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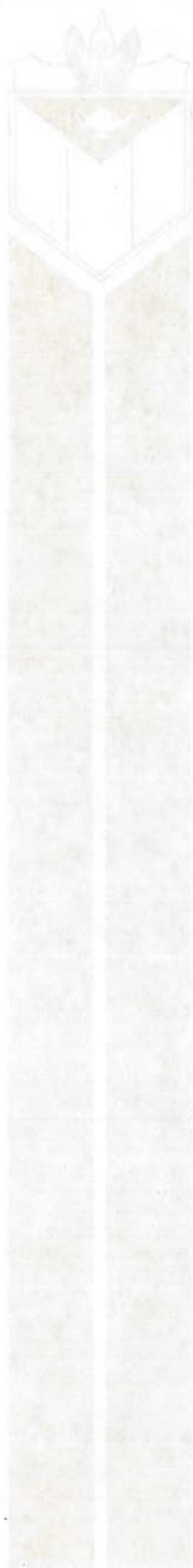


Prepared May 1979

AREA STUDY
U.S. 183 *Hollyville Rd.*

Prepared by City of Austin
Departments of Planning and
Urban Transportation

City of Austin



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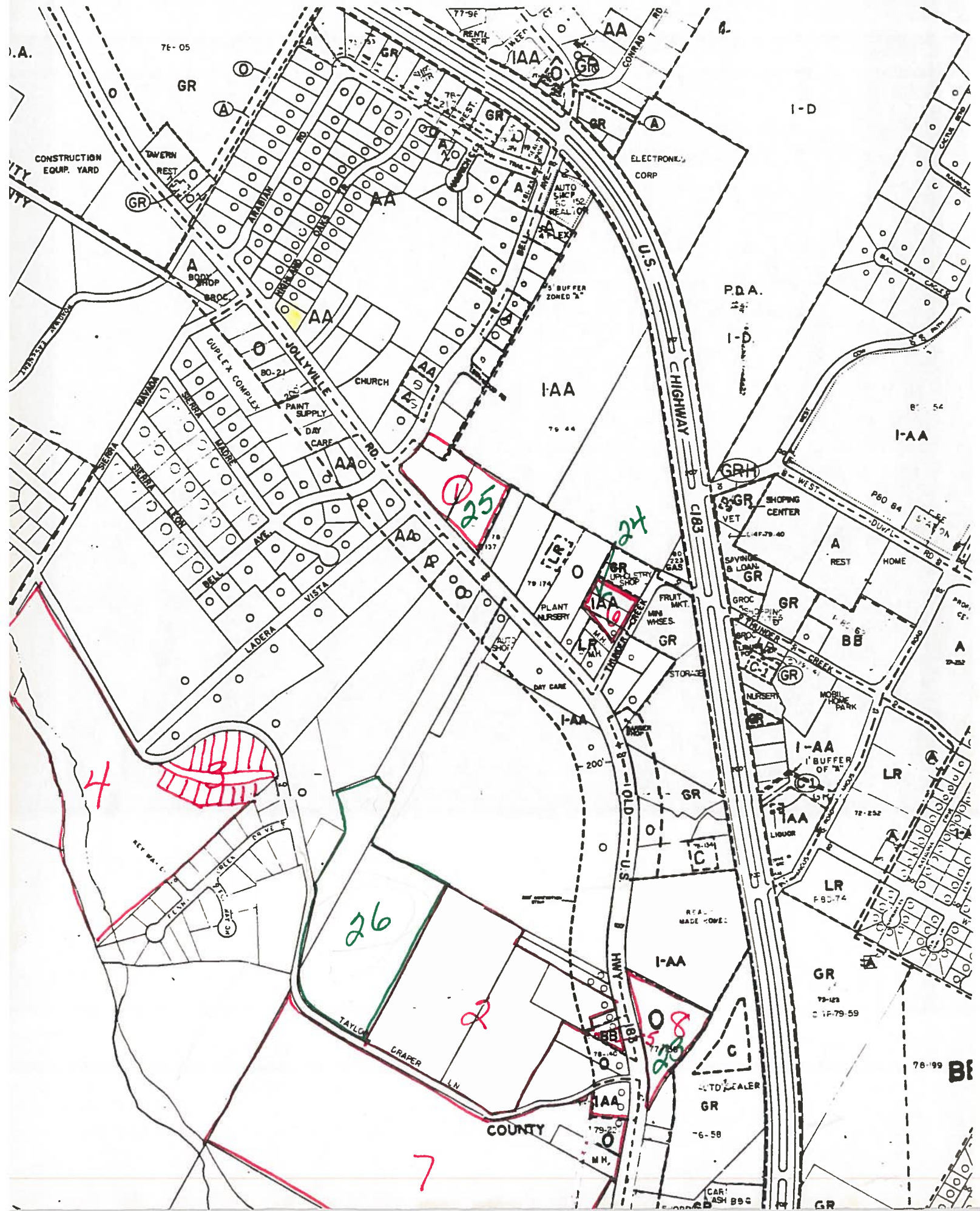




