A PRELIMINARY STUDY OF THE ECONOMIC IMPACT OF STEMMONS FREEWAY A SECTION OF INTERSTATE 35 E DALLAS, TEXAS

by
Russell H. Thompson
William G. Adkins
James E. Frierson

A Special Report to the Bureau of Public Roads,
United States Department of Commerce
May, 1960

E 59-60

TEXAS TRANSPORTATION INSTITUTE
(A Part of the Texas A. & M. College System)
College Station, Texas

Aerial view of a portion of Stemmons Freeway, Dallas, showing Trade Mart and Homefurnishings Mart in foreground and downtown area in background.

ACKNOWLEDGMENT

This study was made under a cooperative agreement with the Bureau of Public Roads, United States Department of Commerce.

Most of the information in this study was gathered through the cooperation of others. The study's research advisory committee, composed of Frank Cawthorn, Texas Highway Department; R. H. Clinger, Dallas County Engineer; James Schroeder, Dallas City Planning Department; Frank Anderlitch, Bureau of Public Roads; and T. Carr Forrest, Consulting Engineer, contributed generously of their time and knowledge.

Without the full cooperation of the several developers of industrial districts in the area, this study would have been greatly hampered. John M. Stemmons, L. Storey Stemmons, and other personnel of Industrial Properties Corporation; W. C. Windsor, Jr. and his staff at Windsor Properties, Inc.; and David M. Bruton, Jr. and Charles S. Sharp were most helpful in providing detailed information.

The Dallas County Map and Plat Section and the Dallas County Tax Assessor-Collector Office made their records available and were helpful in providing sales and valuation data. A. B. McGill, the Corps of Engineers, and Robert L. Irby, Dallas District Office of the Texas Employment Commission, also contributed generously to this report.

The contributions of each of these individuals and the many others not mentioned are gratefully acknowledged.

TABLE OF CONTENTS

(Continued on next page)

TABLE OF CONTENTS (Con't)

LIST OF TABLES

(Continued on next page)

LIST OF TABLES (Con't)

SUMMARY

This is a special report to the Bureau of Public Roads on a preliminary study of the economic impact of Stemmons Freeway, a section of Interstate 35 E, in Dallas, Texas.

Stemmons Freeway was completed and opened to traffic on December 5, 1959. Early in January, 1960, the sponsoring agency requested that the study be made and a report compiled by May 1, 1960. This time schedule limited the scope of the study.

The primary purpose of the research was to make a description study of the area showing the situation that existed during the "before" period and "construction" period in the area of Stemmons Freeway. These data will be helpful in appraising the effects of the Freeway as of December, 1959, and useful in a subsequent, more comprehensive study.

To accomplish the objective of this preliminary study, information was obtained as to (1) the history and background of the area selected for study, (2) sales prices of unimproved and improved properties in the area, (3) changes in land use, (4) some economic data, and (5) traffic on the Stemmons Freeway.

The Stemmons Freeway is a 7.3-mile portion of Interstate 35 E. It passes through a section of Dallas reclaimed by a series of levees which protect the area from flood water from the Trinity River. The facility, one of the first contracts awarded in Texas under the Federal Highway and Defense Act, is built to Freeway standards. About half the highway has five lanes of traffic in each direction, and the remainder has four lanes each way. Frontage roads of three traffic lanes are on each side of the Freeway through the entire study area. Figure 1 of the report shows an aerial photograph of the study area.

The area selected for study consists of about 5,000 acres, all within the levee system. Another unique aspect of the study area is that the land has long been needed for industrial and commercial development. Three families or their corporations own or control virtually the entire study area, and this group is developing or holding for development the area for industrial or commercial purposes.

When IH 35 E was planned and the route through this part of Dallas was determined, the three landowning families or their corporation donated nearly all of the right of way for the Freeway.

The effects of the levee system and the levee improvement and flood control districts may be outlined as follows: (1) The area was agricultural or waste land subject to periodic flooding until the completion of the levee system in 1932 protected the 10,000 reclaimed acres in the district from flood waters. This made the area physically suitable for development. (2) Due to failure to complete a part of the reclamation program on schedule, coupled with the depression of the 1930's, landowners could not develop and sell their lands, and as a result, could not pay levee taxes. These factors prevented any development of the area from 1932 to 1945. (3) After bankruptcy, the reorganization of the levee districts removed the financial difficulties and, with the creation of the flood control district, effective operation was assured. This, in effect, presented Dallas with an area of 10,000 acres close to the center of the city which was suitable and available for industrial and commercial development.

Development of the area started in 1946 and its growth has been continuous since that time. The Freeway was contemplated for several months, but firm plans were made in early 1956. Construction was started in August, 1956, and the portion of the Freeway in the study area was completed and opened to traffic in December, 1959.

For the purposes of this study, the ten years from 1946 through 1955 were considered as the "before Stemmons Freeway" period, and the four years from 1956 through 1959 as the "construction period".

Since the entire study area was being developed or held for industrial or commercial purposes, all sales studied are of land platted and prepared for industrial use. There are two small residential sections of low-value housing within the levee system, but these were excluded from this study.

A. An analysis of real estate sales in the study area shows:

1. Prices of unimproved lots (land prepared for industry but without a building) increased 31 percent in actual dollars between the two periods. Adjusted for a constant dollar, this represents a 21 percent increase in value.

2. During the 1956-59 construction period, unimproved lots abutting the Freeway sold for an average of about 55 percent more per square foot than did non-abutting unimproved lots ($1.02 compared with $0.66); however, no price-distance relationship was found for non-abutting properties.

3. An analysis on a yearly basis of actual prices paid for un-

improved lots indicates that prices from 1946 to 1952 showed neither an upward nor downward trend. During the next three years, a downward trend seemed to begin, and then prices demonstrated an upward movement during 1956-59. This latter movement coincided with the presence of Stemmons Freeway, but evidence that the facility was the major influence during the period is not conclusive.

4. There were four industrial districts in the study area but two of these are predominant. The Trinity Industrial District and Brook Hollow Industrial District account for a majority of the sales studied. These two districts are basically different and were analyzed separately for sales of improved property (land with buildings).

   In the Trinity Industrial District, improved lots sold for $4.61 per square foot during the before period and for $4.60 per square foot during the construction period, showing virtually no changes in actual dollar price. On the basis of a constant dollar, there was a seven percent decline between the two periods.

   In Brook Hollow Industrial District, prices for improved property advanced slightly from $2.21 to $2.30 per square foot between the two periods. This represents an actual dollar increase of four percent, but a one percent decrease in terms of constant dollars.

5. No relationship was found for proximity to the Freeway and prices of improved properties. Apparently, representative sales did not occur, and thus testing was inadequate. There were only five sales of abutting improved properties during the construction period.

6. The yearly prices of improved property in the Trinity District fluctuated rather widely and no definite upward or downward trend was found. In Brook Hollow District prices per square foot for improved property had increased slightly during the few years the district had been in existence.

7. Summarizing, as indicated by real estate sales, Stemmons Freeway seemed to have had little effect on land values in the area as of December, 1959, except on abutting unimproved property. The few sales which occurred, showed considerably higher prices for abutting unimproved land than for such land more distant from the Freeway.

8. There are strong indications, although not yet confirmed by recorded sales, that the Freeway will have a definite and measurable effect on land values in the future. For example, developers in 1960 were offering land along the frontage roads for $1.50 per square foot, compared with $0.75 or less per square foot for non-abutting lots. Also, in early 1960, one parcel of unimproved abutting property reportedly was sold for $3.50 per square foot.

B. Prior to the completion of the levee system (1932), roughly half the land was used for agricultural purposes and the remainder lay idle. Farming in the area continued at about the same rate until 1945, declined during the following years, and ceased altogether by 1953.

Comparisons of aerial photographs of 1951 (mid-point of the before period) and 1960 indicated that land devoted to commercial and industrial purposes increased from 5% in 1951 to 35% in 1960. The 65% of the area remaining idle in 1960 was being held for commercial and industrial development. With the exception of the two small, low-priced residential sections excluded from the study, there was no residential development in the study area, nor were there any schools, churches, or shopping centers.

C. A traffic count on Stemmons Freeway, made by the Texas Highway Department in early 1960, showed the average weekday traffic to be 13,488 vehicles at the north entrance and 31,973 vehicles at the downtown entrance; the heaviest traffic (33,887 vehicles) occurred after the second entrance from the downtown area. It should be noted that nearly all of this was local traffic; U. S. 77 traffic was not routed over Stemmons Freeway at the time.

D. In early 1960 there were about 1,000 business firms located in the area employing an estimated 21,325 people. Standard Industrial Classification groups of Wholesale Trade and Manufacturing were the predominate types of businesses.

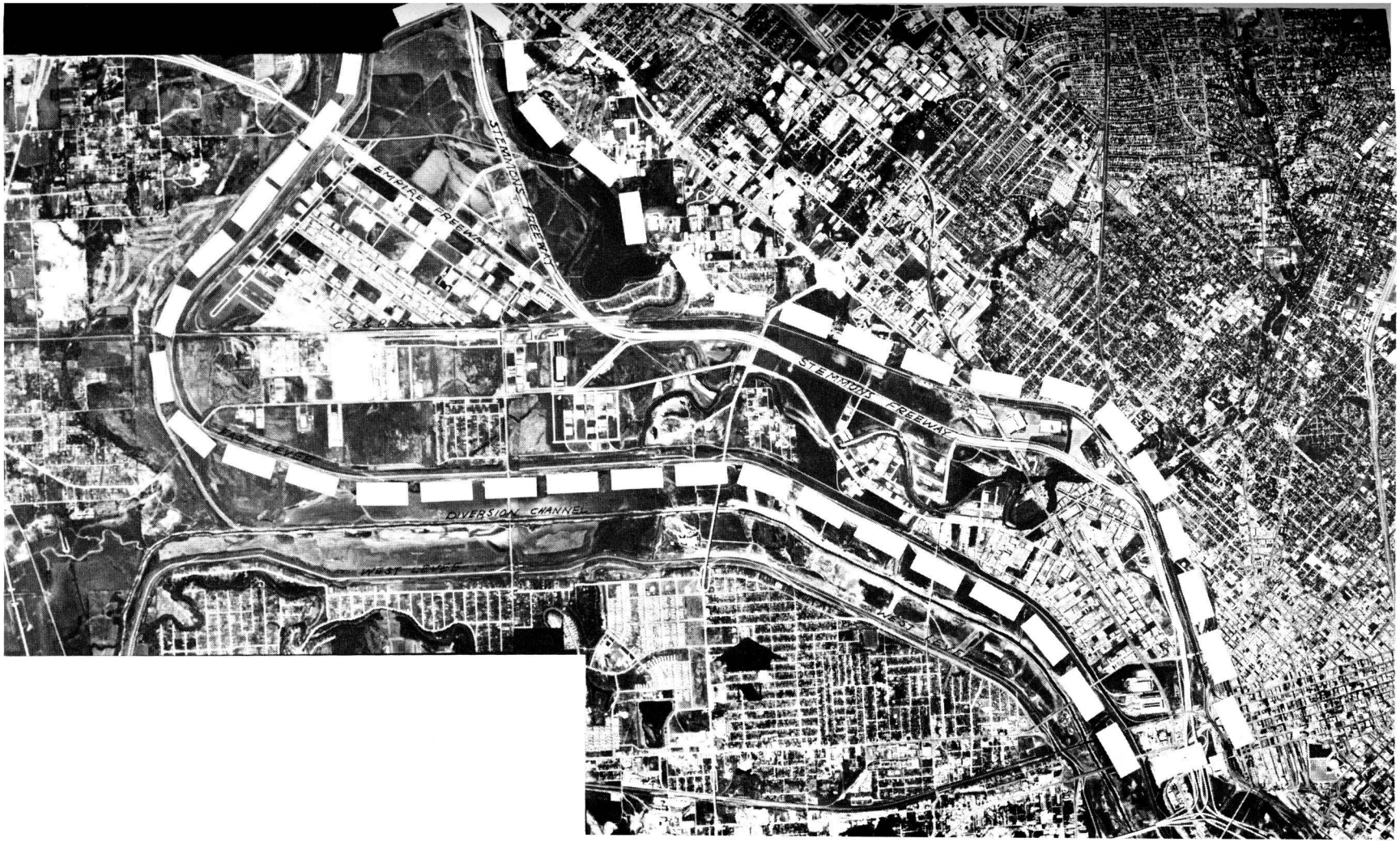


Figure 1

Aerial View of Stemmons Freeway Study Area
April, 1960
(Study Area Surrounded by Dotted Lines)

A PRELIMINARY STUDY OF THE ECONOMIC IMPACT OF STEMMONS FREEWAY A SECTION OF INTERSTATE 35 E DALLAS, TEXAS

PART I — INTRODUCTION

The numerous studies conducted by various state and federal agencies have contributed much valuable information as to the economic influence of limited-access highway facilities on adjacent areas.

This study is another in the series. It differs from other studies in two important respects: (1) the area in Dallas through which the Stemmons Freeway passes is composed of land reclaimed from frequent floods by a series of levees, and (2) almost all the 5,000 acres in the study area has been owned or controlled by a few individuals who are developing, or holding for development, their respective lands as industrial districts.

Stemmons Freeway was officially opened with an impressive ceremony on December 5, 1959. The Bureau of Public Roads, under its cooperative agreement with the Texas Transportation Institute, requested a study of the facility early in 1960.

Objectives of the Study

The timing of this study placed several limitations on it. Inasmuch as the Freeway was completed and opened to traffic only a month before the study was undertaken, no true measures of the economic impact of the Freeway could be completed. An additional factor, the sponsoring agency asked that the study be completed and reported in time for the results to be reviewed for possible inclusion in their progress report to Congress on the Section 210 investigations.

Governed by these situations, the objective of this study was set forth in general as "a descriptive study of the Stemmons Freeway area." To accomplish this, the study would develop information as follows:

(1) A brief history of the general area covers:

(a) the flooding of the Trinity River in this part of Dallas, (b) the levee system built to retain the flood waters, (c) the

problems of the levee districts and their effect on the development of the area;

(2) The trend in land values in the area near the Freeway;

(3) Changes in land use in the study area; and

(4) Several indices of economic development of the study area.

