

A COMPREHENSIVE PLAN REPORT
City Of Plano, Texas

economics and population *

land use *

thoroughfares *

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Marvin Springer
& Associates

URBAN PLANNING CONSULTANTS

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OF THE HOUSING ACT OF 1954, AS AMENDED.**

August 30, 1963

MARVIN R. SPRINGER
DOYLE SMITH

Honorable Mayor, City Council,
Planning and Zoning Commission,
City Manager and Citizens
Capital Improvement Committee
City of Plano, Texas

Gentlemen:

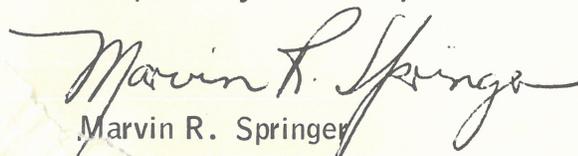
The accompanying report contains our evaluation of the Economic Base of Plano and recommendations concerning Land Use and Thoroughfares. This report is submitted in accordance with our agreement with the City of Plano and the State of Texas Department of Health.

Most of the proposals contained herein have been discussed with the Planning and Zoning Commission and some citizens' groups. While the recommendations of this report are preliminary and subject to revision of details in the final report, the basic concept presented is considered to be realistic in view of the apparent growth potential of Plano. It is obvious that the City will be hard pressed to provide for the expansion which appears to confront it. It is the purpose of the various plans included herein to provide a basis for making sound decisions as problems arise and as improvements and changes in the physical facilities of Plano are needed.

Plano's development must be considered on a stage basis, inasmuch as the future population of Plano is likely to be many times that of the present City and many of the facilities needed in the future cannot now be built of adequate size to serve the future needs. It is important, however, that the land space be carefully allocated to provide adequate area for the future. Space for thoroughfares, utilities, parks and schools are among the important facilities for which land must be allocated as Plano grows. The area for all such facilities should consider the ultimate requirements of the City even though actual construction may have to be scaled to shorter term requirements.

We wish to acknowledge the fine cooperation of Mr. E. C. Drumb, City Manager, and Mrs. Jackye Logan of the Plano Chamber of Commerce in providing information. Various members of the City Council and the Planning and Zoning Commission provided us with helpful comments and Mr. Luther DeBerry, District Highway Engineer, contributed valuable advise and counsel.

Respectfully submitted,


Marvin R. Springer

MRS:jlk

COOPERATING TO BUILD A BETTER PLANO

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HISTORICAL BACKGROUND

The original settlements in the Plano area date back to the 1840s and are related to the colonization efforts of the early days of the Republic of Texas. The Peters Colony, a land settlement company composed of W. S. Peters and eight others, was granted the right to colonize a large tract of North Central Texas in 1841 by the President of the Republic. Land grants were made to settlers and the land company gained an equal area of land for its efforts.

The Plano vicinity with fertile blackland prairie and tree-lined creeks, providing timber and water, attracted a number of families. By the 1850s the community showed signs of development, having achieved mail service and a post office named Plano, a term erroneously thought to be Spanish for "plains". In 1871, the H. and T. C. Railroad was built through Plano and in 1876, Plano became an incorporated village.

From the period of its incorporation until after World War II, a period of 75 years, Plano prospered as a trading center for the surrounding agricultural area. In addition to trade facilities, Plano became a center for agricultural service with cotton gins, a cottonseed oil mill and similar facilities. With the transportation which existed during its early years by road and highway and service by two railroads, Plano was secure as an agricultural center. The distance to Dallas, 18 miles, was sufficient to make Plano a separate trade center. The travel time between Dallas and Plano which was originally great enough to make Plano a self-contained trade center has been reduced by the construction of U. S. Highway 75 Freeway (Central Expressway) to about 20 minutes and thereby substantially changed the future potential of the community.

The distance factor which gave Plano its start as a separate and self-contained community, later became a factor of proximity which has made Plano an integral part of the Dallas Metropolitan Area. Recent development in the area gives promise of Plano becoming one of the fast-growing suburban communities of the entire Dallas-Fort Worth Region.

So long as the Dallas-Collin County Area in the vicinity of Plano remained predominantly agricultural, Plano continued as an agricultural trade center with a modest population. The economic character of Dallas County began to change abruptly from agricultural to an urban industrial base in the 1930s. The World War II industries which located in the Dallas Area triggered a suburban expansion which is still in progress. Grand Prairie and Garland were the first suburban communities in Dallas County to experience the stimulus of the industrial expansion. The result of the suburban trend which began in the 1940s and continued at an accelerated rate in the 1950s has been to make Dallas County the most densely populated County in the State. Plano is located on the south edge of Collin County immediately adjacent to Dallas County. The Bureau of the Census classes Plano as part of the urbanized area of Dallas and Collin County became one of the four Counties making up the Dallas Metropolitan Area in 1960.

Recent location of industry and advanced research facilities in and near Plano give promise of making Plano one of the significant elements of the Dallas Metropolitan Area and of completing the transformation of the original rural trade center to a vigorous industrial and residential complex which will likely become the largest City in Collin County.

As is indicated by following information, the growth which Plano may experience as a result of changes in its economic base and its relation to other communities will generate new growth many times as great as the existing community. The new growth offers an opportunity to create, through reasonable planning effort, a virtual new community. There is opportunity to avoid many of the problems and ills which are apparent in existing communities and to create an outstanding suburban City.

Many challenges and problems will present themselves and the demands for public facilities will constantly exceed the City's ability to furnish them. In the early stages of Plano's transformation, the physical arrangement of land uses, thoroughfares, schools, parks and similar facilities will be of major significance. Once established, the changing of urban facilities is a slow process. Locating facilities according to a well thought out plan and of adequate scale when the community is developing is comparatively easy as compared to reconstruction. This and following reports will concern themselves with creating a guide for the transformation of Plano from a modest agricultural center to a thriving vital part of the Dallas-Fort Worth Region.

economics and population 



PLANO'S RELATION TO THE METROPOLITAN AREA AND ITS ECONOMIC BASE

The change of Plano from an agricultural trade center to a vigorous part of the Dallas Metropolitan Area has been very recent and much of the economic information which is as late as 1960 must be considered to contain a substantial degree of obsolescence. References must be made to changes in other communities in the vicinity to assure that the evaluation of Plano's future development potential is in line with the realistic growth possibilities. The following are elements considered significant in evaluating Plano's future:

A. GEOGRAPHIC RELATION TO THE REGION

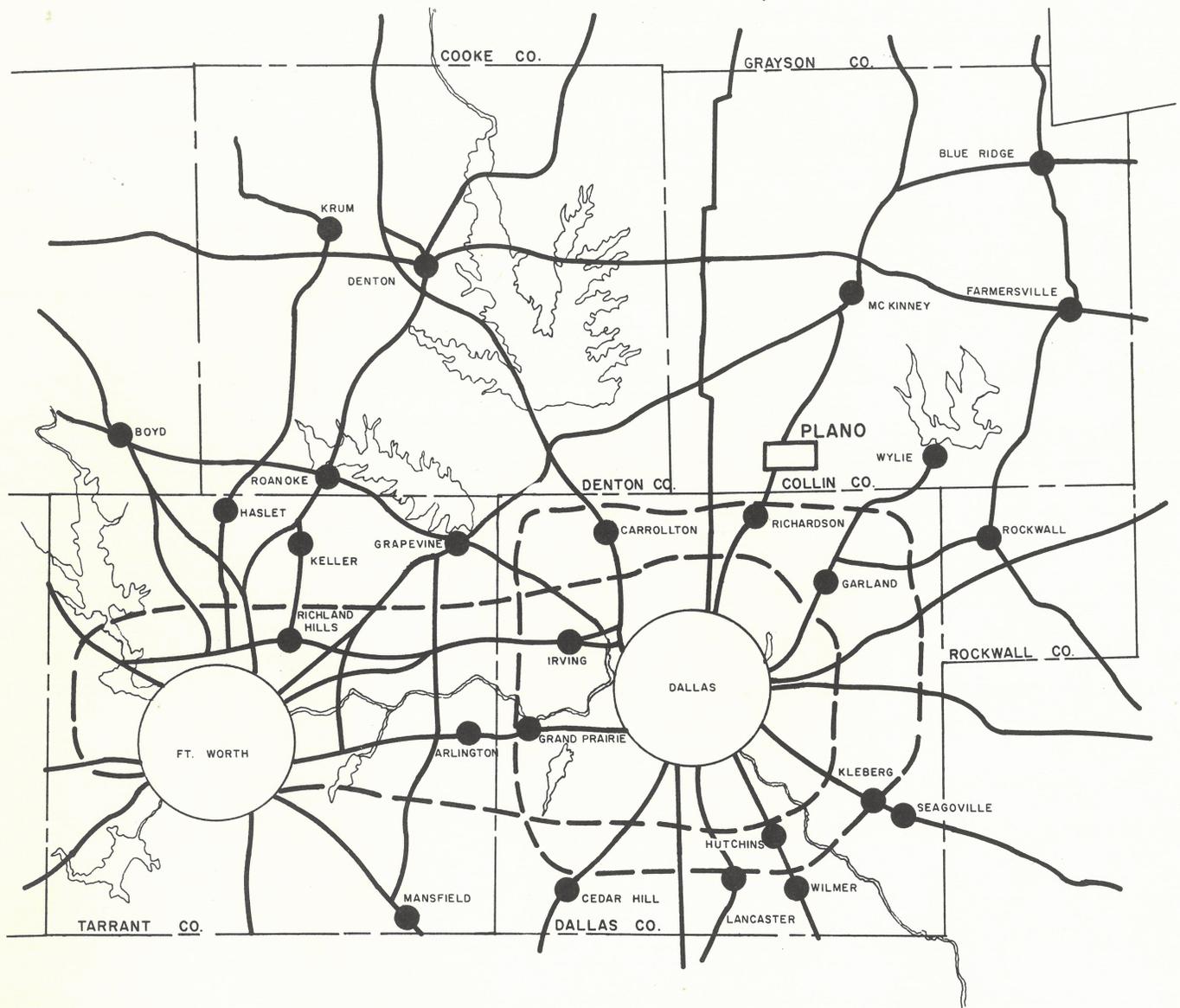
Plano's location in the Dallas-Fort Worth Region is perhaps the most important single factor influencing its economic future. Plate 1 shows the relationship of other Cities in the Region to Plano. The crescent of satellite Cities around the north half of Dallas County, including Irving, Farmers Branch, Richardson, Garland and Mesquite represents some of the most rapidly growing Cities in Texas, according to the 1960 Census. The recent rapid growth of the Cities listed can be attributed largely to improvements in water supply, sanitary sewerage systems and access to Central Dallas.

The direct access to Plano from Central Dallas via U. S. Highway 75 places Plano within convenient commuting distance and makes the travel time between Plano and downtown Dallas shorter than from some less favored locations in Dallas County and the City of Dallas. The same element of convenience has influenced substantial growth in Richardson and it appears that the capacity of the U. S. 75 Freeway (Central Expressway) will be soon overtaxed during peak traffic periods as a result of the growth induced by the convenience of travel to Plano, Richardson and North Dallas. Unless traffic relief to the U. S. 75 corridor to Plano from the south is achieved, the very element of convenience which at firsthand is a major factor in the community's growth may become secondly a deterrent to growth as a result of congestion.

The area which Plano has claimed for municipal expansion touches McKinney on the north, Richardson and Renner on the south and Garland on the southeast. McKinney and Renner are Collin County communities and Richardson and Garland are in Dallas County, though Richardson extends northward for a short distance into Collin County. Access to Plano from nearly every direction is through one or more adjacent communities of the Dallas Metropolitan Area. Cooperative action with other near-by communities will be essential if Plano is to realize its full potential as an important unit in the Dallas Metropolitan Complex of Cities.

B. POPULATION TRENDS

The paradoxical position of Plano as part of the rapidly growing Dallas Metropolitan Area while at the same time situated in a County with a declining population is illustrated by Table 1.



GEOGRAPHIC RELATIONSHIP OF PLANO TO THE DALLAS - FORT WORTH REGION

MARVIN SPRINGER & ASSOCIATES
URBAN PLANNING CONSULTANTS
DALLAS, TEXAS

TABLE 1

POPULATION CHANGE
COLLIN AND DALLAS COUNTIES - 1900-1960

County	1900	1910	Percent Change	1920	Percent Change	1930	Percent Change	1940	Percent Change	1950	Percent Change	1960	Percent Change
Collin	50,087	49,021	- 2.2	49,609	+ 1.2	46,180	- 7.4	47,190	+ 2.2	41,692	-13.2	41,247	- 1.1
Dallas	82,726	135,748	+64.1	210,551	+55.1	325,691	+54.7	398,564	+22.4	614,799	+54.3	951,527	+54.8

Collin County is predominantly an agricultural County and has had a generally declining population for several decades. The population decrease in Collin County is a result of the greatly increased efficiency of agriculture. In contrast, Dallas County has experienced a substantial increase totaling over 1,000 per cent in the past 60 years. Dallas County's population is now almost entirely urban and most of the County area is located in one or the other of the County's 29 incorporated municipalities.

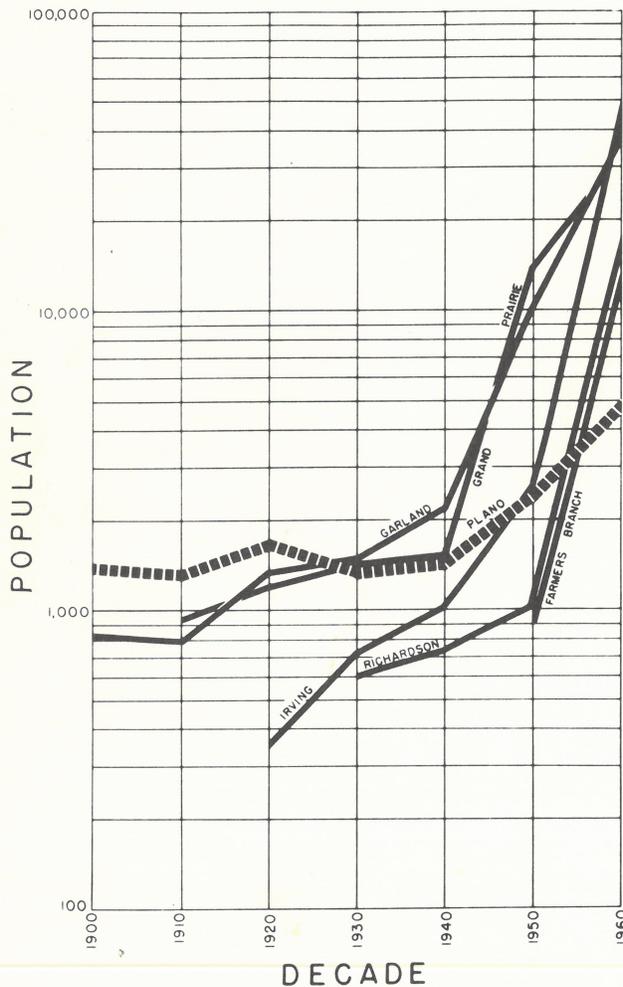


FIGURE 1

Of the 254 Counties in Texas, 151 experienced a decline in total population between 1950 and 1960, and 208 had a decline in rural population. The decline in rural population in Collin County is part of a movement of population from rural to urban areas which has affected 83 per cent of the Counties in the State. As major parts of Collin County change from a rural to an urban economy, it is likely that the declining population trend will reverse and substantial gains will occur.

Until about 1940, the urban population of Dallas County was located largely in the City of Dallas and the suburban towns were small rural trade centers. Garland, for example, had fewer people than Plano in 1930. Between 1940 and 1950 Garland and Grand Prairie were stimulated by industrial expansion induced by the production effort of World War II and strong growth surges resulted in both communities. Plano's growth pattern also turned upward in 1940 though not so steeply as the other two communities.

It appears that it was between 1940 and 1950 that Plano's conversion from an agricultural trade center began, but the transformation was much slower than that experienced in some other communities in Dallas County as indicated by Figure 1.

The lack of utilities and the delay of the completion of the U. S. 75 Freeway to Plano until the 1950s were factors in holding back the rapid expansion of Plano. The greater distance from Dallas and availability of intervening land for development also contributed to the postponing of Plano's growth surge. Table 2 compares the growth trends in Plano with those of McKinney, Garland and Richardson.

TABLE 2
POPULATION CHANGE
CITIES OF GARLAND, MCKINNEY, PLANO AND RICHARDSON
1900-1960

City	1900	1910	Percent Change	1920	Percent Change	1930	Percent Change	1940	Percent Change	1950	Percent Change	1960	Percent Change
Garland	819	804	-1.9	1,421	+76.7	1,584	+11.5	2,233	+41.0	10,571	+373.4	38,501	+ 264.2
McKinney	4,342	4,714	+8.6	6,677	+41.6	7,307	+ 9.4	8,555	+17.1	10,560	+ 23.4	13,763	+ 30.3
PLANO	1,304	1,258	-3.7	1,715	+36.3	1,554	-10.4	1,582	+ 1.8	2,126	+ 34.4	3,695	+ 73.8
Richardson	-	-	-	-	-	629	-	720	+14.0	1,289	+ 79.0	16,810	+1,204.1

Since 1950 Plano has experienced a rate of growth substantially greater than McKinney, though not nearly as large as that experienced by Garland and Richardson. In the two and one-half years since 1960, Plano's population has more than doubled indicating that the community may rank with the fastest-growing Cities in the Metropolitan Area in the 1960-1970 decade.

Most of the urban centers of Collin County have increased in population while the rural areas have been decreasing. Table 3 shows the tendency for growing urban communities to represent increasing percentages of the County population. Both McKinney and Plano have been increasing in the portion of the total County represented by their population. Table 3 shows a comparison of the percentage of the County population represented by Plano and three other near-by Cities.

In 1960, Plano's population was 9.0 percent of the total Collin County population. By mid-1963, it appears that Plano's population exceeded 15 percent of the County total. A continued rise can be anticipated in the percentage of the Collin County population found in the City of Plano.

The significance of Plano being closely related to, and part of, the Dallas Metropolitan Area is emphasized by the fact that in 1960 over 76 percent of Texas' 5,497,451 urban dwellers resided in the 21 Metropolitan Areas of the State. The same 21 Metropolitan Areas represented 63.4 percent of the State's total population. The Dallas

TABLE 3
CITY POPULATION AS A PERCENTAGE OF COUNTY POPULATION

<u>City</u>	<u>County</u>	<u>1900</u>	<u>1910</u>	<u>1920</u>	<u>1930</u>	<u>1940</u>	<u>1950</u>	<u>1960</u>
Garland	Dallas	1.0	0.6	0.7	0.5	0.6	1.7	4.0
McKinney	Collin	8.7	9.6	13.5	15.8	18.1	25.3	33.4
PLANO	Collin	2.6	2.6	3.5	3.4	3.4	5.1	9.0
Richardson	Dallas*	-	-	-	0**	0**	0**	0**

* Collin County part of Richardson is not yet developed.

** Percentage negligible - less than 0.01%

Metropolitan Area is the second largest in the State, representing a 1960 population of 1,083,601. Near-by Fort Worth Metropolitan Area contained 573,215 people in 1960. Collectively, the Dallas-Fort Worth Metropolitan Area represents over one and one-half million people which is the largest urban complex in the Southwest. The preponderance of the State's future population gain is expected to locate in the Metropolitan Areas. By 1970 it is estimated that the State's 21 Metropolitan Areas will contain about 8,300,000 people, or over 70 percent of the total estimated population of the State of Texas as of that date.