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GENERAL LAND USE ISSUES

2001 2001 2001 2001

INTRODUCTION

The last half-century has seen an extraordinary rapid growth and expansion of the human population. An estimated 2.5 billion people are now living on the earth, and the human population is expected to reach 4 billion by the year 2000. This rapid increase in population has led to a corresponding increase in the demand for food, clothing, shelter, and other necessities of life. The rapid increase in population has also led to a corresponding increase in the demand for energy, particularly fossil fuels. The rapid increase in population has also led to a corresponding increase in the demand for land, particularly for agriculture and urban development. The rapid increase in population has also led to a corresponding increase in the demand for water, particularly for drinking water and irrigation. The rapid increase in population has also led to a corresponding increase in the demand for transportation, particularly for automobiles and airplanes. The rapid increase in population has also led to a corresponding increase in the demand for communication, particularly for telephones and television. The rapid increase in population has also led to a corresponding increase in the demand for education, particularly for primary and secondary education. The rapid increase in population has also led to a corresponding increase in the demand for health care, particularly for hospitals and clinics. The rapid increase in population has also led to a corresponding increase in the demand for social services, particularly for housing and welfare. The rapid increase in population has also led to a corresponding increase in the demand for environmental protection, particularly for clean air and clean water. The rapid increase in population has also led to a corresponding increase in the demand for cultural and recreational activities, particularly for parks and museums. The rapid increase in population has also led to a corresponding increase in the demand for scientific and technological advancement, particularly for space exploration and nuclear energy. The rapid increase in population has also led to a corresponding increase in the demand for political and social stability, particularly for peace and justice. The rapid increase in population has also led to a corresponding increase in the demand for economic development, particularly for growth and prosperity. The rapid increase in population has also led to a corresponding increase in the demand for environmental protection, particularly for clean air and clean water. The rapid increase in population has also led to a corresponding increase in the demand for cultural and recreational activities, particularly for parks and museums. The rapid increase in population has also led to a corresponding increase in the demand for scientific and technological advancement, particularly for space exploration and nuclear energy. The rapid increase in population has also led to a corresponding increase in the demand for political and social stability, particularly for peace and justice. The rapid increase in population has also led to a corresponding increase in the demand for economic development, particularly for growth and prosperity.

A. Study Area Boundary

The study area is located in the northwestern corner of the state of California, between the Pacific Ocean and the Sierra Nevada mountains. The study area is bounded by the Pacific Ocean to the west, the Sierra Nevada mountains to the east, and the 39th parallel north to the south. The study area is approximately 100 miles wide and 100 miles deep. The study area is divided into three main regions: the coastal region, the central region, and the mountain region. The coastal region is located along the Pacific Ocean and is characterized by a mild climate and a high population density. The central region is located in the center of the study area and is characterized by a semi-arid climate and a moderate population density. The mountain region is located in the Sierra Nevada mountains and is characterized by a high altitude and a low population density.