These several factors, each contributing to the present economic development of the area served by the Stemmons Freeway, were studied and analyzed and are presented in this report.

The Stemmons Freeway

Planning for a limited-access highway in the general location of Stemmons Freeway (Interstate Highway 35 East) was begun in 1954 by the Texas Highway Department and contracts were ready to be let at the time the Federal Highway and Defense Act became effective in 1956. This was one of the first Texas contracts awarded under the new law.

Construction of the portion of the Freeway included in this study was done in stages; the first contract was let in August, 1956, and the last segment completed in December, 1959. Stemmons Freeway starts at Commerce Street, just west of the Central Business District, roughly parallels the Chicago Rock Island and Pacific Railroad tracks in a northerly direction for about a mile and then turns westward, still paralleling the railroad tracks, for a distance of three plus miles. From this point the facility again turns northward for approximately three miles and intersects Harry Hines Boulevard, the present route of U. S. Highway 77, the route which IH 35 E replaces in the Interstate system. (The freeway extends south of Commerce Street for a distance of about three miles and is known in Dallas as the R. L. Thornton Expressway; this segment of IH 35 E was not included in this study. The IH 35 E route extends from Hillsboro, some 60 miles south of Dallas, to Denton about 40 miles north. At these two points it connects with IH 35 W, which branches through Fort Worth.)

The over-all distance of the Stemmons Freeway (from Commerce Street to Harry Hines Boulevard) is 7.3 miles. The section from Commerce Street to the intersection of State Highway 183 has five lanes in each direction and a frontage road of three lanes on each side, a total of sixteen traffic lanes. The section from Highway 183 to Harry Hines Boulevard has four lanes in each direction plus frontage roads.

State Highway 183 (the portion in Dallas is known as Empire Freeway) is one of the three routes between Dallas and Fort Worth. It is presently under construction and is being built to Freeway standards. It passes through a part of the study area and joins and becomes a part of Stemmons Freeway about 4 miles north of Commerce Street. The development of one industrial district in 1960 was closer to Empire than to Stemmons Freeway. Due to time limitations, it was not practical to attempt to isolate the effects of one facility from the other; therefore, for the purposes of this preliminary study, Empire Freeway is considered as a part of Stemmons Freeway.

The aerial photograph of the Study Area, Figure 1, shows the routes of both the Stemmons and Empire Freeways.

The three principal landowning families (or their corporations) in the area, namely, Stemmons, Windsor, and Bruton, donated the right of way through their holdings for both Stemmons and Empire Freeways.

Description of the Study Area

Figure 2, an outline map of Dallas, shows the location of the study area and its proximity to the downtown business section of Dallas. The area starts at Commerce Street which is the west boundary of Dallas' Central Business District, and lies generally in a northwestward direction from that point. The East Levee of the C & C Levee Improvement District constitutes the south, the west, and the north boundaries; the east boundary follows the Elm Fork of the Trinity River from the East Levee on the north to the Chicago, Rock Island, and Pacific Railroad track to the south and along the railroad track eastward to Commerce Street.

Prior to the completion of the levee system, this was essentially river bottom land, subject to frequent flooding. A part of it was used for agricultural purposes, and part was idle or waste land. With the building of the levees, the land became suitable for other purposes. Due to the depression of the 1930's, further complicated by financial difficulties of the two levee districts, no development occurred until 1946. The entire area, with the exception of two small residential sections platted before 1945 and excluded from the study, was originally planned as industrial districts. Later when it was annexed into the City of Dallas, it was zoned for light manufacturing and commercial uses.

Development of the study area started in 1946 and moved slowly during the first years, but since about 1951 development progressed at an accelerated rate. In early 1960 there were two large and two small industrial districts, each growing almost as fast as additional land could be platted and made

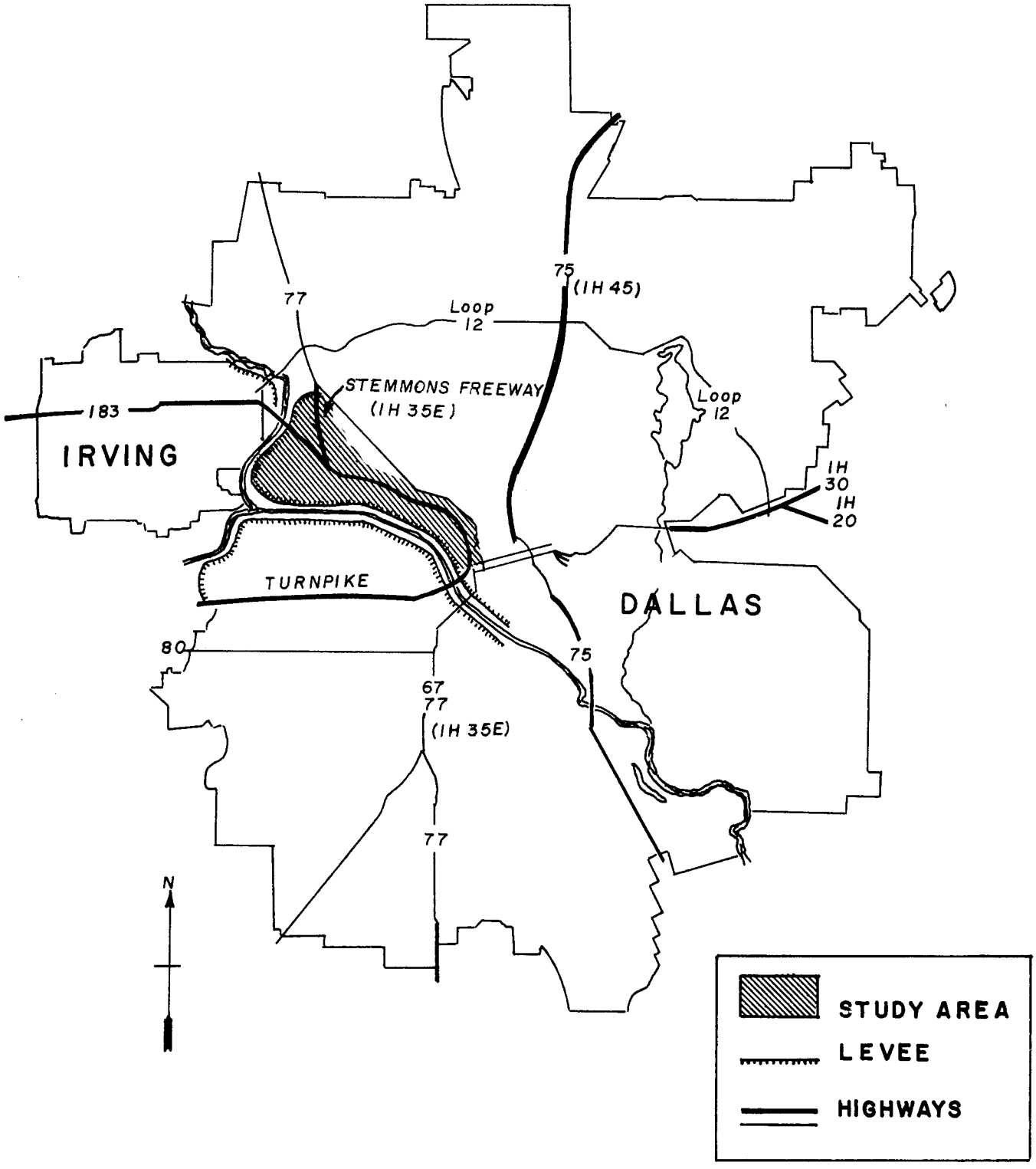


Figure 2

Outline Map of Dallas
Showing Stemmons Freeway Study Area

ready for industry. Figure 1, an aerial photograph taken in early 1960, shows the development of the study area at that time. Over-all, only a fraction of the total acreage within this area was being used; the remainder was being held by the developers for expansion of their respective districts.

Unique Aspects of the Study Area

The initial or preliminary investigation of Stemmons Freeway and the surrounding area suggested that the study area was unusual in several ways, and these unique factors had affected and would affect in the future the development of the area and the economic impact of the Stemmons Freeway.

At the time Stemmons Freeway was conceived, three families (namely, Stemmons, Windsor, and Bruton) owned, or their corporations controlled, nearly all the land that comprised the study area. Each of these owners was developing the land or holding it for development as industrial districts.

The study area borders the downtown business section of Dallas and nearly all of it is in the five-mile radius of the center of the city. It is the nearest undeveloped land to the downtown area.

The development of the area under study was started in 1946, some 10 years before Stemmons Freeway construction began, and has continued since in an organized manner. Inasmuch as the amount of land within a few miles of downtown Dallas is limited, there is a greater-than-average demand for industrial or commercial sites in this part of Dallas. The developers have planned and constructed organized industrial districts, and have provided those features which are attractive to industry. They also have used an active program of promotion for their districts.

The area is served by two Freeways: Stemmons Freeway and Empire Freeway (State Highway 183). Empire Freeway is closer than Stemmons Freeway to the part of Brook Hollow Industrial District that is presently developed. Empire Freeway, however, is considered a part of the Stemmons Freeway, and no attempt has been made to isolate the effects of one facility from the other.

Certainly, these unique features have a definite effect upon the development of the area and as such must be given a certain amount of consideration in drawing conclusions from the data obtained in this study.

Research Technique and Procedures

The research procedures followed in this study varied with the specific

objective pursued. Basically, personal interviews were used to obtain the details of the past history of the area. Books, pamphlets, engineering reports, and other published data were secured to provide documented information concerning the area.

The study area has been described and pictured in a previous section of the report. It was believed that due to the present development and existing streets and state highways through the area, it would be impractical at this time to attempt to isolate the effects of Stemmons Freeway on certain parts of the study area. Also, it was necessary to limit the number of sales studied because of the short time allotted the study. Thus, the phase of the study dealing with changes in land value was restricted to that part of the area close to Stemmons Freeway, eliminating sections served by important streets that were more distant from the Freeway. Figure 3 shows that part of the area for which land value changes were studied.

Changes in land values were determined through an analysis of real estate sales. The Plat and Map Section of the Dallas County Records Office keeps excellent records and maps of all real estate transactions in the county. The needed sales data were obtained by inspecting this department's records. Specific sales data were recorded on prepared forms for sales taking place during the years 1946 through 1959.

Virtually all real estate deeds expressed the monetary values in the transaction as "ten dollars and other valuable consideration." Thus, Federal Internal Revenue Stamps affixed to the instrument (and when applicable, the amount of the assumed debt) were used as the basis for determining the price of the particular property. Inasmuch as 55 cents in stamps are required for each $500 or fraction thereof of value changing hands, this price-determining method yields prices in round numbers of $500. This limitation is recognized, but no attempts were made to adjust for it.

Numerous deed records were studied that indicated no specific price, nor were any Revenue Stamps shown. These, of course, were not included in the study. Transactions between members of a family, between an individual and a corporation controlled by him, and other sales obviously not bona fide market transactions were eliminated.

A total of 816 sales were analyzed. Of this total 498 were sales of unimproved property and 318 were sales of improved property (land with buildings). The sales data were coded and punched on cards, and tabulations were done with computers. Simple averages and their standard deviations were computed.

During the past few years there has been a trend toward leasing

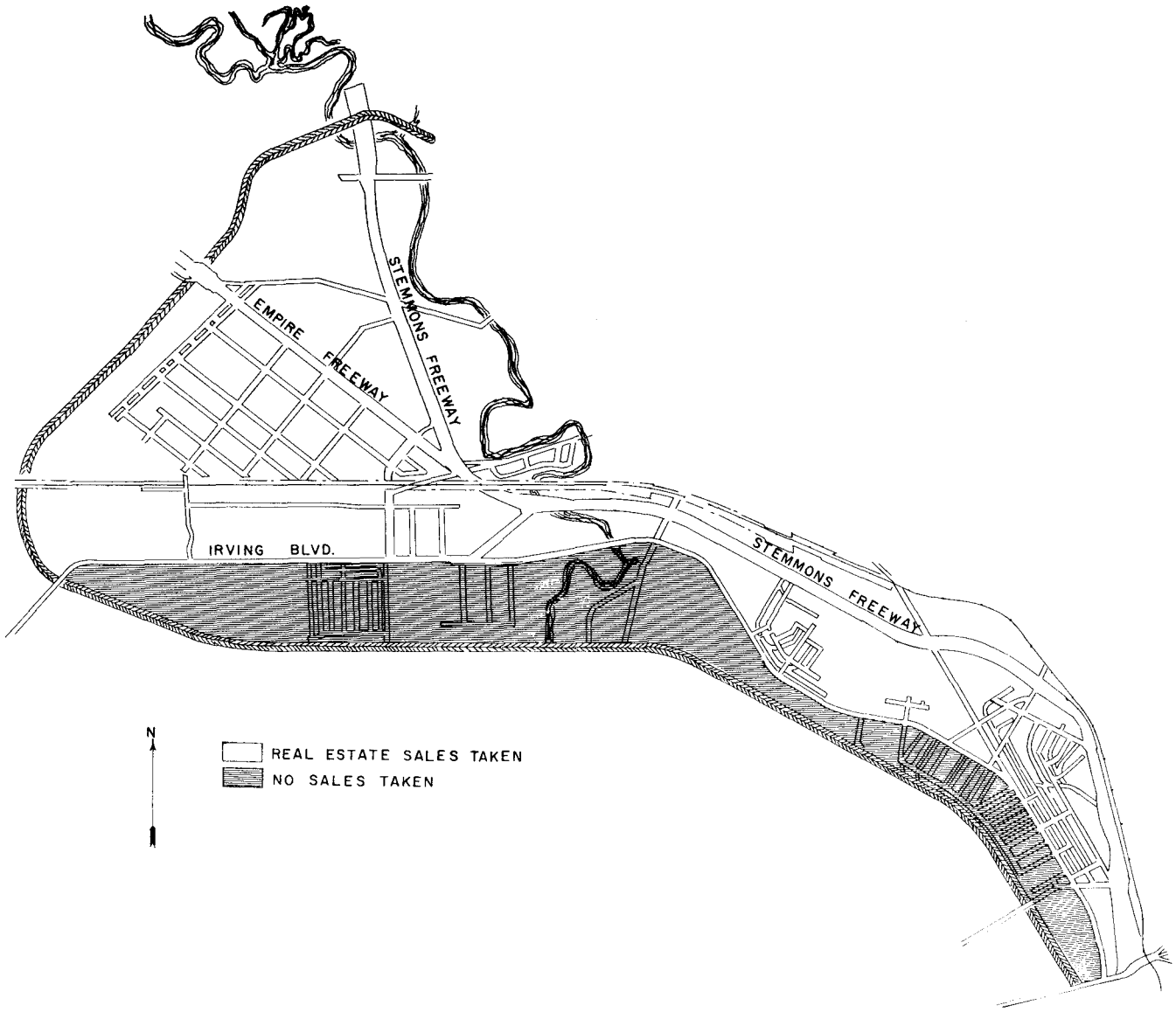


Figure 3

Area from which Real Estate Sales
were taken

property in the area rather than selling it. The largest developer in this section has adopted this policy for virtually all his property abutting Stemmons Freeway.