The Dallas Metropolitan Area contained 1,083,601 people in 1960. By about 1975 it is expected that the four-County area will exceed two million people and that about one-half, or one million people, will reside in the City of Dallas and that one million people will be divided among the other municipalities in the Metropolitan Area. A number of factors, discussed later, indicate that Plano should obtain a generous share of the anticipated increase outside the Central City of Dallas. After 1975 or 1980, urban growth is expected to shift heavily to the suburban Cities as most of the developable land within the City of Dallas will have been utilized and growth will be forced elsewhere.

C. CHARACTERISTICS OF POPULATION

The average characteristics of Plano's population appear to be changing rapidly as a result of recent growth. While much population data for 1950 and 1960 is unavailable for Plano alone due to its modest size, some indication of the trends of change is shown by the following tables.

As a rural trade center, Plano could be expected to have a large percentage of its population in the older age groups and a low number of persons in the younger age groups. Table 4 which presents the age composition of Plano in 1960 and compares it with State, County and near-by Cities shows generally that Plano has a higher percentage of older people than Richardson, Dallas County or the State of Texas. Plano's population does, however, have a larger percentage of the younger age groups than Collin County or McKinney. Comparison with Richardson will show the

TABLE 4
COMPARATIVE AGE DISTRIBUTIONS.- 1960

Age Group	STATE		COLLIN COUNTY		DALLAS COUNTY		McKINNEY		PLANO		RICHARDSON	
	Total	%*	Total	%*	Total	%*	Total	%*	Total	%*	Total	%*
0-14	3,172,234	33.1	11,814	28.6	308,323	32.4	3,886	28.2	1,138	30.7	6,771	40.2
15-19	746,429	7.8	3,249	7.8	61,624	6.4	1,054	7.6	266	7.1	768	4.5
20-49	3,677,597	38.4	13,891	33.6	401,150	42.1	4,782	34.7	1,410	38.1	7,856	46.7
50-64	1,238,026	12.9	6,858	16.6	119,318	12.5	2,204	16.0	534	14.4	983	5.9
65 and Over	745,391	77.8	5,435	13.4	61,112	6.6	1,837	13.5	347	9.7	432	2.7
Totals	9,579,677	100.0	41,247	100.0	951,527	100.0	13,763	100.0	3,695	100.0	16,810	100.0

* Age Group as Percentage of Total Population

contrast between the age composition of the two communities. Richardson has a very high percentage (46.7%) of its population in the productive years, 20-to-49 years of age. Likewise, Richardson has a high percentage (40.2%) of its population in the 0-to-14 year bracket. The youthful and productive age group in Richardson results from the influx of young families during the 1950s and indicates what is likely to happen in Plano.

Table 5 illustrates the changes which are taking place in the age composition of Plano's population by comparing the 1960 percentages in each age group with the 1950 percentages.

TABLE 5
AGE DISTRIBUTION
CITY OF PLANO, TEXAS - 1950-1960

Age Group	1950				1960			
	Male	Female	Total	% Age Group of Total Population	Male	Female	Total	% Age Group of Total Population
0-14	290	239	529	24.9	410	397	807	21.8
15-24	145	162	307	14.4	302	295	597	16.2
25-44	272	287	559	26.3	567	631	1,198	32.4
45-64	230	261	491	23.1	364	382	746	20.2
65 and Over	94	146	240	11.3	140	207	347	9.4
Totals	1,031	1,095	2,126	100.0	1,783	1,912	3,695	100.0

The age group in the productive years from 15-to-44 increased from 40.7 percent of the population in 1950 to 48.6 percent in 1960. The age groups over 45 years decreased between 1950 and 1960. The trend indicated by changes in age composition is in the direction of the age composition found in Richardson and is in sharp contrast to that of the

rest of Collin County and even the City of McKinney. The increase in the percentage of population in the productive years in Plano will soon be reflected in a proportionate increase in the children and youth of school age, thereby greatly increasing the demand for school facilities. The expansion of the productive age groups in Plano will also substantially enlarge the natural increase of the population and supplement the large in-migration gain which has recently occurred.

D. FAMILY INCOME

In 1959, at the time of the last Census of Business, the median family income in Plano was \$5,634.00 annually and 44.4 percent of the families had an income of \$6,000.00 or more. About one-fourth of the families had an annual income in excess of \$8,000.00. Table 6 shows the distribution of income by category.

TABLE 6
INCOME DISTRIBUTION
PLANO, TEXAS - 1959

<u>Income Group</u>	<u>Number of Families</u>	<u>% of Total</u>
Under \$1,000	34	3.4
\$1,000 to \$1,999	91	9.3
\$2,000 to \$2,999	86	8.6
\$3,000 to \$3,999	108	10.9
\$4,000 to \$4,999	95	9.6
\$5,000 to \$5,999	127	12.8
\$6,000 to \$6,999	107	10.8
\$7,000 to \$7,999	101	10.3
\$8,000 to \$8,999	63	6.4
\$9,000 to \$9,999	56	5.6
\$10,000 and over	121	12.3
Totals	989	100.0

Some indication of the relative income position of the families in Plano as compared to Richardson is shown by Table 7. In 1959 Plano had a substantially smaller percentage of its families in the lower income groups (below \$3,000.00) than did Collin County or McKinney. In contrast, Richardson's income level was much higher than Plano's. While 89.5 percent of McKinney's families and 11.1 percent of Richardson's families had incomes of less than \$5,000.00 annually, the Collin County average was 62.1 percent. In Plano, 41.8 percent of the

families had incomes of under \$5,000.00. There is indication that the income level of residents of Plano is rising substantially as a result of changes in the community's economy and the influx of new families with increasingly higher skills and training.

TABLE 7
COMPARATIVE FAMILY INCOME DISTRIBUTIONS
BY PERCENTILE - 1959

<u>Income Group</u>	<u>Collin County</u>	<u>Plano</u>	<u>McKinney</u>	<u>Richardson</u>
Under \$2,000	23.0	12.7	42.4	2.0
Under \$3,000	36.2	21.3	65.2	4.3
Under \$4,000	48.9	32.2	80.0	7.1
Under \$5,000	62.1	41.8	89.5	11.1

The percentage of Plano's employed persons exceeds those of Collin County in the durable goods manufacturing, wholesale and retail trade and personal services categories. The differences in the employment in the various categories indicate the general nature of Plano's developing economy.

An interview survey previously referred to conducted in 1961 indicated that a little over one-half the Plano labor force is employed in Plano. About one-fifth of the Plano workers work in Dallas and nearly one-fifth work in Richardson. Garland, McKinney, Carrollton and other communities account for the rest of the employment. As Plano's industrial and commercial development progresses, a higher percentage of the labor force will be employed locally. The availability of the substantial employment opportunities in the electronics industries in Richardson and the wide employment base of Dallas assures Plano of a growth potential of major proportions. The employment opportunities of the Metropolitan Area are being increasingly supplemented locally by new industry. Local manufacturers report the following range of employment.

<u>Industry</u>	<u>Date Established</u>	<u>Range of Employment</u>
Alden Comfort Mills	1949	12-15
Carter Craft	1950	35-40
Eastman Products	1952	115
Texas Wire and Cable	1954	110
Precision Manufacturing Company	1956	25-40
Texas Transformer	1960	7-8
Dal-Tex Products	1960	4
Lone Star Boat	1961	300-400
Home Metal Products	1949	75-125
Biometrics	1963	25-27

The industrial expansion of Plano appears to have only just begun. There has been recently established within the City of Plano, a 1,200 acre planned industrial community called Dallas North Research Park designed to supplement the educational and research facilities of the new Southwestern Center of Advanced Studies (Graduate Research Center) established near-by on a 2,100 acre campus.

What the full impact of the new research and development facilities being located in and adjacent to Plano will be on the community's economy is difficult to assess. There is little or no precedent to give direction for an estimate of the influence of the Research Center facilities for molecular sciences, bio-physics, bio-chemistry, earth and planetary sciences, material research, radio-physics and electronics on Plano's future. Near-by Richardson has become the electronics center of the Southwest with major plants of Collins Radio, Texas Instruments, Alpha Corporation and Ling Electronics. Every indication is that the community now enjoys one of the most favorable growth situations in the Southwest and certainly is gaining significance as a favored part of the Dallas Metropolitan Area.

An estimate made in 1961 by Dr. Richard B. Johnson, Chairman of the Economics Department of Southern Methodist University, indicated the following changes are likely in the average family disposable income in Plano in the near future:

<u>Year</u>	<u>Estimated Average Family Disposable Income</u>
1950	\$3,400
1955	\$3,600
1960	\$4,500
1965	\$6,000

The result of the estimated growth in disposable income in Plano would likely be to increase the total income of the residents from four to five-fold within a ten-year period. Such an increase in income will require substantial expansion of retail and service facilities in Plano to accommodate the demand for goods and services.

E. RETAIL SALES

The changing trend in retail sales in Collin County is reflected by Table 8. Data on retail sales is not available for Plano as a separate unit, but due to the difference in income levels, the total retail purchases in Plano are likely to exceed the averages for Collin County. The actual volume of purchases made in Plano is likely to be below the average of Collin County on a per capita basis, however, due to the fact that a survey in 1961 showed that 42 percent of the people interviewed shopped in Dallas and about 11 percent shopped in Richardson, while about 38 percent shopped in Plano. Other communities, including McKinney and Garland, were the shopping location of the remaining 9 percent of shoppers interviewed. There appears to be a developing need for greater retail facilities in Plano. As the population of the City increases, it will become attractive to a widening group of retail outlets and the per capita retail sales made in Plano will rise.

TABLE 8
 RETAIL SALES BY BUSINESS GROUP
 COLLIN COUNTY, TEXAS
 1954 - 1958 - 1963

GROUP	1954 Population 41,514*		1958 Population 41,336*		1963 Population 41,114*	
	Sales	Sales Per Capita	Sales	Sales Per Capita	Sales	Sales Per Capita
Food Stores	\$ 9,446,000	\$227.53	\$10,307,000	\$249.35	\$12,142,000	\$295.33
Eating and Drinking Places	1,003,000	24.16	1,516,000	36.68	1,786,000	43.44
General Merchandise	2,189,000	52.73	2,849,000	68.92	3,356,000	81.63
Apparel and Appliances	1,152,000	27.75	1,751,000	42.36	2,063,000	50.18
Furniture and Appliances	1,963,000	47.29	2,145,000	51.89	2,527,000	61.46
Automotive	6,529,000	157.27	7,110,000	172.01	8,376,000	203.73
Gasoline Service Stations	2,703,000	65.11	3,366,000	81.43	3,965,000	96.44
Lumber, Building and Hardware Materials, Farm Equipment	3,760,000	90.57	4,314,000	104.36	5,082,000	123.61
Drugs and Proprietary Stores	999,000	24.06	1,319,000	31.91	1,554,000	37.80
Other Retail Stores	2,362,000	56.87	2,703,000	65.39	**	**
Non-Store Retailers	385,000	9.32	680,000	16.45	**	**
TOTAL	\$32,491,000	\$782.65	\$38,060,000	\$920.75	\$44,835,000	1,090.50

* Estimated

** Information Not Available

F. EMPLOYMENT

The percentage and numbers of persons employed in the various industry-groups for Collin County and the City of Plano is shown by Table 9.

TABLE 9
EMPLOYMENT BY INDUSTRY GROUP - 1960

Group	COLLIN COUNTY		PLANO	
	Persons	% of Total	Persons	% of Total
Agriculture, Forestry and Fisheries	2,644	16.6	69	4.1
Mining	35	0.2	20	1.2
Construction	1,335	8.4	136	8.2
Durable Goods Manufacturing	1,628	10.2	313	19.0
Non-Durable Goods Manufacturing	1,904	12.0	120	7.2
Transport, Communications and Other Public Facilities	794	5.0	95	5.7
Wholesale and Retail Trade	2,832	17.8	371	22.5
Finance, Insurance and Real Estate	598	3.7	67	4.0
Business and Repair Services	373	2.3	38	2.3
Personal Services	1,021	6.4	199	12.2
Entertainment and Recreational Services	81	0.5	17	1.2
Professional and Related Services	1,582	9.9	146	8.8
Public Administration	490	3.3	34	2.2
Industry Not Reported	539	3.7	20	1.4
Totals	15,856	100.0	1,645	100.0

G. HOUSING

In 1960 Plano had a housing inventory totaling 1,217 dwelling units. The general age of the dwelling units existing in 1960 is indicated by Table 10.

TABLE 10
HOUSING CLASSIFICATION BY AGE OF STRUCTURE
CITY OF PLANO - 1960

<u>Year Structure Built</u>	<u>Number</u>	<u>% of Total</u>
1955 to March, 1960	264	21.6
1950 to 1954	176	14.4
1940 to 1949	229	18.8
1939 or Earlier	548	45.2
Totals	1,217	100.0

Note: Housing Inventory as of January 1, 1963, is estimated at 2,114 units.

Over one-third of Plano's 1960 dwelling unit inventory was built between 1950 and 1960. The last decade added 440 dwelling units. The building permit information indicates that at least 897 new dwelling units were added between 1960 and the end of 1962. At the beginning of 1963, about two-thirds of the dwelling unit inventory in Plano was less than 13 years old and at least 40 percent had been built less than 3 years. As Plano continues to expand, the ratio of new housing will increase. It would appear that a vigorous program of housing maintenance coupled with a gradual elimination of the few dilapidated and ageing structures would assure Plano of achieving the enviable status where dilapidated and blighted housing no longer exists. Few Cities have so favorable a housing opportunity.

The value of owner-occupied dwelling units in Plano as of 1960 is shown by Table 11.

TABLE 11
VALUE OF OWNER-OCCUPIED UNITS
CITY OF PLANO - 1960

<u>Value Group</u>	<u>Number</u>	<u>% of Total</u>
Less than \$5,000	157	19.6
\$5,000 to \$9,900	285	35.6
\$10,000 to \$14,900	204	25.5
\$15,000 to \$19,900	116	14.5
\$20,000 to \$24,900	31	3.8
\$25,000 or More	8	1.0
Totals	801	100.0
MEDIAN VALUE - \$9,200		

There is evidence indicated by the building permit data that the average cost of housing units in Plano has decreased as follows:

<u>Year</u>	<u>Average Cost of Dwelling Permits</u>
1959	\$14,159
1960	\$12,500
1961	\$11,199
1962	\$10,156

The in-migration of professional and skilled scientific workers will likely tend to increase the size and cost of future homes in the Plano area.

FUTURE POPULATION POTENTIAL

The rapidly changing relationship of Plano to the Dallas Metropolitan Area and the improving economic status of the community allows little to be drawn from Plano's past for estimating its future. It appears that the economic impact of recent activities both within and outside Plano will greatly change the size and character of the community. The economic base in scientific research and related industry appears already established. To some extent, Plano will be in competition with Richardson, Garland and North Dallas for quality development. The quality of Plano's community facilities, neighborhoods and service facilities will determine the amount of the metropolitan growth which will be attracted to the City. Because of the lack of history, any estimate of future population is likely to be in error at any period in time.

It appears appropriate to consider Plano's future growth possibilities in terms of several population plateaus or target points. It is known, for example, that two major electronics firms have plans to build plants with a projected employment which may exceed 7,000 persons in the Plano area. Such employment figures could double before construction begins. The speed with which such major employment facilities are created will influence the rate of growth of Plano and such growth is not subject to precise estimating.

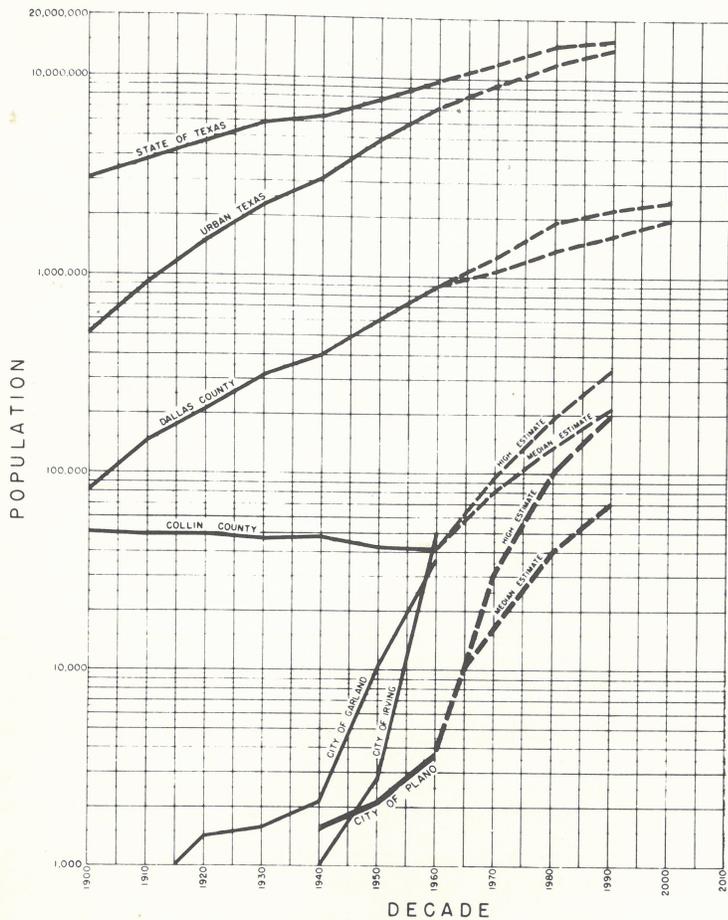
The following growth projection is recommended for planning purposes with the understanding that accelerated growth could reduce the time interval at which any particular growth objective is achieved and may follow either the average or high estimates shown.

TABLE 12
ESTIMATED FUTURE POPULATION POTENTIAL

<u>Period</u>	<u>ACTUAL AND ESTIMATED POPULATION</u>	
	<u>Median Estimate</u>	<u>High Estimate</u>
1940	1,582	
1950	2,126	
1960	3,695	
1963*	7,900	
1965	10,500	
1970	19,000	30,000
1975	27,200	45,000
1980	40,000	100,000
1990	70,000	200,000

* Mid-year estimate.

It is obvious that it will not be possible for a community of about 8,000 persons in 1963 to invest in and build facilities to accommodate future populations five to twenty times as great as the existing population. Planning for Plano must conceive of stage development whereby increments of essential facilities can be added as required and



AMOUNT & RATE OF POPULATION GROWTH
PLANO, TEXAS

FIGURE 2

as financing is possible. Each planning decision should be made, however, against the background of the major growth possibilities of the community.

Plano is expected to demonstrate growth characteristics similar to those experienced by Garland, Richardson and Irving in recent decades.

The growth rate of Plano since 1950 has been substantially more rapid than that of Dallas County or Urban Texas.

The result of the rapid growth anticipated for Plano will be to halt the decline of population in Collin County and cause a substantial future increase.

Plano is expected to account for most of the future population increase in Collin County during the next decade, though McKinney can be expected to

gain substantially from the economic stimuli occurring in northern Dallas County and southern Collin County.

DISTRIBUTION OF POPULATION 1962

The distribution of the 1962 population on a basis of one dot equals 10 people is shown on Plate 2. Each dot on the map indicates the approximate place of residence of 10 persons as of July, 1963. A population of 6,310 people is represented by the diagram.