INTRODUCTION

B. General Description

The study area is a large, diverse region with a wide range of natural resources and a high population density. The study area is characterized by a mild climate, a high population density, and a wide range of natural resources. The study area is divided into three main regions: the coastal region, the central region, and the mountain region. The coastal region is located along the Pacific Ocean and is characterized by a mild climate and a high population density. The central region is located in the center of the study area and is characterized by a semi-arid climate and a moderate population density. The mountain region is located in the Sierra Nevada mountains and is characterized by a high altitude and a low population density. The study area is a large, diverse region with a wide range of natural resources and a high population density. The study area is characterized by a mild climate, a high population density, and a wide range of natural resources. The study area is divided into three main regions: the coastal region, the central region, and the mountain region. The coastal region is located along the Pacific Ocean and is characterized by a mild climate and a high population density. The central region is located in the center of the study area and is characterized by a semi-arid climate and a moderate population density. The mountain region is located in the Sierra Nevada mountains and is characterized by a high altitude and a low population density.

I. INTRODUCTION

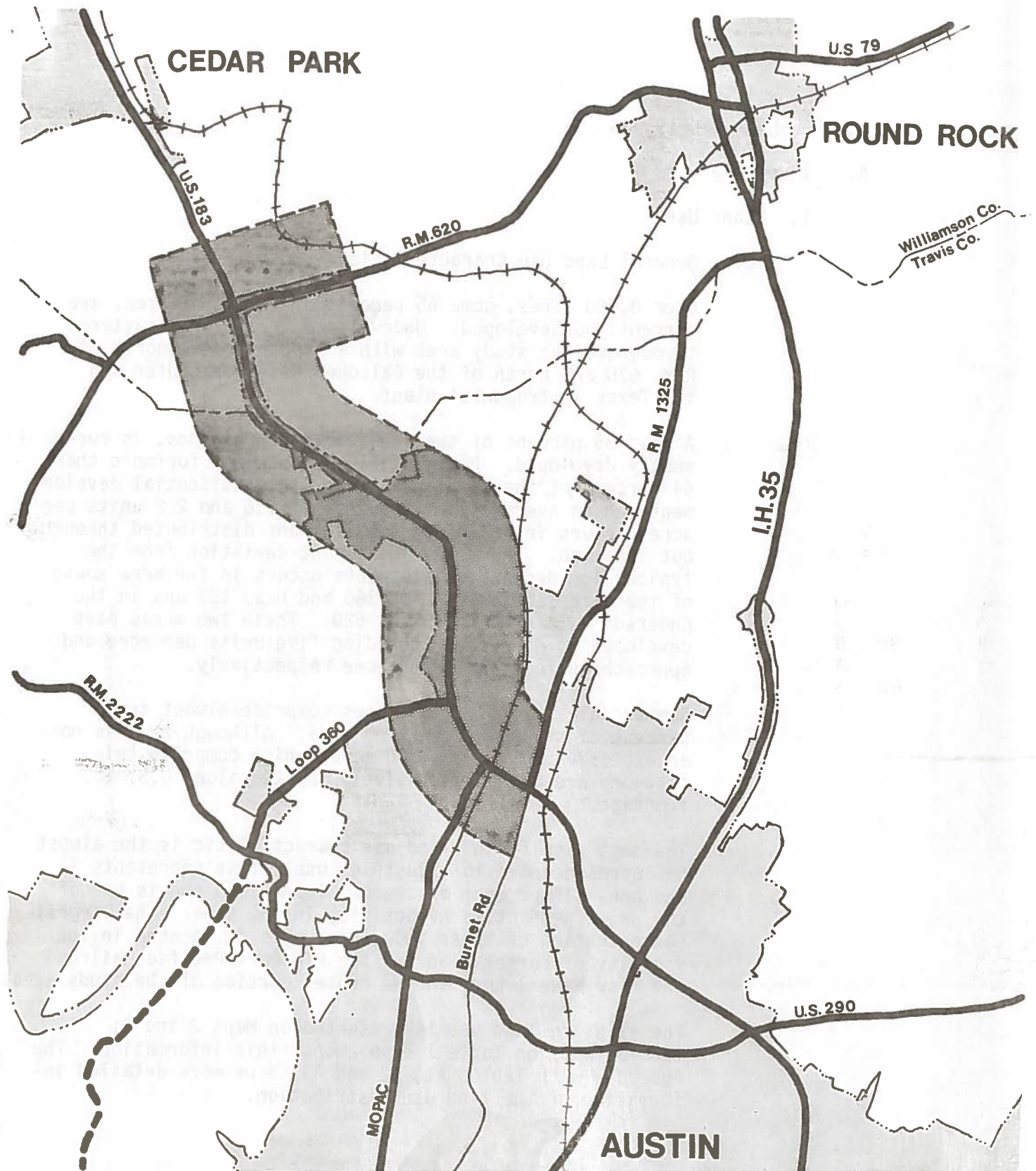
The Austin metropolitan area has experienced rapid growth and expansion during the last 25 years. An accelerated migration from rural to urban areas, and the unprecedented population growth during the 15 years following World War II, combined to produce extreme and irreversible population pressures on urban areas. The rapid increase of residential, commercial and industrial development in the last few years has caused a substantial increase in traffic volume along U.S. 183. Originally intended as a high speed arterial for through-traffic, it began serving the numerous abutting properties. Since it was not designed to serve both functions, a series of conflicts resulted. High speeds, numerous intersections and driveways compounded the situation and resulted in mounting traffic congestion, unsafe travel conditions and conflicting land uses. A 60 day zoning moratorium was issued by Council with instructions to the City staff to research the root of these problems and recommend policy guidelines for future development activity along this corridor. This report investigates the existing problems, discusses trends and projections, and their impact on the area. It is designed to provide a mechanism to establish a framework for sound planning and decision making.