In addition, several firms active in this area buy unimproved land from the developer, construct a building and then lease the property to individual industries. It is not the usual practice to file the leases for record; only a few of the long-term ones have been recorded. No attempt was made to contact lessors to learn the market value of property leased to others. Thus, lease values have not been included in this study.

The early months of 1956 appear to be the date Stemmons Freeway was planned for the specific location in the study area. Thus, for the purposes of this study, the years 1946 through 1955 are considered as the "before Stemmons period" and the years 1956 through 1959 as the "construction period". Price comparisons of land are made between these two periods.

To learn the changes in land use during the past few years, several aerial photographs of the area were obtained, studied, and conclusions drawn. This was done by the visual inspection technique of the aerials, and an attempt was made to arrive at reasonably accurate estimates of percentage changes.

The economic development of the area was touched upon in only a limited manner. A list of the business firms located in the area was obtained. The two largest developers maintain an up-to-date directory of firms in their districts, which were made available for this analysis. To obtain the names of firms in other districts, a canvass of the area was made, securing the name of each company. The Dallas District Office of the Texas Employment Commission and other sources supplied employment statistics for these firms. These data permitted estimates to be made of the number of firms and the number of employees within various Standard Industrial Classifications groups.

PART II

BACKGROUND

The current economic development of the study area and the influence of the Stemmons Freeway upon the area have been affected largely by a series of past events, beginning perhaps shortly after the turn of the century.

The more important of these were: (1) the frequent flooding of the Trinity River, (2) the efforts of a group of men which ultimately caused the two levee districts to be created and the levee system to be built, (3) the bulk of the land being owned or controlled by a few families, (4) the economic depression of the 1930's, and (5) the bankruptcy and reorganization of the levee districts.

In addition to these, two other factors had considerable influence: the close proximity of the area to the downtown business district, and the determination of the landowners to develop, or hold for development, the entire area for industrial use. A brief summary of the cumulative effects of these factors are presented here; detailed background information is presented in Section 2 of the Appendix.

Flooding of the Trinity River

The watershed of the Trinity River north and northwest of Dallas covers an area of approximately 6000 square miles. The history of the river until 1930 reveals a series of periodic floods, the greatest of which were in 1908, 1913, and 1922.

The effects of the 1908 disaster started a group of Dallas citizens thinking and planning for the control of the Trinity in their city. This was ultimately accomplished in three steps requiring many years of effort.

First, the Dallas County Levee Improvement District #5 was created and a levee constructed which protected a part of the area. Next, the City and County of Dallas Levee Improvement District was formed; a new channel for the river was dug and bordered by a levee system. These effectively controlled the Trinity at the time, but it was the third step, the creation and operation of the Dallas County Flood Control District, that assured effective flood control of the area on a continuing or permanent basis.

The Levee Improvement and Flood Control Districts

There are two levee districts, namely, Dallas County Levee Improvement

District #5 and City and County of Dallas Levee Improvement District, and the Dallas County Flood Control District.

The effect of these districts upon the development of the area may be summarized as follows:

1. The completion of the levee system in 1932 effectively protected the 10,000 reclaimed acres in the district from flood waters. This made the area available for development.

2. Due to failure to complete a part of the reclamation program on schedule, coupled with the depression of the 1930's, landowners could not develop and sell their lands and, as a result, could not pay levee taxes. These factors prevented an early development of the area, and it remained idle and partially in agricultural use from 1932 to 1945.

3. The bankruptcy and reorganization of the C & C district removed the financial difficulties of the levee district, and with the creation of the flood control district, effective operation was assured. This, in effect, presented Dallas with an area of 10,000 acres suitable for industrial development located close to the center of the city at a time when other land suitable for this purpose could be found only at greater distances from the downtown section.

PART III

CHANGES IN REAL ESTATE SALES PRICES

1946-1955 TO 1956-1959

An attempt was made to discover all real estate sales that occurred in the study area during the 14-year period from 1946 through 1959. Out of a large number of real estate transfers, a total of 816 bona fide sales was found. Actually, all sales in the area during the period were not inspected. An undetermined number of deed summary cards, representing sales during the earlier years, had been destroyed. An exhaustive search of deed records would have been required to obtain data on a relatively small number of transfers, only a portion of which were likely to be bona fide sales.

The 816 sales were analyzed in several different ways in an attempt to learn whether or not Stemmons Freeway had had any measureable effect on land values in the area prior to January, 1960. Analyses were made on the basis of: (1) the period before Stemmons Freeway, 1946-1955, versus the construction period, 1956-1959; (2) unimproved versus improved property; (3) year-to-year prices of land; (4) the subdivision in which the property was located; and (5) proximity of properties to the Freeway. Table 1 shows the number of sales analyzed in each category.

For most of the sales which were considered not to be bona fide, the price was not mentioned in the deed nor were revenue stamps affixed to it. In other cases, deed information was not sufficiently complete for interpretation. Also many titles were transferred by owners to corporations in which they were principals.

In addition, a large number of pieces of property were transferred through leasing. Many leases were for long periods, some for 99 years. These were also excluded from the study. Such leasing was an important factor in the economic impact study since the largest developer, the person controlling more land abutting Stemmons Freeway than any other developer, followed this practice. A trend appeared to be developing among subdividers in the area to lease rather than to sell their land, suggesting that future studies of the area should give a great deal of consideration to lease rentals and rates.

Both actual prices and prices adjusted to constant (1947-49) dollars are presented in the analysis of sales. The Consumer Price Index for Houston, Texas, was used to attain constant dollars. (The figures are shown in the Appendix.) Simple averages (not area weighted) are used to present price data throughout the report.

Table 1

NUMBER OF SALES ANALYZED

	Sales of Unimproved Property	Sales of Improved Property
Total Sales Analyzed	498	318
Before Vs. During Construction		
Before Stemmons		
1946-1955	245	144
During Construction		
1956-1959	253	174
Year Property Sold		
1946	10	--
1947	12	--
1948	10	1
1949	9	11
1950	16	9
1951	15	10
1952	21	13
1953	18	15
1954	46	36
1955	88	49
1956	60	41
1957	56	40
1958	66	47
1959	71	46
Subdivision		
Trinity Industrial District	220	220
Brook Hollow Industrial District	214	90
All Other Districts	64	8
Abutting Vs. Distance from Stemmons		
Abutting Property	26*	5
Distance from Freeway:		
1 - 1000 feet	51	21
1001 - 2000 feet	87	42
2001 - 3000 feet	130	107
3001 - 4000 feet	96	76
Over 4000 feet	108	67

* One (1) of these was during the before period.

Price Comparisons of Before Stemmons Period and During Construction Period -- Unimproved Lots

The average unadjusted price paid for unimproved lots during the 10-year before period was $0.48 per square foot of land, while, during the 4-year construction period, the average price paid for unimproved lots was $0.63 per square foot of land. This represents an increase in actual prices between the two periods of 31 percent. The change based on constant dollars, 1947-49 base, was an increase of 21 percent between these two periods.

These data are shown in Table 2.

Table 2

ANALYSIS OF UNIMPROVED LOT SALES IN STEMMONS FREEWAY STUDY AREA

	Unimproved Lots
Before Period (1946-1955)	
Number of sales studied	245
Average number of square feet of land per sale	90,213
Actual price per square foot	$0.48
Constant dollar price per square foot	$0.43
Construction Period (1956-1959)	
Number of sales studied	253
Average number of square feet of land per sale	70,213
Actual price per square foot	$0.63
Constant dollar price per square foot	$0.52
Percentage Changes in Per Foot Price Between the Two Periods	
Actual price	+31%
Constant dollar	+21%

Price Comparisons of Before and Construction Periods — Improved Lots

A comparison of square foot prices of all improved lots (land and buildings) for the two periods is almost meaningless without consideration of several factors.

The study area included four individual districts (refer to Figure 4). The Trinity and Brook Hollow districts, however, accounted for all but a few of the sales studied. These two districts differ considerably from each other in a number of characteristics which influence the square foot prices of improved property. They are basically different as to size of lots, building restrictions, and the general types of industries located in the districts. The Trinity Industrial District was platted in relatively small lots, usually having 45 feet of street frontage and a depth of 100 to 250 feet. Except for property abutting Stemmons, there generally are no set-back building restrictions for either the front or sides and, although an industry can buy and build on several adjacent lots, the size of the lots generally lend themselves better to smaller rather than to larger business operations. On the other hand, Brook Hollow Industrial District was platted in larger lots, generally 200 by 400 feet, with rigid set-back building restrictions to attract larger rather than smaller businesses.

This situation did not noticeably affect the price paid per square foot of unimproved land. However, the square foot price for all improved property (land with buildings) would not show an accurate picture of prices. Therefore, these data are shown for Trinity and Brook Hollow Industrial Districts separately.

Another factor which might have had an important effect upon average prices if it had been accounted is the practice of leasing (rather than selling) land. Although such an assertion is not subject to easy proof, it was found that lease rates are higher near the Freeway than in more distant parts of the study area.

Table 3 shows that the average price paid per square foot for properties in Trinity Industrial District was about the same ($4.60) during the before and construction periods. When adjusted to the constant dollar, prices showed a seven percent decline between the two periods.

In the Brook Hollow Industrial District actual prices for improved lots increased from $2.21 to $2.30 per square foot, a four percent increase between the two periods. On the constant dollar basis this change was negligible, a one percent decline.

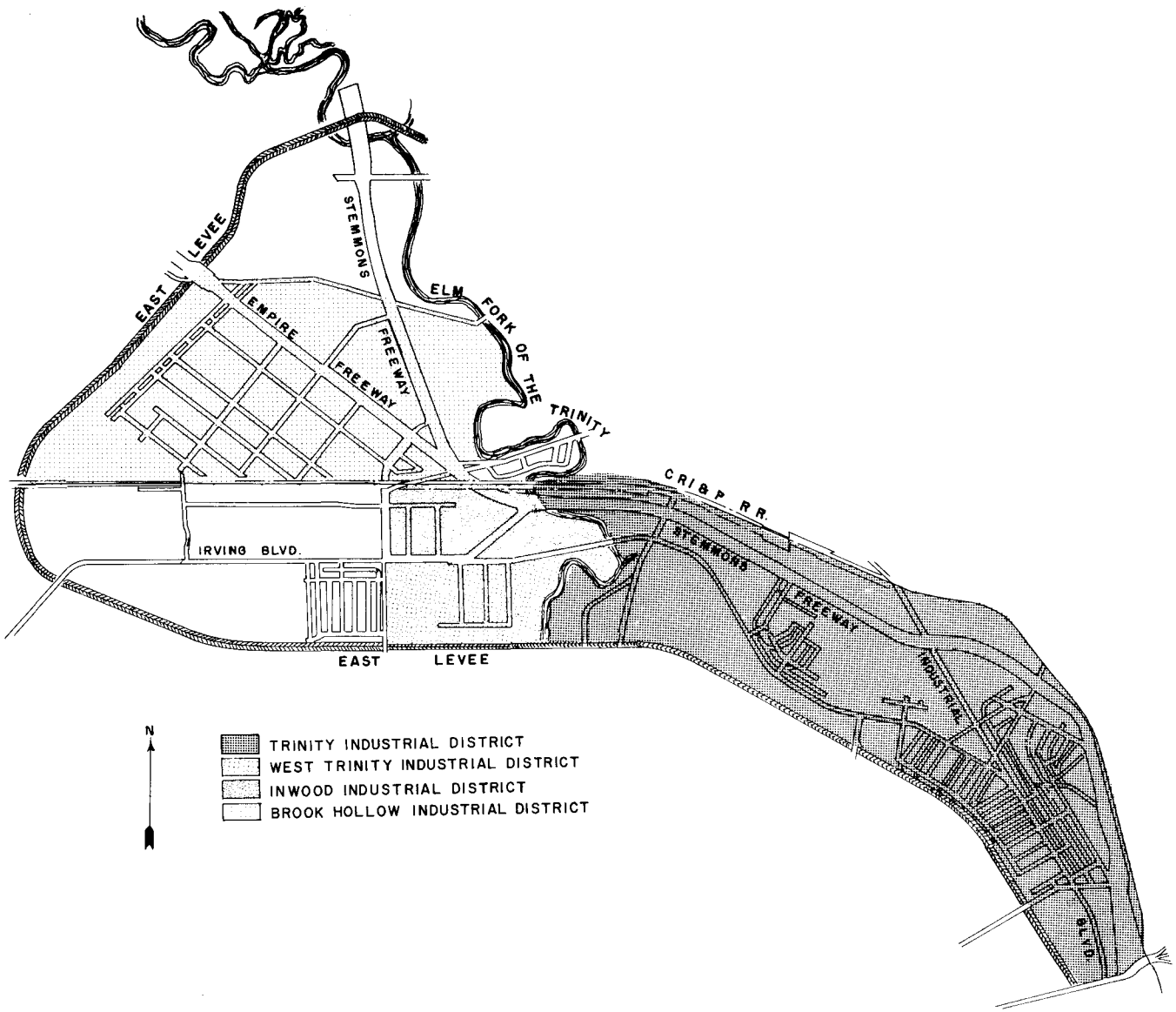


Figure 4

Industrial Districts in Stemmons Freeway Study Area

Table 3

ANALYSIS OF IMPROVED LOT SALES IN
STEMMONS FREEWAY STUDY AREA

By Industrial Districts

	Improved Lots	
	Trinity	Brook Hollow
Before Period (1946-1955)		
Number of sales studied	127	13
Average number of square feet of land per sale	15,797	37,836
Actual price per square foot	$4.61	$2.21
Constant dollar price per square foot	$4.04	$1.90
Construction Period (1956-1959)		
Number of sales studied	88	71
Average number of square feet of land per sale	11,534	41,105
Actual price per square foot	$4.60	$2.30
Constant dollar price per square foot	$3.76	$1.88
Percentage Changes in Per Square Foot Price Between the Two Periods		
Actual price	0%	+4%
Constant dollar	-7%	-1%

Price Comparisons of Before and Construction Periods — Unimproved Lots on Basis of Distance from Freeway

The actual price paid per square foot for unimproved lots in the study area increased 31 percent between the 10-year before period and the 4-year construction period.