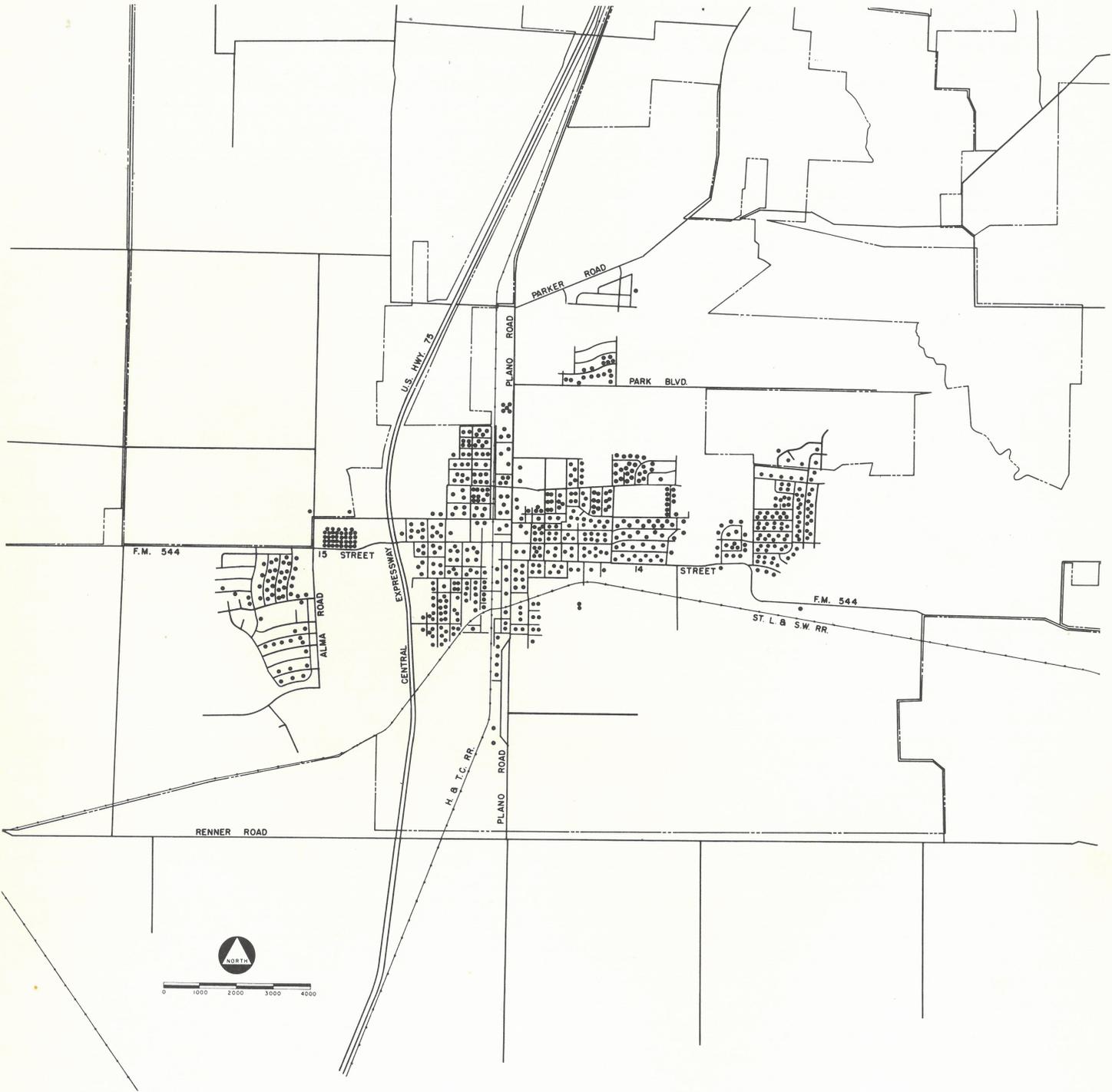
No distinct and complete neighborhood area has yet developed in Plano. The original town area and adjacent development represents the largest concentration of people and the preponderance of the present population is located east of U. S. 75 (Central Expressway). Three somewhat isolated population islands --one east, one north and one to the west of the main city development -- are apparent. Each cluster of people represents the start of a new neighborhood area by developers. It can be anticipated that the presently isolated islands of residents will coalesce with the main body as the intervening land develops. The need for a pattern of predetermined neighborhood areas as a basis for the organization of the community logical units is apparent from the present population pattern.

Projection of the present population distribution pattern indicates that an average density of from 5,000-to-6,000 people per square mile of residential area is typical of the prevailing development. As more apartment units are built, there will appear spot-like population concentrations, but such development is not expected to substantially affect the over-all population density or distribution pattern. Plano is likely to be predominantly a community of single-family homes.

Every effort should be made to create and maintain a compact and fairly uniform population distribution. The future cost and adequacy of municipal utilities and services will be substantially influenced by the future pattern of population distribution. The arrangement of drainage systems and the area which can be most economically served by sewer and water will influence the pattern of future population in Plano. The location of the Graduate Research Center and major industrial development to the southwest may cause a stimulation of development west of U. S. Highway 75, thereby altering the pattern of growth presently existing. Such a change of growth direction will likely create some problems of water and sewer service west of U. S. 75.

COMMUNITY STATISTICAL AREAS

Ten Community Statistical Areas have been established as shown by Plate 3, for the purpose of analyzing the present and future population distribution and land use. Each statistical unit is numbered for reference purposes and the various community boundaries are described on succeeding pages.

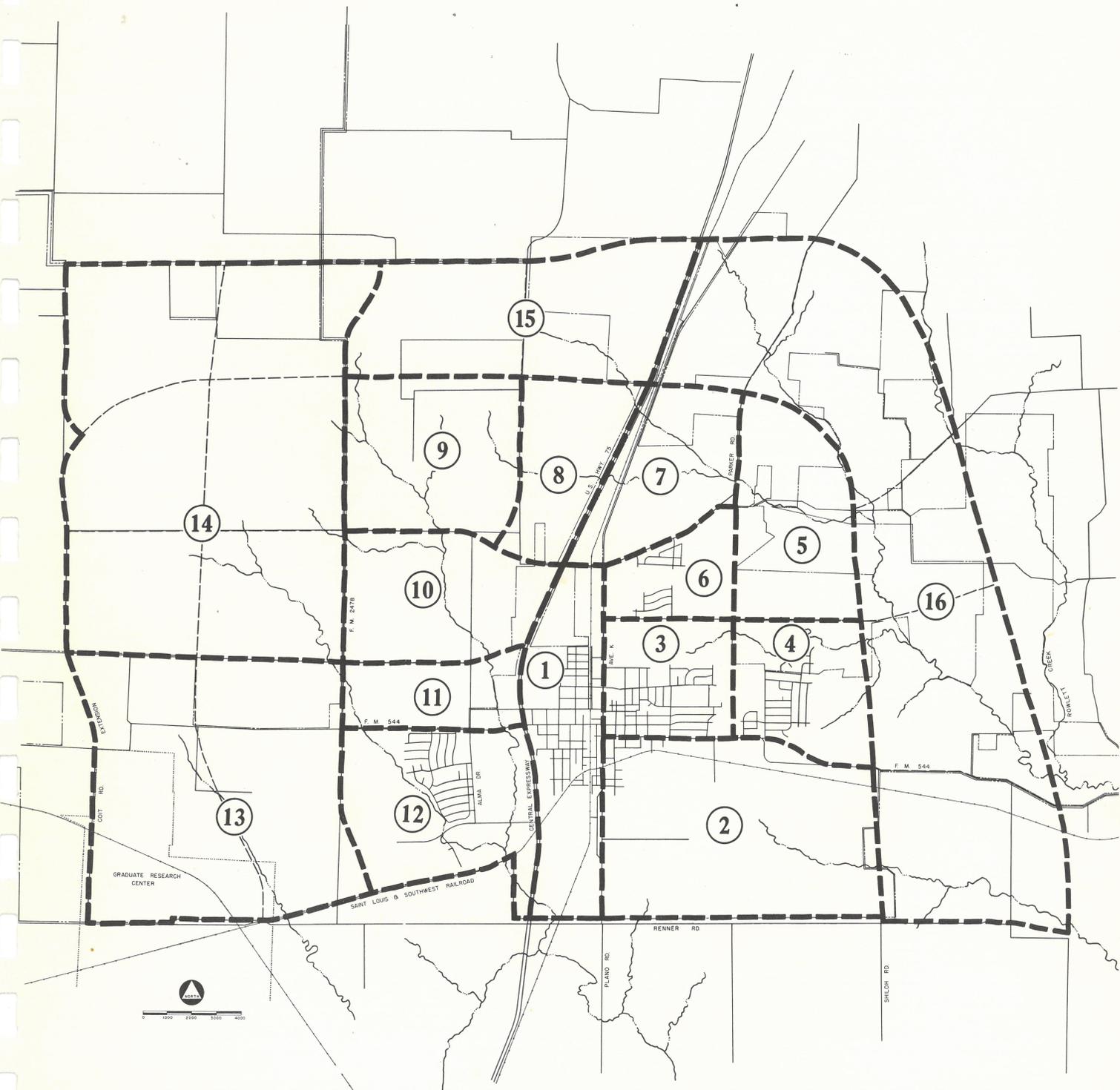


EACH ● REPRESENTS 10 PERSONS

PREPARED THROUGH THE COOPERATION
OF THE
TEXAS STATE DEPARTMENT OF HEALTH
THE PREPARATION OF THIS MATERIAL WAS
FINANCED IN PART THROUGH AN URBAN PLANNING
GRANT FROM THE HOUSING AND HOME FINANCE
AGENCY, UNDER THE PROVISIONS OF SECTION 721
OF THE HOUSING ACT OF 1954, AS AMENDED.

CITY OF PLANO TEXAS
1963
POPULATION DISTRIBUTION

MARVIN SPRINGER & ASSOCIATES
URBAN PLANNING CONSULTANTS
DALLAS, TEXAS



PREPARED THROUGH THE COOPERATION
 OF THE
 TEXAS STATE DEPARTMENT OF HEALTH
 THE PREPARATION OF THIS MATERIAL WAS
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 AGENCY UNDER THE PROVISIONS OF SECTION 301
 OF THE PUBLIC HEALTH ACT OF 1946, AS AMENDED.

CITY OF PLANO TEXAS

COMMUNITY STATISTICAL AREAS

MARVIN SPRINGER & ASSOCIATES
 URBAN PLANNING CONSULTANTS
 DALLAS, TEXAS

Community
Area Number

General Description

- 1 This Statistical area is located west of Central Expressway (U. S. Highway 75) and south of Parker Road and is bounded on the east by K Avenue (Plano Road) and on the south by the City Limits. Much of the original development of Plano, including the Central Business Area, is contained within this Community boundary.
- 2 The Community Statistical Area designated as 2 is located east of Avenue K, south of 14th Street and extends south to the City Limits Line, which is located just north of Renner Road and east to the Northward projection of Shiloh Road from Dallas County. The preponderant use of this area is presently industrial and it is expected that the future land use will continue to be heavily industrial.
- 3 This area is bounded on the north by Park Boulevard, on the south by 14th Street, on the west by K Avenue and on the east by the southward projection of Parker Road as a major thoroughfare. Part of the original town of Plano and some of the new development is included in this Community area, which actually constitutes a complete neighborhood unit.
- 4 The Community area 4 is located directly east and adjacent to Area 3. The northwest and south boundaries of the two areas are the same major thoroughfares. The east boundary of Area 4 is the northward projection of Shiloh Road parallel to Rowlett Creek. Like Area 3, Area 4 is arranged to be a complete neighborhood unit.
- 5 The Statistical Area designated as 5 is located directly north of Area 4 and is bounded on the north and east by the projection of Shiloh Road along Rowlett Creek. The west boundary is the southward projection of Parker Road and the south boundary is created by Park Boulevard. This Community Area is expected to be predominantly residential when developed.
- 6 This area is bounded by K Avenue (Plano Road) on the west, Park Boulevard on the south, the southward projection of Parker Road on the east and westward projection of Parker Road on the north. Like Areas 3, 4 and 5, Area 6 is expected to be a residential neighborhood in conformance with development which is already taking place in it.
- 7 Area 7 is located directly north of Area 6 and extends westward to U. S. Highway 75. Existing Parker Road forms the boundaries on the east and south and a projection of a County Road is the northern boundary. With the exception of the strip of land between

the H. and T.C. Railroad and Central Expressway, the area is expected to develop in residential and related uses.

8 The area designated as 8 is located west of U. S. Highway 75 extending to a County Road about three-quarters of a mile west of the freeway. Parker Road creates the boundary on the south and the projection of an east-west major thoroughfare forms the northern boundary. Most of Area 8 is expected to develop for residential uses.

9 The area designated as 9 is located west of Area 8 and has the same north and south boundaries. The west boundary of Area 9 is F.M. 2478. This Community Area is entirely rural at present and is expected to develop for residential and related uses.

10 Community Area 10 extends from U. S. Highway 75 west to F.M. 2478 and is bounded on the north by the approximate extension westward of Parker Road and on the south by a County Road. The area is now entirely rural and is expected to develop as a residential part of Plano.

11 This area is a small neighborhood unit extending west from U. S. Highway 75 to F.M. 2478 and is bounded on the south by F. M. 544.

12 The area shown as 12 contains the principal existing development west of U. S. Highway 75. The north boundary of the area is F.M. 544 and the southern boundary is the St. Louis and Southwestern Railroad. The western boundary is the projection of F.M. 2478 and the eastern boundary is U. S. Highway 75. Community Area 12 is expected to contain a variety of uses including residential, industrial and retail when it is fully developed.

13 Community Area 13 extends west from F.M. 2478 projection to the extension of Coit Road northward. The southern boundary is Renner Road and the St. Louis and Southwestern Railroad and the northern boundary is a County Road. Part of the Graduate Research Center area is included in Area 13.

14 Area 14 is a large rural tract extending north from Area 13 between the Coit Road extension and F.M. 2478. Area 14 will eventually consist of several residential neighborhoods.

15 Community Area 15 is located along the northern part of the Plano Planning Area extending from U. S. Highway 75 west to F.M. 2478. The area is now in agricultural uses and will likely develop in residential use and become two neighborhood areas.

16

Area 16 extends along Rowlett Creek from U. S. Highway 75 in a curved pattern to the City Limits on the south. It is not anticipated that many parts of Area 16 will develop soon, but all of it can be served with sanitary sewer by trunk extensions along Rowlett Creek. The large area delineated as 16 is expected to be eventually divided into neighborhood units.

The existing and future land use and population statistics for each Community Statistical Area are provided in succeeding sections of this report.

land use



EXISTING LAND USE

The activities of people who reside in a City impose various types of urban use upon the land area of the City. As residents of a City seek a place to live, trade, play, work, go to school, receive medical care and even a final resting place, they create a variety of uses of the City's area. The arrangement, location and quality of the various forms of urban land use determine to a considerable degree the nature, efficiency and quality of a City and are, therefore, of major concern in establishing guides for a City's future. The pattern of land use actually determines a City's physical structure.

The City Zoning Ordinance normally prescribes the current land use regulations. It has been found desirable to develop a land use plan which sets forth the long-range land use objectives of the community and which may vary some from the current zoning pattern. A Land Use Plan can anticipate desirable land use change and establish long-range objectives to guide future community decisions. The Land Use Plan is a basic planning tool and provides a scale and guide to all phases of the planning program.

To provide the essential data for projecting and drafting a recommended Land Use Plan for Plano, a land use survey of each parcel of land in the City was conducted. The following summarizes the findings and evaluation of the land use survey.

A large scale, detailed Existing Land Use Map was prepared in color and this map was the base from which the area of land in different use classifications was computed. Plate 4 shows the generalized land use of Plano as of mid-1963.

The use of land in Plano was classified in accordance with the following general land use types:

RESIDENTIAL USES

- A. Single-family residence - One-family dwellings and related accessory buildings.
- B. Two-family residences - Duplex dwellings and related accessory buildings.
- C. Multi-family residences - Apartments, rooming houses and related accessory buildings.

COMMERCIAL USES

- A. Retail - Stores, shops, offices, personal services and off-street parking.
- B. Commercial - Building material yards, commercial

amusements, warehouses, wholesale establishments and motels.

INDUSTRIAL USES

- A. Light Industry - Light processing, storage, light fabrication, assembly and repairing.
- B. Heavy Industry - Manufacturing, repairing or storage involving heavy processes, glare, dust, odor or heavy equipment.

PUBLIC, SEMI-PUBLIC AND RELATED USES

- A. Schools, churches, cemeteries, hospitals and institutions.

- B. Parks, playgrounds and public recreational areas.

RAILROAD USES

Land in railroad right-of-way, team tracks, yards, depots and similar facilities.

STREETS AND ALLEYS

Rights-of-way of all dedicated streets and alleys whether open and used or not.

VACANT OR AGRICULTURAL USE

Land in agricultural use, vacant or having no apparent urban use.

PATTERN OF EXISTING LAND USE

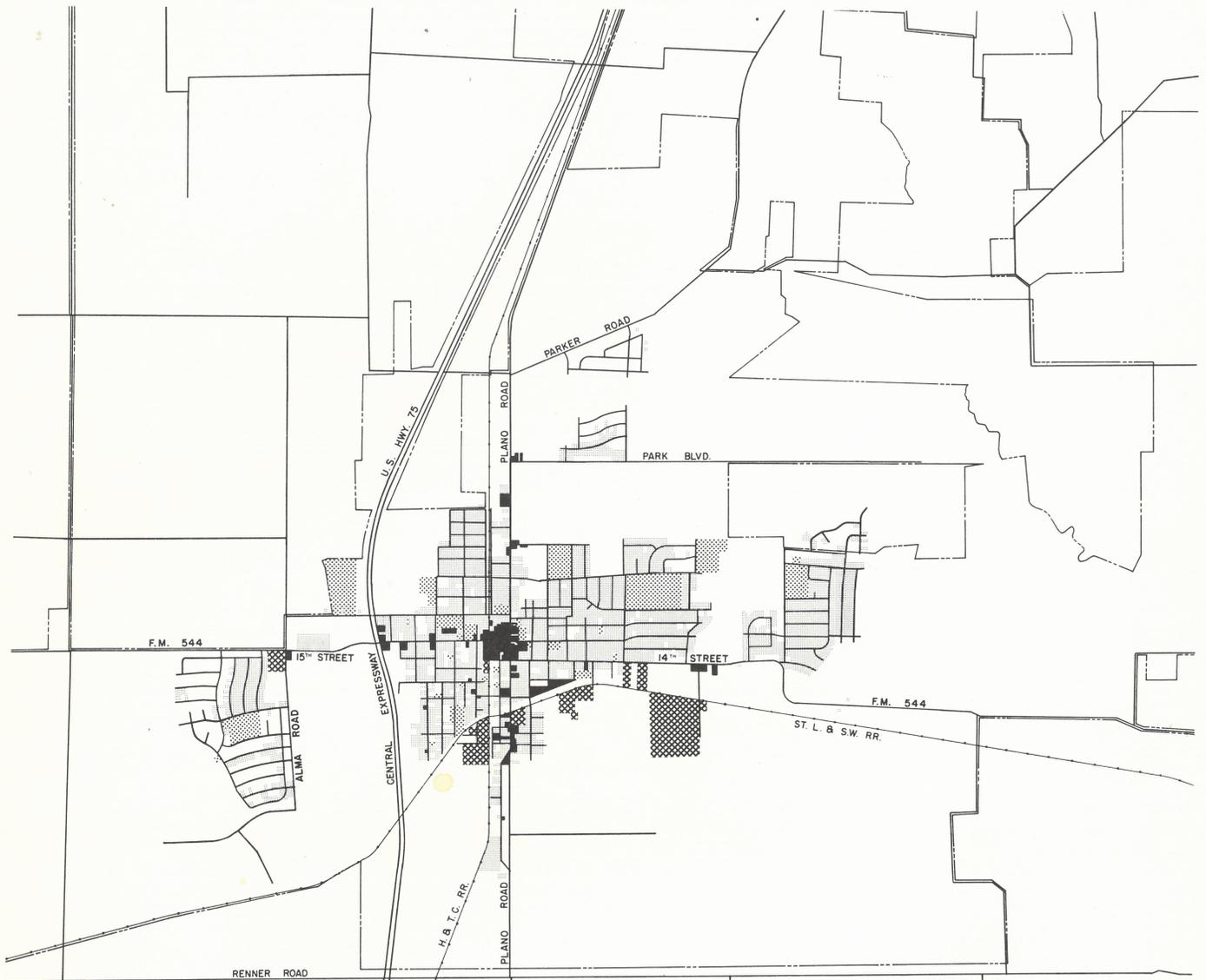
The classification of land use shown on Plate 4 is in accordance with the general divisions of uses listed. The following are some of the apparent and significant land use features illustrated by Plate 4:

1. The Central Business District located generally between Avenue K and the H. and T.C. Railroad at 15th Street is the only significant commercial concentration in the City. Some retail uses extend both north and south along K Avenue which was U. S. 75 before the Freeway was built. Some retail uses have recently located at 15th Street and U. S. 75 Freeway (Central Expressway).