A. Study Area Boundary

The U.S. 183 study area is approximately two miles wide and nine and one-half miles long, encompassing an area one mile north of R.M. 620 to Burnet Road. To facilitate the analysis, the study area was divided into 18 subareas. Map 1 locates the study area and its environs.

B. General Characteristics

The study area encompasses over 13,000 acres in the northwest fringe of the Austin urbanized area. U.S. 183 provides the primary access. In recent years this corridor has been one of the fastest growing residential, commercial and industrial areas in Austin. The terrain is generally a broad tree-covered plateau with slopes varying from two to 20 percent. Elevations range from less than 600 feet mean sea level near Loop 360 and Spicewood Springs Road to just about 1,000 feet west of the Anderson Mill area. Most of the study area is within the Big Walnut Creek and the rugged Bull Creek drainage basins. A small portion in the southern tip is located in the Shoal Creek and Little Walnut Creek basins. These basins are subwatersheds of the Colorado River. A portion of the area in the northern tip is located in the Lake Creek and Rattan Creek basins, which are subwatersheds of the Brazos River. The soils are predominantly shallow, well-drained stoney soils over limestone with rock outcroppings.



MAP 1

LOCATION OF THE
STUDY AREA

II. GENERAL LAND USE ISSUES

A. Inventory

1. Land Use

a. General Land Use Characteristics

Over 8,600 acres, some 65 percent of the total area, are currently undeveloped. Undeveloped tracts are scattered throughout the study area with a preponderance north of R.M. 620 and north of the Balcones Research Center and the Texas Instruments' plant.

Almost 35 percent of the area, some 4,600 acres, is currently developed. Residential uses account for more than 64 percent of the developed area. The residential development, which averages in the range of 1.6 and 2.2 units per acre, occurs in groups of subdivisions distributed throughout the area. The most significant deviation from the typical low density developments occurs in the area south of the intersection of Loop 360 and U.S. 183 and in the Anderson Mill area near R.M. 620. These two areas have developed at densities exceeding five units per acre and approaching four units per acre respectively.