An analysis of prices on the basis of distance from the Freeway indicated that property abutting the Freeway increased in price considerably more than did non-abutting property. However, among non-abutting lots, no trend is indicated on the basis of distance from the facility.

Table 4 shows this information in terms of actual dollars paid; Table 5 shows it in terms of constant dollars, 1947-1949 base.

Table 4

ANALYSIS OF ACTUAL PRICES PAID FOR UNIMPROVED LOTS IN THE STEMMONS FREEWAY STUDY AREA

Based on Distance from the Freeway

	Actual Square Foot Prices			
	Before Period*	Construction Period		Percent Change
Distance from Freeway				
Abutting Property	$ .48	$1.02	(25)**	+113%
1 - 1000 feet	.48	.51	(15)	+ 6%
1001 - 2000 feet	.48	.58	(26)	+21%
2001 - 3000 feet	.48	.65	(47)	+35%
3001 - 4000 feet	.48	.55	(70)	+15%
Over 4000 feet	.48	.59	(70)	+23%

* The average per square foot price of unimproved lots during the before period is used for this comparison.

**The figures in parenthesis show the number of sales of that group.

Table 5

ANALYSIS OF UNIMPROVED LOT SALES IN STEMMONS FREEWAY STUDY AREA BASED ON CONSTANT DOLLAR VALUE

Based on Distance from the Freeway

	Constant Dollar Square Foot Price			
	Before Period*	Construction Period		Percentage Change
Distance from Freeway				
Abutting Property	$0.43	$0.83	(25)**	+93%
1 - 1000 feet	.43	.42	(15)	- 2%
1001 - 2000 feet	.43	.48	(26)	+12%
2001 - 3000 feet	.43	.54	(47)	+26%
3001 - 4000 feet	.43	.46	(70)	+ 7%
Over 4000 feet	.43	.48	(70)	+12%

* The average per square foot price of unimproved lots during the before period is used for this comparison.

**The figures in parenthesis show the number of sales of that group.

Relatively little abutting property had been sold at the time of the study. Only 25 sales of such property that occurred during the construction period were found and analyzed. A suggestion as to the effect of Stemmons Freeway may be obtained by comparing the square foot price of the few abutting property sales with all non-abutting sales. Abutting unimproved property sold during the construction period at an average of $1.02 per square foot, compared with $0.66 for all non-abutting unimproved lots.

Another indication of the effect of Stemmons Freeway, although it is not confirmed by public records, is evident in developers' prices for abutting property. In April, 1960, abutting land was being offered at $1.50 per square foot compared to $0.75 or less for non-abutting property. As a

matter of record, moreover, in late 1959 one parcel of abutting property, held for several years under option at $0.48 per square foot, was sold for $3.50 per square foot.

Price Comparisons of Before and Construction Periods — Improved Lots on Basis of Distance From Freeway

Again, because of the basic differences between the Trinity and Brook Hollow Industrial Districts, prices of improved lots are analyzed for the two districts separately.

In the Trinity Industrial District the price paid per square foot of improved lots ($4.60) did not change between the before and construction periods. As no sales of improved abutting property were found, no comparisons could be made between abutting and non-abutting lots.

In Brook Hollow, the price per square foot of improved lots increased four percent between the two periods. As in the Trinity District, an analysis of prices on the basis of distance from the Freeway showed that no price-distance relationship could be demonstrated.

Table 6 shows prices actually paid per square foot of improved properties, and Table 7 gives this information in terms of constant-dollar values.

Table 6

ANALYSIS OF ACTUAL PRICES PAID FOR IMPROVED LOTS IN THE STEMMONS FREEWAY STUDY AREA

By Industrial Districts and Distance from the Freeway

	Actual Square Foot Prices Before Period*	Construction Period	Percent Change
Distance from Freeway			
TRINITY DISTRICT			
Abutting Property	$4.61	no sales	—
1 - 1000 feet	4.61	$4.70 (7)**	+ 2%
1001 - 2000 feet	4.61	3.97 (12)	-14%
2001 - 3000 feet	4.61	4.78 (20)	+ 4%
3001 - 4000 feet	4.61	4.40 (22)	- 5%
Over 4000 feet	4.61	4.78 (29)	+ 4%
BROOK HOLLOW DISTRICT			
Abutting Property	$2.30	2.95 (4)	+28%
1 - 1000 feet	2.30	one sale	—
1001 - 2000 feet	2.30	2.20 (5)	- 4%
2001 - 3000 feet	2.30	2.16 (28)	- 6%
3001 - 4000 feet	2.30	2.48 (26)	+ 8%
Over 4000 feet	2.30	2.31 (13)	0%

* The average per square foot price of unimproved lots during the before period is used for this comparison.

** The figure in parenthesis shows the number of sales of that group.

Table 7

ANALYSIS OF IMPROVED LOT SALES IN STEMMONS FREEWAY STUDY AREA BASED ON CONSTANT DOLLAR VALUE

By Industrial Districts on Distance from the Freeway

	Constant Dollar Square Foot Price			
	Before Period*	Construction Period		Percent Change
Distance from Freeway				
TRINITY DISTRICT				
Abutting Property	$4.04	no sales		—
1 - 1000 feet	4.04	$3.92	(7)**	- 3%
1001 - 2000 feet	4.04	3.26	(12)	-19%
2001 - 3000 feet	4.04	3.89	(20)	- 4%
3001 - 4000 feet	4.04	3.61	(22)	-11%
Over 4000 feet	4.04	3.90	(29)	- 3%
BROOK HOLLOW DISTRICT				
Abutting Property	$1.90	$2.37	(4)	+25%
1 - 1000 feet	1.90	one sale		—
1001 - 2000 feet	1.90	1.82	(5)	- 4%
2001 - 3000 feet	1.90	1.79	(28)	- 6%
3001 - 4000 feet	1.90	2.03	(26)	+ 7%
Over 4000 feet	1.90	1.85	(13)	- 3%

* The average per square foot price of unimproved lots during the before period is used for this comparison.

** The figure in parenthesis shows the number of sales of that group.

Price Comparisons on Yearly Basis -- Unimproved Lots

Prices actually paid per square foot for unimproved lots in the study area increased 31 percent between the two periods. An analysis of these prices on a yearly basis indicates that actual prices fluctuated during the earlier years (1946-1952), declined somewhat for three years (1953-1955), then turned upward during the last four years (1956-1959).

Table 8 expresses per square foot price of unimproved lots in both actual dollars and constant dollars. A three-year moving average was introduced in an attempt to smooth the data curves, since the relatively small number of sales each year were not likely to yield representative averages.

Table 8

ANALYSIS OF UNIMPROVED LOT SALES IN STEMMONS FREEWAY STUDY AREA

Actual Price Paid and Constant Dollar, By Years

	Actual Square Foot Price		Constant-Dollar Price	
	Years Separately	3-Year Average	Years Separately	3-Year Average
Year				
1946 (10)*	$0.50		$0.63	
1947 (12)	.44	$0.49	.46	$0.53
1948 (10)	.54	.49	.52	.49
1949 (9)	.49	.53	.47	.51
1950 (16)	.55	.48	.52	.48
1951 (15)	.40	.53	.35	.48
1952 (21)	.63	.51	.54	.45
1953 (18)	.49	.53	.42	.45
1954 (46)	.48	.47	.41	.39
1955 (88)	.43	.48	.37	.41
1956 (60)	.54	.53	.46	.43
1957 (56)	.62	.60	.51	.49
1958 (66)	.63	.66	.51	.53
1959 (71)	.72		.57	

* The figures in parenthesis show the number of sales in the group.

Price Comparisons on Yearly Basis — Improved Lots

Sales of improved properties have been made in the Trinity Industrial District since 1949 and the Brook Hollow Industrial District since 1954. Actual prices paid per square foot for improved property in Trinity Industrial District were unchanged between the before and construction periods. On a yearly basis, prices fluctuated rather widely and no specific trend was indicated. The range of prices was rather narrow. The 1959 average price was the highest, but the significance of this occurrence is doubtful.

In Brook Hollow Industrial District, actual prices paid per square foot for improved lots increased slightly, four percent between the two periods. An analysis of prices paid by years shows there has been a slight trend toward higher prices during the few years this district has been in existence.

This information is shown in Tables 9 and 10.

Table 9

ANALYSIS OF ACTUAL PRICES PAID FOR IMPROVED LOTS
IN THE STEMMONS FREEWAY STUDY AREA

By Years and Industrial Districts

	Actual Square Foot Price					
	Trinity			Brook Hollow		
	Years Separately		3-Year Average	Years Separately		3-Year Average
Year						
1949	$3.74	(11)*				
1950	4.28	(9)	$4.15			
1951	4.42	(10)	4.47			
1952	4.72	(13)	4.49			
1953	4.34	(15)	4.74			
1954	5.16	(32)	4.64	$2.36	(4)*	
1955	4.41	(39)	4.68	2.14	(9)	$2.22
1956	4.48	(20)	4.23	2.16	(18)	2.23
1957	3.79	(24)	4.24	2.40	(15)	2.32
1958	4.46	(20)	4.55	2.39	(25)	2.42
1959	5.39	(27)		2.47	(19)	

* The numbers in parenthesis are the number of sales in that group.

Table 10

ANALYSIS OF IMPROVED LOT SALES IN STEMMONS FREEWAY STUDY AREA BASED ON CONSTANT DOLLAR VALUE

By Years and Industrial Districts

	Constant Dollar Square Foot Price			
	Trinity		Brook Hollow	
	Years Separately	3-Year Average	Years Separately	3-Year Average
Year				
1949	$3.64 (11)*			
1950	4.05 (9)	$3.84		
1951	3.88 (10)	4.01		
1952	4.08 (13)	3.88		
1953	3.71 (15)	4.16		
1954	4.40 (32)	4.01	$2.02 (4)*	
1955	3.80 (39)	4.01	1.85 (9)	$1.86
1956	3.80 (20)	3.60	1.83 (18)	1.89
1957	3.12 (24)	3.48	1.97 (15)	1.91
1958	3.61 (20)	3.71	1.94 (25)	1.96
1959	4.32 (27)		1.98 (19)	

* The figures in parenthesis show the number of sales in the group.

Leasing of Property

During the past several years there has been a trend toward leasing property in the study area rather than selling it. Leasing practices follow several patterns. Some developers lease unimproved land to companies who construct buildings for occupancy; some developers build to specifications then lease the improved property to a company for occupancy; and frequently, the developers sell unimproved land to individuals or companies who build, then lease the property. Leases vary in length, and some have

›ption-to-buy clauses. Several leases on unimproved property are for 99 ⁄ears and do not include purchase options.

Generally the rate for ground leases is calculated to yield six percent '6%) net on the investment, with the leases having periodic rate adjustment ;lauses so that the desired rate of return on investment will be maintained ;hroughout the long term of the lease.

The leasing practices may have had an effect on the results shown ;n this report. Industrial Properties Corporation has adopted a policy of ⁄easing its property which abuts Stemmons Freeway. Since these leases ⁄enerally are not filed in public records, value information is incomplete.

?rice on Basis of Size of Lot

There was no significant variation in price in relation to the size of ;he lot.

It is the policy of all developers in the area to quote prices of land ›n a per-square-foot basis. The sales price is the same per square foot ⁄hether a single lot or several lots are sold at one time.

PART IV

CHANGES IN LAND USE

Changes in land use in the study area were determined through an analysis of several aerial photographs. Aerials taken during 1929, 1944, 1951, and 1960 were studied.

The pattern of changes in land use during the 31-year period is limited. Of the many possible and potential land uses, land in the study area during this period has been used for only two purposes, namely, agricultural and commercial or industrial. Other than the two small sections of single family homes of low value, there are no residences in the area. With this absence of homes, there are no schools, churches, parks and playgrounds, or other public facilities. The area is being developed or held for commercial or industrial purposes. When annexed by the City of Dallas, in 1951 and 1956, the entire study area was zoned as M-1, commercial (wholesale), selected types of retailing and light manufacturing. In addition, deed restrictions prohibit businesses considered as nuisance industries and certain types of retail and service operations. Based on zoning and deed restrictions, land use in the near future is not likely to develop along lines other than the present pattern, except that apartment buildings may prove to be the best use for a few sites.

As mentioned previously, prior to the levee system, the study area was basically river bottom land, subjected to frequent flooding by the Trinity River. This situation limited the use of the area to agricultural purposes. The Trinity Farms Securities Corporation owned a sizeable portion of the study area, 90% of the area within the Dallas #5 District, plus substantial holdings in the C & C District. The principal activity of this company was farming. As can be seen in the 1929 photo, the area was basically either farm land or land remaining idle. There has been gravel mining in the area at various times.

