses are not dependent upon transient trade.**



**A drive-in grocery store is still operating on the old route.**

However, a number of pertinent owner-comments may be reported. In only two cases did an owner or operator of a nontraffic-serving business associate a change in his business with the route change. One operator of a drive-in grocery estimated a 15 percent loss in dollar volume attributable to the route change, and one drugstore owner felt that the route change had hurt the volume of his business, but could not accurately judge the extent of the damage. Since this operator had changed location during the study period, however, it was felt that he could not present accurate data—particularly since the dollar volume of his business showed an estimated net increase of over 47 percent during the period.

Most operators and owners of nontraffic-serving businesses seemed indifferent toward the route change. They attributed changes in dollar volumes of their businesses primarily to such factors as increases in stock, change in location, increased residential build-up in the area, and increased competition.

If the opinions of the owner-operators of these businesses as to the effects of the route change on their businesses are assumed to be reasonably sound, and if the limited data available as to dollar volume changes is indicative of over-all nontraffic-serving business patterns, then it appears that in the aggregate the route change had little or no adverse effect on the business activities of nontraffic-serving establishments. In fact, this change would have to be considered as an economic stimulant to these businesses. This conclusion is supported in logic by the fact that most establishments of this sort depend on local trade and prosper with the general growth of the community.

The only complaint relative to traffic made by owner-operators of nontraffic-serving establishments along the old route of U. S. 81 had to do with parking facilities. Relatively heavy traffic along Lamar Boulevard, limited entry spaces, and inadequate depth in parking areas made customer parking difficult and the over-all parking situation hazardous. No statistical data other than the reported dollar volume changes of the four businesses here discussed were taken.

### *Nontraffic-Serving Businesses (New Route)*

In the study area along the new route of U. S. 81 only three retail businesses of the nontraffic-serving type were located prior to 1957. All had been previously located at other points in Austin; one was formerly located on the old route of U. S. 81. All moved to their

**Other businesses function strictly with local or incoming clientele.**


**Availability to a major highway is important to firms such as this one located on the new route.**

Manufacturing plants are beginning to locate in the area.

And the number of firms dealing with the traveling public continues to increase.

Plenty of room for building and parking sites are also important.

present locations on the new route of U. S. 81 in order to obtain more space, better parking facilities, easier access for truck transportation, etc. One had moved to its location because of industrial zoning requirements in its previous location. All of the operators of these businesses reported that the location on the new route was proving to be as favorable as had been anticipated.

Dollar volume of business figures were available from only two of the three nontraffic-serving businesses interviewed. Since these figures will not be compared to sales on the old route or developed into gross estimates, the actual figures will not be revealed. It is sufficient to say that the average per firm is quite close to that of the firms on the old route.

### *Nontraffic-Serving Businesses (New Route and Old Route)*

Because of the paucity of data, estimates of total combined dollar volume changes are not presented in tabular form. Of particular significance, however, is the fact that all the available evidence indicates that nontraffic-serving retail sales increased in both the old and new sections of the study area. Granting that the data is limited, the indication is nevertheless clear that the route change had no adverse effects on nontraffic-serving businesses along the old route of U. S. 81, and actually stimulated such business activity along the new route.

# Conclusions

The evidence presently available indicates that the construction of Interstate Highway 35 through the northern part of Austin, Texas, has had a measurable effect or economic impact upon the economy of that local area.

The values of land located within the incidence area increased at a much greater rate than comparable land in the control areas. Land in the study area has also been converted to higher and more intensive uses at a rapid rate. Land which was used predominantly for agricultural purposes before the construction of the highway, has been converted to residential, commercial, or industrial sites or is being held for speculative purposes. It appears that this trend will continue and may be accelerated as the area develops.

The effect upon retail sales volumes of the area was also quite pronounced. Traffic-oriented businesses located along the old route were the most severely affected by the diversion of transient traffic. Individual losses frequently ran as high as 50% or more. Those retail firms who concentrated their sales efforts on the local clientele, however, were seldom adversely affected by the route change. As a group, their sales appear to have increased significantly during the study period. And, since the local area is continuing to expand, it may be assumed that the firms who serve this area can reasonably expect continued increased sales volumes also.