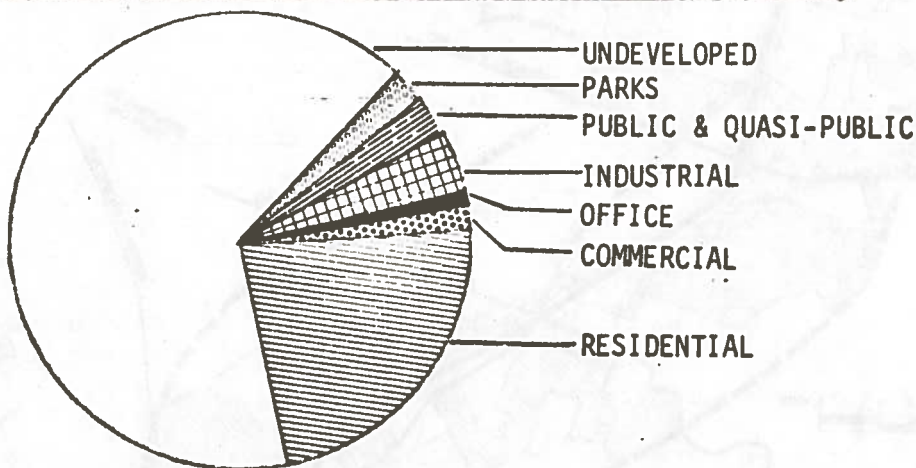
Commercial and office land uses comprise almost seven percent of the developed land area. Although this is not an excessive ratio, the 300 acres which comprise this category are almost exclusively located along U.S. 183 frontage.

The most significant land use characteristic is the almost 600 acres devoted to industrial use. This represents 12 and one-half percent of the developed land and is one of the prime generators of activity in the area. The largest concentration of these industrial uses is located in the vicinity of Burnet Road and the Missouri-Pacific Railroad and near McNeil Road in the center portion of the study area.

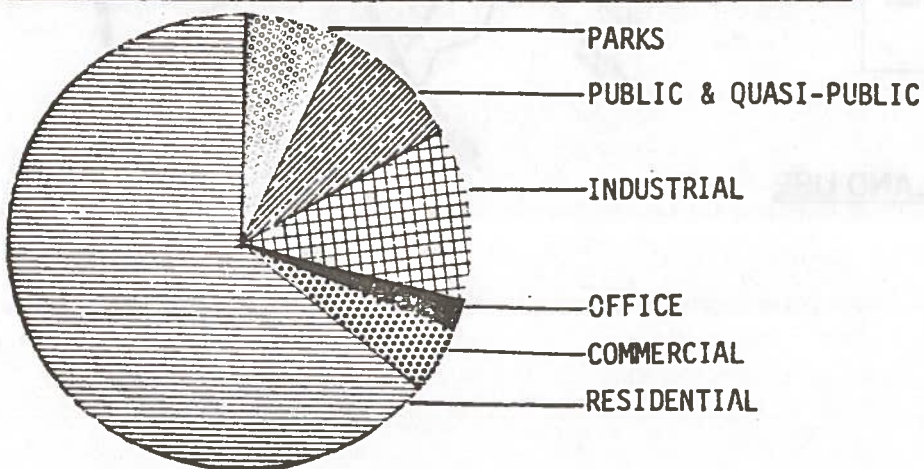
The existing land use is presented on Maps 2 and 3; tabular data on Table 1 supplements this information. The Appendix with Tables A1, A2 and A3 shows more detailed information of the land use distribution.