Aerial photographs show little change from 1929 to 1944. The Trinity Farms Securities Corporation was still farming this land in 1944 but went out of existence a year or so later (refer to Section II of the Appendix, Bankruptcy and Reorganization of the Levee Districts) and most of their holdings within the Dallas #5 District passed to other companies or individuals. At that time, large-scale farming in the area diminished. However, some farming continued for a few years. In summary, perhaps half of the land was being farmed and half the area was idle land in 1944.

With the bankruptcy and reorganization of the levee districts in late 1945, the 5,000 acres in the study area became available for development.

It will be recalled that virtually the entire study area was owned or controlled by a few families or their corporations. The development pattern of the area was in the hands of these few people, and each decided to develop his land, or to hold it for commercial or industrial purposes. Actual development started in 1946 with the first installment of the Trinity Industrial District. It has followed in an organized manner since, and each landowner has held to his original plans of developing the land for industry.

The 1951 aerial photograph shows land uses at approximately the middle of the 10-year "before Stemmons" period. Percentage-wise, an estimated 5% of the land was being used for business purposes, either retail, wholesale, or light manufacturing, 40% for agricultural, and 55% remained idle.

In 1951 the developed area was basically commercial (wholesale) and light manufacturing. There were a few retail or service business establishments, such as service stations, restaurants, and similar types of operations that cater to employees in the area. There were no shopping centers, grocery stores, drug stores, clothing shops, and other types of retail and service operations characteristic of residential areas. Since the relatively few retail businesses were scattered throughout the area, no attempt was made to estimate the amount of land occupied by the several types of businesses.

The area developed at an accelerated rate from 1951 to 1960. Trinity Industrial District continued to expand. Brook Hollow Industrial District's first installment was platted in 1953. Inwood Industrial District came into existence in 1954, and West Trinity Industrial District started in 1955. These gave added impetus to the development of the area.

Based on the April, 1960, aerial photograph, the initial pattern of development has continued. The only exception is a group of office buildings presently under construction on property abutting Stemmons Freeway in Brook Hollow, a 600-room motor hotel abutting the Freeway in the Trinity District, and a large discount house and a retail store in West Trinity Industrial District. Several motor freight companies had located in the area.

The land use changes between 1951 and 1960 may be summarized as follows: Commercial operations, including retail, wholesale, light manufacturing, and service (motor freight) in 1960 occupied about 35% of the land, compared with 5% in 1951. Agricultural uses, for all practical purposes, were nonexistent in 1960. Due to the lack of farming, idle land increased from 55% in 1951 to 65% in 1960.

There are several indications as to future land use in the area. Zoning and deed restrictions suggest that the basic pattern that exists at

the present time will continue. The area will be predominately commercial and light manufacturing. Wholesaling, including warehousing, will continue as the largest land user; retailing will be minor; transportation, principally motor freight lines, will be important. A section of abutting property has been reserved for office buildings and is presently being developed and should continue to develop. Another large motel to be located on Stemmons Freeway has been announced. Others can be expected in the future. It is unlikely that any of the area will be developed for residential purposes, except perhaps multiple-unit apartments, nor will any of the retail and service establishments of a type associated with residential neighborhoods likely appear in the study area in the forseeable future. The one large undeveloped tract at the extreme north part of the study area is owned by the developer of the Inwood District, and according to the owner, that land is being held for an industrial district.

The aerial photograph in Figure 5 pictures the study area in 1929 and 1944; Figure 6 shows it in 1951 and 1960. Table 11 summarizes the estimated percentage change in land use between 1951 and 1960.

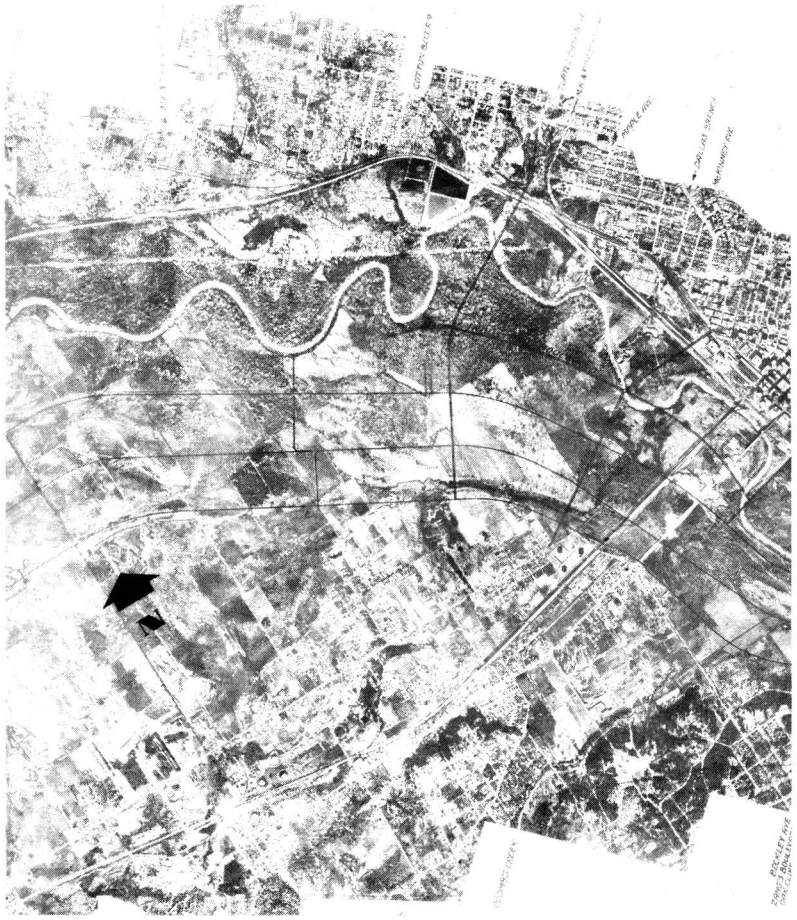
Table 11

ESTIMATED PERCENTAGE OF LAND IN STEMMONS FREEWAY STUDY AREA USED FOR EACH PURPOSE

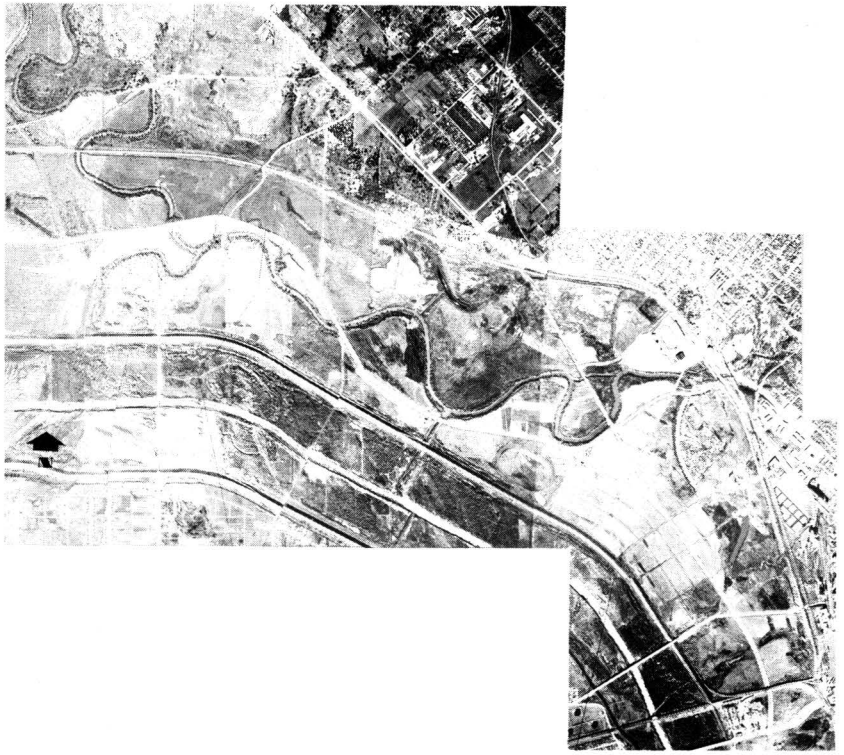
1951 and 1960

	Estimated Percentage Used for Each Purpose		
	1951	1960	% Change
Land Use*			
Commercial/Industrial	5%	35%	+30%
Farming	40%	-	-40%
Idle	55%	65%	+10%
TOTAL:	100%	100%	

* Excluding two small colored residential sections.



1929

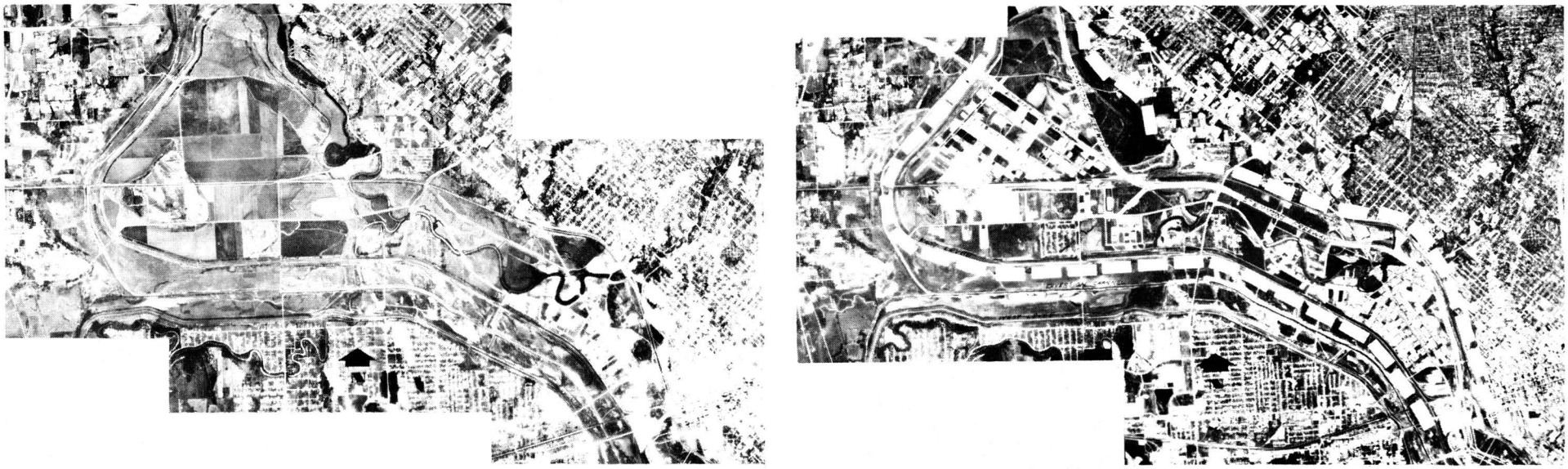


1944

Figure 5

Aerial Photograph of eastern portion of Stemmons Freeway Study Area

1929 and 1944

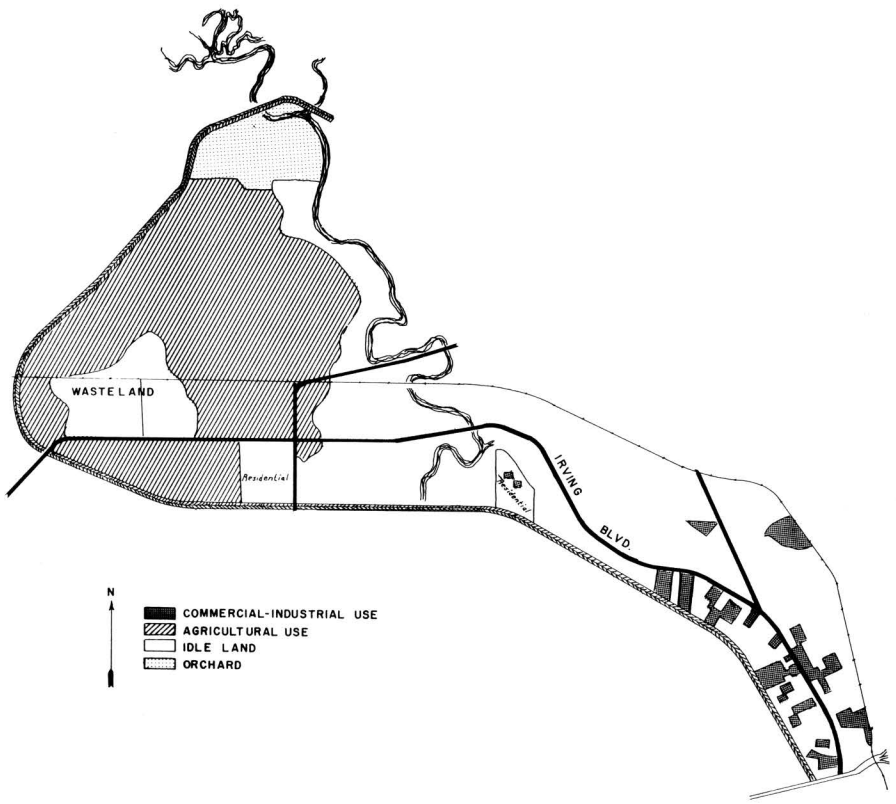


1951

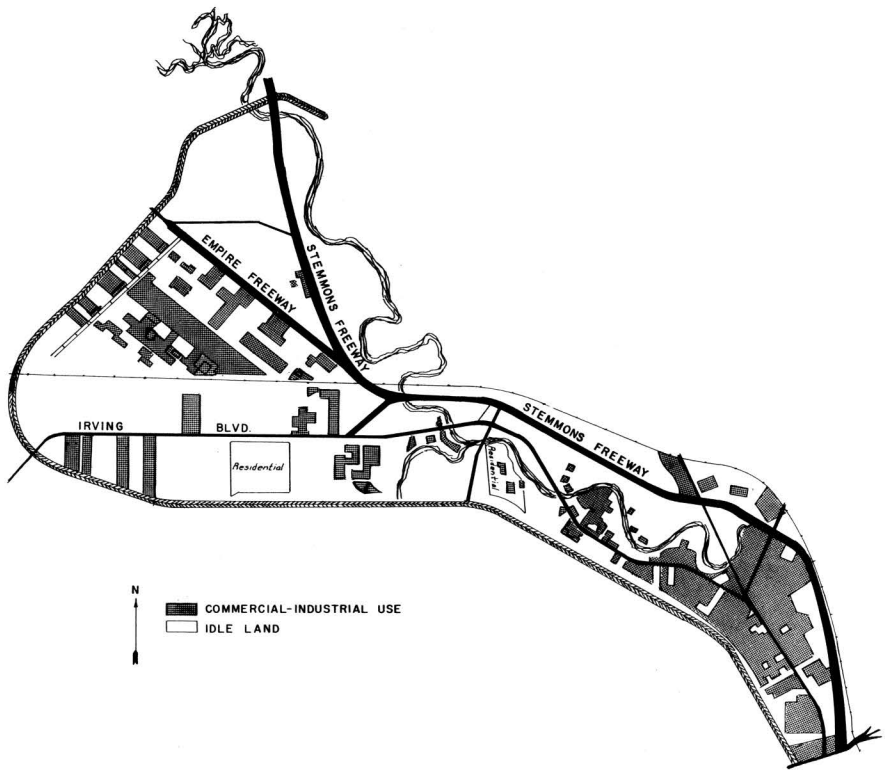
1960

Figure 6

Aerial Photograph of Stemmons Freeway Study Area
1951 and 1960



1951



1960

Figure 7

Land Use of Stemmons Freeway Study Area
1951 and 1960

PART V

ECONOMIC DEVELOPMENT OF THE STUDY AREA

Due to the time factor, further information concerning the economic development of the area was limited to the number of business firms and the number of employees in the area. A short statement regarding public transportation also is included in this section.