2. The pattern of new subdivisions indicates that residential growth is spreading both to the east and west of the original town area with the heaviest expansion to date to the east.

3. Most of the industrial development is located along the Cotton Belt (St. Louis and Southwestern Railroad) east of U. S. Highway 75.

4. The older residential part of the City contains an intermixture of duplexes and apartments with single-family homes.



SOURCE: FIELD SURVEY CONDUCTED BY
MARVIN SPRINGER & ASSOC.
1962 & 1963

PREPARED THROUGH THE COOPERATION
OF THE
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OF THE HOUSING ACT OF 1954, AS AMENDED.

CITY OF PLANO TEXAS

EXISTING LAND USE

-  RESIDENTIAL AREA
-  PUBLIC & SEMI PUBLIC AREA
-  COMMERCIAL & RETAIL AREA
-  INDUSTRIAL AREA

MARVIN SPRINGER & ASSOCIATES
URBAN PLANNING CONSULTANTS
DALLAS, TEXAS

5. The major public uses are school sites.

6. There are vast areas of vacant and agricultural land within the City and intervening between existing developments. A more compact development pattern would be preferable.

AREA OF EXISTING LAND USE

The amount of land used for various purposes within the Plano Planning Area is shown by Table 13.

TABLE 13
EXISTING LAND USE
PLANO, TEXAS - 1963

<u>Use Classification</u>	<u>Acres Land Used</u>	<u>Percent Developed Area</u>	<u>Percent Planning Area</u>
Single-Family Residence	377.5	32.1	3.4
Two-Family Residence	10.7	0.9	0.1
Multi-Family Residence	3.7	0.3	0.1
Retail	18.1	1.5	0.2
Commercial	5.2	0.4	0.1
Industrial, Light & Heavy	71.7	6.1	0.6
Railroad	128.2	10.9	1.1
Public and Semi-Public	86.9	7.4	0.8
Parks and Playgrounds	15.8	1.3	0.1
Streets and Alleys	459.5	39.1	4.0
TOTAL DEVELOPED AREA	1,177.3	100.0	10.5
Vacant and Agricultural	10,047.7		89.5
*TOTAL PLANNING AREA	11,225.0		100.0

*Planning area consists of 11,225.0 acres of area generally centered around existing development and does not include corporate limits of Plano.

The planning area selected for Plano is not identical with the corporate limits and represents the area within which the growth of the community is logically likely to be concentrated for the next 20 years. Figure 3 shows the relationship of the planning area to the limits of Plano as they presently exist. Some adjustments in the corporate limits line will probably be desirable in the future.

Because of the vast amount of vacant and agricultural land within the City of Plano, land use comparisons are more appropriately considered as related to the actual developed area. Only 10.4 percent of the land within the planning area of Plano is developed for an urban use.

of Plano in such use. In Dallas 2.03 percent of the developed area is in duplex use while in Plano 0.9 percent of the area is so used.

Next to streets and alleys and residential uses, railroads occupy the third highest amount of land in Plano. Some distortion exists in the case of railroad land as it did for streets due to the large vacant and agricultural areas through which rail right-of-way extends. The increase in railroad use is expected to be very modest in the future and to represent largely the extension of industrial lead and spur tracks to serve new industrial development.

Schools, churches, institutions and similar public and semi-public uses are the fourth largest uses of land in Plano. Continued expansion of such community facilities as schools and churches can be anticipated, but some adjustment downward in the percentage of the total developed area devoted to public and semi-public use is likely.

Industrial use in Plano exceeds the average found in most satellite cities and indicates the significant role Plano is already playing in the industrial expansion of the Dallas Metropolitan Area. It is anticipated that industrial uses, particularly light industrial uses, will increase in relation to the area found in other uses. Laboratories, research facilities and processing involving advanced science are expected to represent a substantial part of Plano's future industrial development.

LAND USE BY COMMUNITY STATISTICAL AREAS

The land use for each of the Community Statistical Areas shown by Plate 3 is summarized by Table 14.

Many of the Community Areas are now largely agricultural in nature with sparse population. Substantial changes in population and land use are anticipated in most of the areas. Only three of the areas contain over 1,000 persons and many of them have only a sparse agricultural population of from 1-to-3 persons per 100 acres at present. Agricultural land accounts for about 94 percent of the area of the Community Statistical Areas shown by Plate 3.

LAND USE RELATED TO POPULATION

The existing area of land use in the various categories was converted to the amount of land utilized per 100 persons for each type of land use. By evaluating the relationship of the various land use categories to population and comparing them with data assembled from a number of other similar Cities it is possible to provide a guide for future land use requirements in Plano.

TABLE 14
EXISTING LAND USE - COMMUNITY STATISTICAL AREAS

Neighborhood	Total Area Acres	Residential	Retail & Commercial	Light & Heavy Industry	Public & Semi-Public	Railroad	Street	Vacant & Agriculture	Population
1	914.3	149.9	15.3	10.7	18.9	47.1	127.3	545.1	1,940
2	1,780.3	33.5	5.3	58.2	1.8	24.6	16.2	1,640.7	380
3	578.5	142.1	4.2	-	49.0	-	64.6	318.6	1,800
4	676.7	74.4	-	-	8.4	-	26.5	567.4	1,090
5	909.3	2.3	-	-	-	-	6.1	900.9	30
6	404.3	7.9	0.4	-	-	-	28.3	367.7	180
7	754.0	1.8	-	-	-	17.9	32.1	702.2	20
8	635.7	1.6	-	-	-	-	30.6	603.5	20
9	1,022.3	1.8	-	-	-	-	21.3	999.2	20
10	915.7	1.8	-	-	-	-	22.4	891.5	20
11	467.7	6.1	-	-	14.5	-	25.0	422.1	390
12	1,107.3	36.5	0.4	5.8	10.2	17.0	47.6	989.8	530
13	2,552.7	2.1	-	-	-	15.8	31.4	2,503.4	30
14	4,235.7	6.4	-	-	-	-	47.6	4,181.7	70
15	1,433.7	1.4	-	-	-	-	26.5	1,405.8	20
16	4,505.7	6.4	-	-	-	26.4	73.8	4,399.1	70
Totals	22,893.9	476.0	25.6	74.7	102.8	148.8	627.3	21,438.7	6,610

NOTE: Community areas contain substantially more land than the original planning area.

The acres of land used per 100 persons in Plano in 1963 is shown by Table 15.

TABLE 15

ACRES OF LAND USE PER 100 PERSONS
CITY OF PLANO - 1962

<u>Use Classification</u>	<u>Acres of Land Used</u>	<u>*Acres Per 100 Persons</u>
Single-Family Residence	377.5	6.29
Two-Family Residence	10.5	0.18
Multi-Family Residence	3.7	0.06
Retail	18.1	0.30
Commercial	5.2	0.09
Industry, Light & Heavy	71.7	1.20
Railroad	128.2	2.14
Public and Semi-Public	86.9	1.45
Parks and Playgrounds	15.8	0.26
Streets and Alleys	459.5	7.66
TOTAL DEVELOPED LAND	1,177.3	19.63
Vacant and Agricultural	10,047.7	
TOTAL PLANNING AREA	11,225.0	

*Based upon population of 6,000 persons August, 1962.

The present ratio of land used per 100 persons in Plano generally reflects an average condition for a satellite City. The amount of land use per 100 persons (6.25 acres) is almost identical, for example, with the ratio found in Garland and only slightly lower than that of Richardson. The ratio of two-family dwelling use is slightly higher than found in Richardson or Garland as is the multiple-family area. The total area used for residential purpose per 100 persons in Plano is 6.49 acres as compared with 6.29 acres in Garland and 7.1 acres in Richardson. Relatively little change is anticipated in the total area required for residential purposes per 100 persons in the future in Plano, though a slight decrease in the ratio of single-family area and a commensurate gain in multiple-family area per 100 persons is expected.

The area of retail and commercial use per 100 persons in Plano is slightly lower than average, but is identical (0.3 acres retail use per 100 persons) to that found in Garland. As retail and service expansion catches up to the growing population in Plano, an increase to 0.4 acres per 100 persons is expected. The provisions of more adequate off-street parking for future retail uses will increase the retail land ratio. Commercial uses are expected to increase in a manner very similar to the retail projections.

Industrial area is lower than the ratio found in Garland. Plano uses 1.2 acres of industrial land per 100 persons, while Garland has 2.04 acres per 100 persons and Richardson has 0.9 acres of industrial use per 100 persons. The Graduate Research Center and related activity is expected to increase the industrial land use ratio in Plano to at least 1.8 acres per 100 persons in the future.

Very little increase in total area allocated to railroad use is likely and the ratio of railroad area per 100 persons is expected to decrease. Public and semi-public area is also expected to be reduced in relation to the population to about one-half the present ratio.

Park and playground area should be increased from its present 0.26 acres per 100 persons to around one acre per 100 persons. The ratio of land devoted to street use should be reduced from the present 7.63 acres per 100 persons to around four acres per 100 persons.

The vacant land now representing the excessive ratio of 174 acres per 100 persons in the Planning Area will be reduced drastically as the City grows. Some vacant and non-urban land use can always be expected and a ratio of 3 to 4 acres per 100 persons is considered normal for the future.

FUTURE LAND USE REQUIREMENTS

The future requirements for the various types of land use in Plano will be directly related to the future population of the Community. The following estimate of future land use takes into consideration the adjustments anticipated and the various population growth projections. Table 16 shows the statistical projection of the various land use categories based upon several stages in the future development of the City ranging from 40,000 to 200,000 persons.

The present City Limits of Plano include land extending from the City of Richardson on the south to the City of McKinney on the north and in an east-west direction the municipal area extends for about 11.5 miles. The Corporate Limit Area is irregular and does not include large areas of encircled and intervening land. The Planning Area originally established within the widely scattered sections of the City includes 11,225.0 acres as contrasted to over 60 square miles included within the encircled area created by Plano's Corporate Limits Lines.

The 11,225 acres designated in the Planning Area as originally determined would appear adequate to handle the growth of Plano on the median estimate basis until after 1980. There are, however, physical problems which will likely require the expansion of the Planning Area. The total 60 square mile area set out by the Corporate Limit Lines at present would amply accommodate a population in excess of 200,000 persons. It would appear

TABLE 16
 PROJECTED LAND USE REQUIREMENTS
 PLANO, TEXAS

Use Classification	Acres Per 100 Persons		Acres Used 1962	Acres Required		
	Present	Future		Median Estimate 1980*	1990**	High Estimate ***
Single-Family Residence	6.29	6.20	377.5	2,480	4,340	12,400
Two-Family Residence	0.18	0.10	10.5	40	70	200
Multi-Family Residence	0.06	0.20	3.7	80	140	400
Retail	0.30	0.40	18.1	160	280	800
Commercial	0.09	0.20	5.2	80	140	400
Industrial	1.20	1.80	71.7	720	1,260	3,600
Railroad	2.14	.35-.15 ^(a)	128.2	140	245	300
Public and Semi-Public	1.45	0.75	86.9	300	525	1,500
Park	0.26	1.00	15.8	400	700	2,000
Streets and Alleys	7.66	4.00	348.0	1,600	2,800	8,000
TOTAL DEVELOPED AREA			1,065.6	6,000	10,500	29,600
Vacant or Agricultural		3.00		1,200	2,100	6,000
TOTAL CITY AREA				7,200	12,600	35,600

* Based on future population of 40,000

** Based on future population of 70,000

*** Based on future population of 200,000

(a) Represents gradually decreasing ratio of railroad land to population.

that some re-evaluation of the Corporate Limits of Plano might be desirable in light of the projected land use requirements shown by Table 16.

The projected land use areas are based upon the assumption that Plano should and will develop as a balanced and complete urban community with a reasonable relationship between the various types of use. It is expected that a preponderance of Plano's retail and service needs will be supplied locally and that a favorable relationship of industrial area to City population will prevail. The experience in Garland and Richardson where substantial growth such as anticipated in Plano has occurred indicates that the land use ratio used for projection purposes is realistic.

It is obvious that substantial areas for certain types of land use should be delineated on the future Land Use Plan and that the possibility of expansion and need for flexibility must be considered. The median estimate indicates that by 1980 more than six times the area now occupied by residential uses will be required to provide housing for the population and that nearly a ten-fold increase is likely in retail area and industrial use. Public area

should be increased over three-fold and the present park and playground should be increased about twenty-five times by 1980. The manner in which the various expanded land uses are arranged will determine much of the future character and desirability of Plano. The Land Use Plan will indicate the recommended future arrangement of the expanded land use areas.

PHYSICAL FACTORS INFLUENCING GROWTH

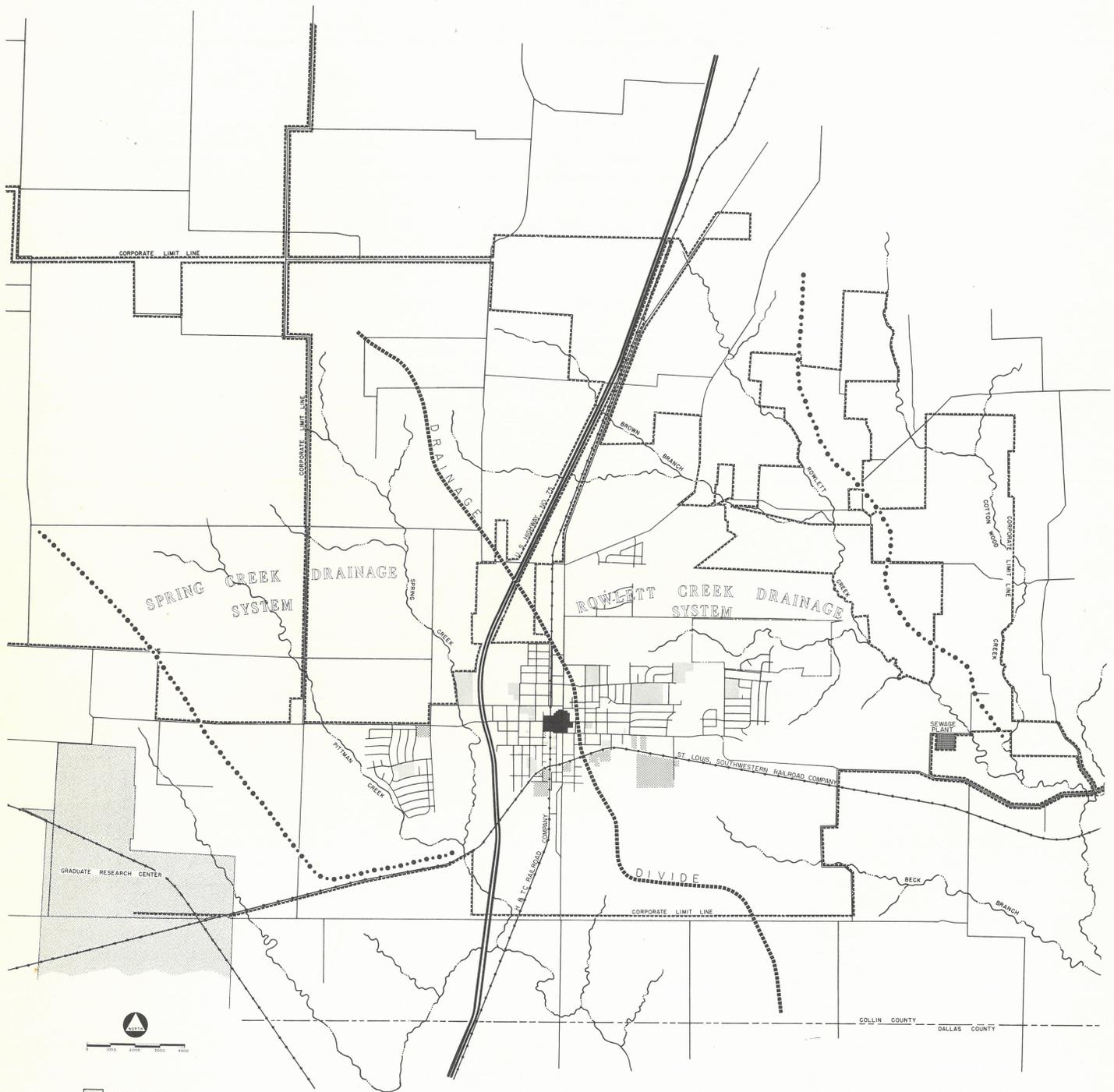
Plano is located on the northern portion of the Blackland Prairies, a gently rolling terrain dissected by distinct drainageways which are often eroded to the underlying limestone. The general elevation of Plano is 650 feet above sea level. Variations of approximately 100 feet in elevation exist between the high northwest corner of the Planning Area and the lower southeast corner. Drainage is generally along a northwest-southeast axis toward the East Fork of the Trinity River.

Plate 5 illustrates some of the physical terrain and man-made features which are now and will in the future influence the expansion of Plano.

Two significant drainageways, Spring Creek and Rowlett Creek, divide Plano into two basic drainage systems. A ridge divide between the two systems runs from the northwest to the southeast through the center of the main developed portion of the City. Spring Creek and a branch, Pittman Creek, are located west of U. S. Highway 75. Rowlett Creek and its several branches drain most of the area east and across U. S. Highway 75 north of the main development of Plano. The present sewage treatment plant is located on Rowlett Creek and discharges its effluent into that stream. Sanitary waste collected from the Spring Creek system is pumped to the Rowlett drainage area and is treated in the Rowlett Sewage Treatment Plant.

Both Spring Creek and Rowlett Creek flow through other Cities and into the portion of the East Fork of the Trinity River which will be within the new Forney Reservoir Area, a water supply lake of the City of Dallas. It is obvious that the effluent from Plano's sewage disposal facilities along with that of other near-by Cities will eventually create a problem which must be solved on an area-wide basis. Whatever the future broad area solution to the sewerage problem, the sanitary sewage collection systems which are constructed in the two main drainage courses will logically become part of the future facilities.