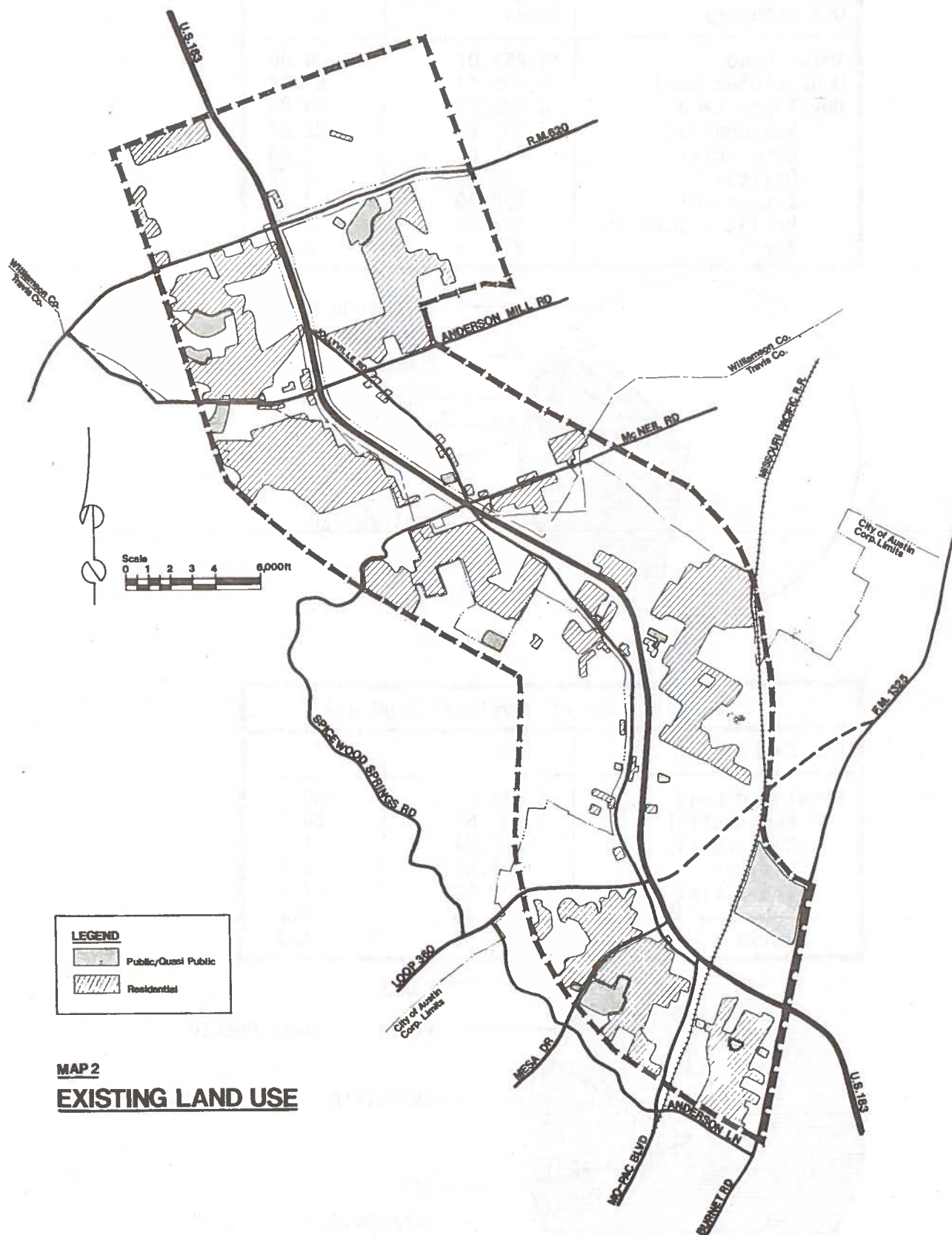
TABLE 1 - Land Use Distribution (Existing)

Distribution of total land use		
Use Category	Acres	%
Total Land	13,259.01	100.00
Undeveloped Land	8,636.44	65.14
Developed Land	4,622.57	34.86
Residential	2,992.67	22.57
Commercial	215.64	1.63
Offices	95.69	0.72
Industrial	578.60	4.35
Public & Quasi-P.	426.65	3.22
Parks	313.32	2.37