Industrial Properties Corporation maintains a directory of firms located in its Trinity Industrial District. Windsor Properties, Inc., developer of Brook Hollow Industrial District, made available a list of firms and the employment totals of each company in their district. A canvass was made of the firms located in West Trinity and Inwood Districts to obtain the names of companies in those sections.

Each business was classified according to the Standard Industrial Classification. With the help of the Texas Employment Commission and its Dallas District Office, the Dallas Chamber of Commerce, and other sources, employment of each firm known to be located in the study area was learned.

In addition to the above, the Dallas Trade Mart is located in the study area. This consists of three buildings, namely, the Trade Mart and the Home-Furnishing Mart, which are completed and in operation, and the Market Hall, to be completed during the summer of 1960. The two Mart buildings house several hundred permanent merchandise displays and sales offices. There are periodic shows attracting thousands of buyers during the show period. It is estimated that approximately 1000 people are permanently employed by the companies maintaining display space in these two buildings. (Refer to the picture following the title page).

The data obtained indicate that there are 915 firms, employing 18,475 people, in the study area, not including the Trade Mart. The Dallas District office of the Texas Employment Commission reviewed the findings and expressed the opinion that the employment figures obtained were perhaps 10% below actual present employment in the area. Therefore, it is believed that as of December 31, 1959, there were close to 1000 business firms located in the Stemmons Freeway Study Area which employed approximately 20,325 people. In addition, the Dallas Trade Mart with its several hundred showrooms had an estimated 1000 people working in or from its two buildings. Thus there was a total of about 21,325 employees in this area.

Table 12 shows the number of firms and employment by S I C groups; Table 13 shows the number of firms in each manufacturing class and Table 14 the number of firms in the wholesale trade classifications.

Table 12

NUMBER OF FIRMS AND NUMBER OF EMPLOYEES IN STEMMONS FREEWAY STUDY AREA BY S I C GROUPS

S I C Classifications	Description	Number of Firms	Number of Employees
01-09	Agriculture	1	*
10-14	Mining	6	406
15-17	Contract Construction	38	1425
19-39	Manufacturing	158	4027
40-49	Transportation	39	2663
50	Wholesale Trade	516	7244
52-59	Retail Trade	86	1271
60-67	Finance, Insurance and Real Estate	12	454
70-89	Services	59	985
	TOTAL:	915	18,475
	TRADE MART		1,000
			19,475

* Not permitted to show data for less than three firms in one group.

Table 13

NUMBER OF MANUFACTURING FIRMS IN
STEMMONS FREEWAY STUDY AREA

S I C Group 19-39

S I C Classifications	Description	Number of Firms
19-39	Manufacturing	158
20	Food & kindred products	18
22	Textile mill products	1
23	Apparel, fabrics materials	7
24	Lumber & wood products	2
25	Furniture & fixtures	10
26	Paper & allied products	7
27	Printing, publishing industries	23
28	Chemicals & allied products	16
30	Rubber & misc. plastic products	2
31	Leather & leather products	1
32	Stone, clay & glass products	3
33	Primary metal industries	1
34	Fabricated metal products	13
35	Machinery	19
36	Electrical machinery equipment	12
37	Transportation equipment	5
38	Professional scientific instruments	4
39	Misc. manufacturing industries	14

Table 14

NUMBER OF WHOLESALE TRADE FIRMS IN
STEMMONS FREEWAY STUDY AREA

S I C Group 50

S I C Classifications	Description	Number of Firms
50	Wholesale trade	516
501	Motor vehicles & auto equipment	32
502	Drugs, chemicals, & allied products	33
503	Dry goods apparel	24
504	Groceries & related products	13
505	Farm products - raw materials	2
506	Electrical goods	58
507	Hardware, plumbing, heating equipment	30
508	Machinery, equipment & supplies	123
509	Miscellaneous wholesalers	201
	Trade Mart	*

* Several hundred permanent display and sales rooms are housed in the two buildings.

Recalling that idle land comprised 65 percent of the study area in early 1960, it may be seen that the area's future growth will have important traffic implications for Stemmons Freeway. Assuming the current degree of land use intensity and the same employment patterns, full use of the study area would involve more than 60,000 employees, many of whom would drive their automobiles to and from work.

Public Transportation in the Area

Public Transportation to and from the study area was limited in early 1960. A small portion of the area is served by bus service. One bus travels over Industrial Boulevard for some 10 blocks, makes a loop, and returns to the downtown area. Another bus operates a shuttle service from Harry Hines Boulevard through the Brook Hollow District during the rush hours 6:50 to 9:30 a.m. and 3:10 to 6:10 p.m.

The estimated 21,325 workers in the study area do not rely on public transportation to get to and from their work. The Dallas Transit Co. reported that about 900 people a day ride the Industrial Boulevard route, while only about 150 per day ride the Brook Hollow bus, a route subsidized by the developer. Thus, more than 20,000 employees use private automobiles to travel to and from work. Car pool operations were not determined.

PART VI

AVERAGE WEEKDAY TRAFFIC ON STEMMONS FREEWAY — JANUARY, 1960

Stemmons Freeway was completed and opened to traffic on December 5, 1959. It is a segment of IH 35 E, which will eventually replace U.S. 77 in Dallas.

The present route of U.S. 77 through Dallas follows Harry Hines Boulevard from the traffic circle at the Loop 12 intersection to the downtown business section, then over Houston Avenue to Zang's Boulevard and southward through the city. IH 35 E is completed for a distance of less than two miles south of Commerce Street and does not connect directly with U.S. 77 from the south.

Stemmons Freeway is connected temporarily with Harry Hines Boulevard at the present north end of the Freeway. However, U.S. 77 traffic is not routed over Stemmons Freeway; the Freeway is presently being used principally by persons living or working near the area and other local traffic.

The Planning Survey Division of the Texas Highway Department conducted a traffic count survey at six locations on the Stemmons Freeway during January 12-18, 1960, about a month after it was opened to traffic.

The average weekday (24-hour) traffic at the check points during this period, starting at the station nearest to downtown and proceeding away from the central business district were:

Station	Average Weekday Traffic
#1	31,973
#2	33,887
#3	27,198
#4	30,982
#5	26,182
#6	13,448

Figure 8 shows the location of the Traffic Count Stations on Stemmons Freeway.

The peak traffic hours are the 7:00 - 9:00 a.m. and the 4:00 - 6:00 p.m. periods.

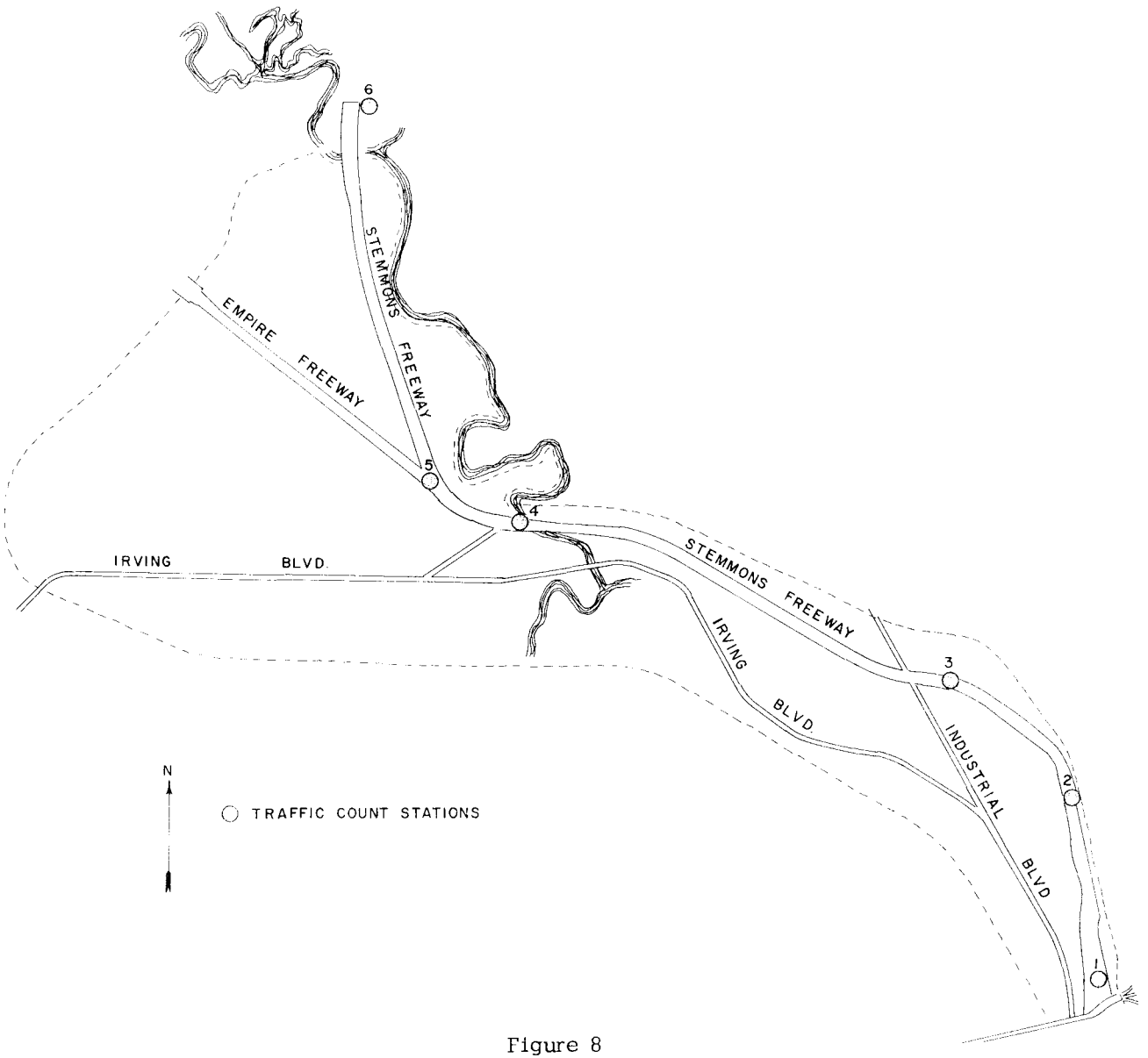


Figure 8

Location of Traffic County
Stations on Stemmons Freeway

APPENDIX

APPENDIX

Section I

CONSUMER PRICE INDEX USED IN STUDY

As a means of measuring price changes in real estate, constant dollar figures were calculated and studied as well as actual dollar prices paid for land.

Actual dollars paid were multiplied by the reciprocal of the consumer price index for Houston, Texas, as published by the U.S. Department of Commerce, Bureau of Labor Statistics, in order to arrive at the constant dollar value.

The consumer price index and its reciprocal used in these calculations, 1947-1949 base, are as follows:

YEAR	INDEX	RECIPROCAL
1946	80.7	1.239
1947	94.8	1.054
1948	102.8	0.972
1949	102.5	0.975
1950	105.6	0.946
1951	114.0	0.877
1952	115.4	0.866
1953	116.8	0.856
1954	116.7	0.856
1955	115.9	0.862
1956	117.8	0.848
1957	121.5	0.823
1958	123.6	0.809
1959	124.6	0.802

APPENDIX

Section II

BACKGROUND

The current economic development of the study area and the influence of the Stemmons Freeway upon the area have been affected largely by a series of past events, beginning perhaps shortly after the turn of the century.

The more important of these were: (1) the frequent flooding of the Trinity River, (2) the efforts of a group of men which ultimately caused the two levee districts to be created and the levee system built, (3) the bulk of the land being owned or controlled by a few families, (4) the economic depression of the 1930's, and (5) the bankruptcy and reorganization of the levee districts.

In addition to these, two other factors had considerable influence, the close proximity of the area to the downtown business districts, and the determination of the landowners to develop or hold for development the entire area for industrial districts.

These several factors and their tempering of the influence of Stemmons Freeway on the area have been reviewed in the main body of the report. Additional background information is presented in this part of the report.

Flooding of the Trinity River

The watershed of the Trinity River extends approximately 70 miles north of Dallas to the beginning of the Elm Fork of the Trinity and 75 miles northwest to the originating point of the West Fork of the Trinity. Above Dallas the drainage area of the Trinity River is about 6000 square miles.[1] Numerous creeks flow into these two forks of the River, which join in the study area. The river then follows a southwesterly course to the Gulf of Mexico. Figure 9 shows the original channels of the Trinity River passing through the study area.

Until 1930, the history of the Trinity River at Dallas was a series of

---

[1]Biennial Report of the State Reclamation Engineer, August 31, 1928, p. 33.