The retail establishments located along the new route presently account for a large volume of retail sales. Since these businesses have all been established since 1954, it is likely that their total sales volume will continue to increase as continued economic change and growth occur within this area.

It could probably be said that perhaps this particular area would have eventually developed without the influence of the new Interstate route. Austin's development has tended to be focused toward the north. However, it may also be concluded that the presence of the new route has substantially increased the tempo of the area's development and has had a definite positive effect upon the local area's economy. Many of the businesses along the old route, on the other hand, have had the termination of their economic life accelerated by the new highway. Doubtlessly they would have faced economic obsolescence within a few years even without the new route. With it they merely became obsolete somewhat earlier.

# APPENDIX

# Objectives and Procedures

***Objectives:***

One of the principle objectives of this study was to measure any changes in land values that occurred during a specified period of time within given areas near the Interstate Highway System. A second part of this objective was to determine the extent to which these changes might be attributed to or associated with the construction and operation of that facility. Another principle objective was to determine the changes in land use that may have occurred within these same areas, and to attempt to explain these changes in terms of influence by the facility. Still another objective was to determine the relationship of land use to land values, as land in the area of the highway facilities progresses through sequential uses. A final objective was to determine the effect of the highway facility upon over-all business activity in the areas which were served by it.

***Procedures:***

A uniform set of procedures was developed for use in each of the study areas. Except where local conditions made deviations necessary, the same procedures were followed in each area.

A. The procedures followed in developing and analyzing the land value information were as follows:

1. Area Selection:

   A general area was first selected for study. The Interstate Highway facility in this area had, in the opinion of the Project Advisory Committee, been constructed long enough for changes in land use and land values to become apparent and for variation in over-all area business activity to be discernible. This area was located in the vicinity of Austin. It extended along new U. S. 81 from the intersection of U. S. 290 north to Walnut Creek.

2. Boundary Selection:

   a. Exterior boundaries of the area were carefully selected to permit the inclusion of the major expected influence zone and still keep the area to a manageable size.

   b. Interior boundaries were drawn so that properties were divided into two classes for analytical purposes—abutting and nonabutting.

   c. Such additional interior divisions as seemed feasible were made in each area.

3. Time Periods:

   To measure changes in land value, three time periods were chosen for the study. The length of each period was determined by the construction schedule for the area. The periods were selected as follows:

   a. Study Period—The study period was the length of time from the completion of construction through 1957 (1954-57).

   b. Construction Period—The construction period was the time from the announcement of location through completion of construction (1949-53).

   c. Base Period—The base period was an 8 year period preceding the announcement of construction of the facility (1941-48). The length of the base period was partially determined by the availability of sales information.

A. 4. Property Identification:

   Through use of city records, county maps, A.S.C. aerial photos and State right-of-way strip maps, each piece of property within each study area was identified and the owner recorded.

5. Land Sales:

   Through the use of ownership maps, each property transaction was traced through the deed records in the County Clerk's office. Sales prices were recorded from each legitimate sale. In cases where the actual consideration was not revealed, the median of the range as revealed by Federal Revenue Stamps was used. (These stamps are affixed in multiples of $ .55 per $500.) Since most of the study area properties were located outside the city limits, city tax records, showing evaluations for land and improvements separately, were not available for use. This meant that it was not possible to deduct improvement valuations from total sales prices in most instances. For this reason only unimproved properties were used outside the city limits. Fortunately most of the sales had been made without improvements.

6. Control Areas:

   Specific control areas were selected for the Austin study area. These control areas were selected to represent properties similar to those prevalent in the study area prior to construction of the Interstate System. Entire land surveys were used as control areas, and all land sales within each survey were recorded.

7. Statistical Treatment of Sales:

   a. To remove the effect of general inflation over the large number of years studied, each sale was deflated by the Bureau of Labor Statistics' Consumer Price Index (1947-1949 = 100). This reduced all sales prices to a common dollar value base.

   b. The sales were next converted to a common price per acre so that comparisons could be made from a common unit base.

   c. All sales were then grouped according to the various classifications being considered.

   d. Changes were shown as both actual and percentage changes.