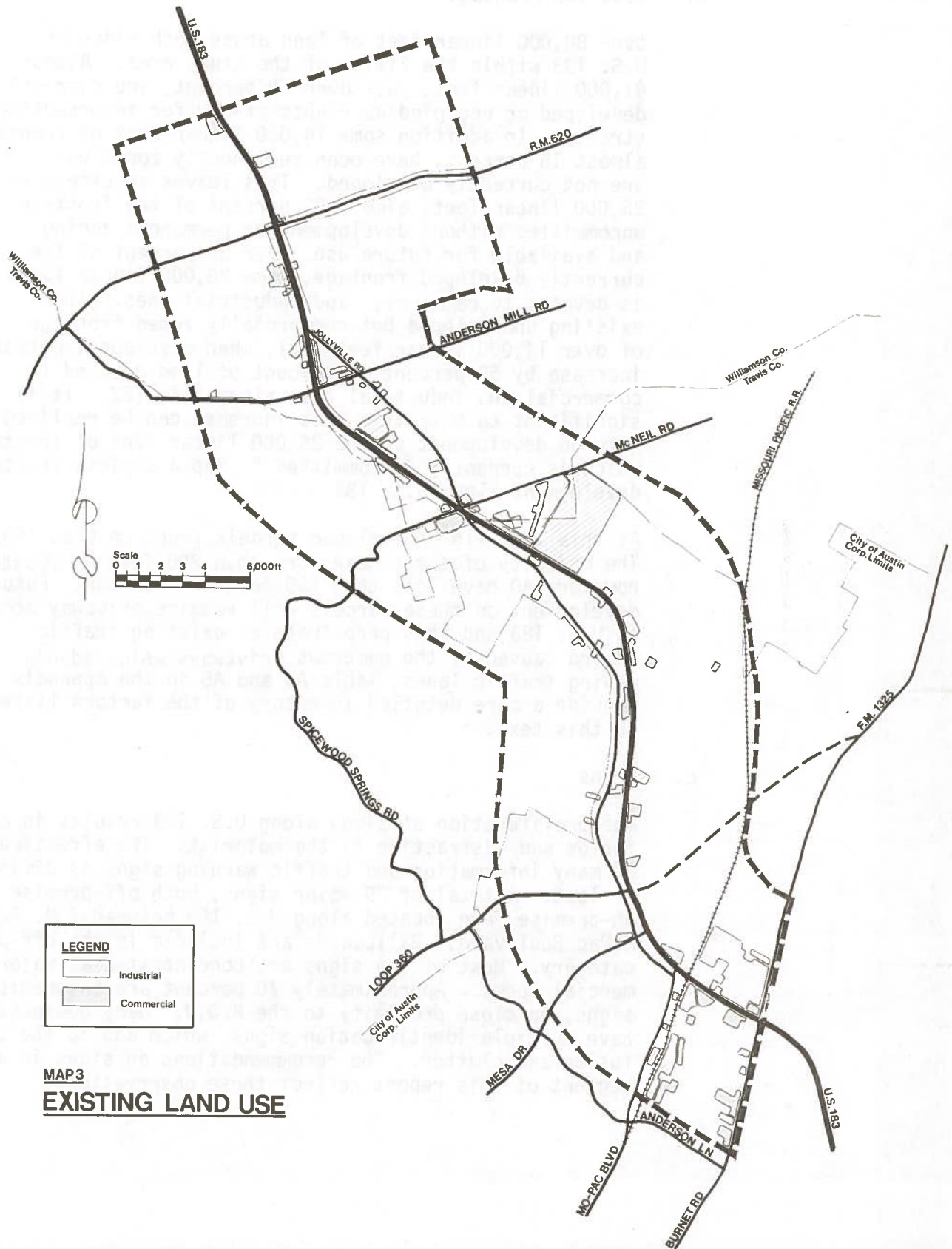


Distribution of developed land use		
Use Category	Acres	%
Developed Land	4,622.57	100.0
Residential	2,992.67	64.7
Commercial	215.64	4.7
Offices	95.69	2.1
Industrial	578.60	12.5
Public & Quasi-P.	426.65	9.2
Parks	313.32	6.8