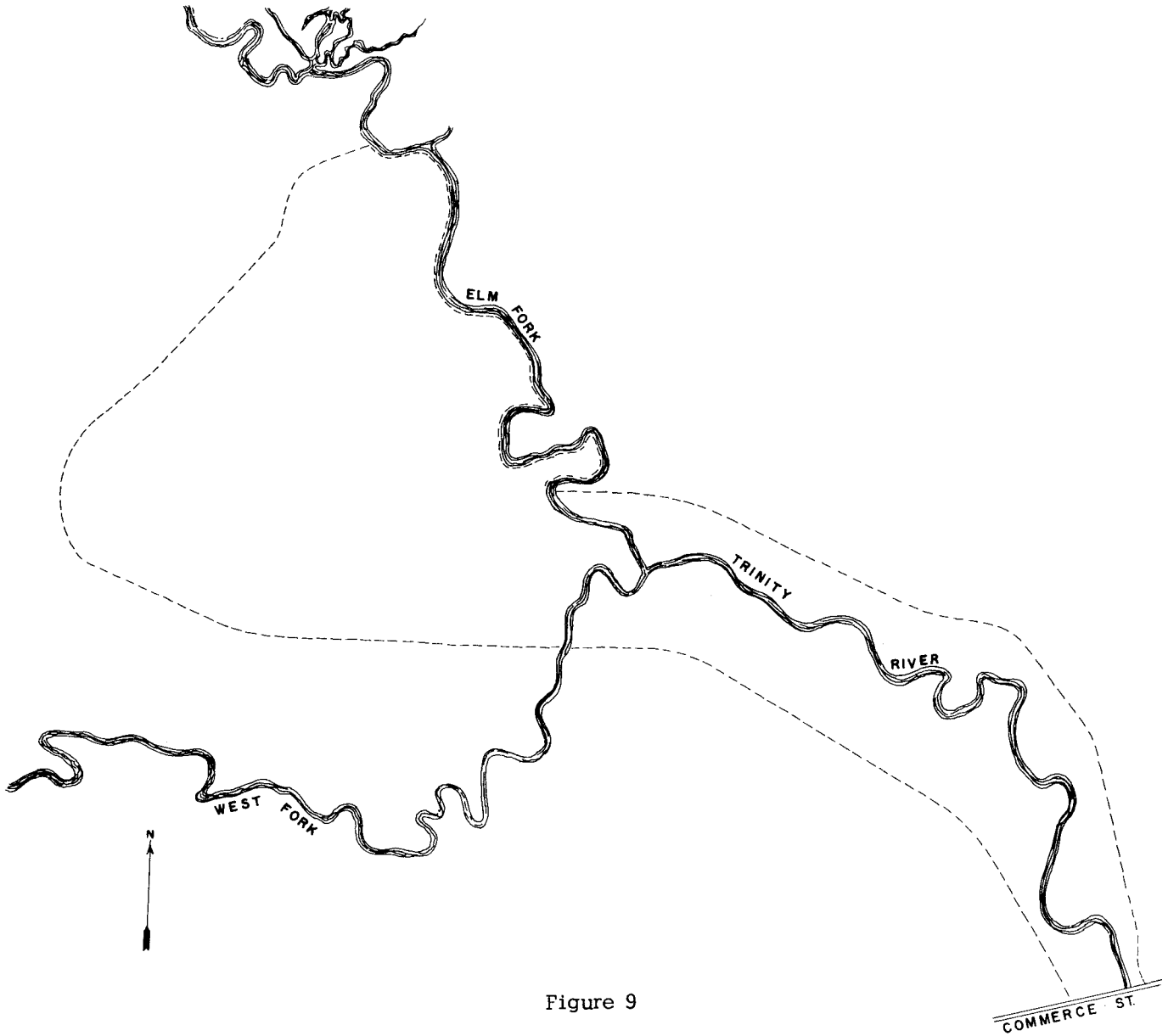


Figure 9

Original Channels of Trinity
River in Stemmons Freeway Study Area

periodic floods, each causing large property damage and loss of life. The largest flood on record occurred in 1908, when the crest exceeded 55 feet, and the flood waters covered a large portion of the business district. Communications were disrupted between Dallas and the Oak Cliff area on the other side of the River. Other severe and damaging floods occurred in 1913 and 1922. In addition to recurrent flooding, the river had been a constant health menace to the entire community.

The 1908 disaster spurred the citizens of Dallas to plan seriously for the control of the Trinity River in their city. Ultimately, the control of the Trinity in Dallas was accomplished in three steps which required many years of effort.

First came the organization of the Dallas County Levee Improvement District #5, which constructed a group of levees that protected a part of the study area. Next, the City and County of Dallas Levee Improvement District was formed and built another series of levees. These effectively controlled the Trinity at the time; but it was the third step, the creation and operation of the Dallas County Flood Control District, which included the area of the two separate levee districts, that assured effective flood control for the area on a permanent basis.

Many years elapsed, however, before the reclaimed land could be developed. These are discussed in the following sections.

The Levee Improvement and Flood Control Districts

There are two levee improvement districts and a flood control district in the study area.

(a) Dallas County Levee Improvement District #5: This district was established by the Commissioners Court of Dallas County in 1918 and lies in the valley space created by the confluence of the Elm and West Forks of the Trinity River at Dallas.[2] The district contained 5,038

---

[2] "Facts Supporting the Coordinated Program Involved in the Dallas Flood Control and Reclamation Project," Compiled by Ray A. Foley, Special Representative for the Board of Supervisors, City and County of Dallas Levee Improvement District, Dallas, Texas, and published in April, 1931. This report was filed with the District Court No. 14 of Dallas County, Texas under date of April 9, 1931.

acres, about 90 percent of which was owned at the time by the Trinity Farm Securities Company, of which Mr. E. P. Harwell of Tulsa, Oklahoma, was the principal stockholder. Dallas #5, as this district is commonly known, was authorized to issue $250,000 of bonds for levee construction.

The levee system, completed in 1920, consisted of 8.69 miles of earth levees twenty feet high.[3] A few years later Dallas #5 entered into a joint plan of reclamation with the City and County Levee Improvement District. Some of these levees were removed, some were abandoned and others were enlarged to become a part of the new levee system.

Figure 10 shows the original levee system of Dallas #5 District. Levees were built on a continuous line along the west side of the Elm Fork and the north side of the West Fork of the Trinity River, protecting the land within the area from flood water.

(b) City and County of Dallas Levee Improvement District: The City of Dallas and Dallas County Levee Improvement District No. 10 was organized in 1920, forerunner of the present district. It was dissolved in 1926 by the Dallas County Commissioner's Court, at which time the City and County of Dallas Levee Improvement District was organized. There were about 1300 separate ownerships in the C & C District, as it is commonly known. However, in that part of the district within the study area the Trinity Farm Securities Company and Mr. Leslie A. Stemmons were the principal landowners.

The plans for this levee improvement district provided for the reclamation of 7217 acres of land in the City and County of Dallas Levee Improvement District and 3336 acres in the Dallas County Improvement District #5, a total of 10,553 acres. Dallas #5 was included as an integral part of the C & C District. The geographical boundaries of the District coincide in the most part to the flood line and elevation of the 1908 flood.[4]

As this district surrounds Dallas County District #5 on three sides, the two districts are treated as one. The general plan was to turn the flood water of Elm Fork in a southerly or southwesterly direction from the

---

[3] Biennial Report of the State Reclamation Engineer, August 31, 1928, Bulletin No. 16.

[4] Ibid.

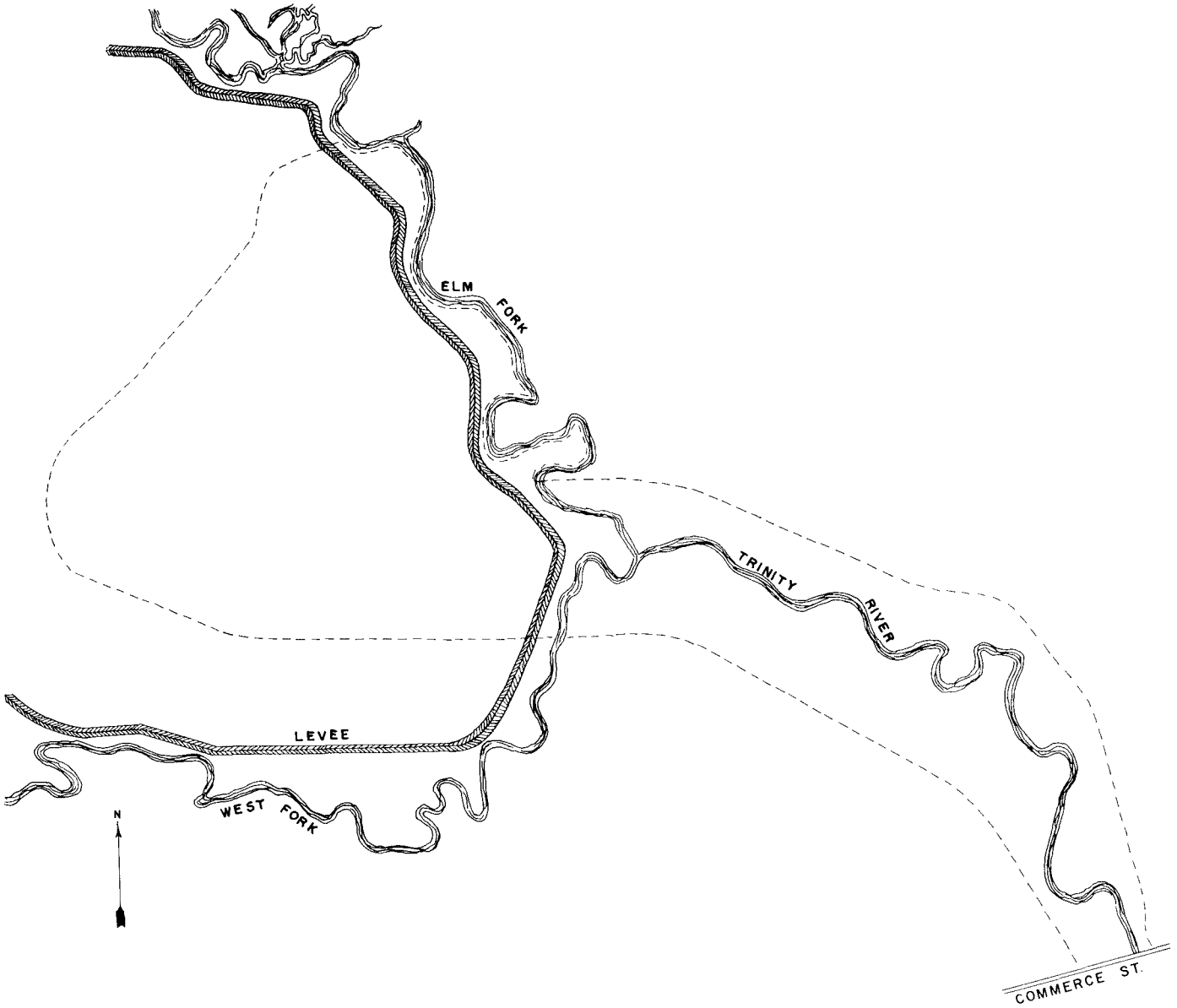


Figure 10

Original Levee System of Dallas #5 District

north part of District #5, near Bachman's dam, down the west side of the district, and that of West Fork in a general northerly direction from just outside the C & C District at its southwest corner. The levees would unite the waters at the southwest corner of District #5, about six miles west of the business portion of the City of Dallas, and carry them eastward and southeastward past the city in a new floodway for Trinity River, just south of its present channel, to the Santa Fe Railway crossing.

In the northwest part of District #5, 1500 to 2000 feet west of the levee described, there is a parallel levee (called the Northwest Levee) 1.37 miles long. The length of what is termed the East Levee is 12.10 miles, and the length of what is termed the West Levee is 10.83 miles, a total of 24.30 miles of levees. The height of the levees varies from 21 to 32 feet. There are also 14.52 miles of diversion channel twenty feet deep between the levees.

Figure 11 shows the levee system of the combined districts. Construction was begun in July, 1928, and completed in early 1932. The diversion channels and the levee system were designed to discharge flood water at the rate of 500,000 cubic feet per second, which is two and one-half times the size of the record 1908 flood.

A total of $6,500,000 in bonds was issued for the construction of these levees and the diversion channel; $6,000,000 by the C & C District and $500,000 by Dallas #5. In addition, the property owners made substantial improvements in their land; the county of Dallas agreed to certain improvements, such as roads; the City of Dallas committed itself for certain improvements as sewers, pump stations, and the like; and railroads and utilities made necessary changes and improvements in their lines. Altogether over $20,000,000 was spent in the reclamation program in this district.