The most economical area of expansion for the City of Plano is in the Rowlett Creek drainage area due to existing sanitary sewer facilities. Commitments now exist in both Rowlett Creek and Spring Creek drainage areas for sanitary sewer service and it appears that the Graduate Research Center may accelerate the growth in the Spring Creek area thereby increasing the sewer demands west of U. S. Highway 75. West of the area shown on



- PUBLIC-SEMI PUBLIC
- ▨ INDUSTRIAL
- ▩ CENTRAL BUSINESS AREA
- CORPORATE LIMIT LINE
- ROAD LINE
- U.S. HIGHWAY 75
- LIMITS OF EXISTING SANITARY SEWER SYSTEMS

PREPARED THROUGH THE COOPERATION OF THE TEXAS STATE DEPARTMENT OF HEALTH. THE INFORMATION ON THIS MATERIAL WAS OBTAINED BY FIELD SURVEYS AND PLANNING STUDIES MADE FOR THE DRAINAGE AND SEWERAGE PROJECT UNDER THE AUTHORITY OF SECTION 10 OF THE HOUSING ACT OF 1937 AS AMENDED.

CITY OF PLANO TEXAS

PHYSICAL FACTORS INFLUENCING URBAN GROWTH

MARVIN SPRINGER & ASSOCIATES
 URBAN PLANNING CONSULTANTS
 DALLAS, TEXAS

Plate 5 the land slopes to the White Rock Creek drainage system which flows into the City of Dallas. Some of the area now being considered for major industrial development in Plano drains to White Rock Creek and further complicates the long-range sanitary sewer problem of Plano.

Water supply to Plano is from the North Texas Water District which obtains raw water from Lake Lavon to the northeast of Plano. Plans are underway to expand Lake Lavon and it is assumed that the reasonable water demands of Plano for some years into the future can be provided by the Water District.

Growth to the south is blocked by the Richardson City Limits and by the large campus area of the Graduate Research Center. The drainage systems will tend to direct the expansion of Plano along a northwest-southeast axis.

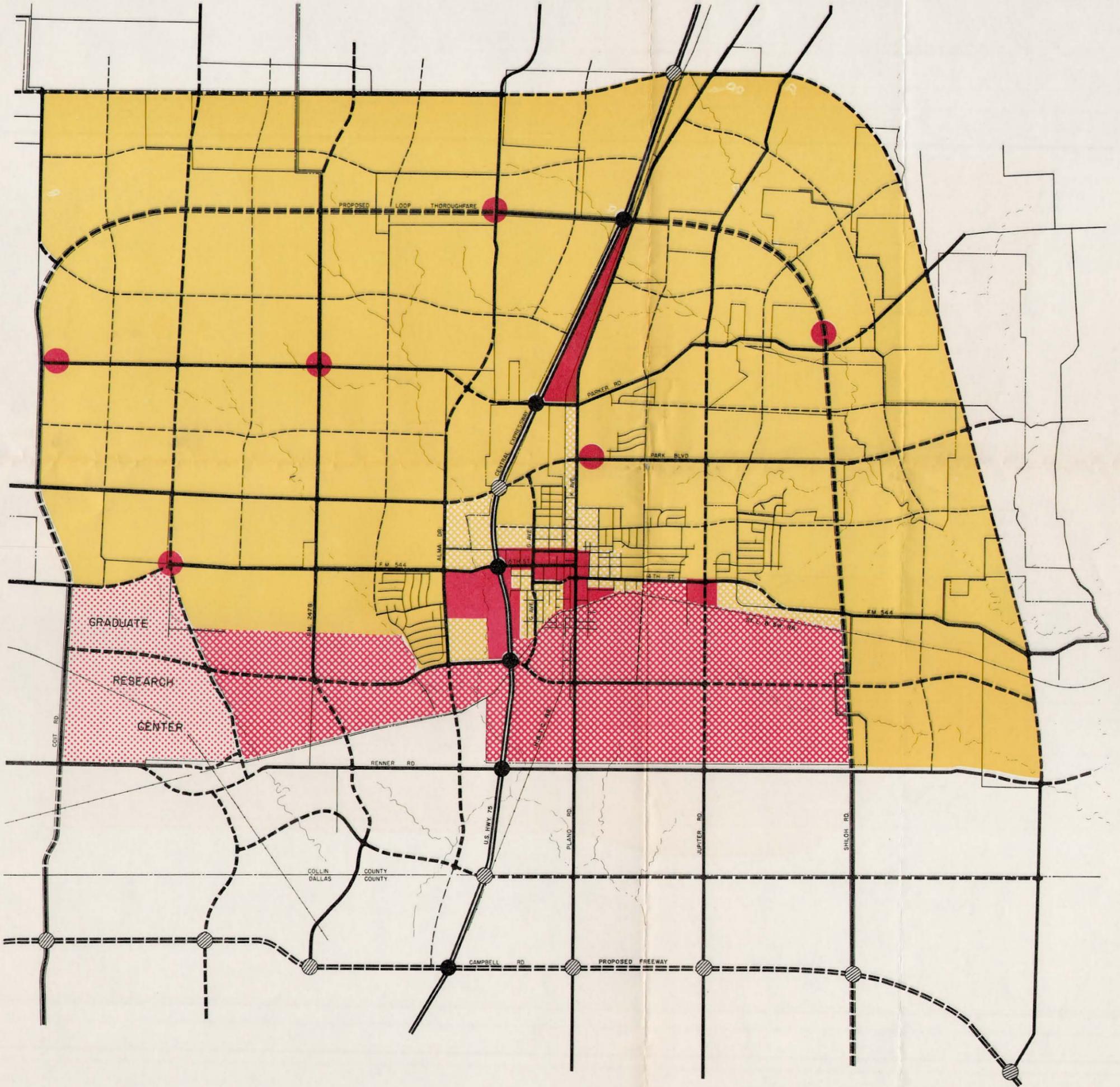
Railroads cut Plano into three areas; namely, the area south of the St. Louis and Southwestern Railroad and the area located east and west of the H. and T.C. right-of-way which is generally parallel to Old Highway 75 running north and south through Plano. The preponderance of the industrial development is expected to be located in the southern part of the City both east and west of the crossing of the two railroads.

U. S. Highway 75 Freeway cuts the Plano area into two sections and will have an influence on the land use pattern of the future. Proper and adequate crossings of the Freeway will be essential if both the east and west areas of Plano are to develop as a single integrated community.

FUTURE LAND USE PLAN

The general proposed arrangement of major land use types for Plano when it reaches a population of about 70,000 people is shown by Plate 6. Allowances are also made for growth beyond 70,000 people. The areas indicated for various types of use are generally in balance with the projected requirements except that the industrial area is about double the area projected for a population of 70,000. The larger industrial area is already generally determined by existing features and uses and such larger area also makes allowances for the possibility that the Graduate Research Center will stimulate greater industrial growth than estimated.

Estimates of industrial land use requirements have generally been too conservative in the Dallas area. It is considered undesirable, in light of Plano's growth possibilities to be restrictive in the area provided for industrial use. The area required for individual industrial plants has tended to increase in recent years and Plano has an excellent opportunity to create spacious industrial park development.



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- MEDIUM DENSITY RESIDENTIAL AREA
- HIGH DENSITY RESIDENTIAL AREA
- RETAIL OR COMMERCIAL AREA
- INDUSTRIAL AREA

CITY OF PLANO TEXAS FUTURE LAND USE PLAN

MARVIN SPRINGER & ASSOCIATES
URBAN PLANNING CONSULTANTS
DALLAS, TEXAS

The terrain, rail service, existing development and present promotional efforts all combine to designate the area of industrial development in Plano. It appears that practically all of the industry in Plano will be located along the southern edge of the Community as a division between Plano and Richardson. The location on the south is not generally considered desirable due to the prevailing breezes from the southeast. It is not anticipated, however, that Plano's industry will be of the type which emits smoke, odor, dust or other air contaminants and the location on the upwind side of the Community is therefore of less significance.

The areas of major future residential use are located to the northwest and northeast of the main part of Plano and these areas are capable of considerable expansion, if sanitary sewer service can be extended up the drainage systems which cut across the area. Most of the residential expansion area is upstream from the present sewerage facilities. It is anticipated that most of the areas of dense housing will be located near the Freeway around industrial areas and in the original town area.

Commercial and retail areas should include the expanded Central Business District and certain outlying shopping centers located so as to conveniently serve the developing residential neighborhoods. Shopping service should be available on both the east and west sides of the Freeway. Some expansion and rearrangement of the Central Business Area is anticipated and it is probable that the function of the Central Area will tend to change with greater emphasis on financial institutions, offices, services and professions as the area grows. An example of the need to expand retail services is illustrated by the fact that Plano's present population is sufficient to support about one major food market.

In the future, from 8 to as many as 20 food markets may be needed to serve the population. Generally, the food outlets should be located in close proximity to the residential areas in shopping centers averaging about 10 acres in size (Neighborhood Centers). A major Regional Shopping Center containing 75-to-100 acres will likely develop in Richardson or Plano to serve the total urban complex of the two Cities and adjacent area. It does not appear that a Regional Center will become appropriate until the combined population of Richardson and Plano reaches 50-to-75 thousand persons and a population of 100 thousand or more will be necessary to make a Regional Center economically feasible. At this time, no truly Regional Shopping Center site has been located in Richardson and it is possible that the major Regional Center may develop in Plano. It is considered appropriate to consider a Regional Center as part of the Plano Future Land Use Plan. A location along U. S. 75 (Central Expressway) is considered proper for a Regional Center in Plano. Prior to the time that a Regional Center can be developed in Plano there will probably develop a need for a Community Center (15 to 20 acres) on both the east and west side of the Freeway. The location of the shopping center sites

shown on Plate 6 are general and subject to more detailed location when development occurs. The spacing of neighborhood and community shopping centers suggested by the Land Use Plan is generally on intervals of about 2 miles as contrasted to the tendency to locate such centers on about one mile intervals. The larger retail units being constructed in modern shopping centers require greater service areas and it is unlikely that an even modest shopping center could be developed at every major street intersection. Such an arrangement would not achieve a desirable or stable land use pattern.

The Land Use Plan is intended to be a general guide for the development and use of land in the future and has as its purpose the following objectives:

1. To set forth a general land use pattern for the Community. The growth potential of Plano indicates that large areas of agricultural land will be converted to urban use as the City expands. The future physical arrangement of Plano should be determined by the projected Land Use Plan.

2. To create a compact, orderly and economical arrangement of land uses for future Plano. The economy of government in Plano will be influenced by the future land use arrangement as will the desirability of the Community as a place to live, work and develop.

3. To establish and protect adequate area for industrial expansion in the future. The protection of adequate future industrial area is difficult and provisions should be made in the Zoning Ordinance to exclude undesirable uses from proposed industrial areas.

4. To provide a guide for the orderly expansion of utilities as Plano grows. Utility extension to presently rural areas and the sizing of utilities to accommodate future growth is one of the most difficult municipal problems faced by Plano. The Land Use Plan provides a guide for the decisions which must be made from time to time concerning utility services.

5. To provide community retail centers at appropriate locations related to the residential areas and provide for the expansion of the Central Business Area. Care should be exercised to keep the amount of retail area in balance with the population at approximately 4 acres per 1,000 persons. Such retail area should be divided generally as follows:

- (a) Central Business Area - 1 acre per 1,000 persons.
- (b) Regional Shopping Center - 1 acre per 1,000 persons.
- (c) Neighborhood and Community Centers - 2 acres per 1,000 persons.

6. To provide a basis for decisions relative to future zoning requests. From time to time adjustments may be required in the Land Use Plan. Where adjustments are required as a result of zoning, the change should involve the amendment of the Land Use Plan as well as the Zoning Ordinance.

7. To provide a basis for estimating future community facilities and services. The location and size of future parks, schools, fire stations and similar facilities should be determined by the Land Use Plan.

The proposed major thoroughfare system is indicated on the Land Use Plan for reference purposes and orientation. The details of the proposed Thoroughfare Plan are discussed in a following section of this report.

The Future Land Use by Community Statistical Areas is shown by Table 17. The total area shown by the table exceeds the planning area originally established and results from the changed conditions in Plano since the planning program was outlined. The projections shown by Table 17 represent the development based upon a population of 70,000 persons which is likely to be only an interim state in Plano's development. Many community areas will be incompletely developed when the 70,000 population development is reached and substantial future growth will be expected in such Community Areas as 14, 15 and 16.

TABLE 17
PROJECTED LAND USE BY COMMUNITY STATISTICAL AREAS
FOR POPULATION OF 70,000

Community Statistical Area	Total Area Acres	Residential	Retail & Commercial	Light & Heavy Industry	Public & Semi-Public	Railroad	Street	Vacant & Agriculture	Population
1	914.3	260.0	68.0	180.0	45.0	58.1	180.0	123.2	4,000
2	1,780.3	118.0	26.0	647.0	10.0	84.0	170.0	725.3	1,500
3	578.5	272.0	34.0	-	60.0	-	154.0	58.5	4,400
4	676.7	322.0	-	-	80.0	-	182.0	92.7	5,200
5	909.3	390.0	18.0	-	90.0	-	210.0	201.3	6,000
6	404.3	190.0	12.0	-	55.0	-	108.0	39.3	3,100
7	754.0	310.0	60.0	-	100.0	17.9	175.0	91.1	5,000
8	635.7	260.0	12.0	-	80.0	-	140.0	143.7	4,000
9	1,022.3	470.0	24.0	-	150.0	-	245.0	133.3	7,000
10	915.7	372.0	20.0	-	130.0	-	210.0	183.7	6,000
11	467.7	230.0	-	-	90.0	-	124.0	23.7	3,600
12	1,107.3	246.0	90.0	207.0	100.0	56.0	201.0	207.3	4,000
13	2,552.7	270.0	28.0	226.0	1,030.0	24.0	205.0	769.7	4,000
14	4,235.7	330.0	15.0	-	100.0	-	175.0	3,615.7	5,000
15	1,433.7	110.0	-	-	25.0	-	60.0	1,238.7	1,500
16	4,505.7	400.0	13.0	-	40.0	26.4	261.0	3,765.3	5,700
Totals	22,893.9	4,550.0	420.0	1,260.0	*2,185.0	266.4	2,800.0	11,412.5	70,000

*970 Acres of area 13 are included in the campus of the Graduate Research Center.

FUTURE POPULATION DISTRIBUTION

The estimated future distribution of population when Plano reaches 40,000 persons and 70,000 persons is shown by Plate 7. The pattern of population distribution shown recognizes the Land Use Plan and takes into consideration the terrain, existing utility system and major growth forces influencing development.

The early development of Plano, to about 40,000 persons, will result in almost an equal distribution of population on either side of U. S. 75 (Central Expressway). Such an arrangement will result in approximately an equal number of people in the Rowlett and Spring Creek drainage areas. Development beyond 40,000 is expected to substantially increase the population west of U. S. 75 in the Spring Creek system. The heavier growth in the Spring Creek area will create sanitary sewer trunk and pumping problems, but the estimate of distribution shown by Plate 7 is considered to be realistic in light of information available. Careful planning of the utility system to meet the changing load indicated by the shift of population westward will be essential and one of Plano's most difficult growth problems.

It will be noted that the total area shown as populated will not be fully developed when a population of 70,000 is reached. Growth beyond 70,000 people is anticipated and expected to continue beyond the period of the planning estimates.

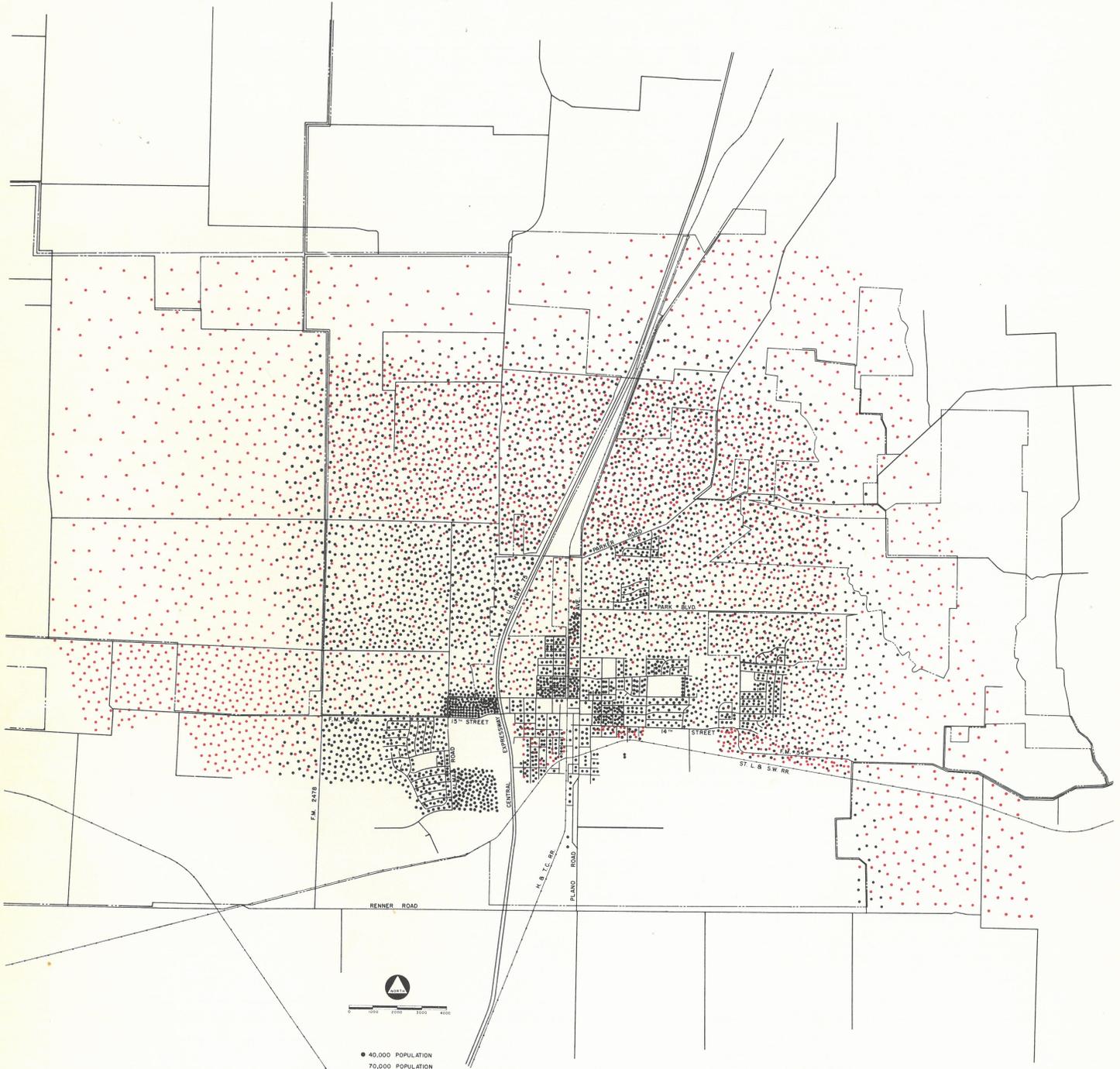
The pattern of estimated future population distribution shown by Plate 7 is intended to be a general guide to utility and public facility requirements and planning and a basis for estimating future traffic and service requirements. No attempt should be made to make utilities available to the entire expansion area at any one time. Rather, the expansion of utilities should take place in stages as the increase in population warrants such improvements and makes them economically feasible. Some special problems relating to serving industrial development in the southwest corner of the expansion area are anticipated also.