B. The procedures followed in the analysis of land use changes were as follows:

1. Land use for the last year in the base period was investigated and recorded for each piece of property within the study area. This use was then compared to the present land use as shown by determinations for 1957.

2. Properties were grouped into eight classes according to the following system of land uses.

   a. Agricultural Land

      (1) Used primarily for agricultural purposes

      (2) Minimum size 10 acres (Exception: Truck or other intensive type farm minimum size 2 acres.)

   b. Land Held for Future Use

      (1) Generally considered to be held for future use rather than its utility at present.

      (2) May be farmed or grazed or used for other agricultural purposes during interim period.

      (3) May be either inside or outside city limits.

   c. Rural Residence

      (1) Used primarily as a dwelling place. Must have occupiable house but need not necessarily be occupied.

      (2) Outside city limits.

      (3) Maximum size 10 acres: Larger size becomes either a or b above, depending on whether farming activity is carried on. (Exception: Truck or other intensive type farm maximum size 2 acres.)

   d. Urban Residence

      (1) Dwelling unit inside city limits.

      (2) Subdivisions outside city limits.

      (3) Maximum size 5 acres (larger plots will be classed as b above).

   e. Commercial-Traffic-Serving

      (1) Any commercial firm deriving more than 50 percent of its income from traffic.

      (2) Primarily nonmanufacturing.

   f. Commercial-Nontraffic-Serving

      (1) Any commercial firm deriving less than 50 percent of its income from traffic.

      (2) Primarily nonmanufacturing.

   g. Industrial

      (1) Manufacturing firm.

   h. Institutional-Municipal

      (1) Any publicly owned property (City, County, State or Federally owned property).

      (2) Any group owned or operated property (churches, schools, cemeteries, etc.).

3. Changes in land uses are shown graphically by means of before and after land use maps.

C. The procedures followed in relating changes in land value to changes in land use were as follows:

1. Land use at time of sale was determined according to the classifications in B above for each piece of property that sold. Post-sale use was also determined for each property.

2. Each sales card was classified in accordance with the changes in land use attendant to the sale.

3. Analyses were run on each land use classification change. All sales were grouped by use changes and the analysis was made on the basis of relative changes in price.

4. The relationship between the changes in land use and land value are shown both graphically and in tabular form.

D. The procedures followed in determining the effects of the new facilities on retail business activity were as follows:

1. It was decided to use the gross sales figures of retail businesses as the most practical measure of business activity.

2. A complete inventory of businesses along both the old and new routes was made.

3. All retail businesses located on the old route within the study area were personally interviewed by members of the research staff. A concerted effort was made to obtain gross sales figures for both the last year of the study period (1957) and the last year prior to opening the new facility (1953). Additional information concerning the operation of each business was also obtained.

4. All retail businesses located on the new route were interviewed and a record of 1957 sales was obtained. Since the new route was located on a new location, businesses were not established on them until after the new highway had been opened for business.

5. All businesses were classified into homogeneous groups such as service stations, motels, etc. These groups were then classed as traffic-serving or nontraffic-serving businesses in accordance with their dependence on traffic for their revenue.

6. In analyzing the effect of the new facility on business activity, as many as six combinations of businesses were used for comparison of each group of businesses. The number of comparisons used depended upon the availability of data in each case. These comparisons are:

   a. Business Comparisons

      (1) Cooperating old businesses—old route

      (2) Total old businesses—old route (derived by adding in the calculated volumes for noncooperating businesses)

      (3) New businesses—old route (those established after the new facility had opened)

      (4) All businesses—old route

      (5) New businesses—new route

      (6) All businesses—both routes

   b. Business Grouping

      The purpose in grouping the businesses in this manner was to allow an inspection of the effects on businesses from several viewpoints. We are interested in the influences of the new facility from the following standpoints.

      (1) As it influences particular groups of old firms located on the old route.

      (2) As it influences traffic-serving as opposed to nontraffic-serving old businesses on the old route.

      (3) As it influences activity of the old route as a whole (old plus new firms).

      (4) As it influences the development within the entire area under study (both old and new routes).