The effectiveness of the levee system may be evaluated by the effects of the 1942 flood. The U.S. Weather Bureau at Dallas reports that the 1942 flood was almost half again greater than the 1908 flood, in terms of rainfall over the Trinity's watershed above Dallas. The rainfall that put the Trinity River on its 1908 rampage was 8.78 inches average in the watershed, while the 1942 average was 12.64 inches. The 1908 flood crest reached 55 feet, whereas the crest of the 1942 flood was only 46 feet. The Weather Bureau's explanation is that the lack of levees and the tortuous river channel caused a slower passage of the earlier flood as water piled up around trees and other obstacles in the bottom lands. In 1942, the stream had a narrow and almost straight channel to carry the water swiftly downstream. It is estimated that, in the absence of levees, the damage of the 1942 flood to the City of Dallas would have been con-

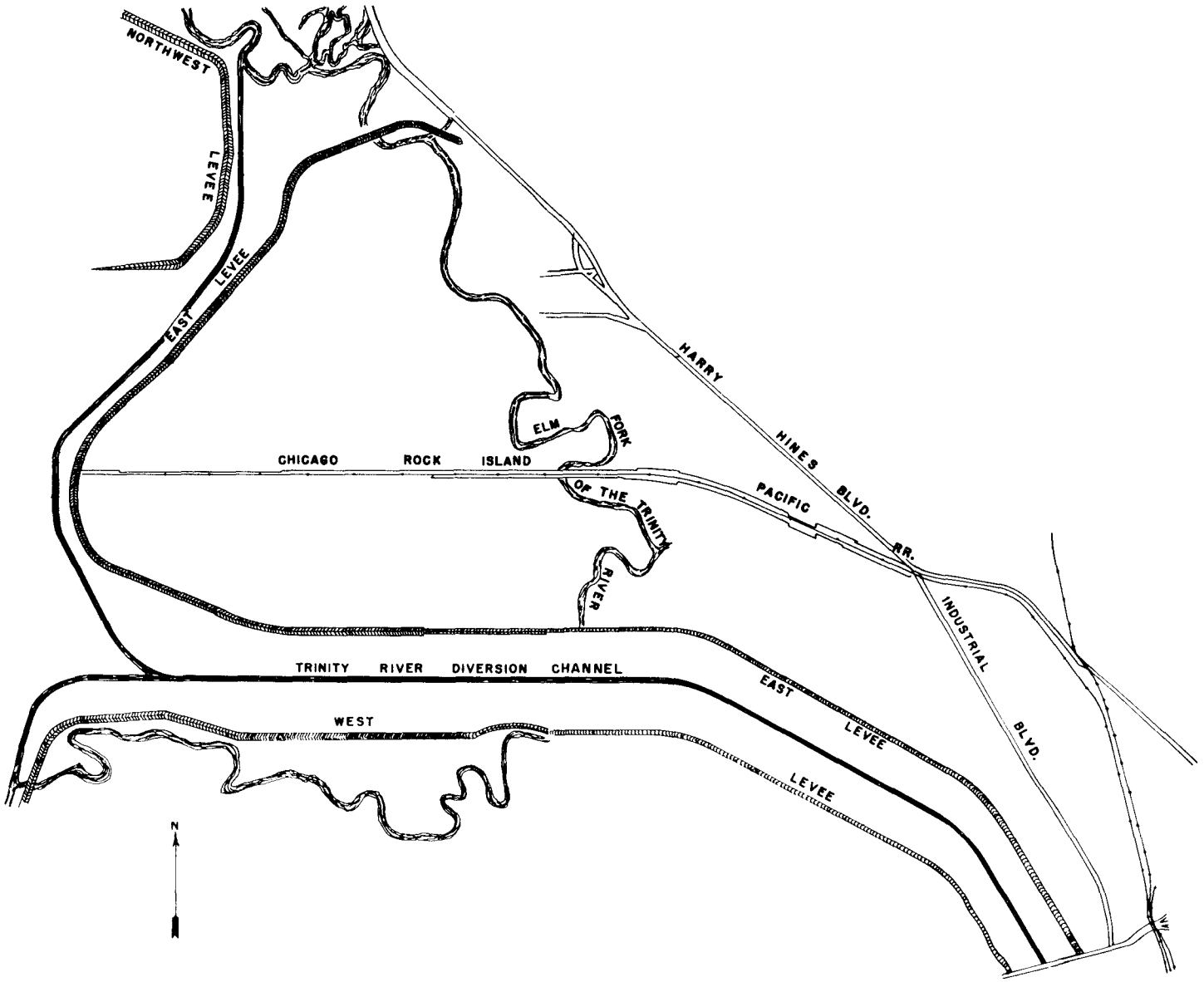


Figure 11

Diversion Channel and Levee System
of Combined Districts

siderably higher than the $6,500,000 cost of the levee system.

(c) Dallas County Flood Control District: As a part of the C & C District's reorganization plan, as requested by interested parties, the Texas Legislature created the Dallas County Flood Control District in 1945. The area coincides with the boundaries of Dallas District #5 and the C & C District. The Act authorized the remission of certain state taxes collected in the District for maintaining and operating the flood control system. The Flood Control District thereupon entered into contracts with the two levee districts, assuming their maintenance and operational responsibilities. The two levee districts pay the Flood Control District $15,000 annually for operation and maintenance. Thus the Flood Control District has funds for this purpose.

Bankruptcy and Reorganization of the Levee Districts

Construction of the levee system was completed in 1932. However, the depression caused a delay in completing the program as scheduled. Storm sewers and pumping stations were not built as planned and at times much of the area was inundated, prohibiting the development of the land. By the time this part of the program had been completed the depression caused business firms to contract rather than expand their operations and the reclaimed land could not be sold.

These circumstances led landowners to default on the levee taxes which in turn caused a default by the District of its interest and indebtedness. The default on payments continued until 1945, although during the interim several attempts were made to readjust the indebtedness. In 1945, a threefold plan was inaugurated embodying the following:

1. The refunding of the entire principal indebtedness of $6,000,000 for a period of sixty years at a rate of interest from one to two percent. Where the rate had previously been unlimited, this plan also placed a tax rate limit upon the District. The plan also earmarked all tax revenue, and provided that it should be used for debt retirement, except $15,000 annually which should be used for maintenance and operation of the levee system.

2. The second step was the creation by the State Legislature of the Dallas County Flood Control District which would operate and maintain the control system.

3. Thirdly, the Corps of Engineers was asked to assume certain responsibilities in the project, the flood control works having had virtually no maintenance since construction.

Since the reorganization of the City and County of Dallas Levee Improvement District in 1945, the District has been on a current financial basis and has accumulated a reasonable surplus in its interest and sinking fund accounts.

Dallas #5 also had financial problems during the depression years, and the ultimate disposition of Dallas #5 District's bonded indebtedness is interesting to note. As mentioned earlier, the Trinity Farms Security Company, with Mr. E. P. Harwell as the principal stockholder owned about 90 percent of the land in Dallas #5. Nearly all of the original bond issue and a second issue of $500,000 were owned by a few individuals and companies. In 1944 the several bondholders agreed to cancel the bonds they held in ratio to their landownership, and Trinity Farms Securities Company transferred its lands to other holders, thus relieving Dallas #5 of its entire bonded indebtedness.

Role of the Corps of Engineers in the Levee Districts

Due to the financial difficulties of the District, little maintenance work had been done on the levee system since its construction. Although the 1942 and 1945 floods were contained, some of the levees were in a weakened condition, and it was feared by the District that another large flood might destroy the system.

As a part of the 1945 Reorganization, the Corps of Engineers was asked to study the problem and make certain repairs in the flood control system. The federal Flood Control Act of 1941 permitted the Corps of Engineers, within the limits of its budget, to repair flood control levees destroyed, damaged, or threatened by floods. Under this authority the Corps made certain emergency repairs to the levees during 1945 and 1946.

Again in 1946 the Corps repaired some slides on the levees and did work around one of the pumping stations. After the 1949 flood, other repair work was done. In 1950 and 1957 the floodway was cleared of trees and brush that had grown since the levees were built.

A considerable amount of work was done by the Corps during the 1953-1959 period. Channel improvements were made, levees strengthened, and the drainage structures modified. Pressure sewers, a pump station, and sump areas were constructed. A seal coat was put on top the levees to deter their splitting, and the embankments were resodded. Other detailed maintenance was done during this period.

Effect of the Districts on the Development of the Area

After World War I Dallas was a thriving, growing city which needed to correct the situation that separated Dallas proper and the Oak Cliff section west of the Trinity River. The river was a health menace and the frequent flooding rendered the land unsuitable for use other than agricultural. This river bottom agricultural and waste land, composed of approximately 14,000 acres,[5] bordered the west end of the downtown section and extended to the northwest some seven or eight miles. This section of Dallas remained idle while the city was growing in all directions until much of this area was near the geographical center of Dallas. The land was urgently needed for industrial or commercial purposes, many new plants building in Dallas had to locate 10 to 14 miles from the downtown area due to the lack of more suitable sites.

The effect of the levee system and the levee improvement and flood control district may be summarized as follows:

1. The completion of the levee system in 1932, effectively protected the 10,000 reclaimed acres in the district from flood waters. This made the area available for development.

2. Due to failure to complete a part of the reclamation program on schedule, coupled with the depression of the 30's, landowners could not develop and sell their lands, and as a result could not pay levee taxes. These factors prevented any development of this area, and it remained idle from 1932 to 1945.

3. The bankruptcy and reorganization of the C & C district removed the financial difficulties of the levee district and, with the creation of the flood control district, effective operation of it was assured. This, in effect, presented Dallas with an area of 10,000 acres suitable for industrial development as well as providing a location close to the center of the city at a time when other industrial sites could be found only at greater distances from the central city.

Construction of Roads in the Area

Industrial Boulevard, a two-lane concrete road, built by Dallas County in 1929-30, was the first road in the study area. It begins at Corinth Street,

[5] A total of approximately 14,000 acres was subject to flooding. The levee system consists of about 4,000 acres, leaving about 10,000 acres of reclaimed land.

a few blocks south of Commerce Street, goes in a northwesterly direction for several blocks, turns westward, and continues to the City of Irving.

In 1935 Industrial Boulevard was widened to four-lanes from Commerce to Westmoreland Streets. In 1939 a road connecting Industrial Boulevard and Harry Hines Boulevard was completed, and the part of the road west of the intersection was renamed Irving Boulevard.

Westmoreland Street was built during the early 1930's; Oaklawn Avenue and Turtle Creek Boulevard during 1938 and 1939, and Grauwyler Road was completed in 1944. All roads at this time were provided by the county.

Figure 12 shows the location of the basic road system in the study area at the time industrial development began in 1946.

With the exception of the Stemmons and Empire Freeways and the County roads named above, all other roads or streets in the study area were constructed by those developing the area.

Annexation of the Study Area by the City of Dallas

The area within the levee districts was not a part of the City of Dallas during the struggles of the districts. Annexation into the city did not take place until development of the area had started and was well under way.

A part of the Trinity Industrial District, the area from Commerce Street to Oaklawn Avenue, was annexed by Dallas in December, 1951. The balance of Industrial Properties Corporation holdings, from Oaklawn Avenue to the old channel of Elm Fork, was taken into the city in July, 1956.

The area from the old channel of Elm Fork, bounded by the levee on the south, the CRI & P Railroad track on the north, and by the levees to the west, was annexed by the City of Dallas in early 1956. This area includes the West Trinity Industrial District and the Inwood Industrial District and other holdings of these two developers.

The section of the study area north of the CRI & P Railroad track, Brook Hollow District, and the land to the north of Grauwyler Road owned by David M. Bruton, Jr., were annexed by Dallas in July, 1956.

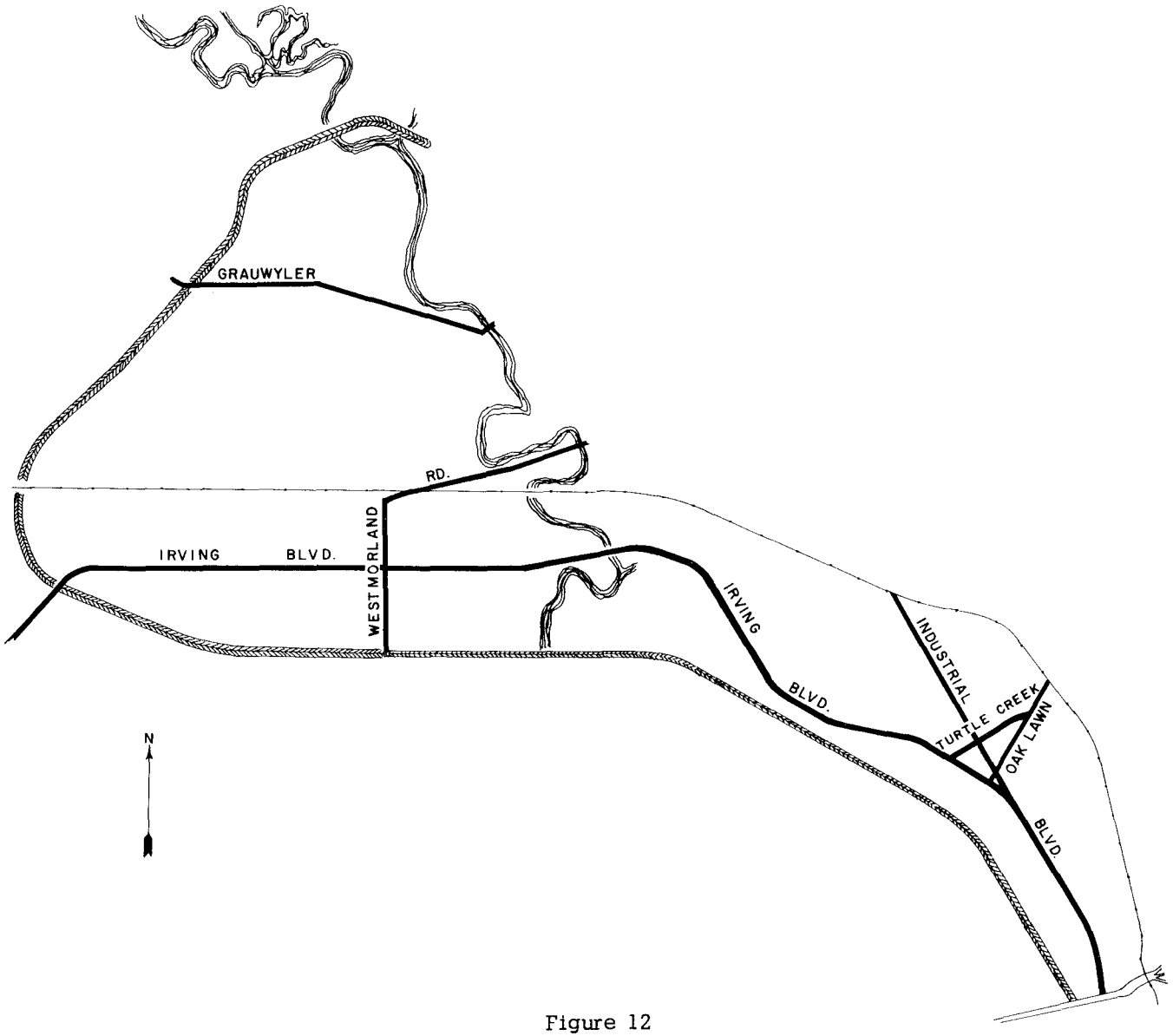


Figure 12

Roads in Stemmons Freeway Study Area
Prior to Development (1945)