FUTURE POPULATION CHANGES BY COMMUNITY STATISTICAL AREAS

The changes of population anticipated in each community area are shown by Plate 8. The chart compares the 1963 population with the estimated population for each area at the time Plano reaches a population of 70,000 persons. Increases from doubling to over a hundredfold are anticipated in the various community areas.

Particularly large population increases are anticipated in Areas 5, 7, 8, 9, 10, 13, 14, 15 and 16, but even the substantially developed areas are expected to experience major additions.

The following tabulation summarizes the changes anticipated in the various Community Statistical Areas.



● 40,000 POPULATION
 ● 70,000 POPULATION
 EACH DOT REPRESENTS 10 PERSONS

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 OF THE
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 THE DEPARTMENT OF THE NATIONAL ROAD
 BUREAU OF ROAD PLANNING AND CONSTRUCTION
 UNDER THE PROVISIONS OF SECTION 11
 OF THE HOUSING ACT OF 1942 AS AMENDED

CITY OF PLANO TEXAS

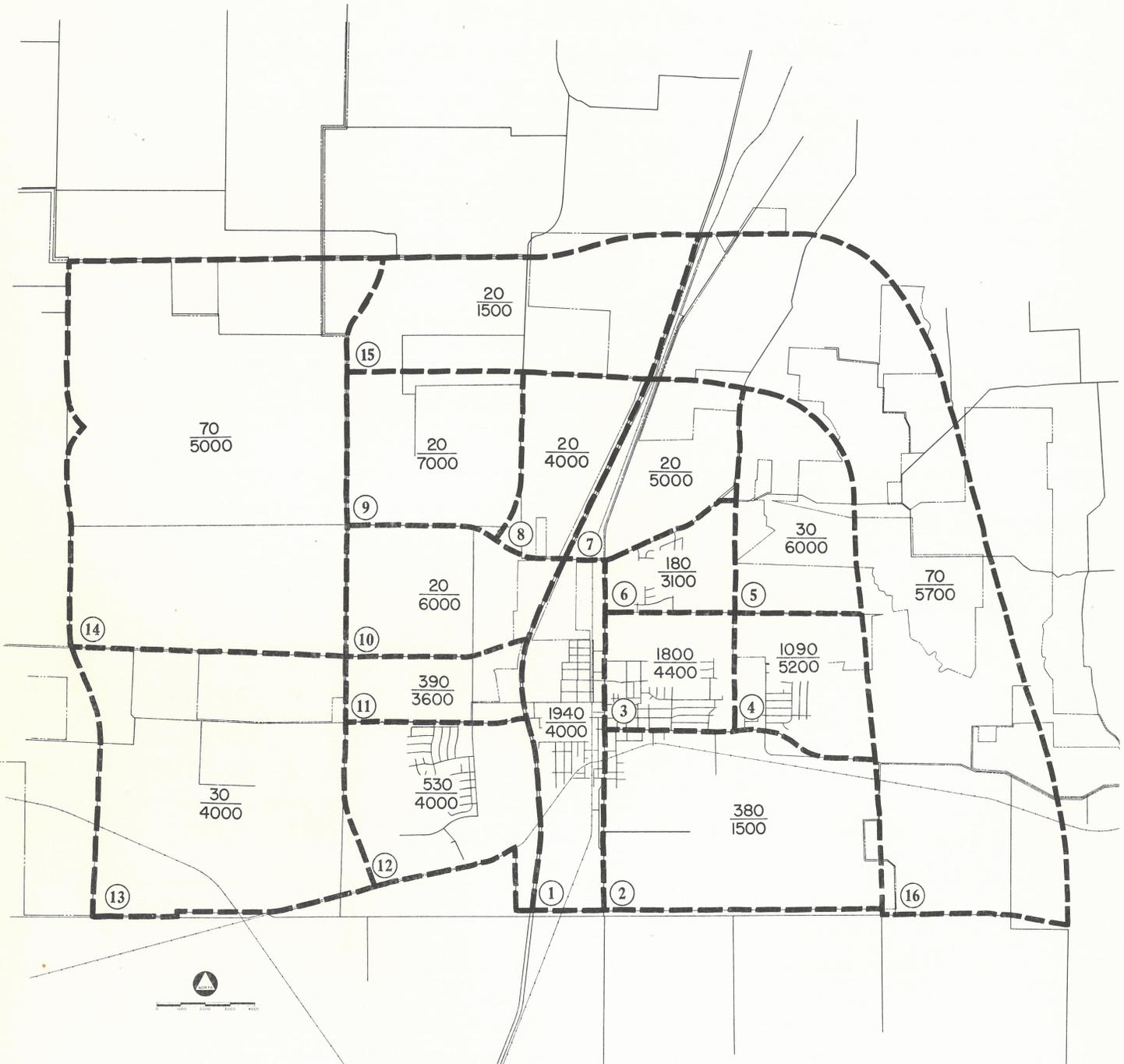
FUTURE POPULATION DISTRIBUTION

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 DALLAS, TEXAS

TABLE 18

ESTIMATED POPULATION CHANGES BY
COMMUNITY STATISTICAL AREA

<u>Community Statistical Area</u>	<u>1963 Population</u>	<u>1990 Population</u>
1	1,940	4,000
2	380	1,500
3	1,800	4,400
4	1,090	5,200
5	30	6,000
6	180	3,100
7	20	5,000
8	20	4,000
9	20	7,000
10	20	6,000
11	390	3,600
12	530	4,000
13	30	4,000
14	70	5,000
15	20	1,500
16	<u>70</u>	<u>5,700</u>
	6,610	70,000



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HEALTH UNDER THE PROVISIONS OF SECTION 101
OF THE HEALTH AND HOSPITAL ACT OF 1964 AS AMENDED.

$\frac{300}{4000}$ 1963 POPULATION
1990 POPULATION

CITY OF PLANO TEXAS

POPULATION CHANGES BY COMMUNITY STATISTICAL AREAS

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DALLAS, TEXAS



thoroughfares



PLANO THOROUGHFARES

Plano's ultimate development is likely to be determined to a major extent by the convenience, capacity and quality of its thoroughfare connections to the other parts of the Metropolitan Area and the North Texas Region. Eventually it is possible that some form of mass rapid transit may be created to serve the entire Metropolitan Area. Such a transportation system is not likely, however, to become a significant factor in the development of the area Cities for many years. It is, therefore, probable that Plano will become increasingly dependent upon the automobile as the major form of transportation and the system of thoroughfares developed to serve the community will determine the form and function of the Future Plano.

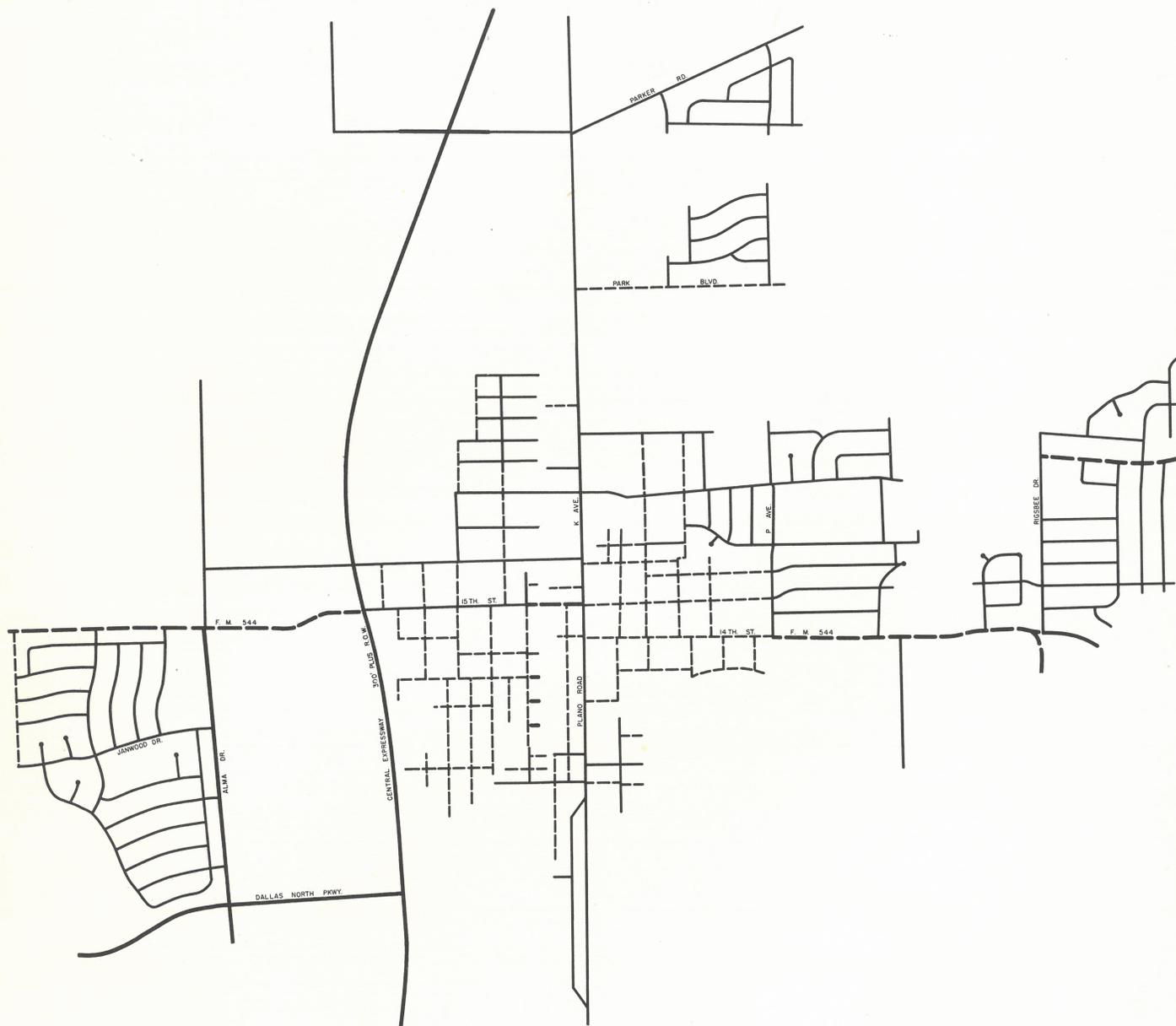
EXISTING STREET SYSTEM

The existing street system of Plano consists largely of an east-west and north-south arrangement of streets on a grid pattern. The blocks created by the street system in the original town area are small and the streets are discontinuous along the railroads and at some other locations. Two north-south arteries, Central Expressway (U. S. 75) and Plano Road (Old U. S. 75) provide the only ties with the adjacent Cities. Only one artery, F. M. 544, provides access from east and west to Plano. Considering Plano's growth potential, the existing thoroughfares providing access to the City cannot be considered adequate and must be supplemented.

The newer streets in recent development located on the west, east and northeast edges of the City appear to have a more efficient and desirable pattern with longer blocks and some curvilinear alignment. The newer streets reflect the recent adoption of improved land planning in Plano and these recent practices should be continued.

EXISTING RIGHT-OF-WAY WIDTHS

The width of existing rights-of-way on Plano's streets is shown by Plate 9. The streets are classified into certain width groups for evaluation. Many of the streets in the original part of Plano have rights-of-way less than 50 feet in width and the preponderance of the other streets rights-of-way are from 50-to-60 feet in width. The minimum 50 foot residential streets typical of the newer residential areas are in conformance with the original Thoroughfare Plan prepared by Forrest and Cotton in 1959. Several major thoroughfares in accordance with the Forrest and Cotton Plan have also been created. Alma Drive and 14th Street (F.M. 544) have been established at major thoroughfare right-of-way standard and several secondary thoroughfares have been created in new subdivisions in conformance with the Plan. The thoroughfares started in conformance with the original Forrest and Cotton Plan provide a basis for projecting the more extensive thoroughfare system which will be



CITY OF PLANO TEXAS

EXISTING RIGHT OF WAY WIDTHS

- LESS THAN 50'
- 50' TO 79'
- 80' TO 99'
- 100' AND OVER

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OF THE HOUSING ACT OF 1948 AS AMENDED.

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URBAN PLANNING CONSULTANTS
DALLAS, TEXAS

needed in Plano. Many future problems and expensive changes have been eliminated in new developments to the City and the adjacent landowners through adherence to the 1959 Thoroughfare Plan.

Some right-of-way widening will be required in the older parts of Plano where the streets were in existence prior to the 1959 Plan. The streets which will become part of the future thoroughfare system, in the original part of town, must be carefully selected to minimize the future widening requirements.

EXISTING PAVEMENT WIDTHS

The differentiation of the street system into major, secondary and minor streets in conformance with the 1959 Plan is apparent from Plate 10. Several recent street improvements made by the City and by developers have created a start of a major and secondary street system. Such streets as Janwood Drive, Alma Drive, P Avenue, 14th Street and Rigsbee Drive are examples of major and secondary thoroughfare development where the pavement widths of acceptable standard have recently been provided.

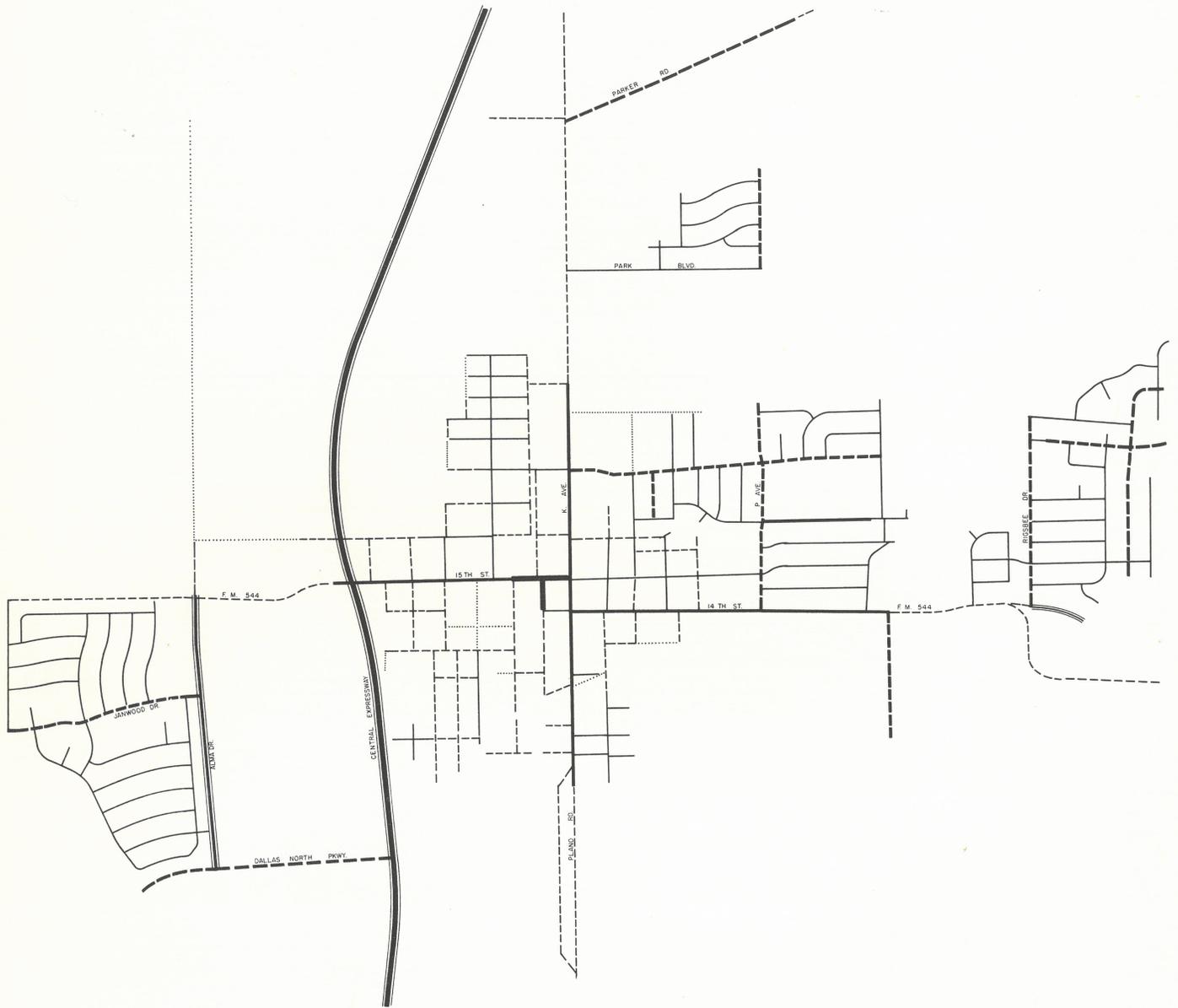
Most of the streets in Plano have been surfaced, though many of the streets in the original part of town have quite narrow pavements. Some of the original streets have pavement less than 24 feet in width, a width which is considered minimum for two lanes of traffic. Generally the minor streets have, in recent years, been surfaced with a pavement measuring 26 feet face to face of curb.

The general policy of street pavement already established in Plano should be continued. Some additional street pavement standards may be appropriate to supplement those in use, but such changes should be considered as extensions and refinements of the present standards and policies.

EXISTING AND PROBABLE FUTURE TRAFFIC

There is very little that can be determined from existing traffic in Plano to provide a guide for the future. With the exception of Central Expressway and to a limited extent Plano Road and F.M. 544, all traffic generated on Plano streets is of local origin. In January, 1963, the average daily traffic volumes on the principal thoroughfares through Plano were as indicated by Figure 4.

The effect of urban growth on traffic generation is clearly shown by Figure 4. U. S. 75 (Central Expressway) shows a gradual decrease in traffic volume as distance from Dallas increases. South of Richardson the average daily volume is 31,690 vehicles while north of Richardson the volume drops to 12,280. Just south of Plano the daily volume is 9,970 vehicles while north of Plano the daily volume drops to 7,790. Each successive change in traffic volume reflects the traffic generation resulting from the community adjacent to the Freeway.



SOURCE: FIELD SURVEY CONDUCTED BY
MARVIN SPRINGER & ASSOC.
1965

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- NOT PAVED
- LESS THAN 24'
- 24' TO 34'
- 35' TO 39'
- 40' TO 49'
- 50' AND OVER
- INDICATES DUAL PAVEMENT

CITY OF PLANO TEXAS

EXISTING PAVEMENT WIDTHS

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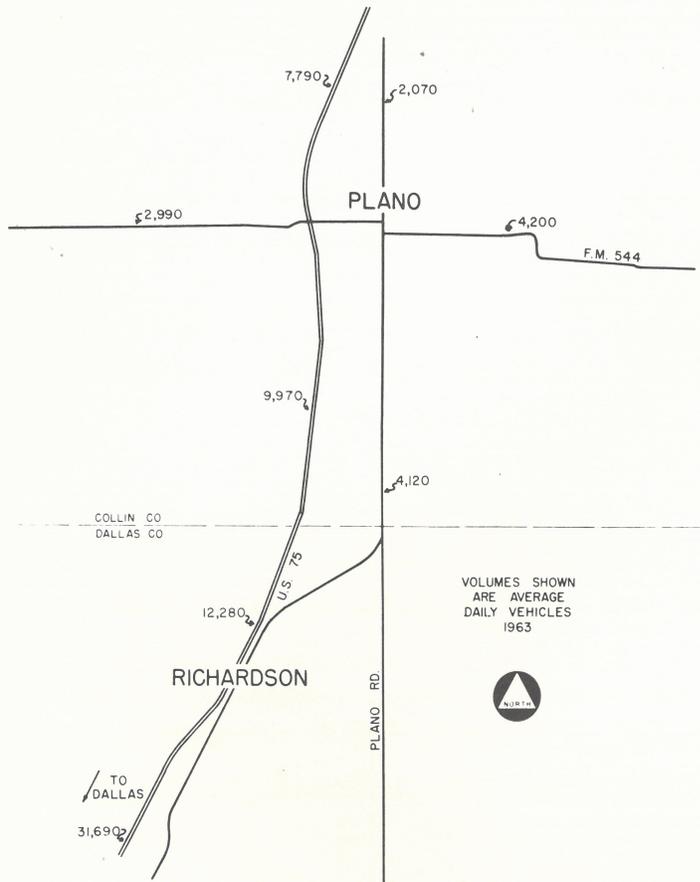


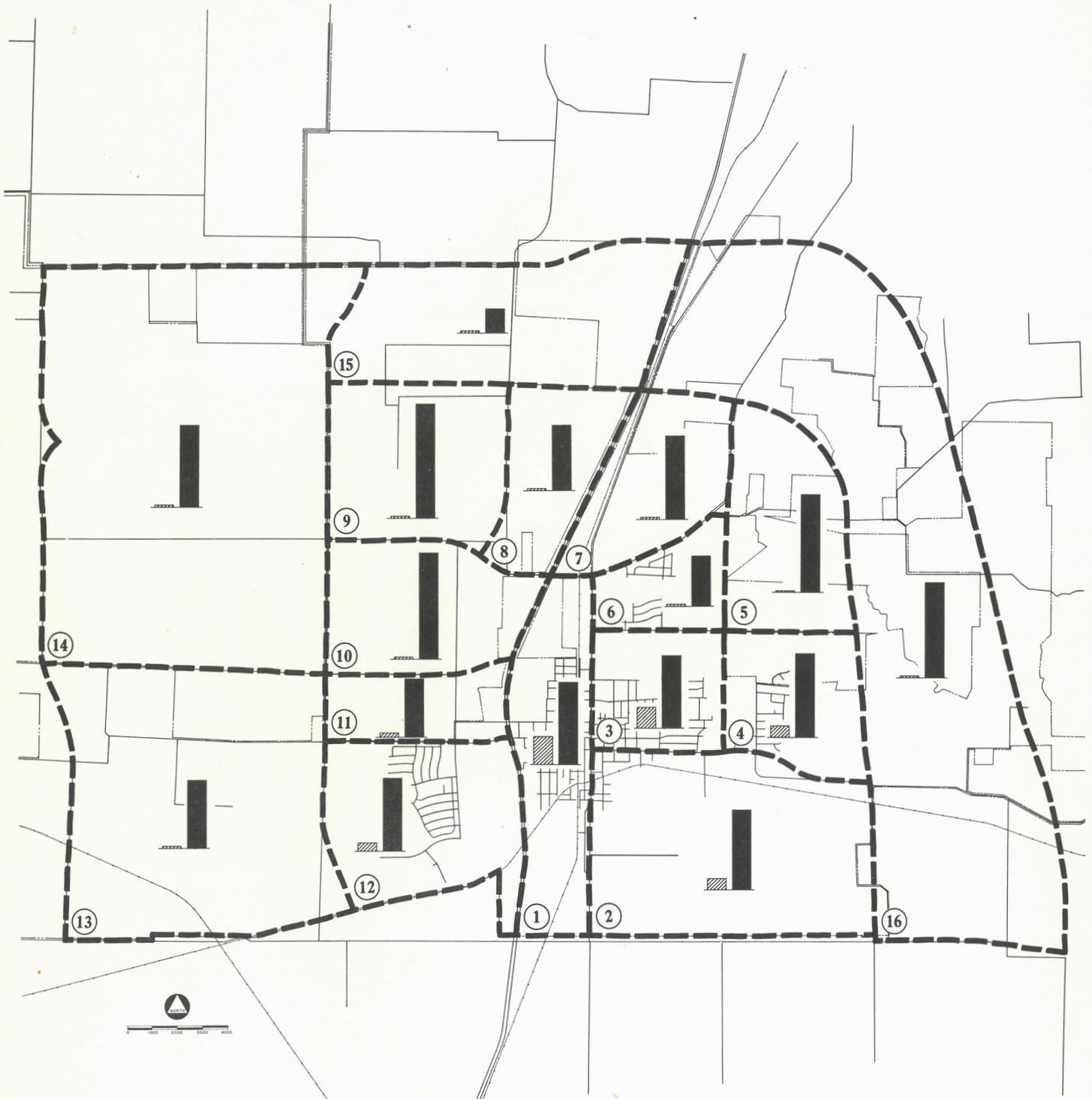
FIGURE 4

At Northwest Highway and U. S. 75 in Dallas, the traffic on U. S. 75 exceeds 60,000 vehicles or about double the volume found just south of Richardson. The projected growth of Plano will, when realized, increase the average daily traffic on U. S. 75 to 35,000-to-40,000 vehicles daily and an even greater increase can be expected on the local streets. U. S. Highway 75 in Richardson is likely to become highly congested as a result of the growth of that City alone and such congestion will tend to impair the access to Plano via that route.

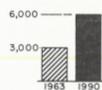
Plate 11 compares the number of vehicle trips generated in each Community Area in 1963 with the estimated daily trips generated when the City reaches a population of 70,000 persons. Growth beyond 70,000 persons will

proportionately increase the trip generation from the areas where the additional growth occurs. A total of 10,500 vehicle trips are generated daily in Plano at the present time. When the population of Plano reaches 70,000 persons, it is estimated that approximately 150,000 vehicle trips will be generated daily. The increased number of daily trips will result from an increase of about tenfold in the number of families, an increased number of motor vehicles per family and some increase in the use of each motor vehicle over the present experience. All of the trends listed are in conformance with existing evidence of motor vehicle ownership and usage.

The population growth anticipated in each Community Area will directly influence the number of vehicle trips generated from the area. Studies have shown that 40-to-50 percent of all urban traffic is between home and place of employment. Social trips, trips to school, to the doctor, to shop and to return home account for 40-to-45 percent of the total traffic, and business and similar trips account for the remaining vehicle movements. Where people live and where they work are the two most significant factors influencing urban traffic. New residential areas and centers of employment are, therefore, of major importance in determining the appropriate thoroughfare



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CITY OF PLANO TEXAS

TRIP ORIGINS BY COMMUNITY STATISTICAL AREAS

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system for a community.

The major future focal points of traffic and areas of major traffic generation in Plano are estimated to be as follows:

1. The Central Business Area is expected to expand and to become increasingly a focal point of traffic. Improved access to the Central Area should be a prime objective of the new Thoroughfare Plan.
2. The large industrial areas along the south edge of the City and the Graduate Research Center will be important destinations and points of origin of large volumes of traffic and such traffic will be the type which contributes heavily to the peak-hour volumes and resulting congestion. Adequate thoroughfare access and circulation must be provided the industrial areas and the Graduate Research Area.
3. The substantial area of new residential developments expected will be a major source of new traffic. These areas must be connected to the regional highway system and employment, business and recreation centers by convenient and adequate major thoroughfares.
4. The entire region around Plano can be expected to continue to grow at a rapid rate and alternate highways to move the traffic around as well as into Plano must be provided. Improved routes of access to Dallas are of special importance.

RECOMMENDED THOROUGHFARE PLAN

The recommended Thoroughfare Plan for Plano is shown by Plate 12. The Plan is based upon an expansion of the 1959 Thoroughfare Plan scaled to the anticipated growth and with consideration of the important changes which are taking place in the Region. The fundamental concept on which the proposed Thoroughfare Plan is based is development of a loop expressway distributor encircling Plano and connecting to a regional loop freeway being planned around Dallas County. Within the Plano loop a system of local thoroughfares coordinated with existing and planned thoroughfares in adjacent communities is delineated. The approved or known plans of Richardson, Garland, Dallas and the Texas Highway Department are all taken into consideration in the proposed thoroughfare system for Plano.

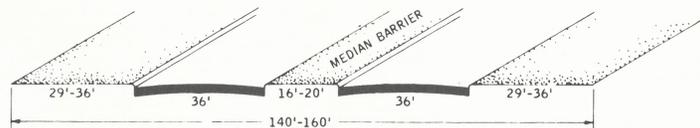
In areas of residential use, the proposed major thoroughfares bound areas of logical neighborhood size about one mile square. Secondary thoroughfares or collector streets are indicated at approximately one-half mile intervals within the major thoroughfare pattern. A special access and circulation arrangement is proposed for the Central Business Area.

STANDARDS FOR THOROUGHFARES

The following cross-section standards are recommended for the various thoroughfares proposed:

Type A Major Thoroughfare:

This type thoroughfare is an expressway type and aside from U. S. Highway 75 is the highest standard thoroughfare proposed for Plano.



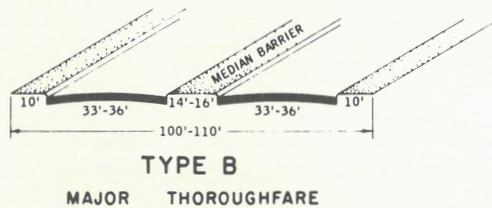
TYPE A
EXPRESSWAY TYPE MAJOR THOROUGHFARE

A minimum right-of-way of 160 feet is recommended where the construction is to rural standards and 140 feet is considered adequate where curbs, gutter and drainage are provided and no extreme grade problems exist. Two 36-foot pavement sections separated by a 16-to-20 foot median barrier are provided. Intersections of the Type A

thoroughfare may be separated at points of heavy cross traffic and controlled left-turn openings provided in the median at well spaced intervals. Control of adjacent land use and subdivision is intended to provide control of marginal interference and provide a high degree of safety and capacity. The loop around Plano is proposed to be a Type A thoroughfare.

Type B Major Thoroughfare:

This is a high volume major thoroughfare designed to accommodate six moving lanes of traffic.

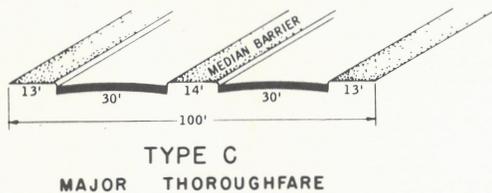


Minimum right-of-way 100-to-110 feet in width is required for a Type B thoroughfare and two pavements 33-to-36 feet in width are provided, separated by a 14-to-16 foot median barrier. Controlled left-turn openings may be provided in the median at appropriate intervals and most important

intersections will be signalized. Plano Road (K Avenue) south of the Central Business District is an example of where a Type B thoroughfare would be appropriate. The Type B standard is a modification of the Class I Thoroughfare in the 1959 Plan.

Type C Major Thoroughfare:

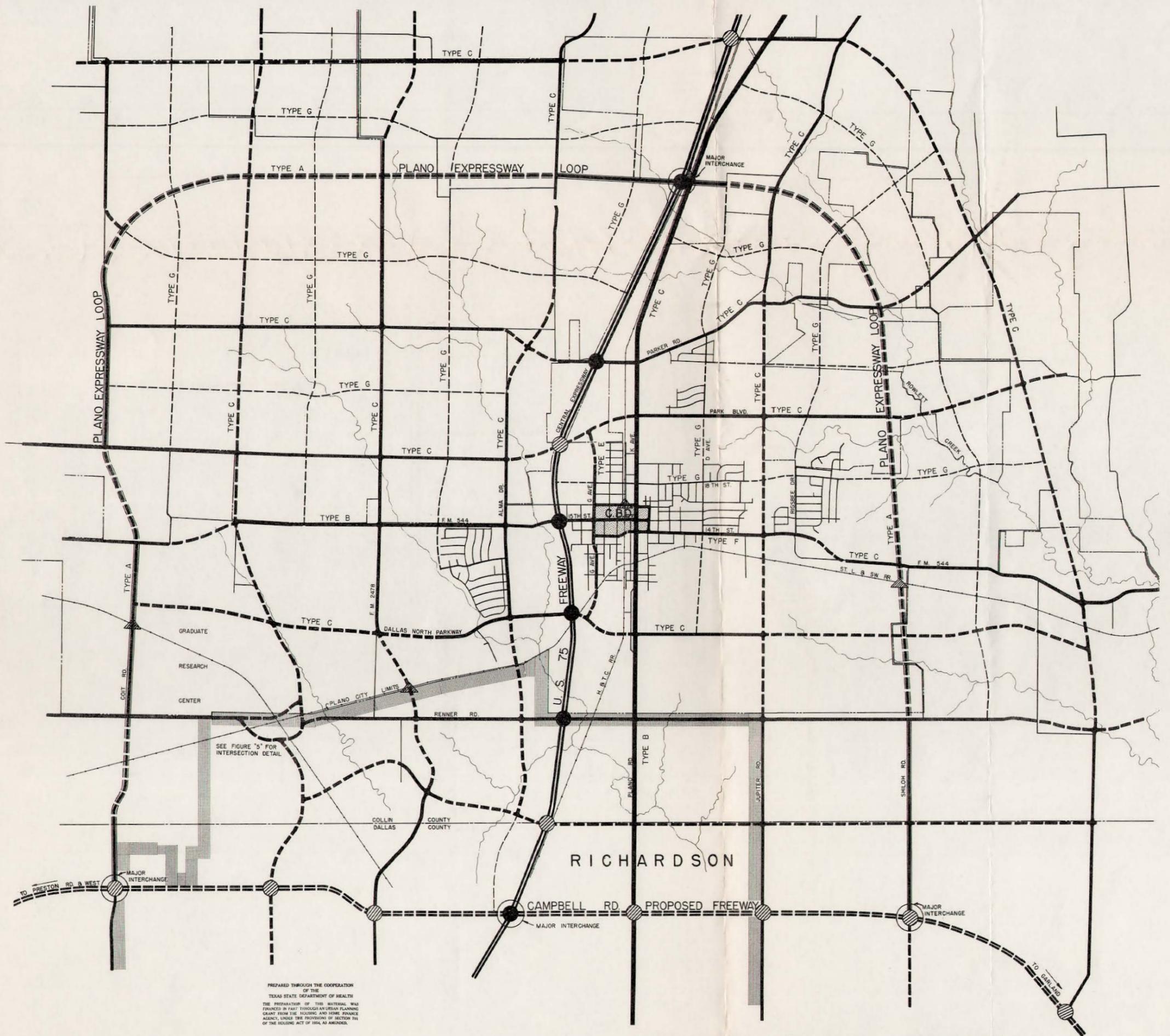
The Type C major thoroughfare provides two moving lanes of traffic in either direction with two parallel parking lanes.



This thoroughfare standard is adapted to use where strong major arteries are required in residential areas and where some parking on the street is likely to occur. A 14-foot median barrier provides space for protected left-turn movements. A minimum of 100 feet of right-of-way is desirable for the Type C standard.

Type D Major Thoroughfare:

In areas where on-street parking is not likely, the Type D thoroughfare may be substituted for Type C. Right-of-way 80-to-90 feet wide is desirable for the Type D thoroughfare and two 24-foot pavements separated by a 14-foot median are provided. The Type D standard may be used for important secondary streets and for



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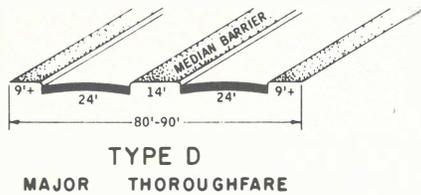
LEGEND

FREEWAY	EXISTING	PROPOSED
EXPRESSWAY TYPE	—————	—————
THOROUGHFARE	—————	—————
MAJOR THOROUGHFARE	—————	—————
SECONDARY THOROUGHFARE	—————	—————
INTERCHANGE LOCATION	●	○
GRADE SEPARATIONS	▲	▲

CITY OF PLANO TEXAS

MAJOR THOROUGHFARE PLAN

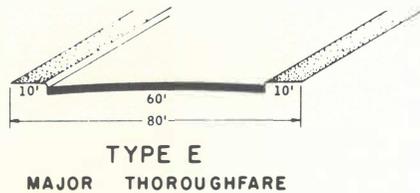
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strong access streets in residential and industrial areas. The Type D standard is similar to the Class II Thoroughfare in the 1959 Plan, but with a wider median for protected turning movements.

Type E Major Thoroughfare:

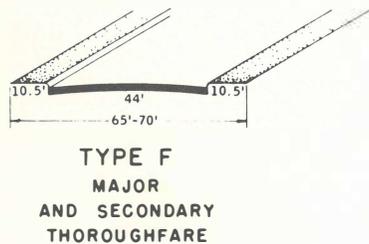
This standard of thoroughfare provides a single 60-foot wide pavement in a minimum 80-foot right-of-way.



The street section may be used for four moving lanes of traffic and two parallel parking lanes or in certain instances as a six-lane moving artery where speeds are slow. The single pavement section may be operated in a directional manner during peak traffic periods or as a one-way street.

Type F Major or Secondary Thoroughfare:

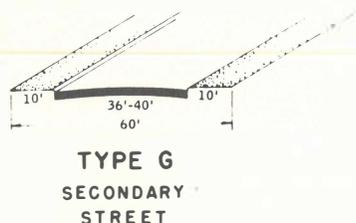
This type thoroughfare may be used as an important secondary or light major artery.



A single 44-foot pavement on a right-of-way 65-to-70 feet wide is provided. The pavement section can be operated as four moving lanes of traffic with parking restricted. In industrial areas the Type F thoroughfare is recommended for secondary streets.

Type G Secondary Street:

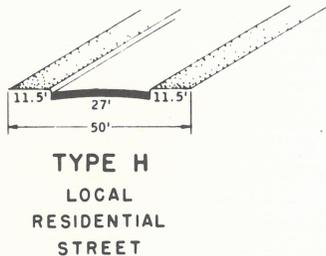
The Type G secondary standard provides a pavement 36-to-40 feet in width on a minimum 60-foot right-of-way. Generally this type street is operated as two moving lanes and two parallel parking lanes.



The Type G standard is recommended for secondary and collector streets in most residential areas and as a minor service street in industrial and commercial areas. This type street is the same as the Class III Thoroughfare in the 1959 Plan.

Type H Local Residential Street:

Most local residential streets are recommended for Type H standard which is identical to the Class IV Thoroughfare in the 1959 Plan.



To adapt the Type H standard, local streets should be generally discontinuous, curvilinear and arranged to discourage large traffic volumes. A minimum right-of-way of 50 feet and a pavement 27 feet wide from back to back of curbs are required.

The eight thoroughfare standards outlined with the addition of parking lanes, channelization at important intersections and signalization where required provide flexible standards which are readily adaptable to the various thoroughfare requirements of Plano. The standards provide a guide for the subdivision of land for the determination of the proper scale of improvements for the various thoroughfares recommended.

NORTH-SOUTH THOROUGHFARES

Plano Road is perhaps the most significant north-south major thoroughfare connecting to Richardson and south. In Richardson, Plano Road is planned as the equivalent of a Type B, or better, thoroughfare with six moving lanes divided by a 16-foot median. In Plano, it is proposed to carry Plano Road north to the Central Business District as a Type B thoroughfare, through the Central Business Area as Type F, thence north as a Type C thoroughfare.

Jupiter Road is projected northward from Dallas County and is proposed as a Type C standard.

Alma Drive is recommended to be continued both north and south as a Type C major thoroughfare. Cooperation with Richardson will be required to reach Renner Road with Alma Drive.

F.M. 2478 is also proposed to be extended southward to intersect Custer Road in Richardson and a Type C standard is recommended. An intermediate north-south major thoroughfare between F.M. 2478 and the Coit Road leg of the Plano Expressway Loop is proposed. This thoroughfare would connect with the main access route to the Graduate Research Center and is proposed as a Type C standard.

DESCRIPTION OF IMPORTANT ARTERIES

The following briefly describes the function and proposed standard of selected thoroughfares shown on the Major Thoroughfare Plan, Plate 12:

Freeways:

U. S. Highway 75 is the only freeway shown in Plano and this highway is improved and divides Plano's potential urban area into two nearly equal parts. There will be need to improve certain interchanges and grade separations and add new interchange facilities as Plano grows. At least two new interchanges are required on U. S. 75 to permit the reasonable communication between the east and west parts of Plano and to improve access to these areas. A major interchange similar to a cloverleaf will be required at the point where the Plano Loop Expressway crosses U. S. Highway 75. The proximity of the H. and T.C. Railroad complicates this interchange location.

Expressways:

The major loop thoroughfare around Plano is proposed as an expressway of Type A standard. This loop highway is designed to distribute traffic to and from the thoroughfares serving various parts of Plano and to connect Plano via the proposed loop freeway in Dallas County to all parts of the Metropolitan Area. The loop route extends around Plano from Coit Road and Campbell Road in Dallas and Richardson to Shiloh Road and Campbell Road in Garland. It is anticipated that Collin County and the Texas Highway Department will assist with the development of this important route.

East-West Thoroughfares:

F.M. 544 (15th Street) is one of the most important east-west thoroughfares serving Plano, and due to its direct connection to the Central Business Area this thoroughfare will always be of major importance to the community. A Type B standard is proposed west of the Central Business Area and a Type C standard to the east. From P Avenue to K Avenue, 14th Street is improved with 44 feet of pavement due to a narrow right-of-way. This section can be operated with four moving lanes of traffic for many years by removing parking when the traffic volume justifies such action. The underpass at the U. S. 75 interchange with F.M. 544 presently contains two moving lanes of traffic in either direction. The clearance between columns is generally inadequate for three lanes of traffic in either direction, but it is possible to provide for three lanes by careful arrangement of the improvement. The full capacity of the underpass will ultimately be needed.

Parker Road is an important east-west artery proposed in the north part of Plano. A Type C standard is appropriate for this route and some improvement of the overpass at U. S. 75 will ultimately be required.

Park Boulevard is proposed for extension east and west to supplement F.M. 544 and a new structure over U. S. 75 will be required to connect both sides of Plano across U. S. 75.

Dallas North Parkway is an important route with an interchange to U. S. 75 and arranged to serve the growing industrial areas along the south edge of the City. A Type C standard is proposed for Dallas North Parkway and portions of the thoroughfare have already been developed.

Renner Road is located in Richardson immediately adjacent to Plano and is an important access route to Plano's industrial area and the Graduate Research Center. It is important that proper connections be made to Renner Road from Plano. Some cooperation on the physical arrangement of thoroughfares and connections in the vicinity of Renner Road and Armstrong Parkway, the Graduate Research Center and the intersection of the Santa Fe and St. Louis and Southwestern Railroad will be required. A suggested arrangement for the complex thoroughfare intersection is shown by Figure 5.

COORDINATION WITH ADJACENT THOROUGHFARE PLANS

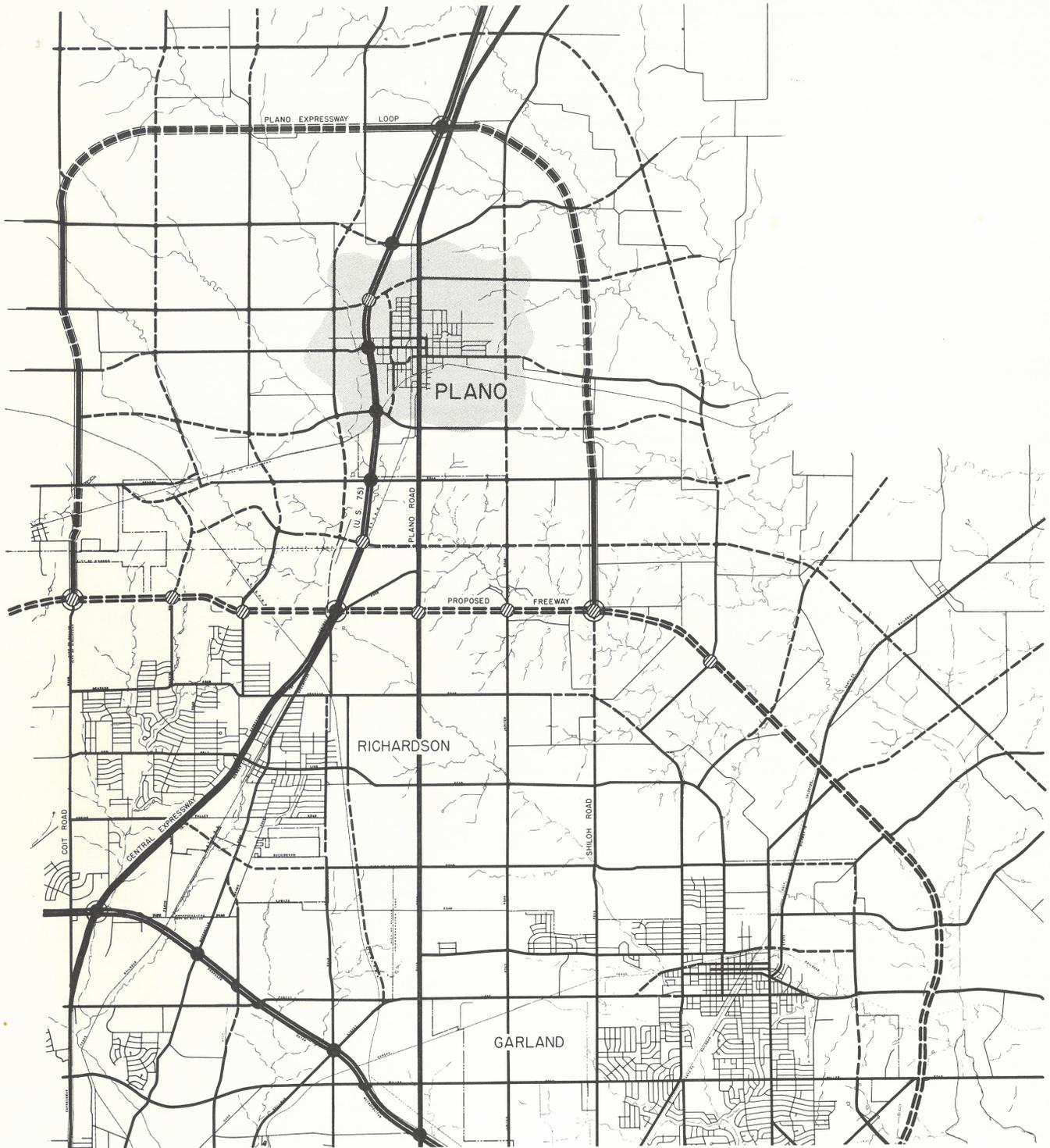
The relationship of the Recommended Thoroughfare Plan for Plano with the plans and thoroughfares of adjacent Cities is shown by Plate 13. Garland, Richardson and Dallas are developing thoroughfare systems in conformance with the pattern illustrated.

The significance of tying the Plano Expressway Loop into the Campbell Road Freeway is clearly apparent by the overall thoroughfare pattern illustrated. The connection of Plano Road south to Interstate Highway Loop 635 in Dallas is also illustrated by Plate 13. Plano Road is considered as a supplemental artery to Central Expressway and is important to Plano.

The developed part of Richardson between Central Expressway and Coit Road provides no important north-south route of access to Plano. Coit Road has a secondary and low volume connection with Central Expressway and cannot be considered as an adequate access route to Dallas. The Campbell Road Freeway proposed will provide a route around the Richardson complex and connect Plano conveniently to the entire Metropolitan Area.

The need for a high degree of cooperation in thoroughfare development between the Cities of Plano, Richardson, Dallas and Renner is apparent from Plate 13. Collin County and Dallas County, likewise, have an interest in coordinating the development of their adjacent highway systems. The investment in the Graduate Research Center is largely Dallas supported and inspired. The welfare of this investment being made in this outstanding institution requires coordination of thoroughfare access and circulation. It is anticipated that the Texas Highway Department will play a major role eventually in providing many of the basic facilities required. The Highway Department's efforts will, however, be impaired unless the complex of communities involved agree upon an overall concept of thoroughfares similar to that shown by Plate 13.

Insofar as possible, the inter-City vehicle movements in the Metropolitan Area should be handled by freeways and expressways and the major thoroughfares used for shorter movements and access to specific areas. Central Expressway, the Expressway Loop around Plano and the Campbell Road Freeway provide Plano with the basic freeway - expressway system whereby the inter-City vehicle movements destined to and from the Plano area may be reasonably handled. Traffic which must pass through Plano to reach its destination can also be conveniently by-passed on the freeway and expressway system indicated by Plate 13.



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CITY OF PLANO TEXAS

RELATIONSHIP OF PLANO THOROUGHFARE
 PLAN TO ADJACENT AREAS

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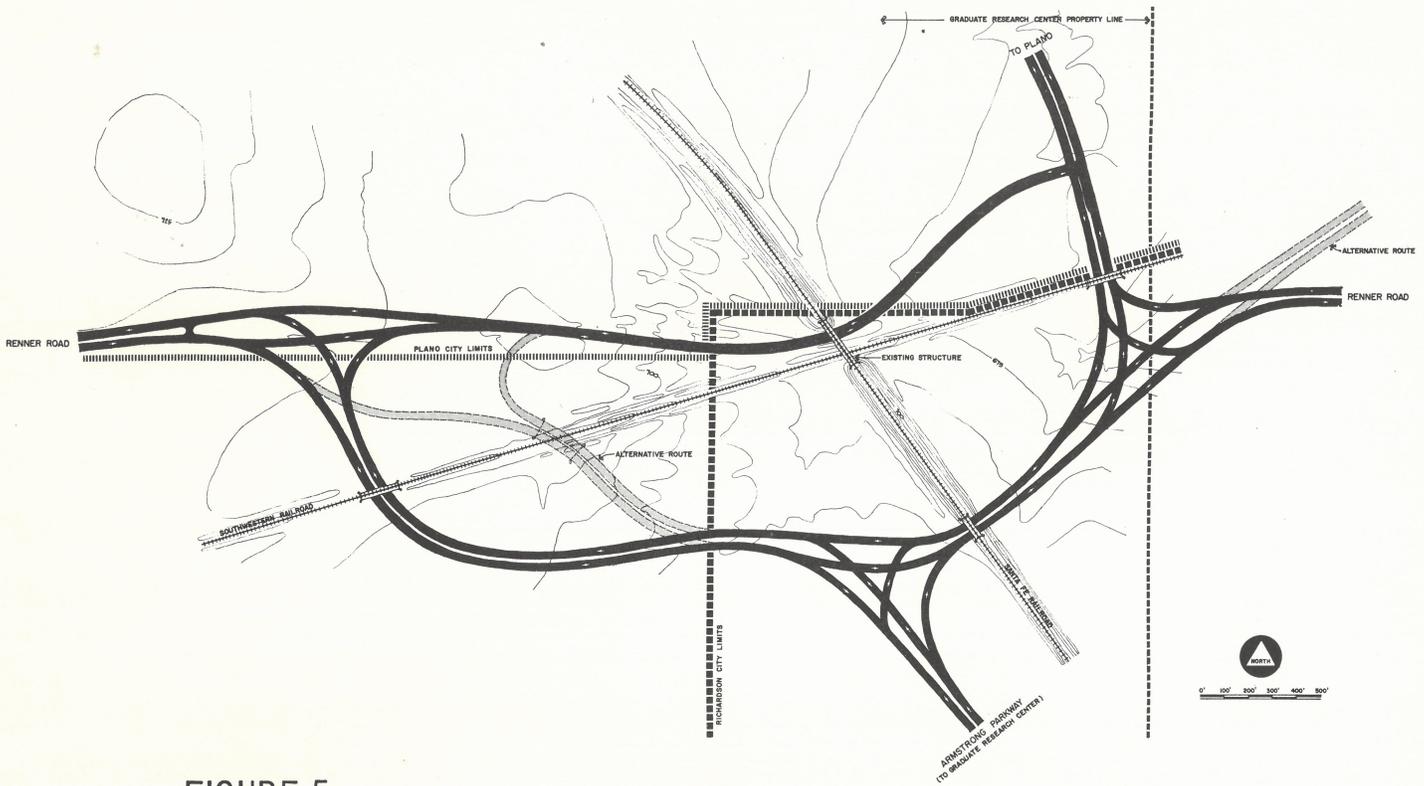


FIGURE 5

SUGGESTED
 RENNER ROAD — ARMSTRONG PARKWAY
 THOROUGHFARE COMPLEX

The need for cooperation of effort and coordination of plans between adjacent communities is illustrated by the above sketch of the proposed thoroughfare arrangement needed to provide access to the Graduate Research Center from the north. Most of the facilities occur in Richardson but they control the access to Plano and even the traffic circulation within the Graduate Research Center area. Several railroad grade separation structures are needed and major changes of alignment are required.

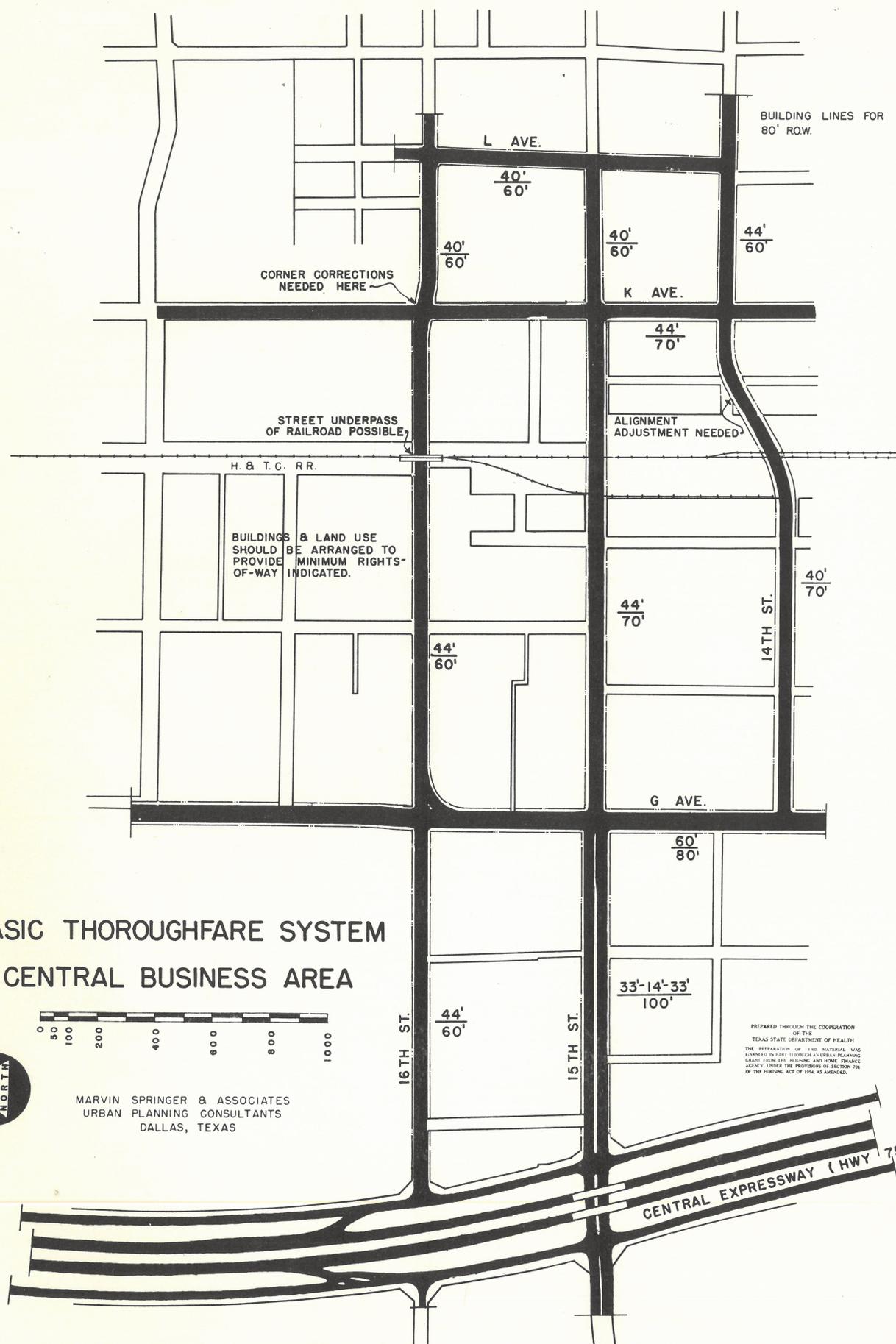
BASIC THOROUGHFARE SYSTEM
CENTRAL BUSINESS AREA

The basic thoroughfare system proposed for the Central Business Area is shown by Plate 14. If even a portion of the growth anticipated for Plano is realized, there will be need to expand both the business area and the vehicular access to the Central Area. The arrangement shown on Plate 14 is intended to provide a basic street framework for the expansion of the Central Area.

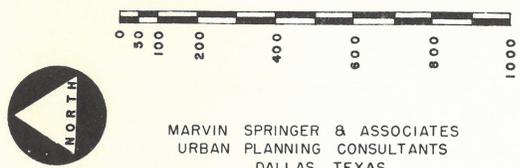
One of the obvious problems inherent in the expansion of Plano's Central Area is the location of the H. and T.C. Railroad bisecting the business district. It is considered that time will prove the railroad location to be a fortunate one inasmuch as it is likely that any rapid transit service to Dallas will utilize the direct route of the railroad. When and if such transportation improvements are achieved, the Plano terminal can be located directly in the Central Business District. In the interim it is considered desirable to encourage the continued development on both sides of the railroad and to seek changes in some of the facilities located on the railroad right-of-way.

The basic thoroughfare system proposes the following:

1. F.M. 544 (15th Street) from Central Expressway to G Avenue is proposed as a six lane divided thoroughfare. Building lines should be established to protect 100 feet of right-of-way in this section and uses should be arranged to be coordinated with well spaced openings in the median for left turns.
2. Fifteenth Street from G Avenue to K Avenue is proposed to have a minimum of 44 feet of pavement and a right-of-way at least 70 feet wide should be protected from encroachment on this section.
3. G Avenue is proposed as a distributor street connecting with 14th and 16th Streets for movements around the Central Area to supplement 15th Street from the end of the six lane divided roadway to L Avenue.
4. Fourteenth Street is proposed to be carried across the railroad at a new crossing and 16th Street is suggested as the possible location of a railroad underpass. Such an arrangement would assure one emergency east-west route free of railroad interference.
5. Building lines should be established to protect the minimum rights-of-way indicated from encroachment.



**BASIC THOROUGHFARE SYSTEM
CENTRAL BUSINESS AREA**



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CENTRAL EXPRESSWAY (HWY 75)