MAP 2
EXISTING LAND USE



MAP 3
EXISTING LAND USE

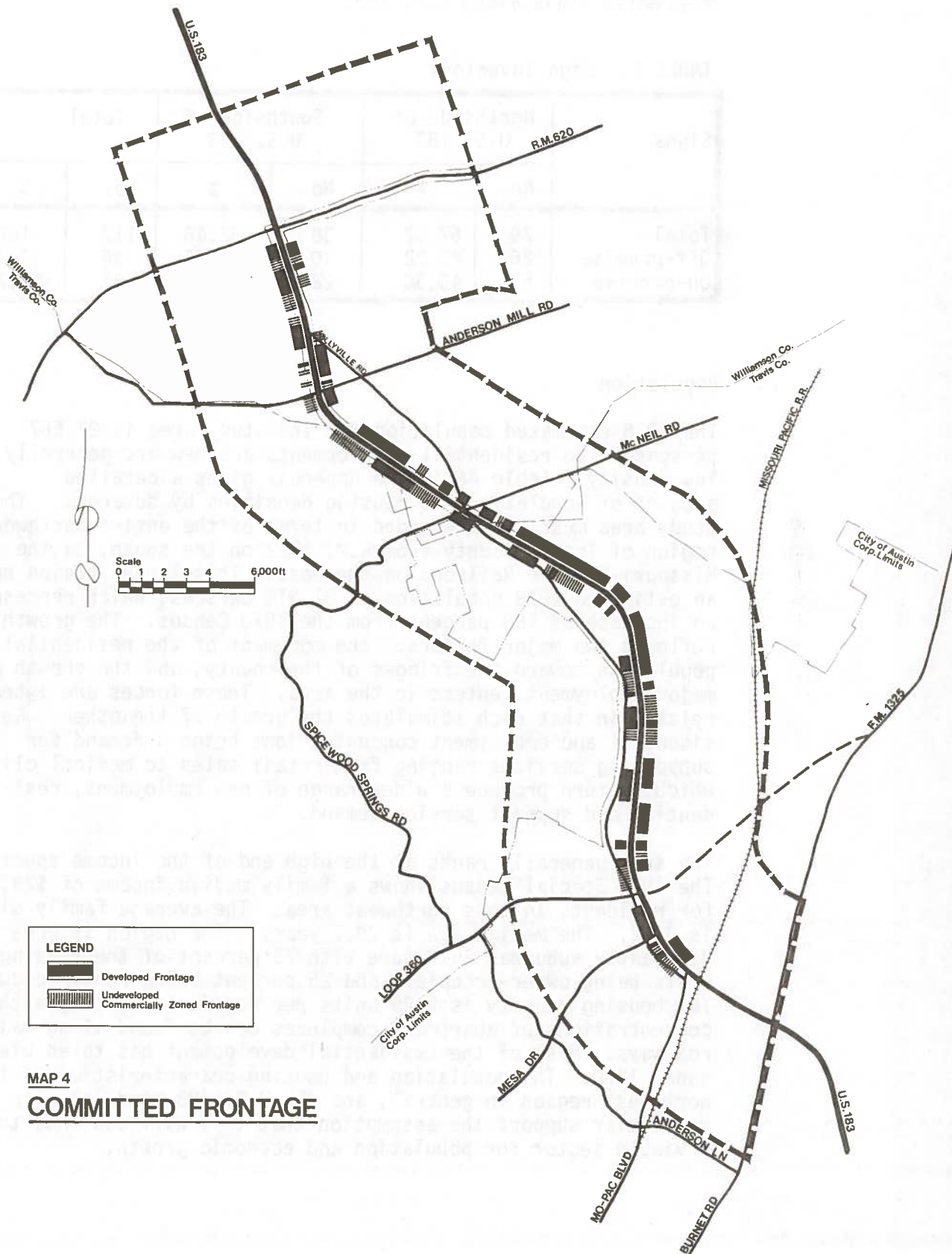
b. U.S. 183 Frontage

Over 80,000 linear feet of land abuts both sides of U.S. 183 within the limits of the study area. Almost 41,000 linear feet, just over 50 percent, are currently developed or occupied as rights-of-way for intersecting streets. In addition some 14,000 linear feet of frontage, almost 18 percent, have been permanently zoned but are not currently developed. This leaves an excess of 25,000 linear feet, almost 32 percent of the frontage, uncommitted without development or permanent zoning and available for future use. Over 80 percent of the currently developed frontage, some 28,000 linear feet, is devoted to commercial and industrial uses. The existing undeveloped but commercially zoned frontage of over 14,000 linear feet will, when developed, potentially increase by 50 percent the amount of land devoted to commercial and industrial uses along U.S. 183. It is significant to note that this increase can be realized with no development on the 25,000 linear feet of frontage which is currently "uncommitted." Map 4 depicts frontage development along U.S. 183.

At this time 116 undeveloped parcels front on U.S. 183. The majority of these have more than 200 feet of frontage, however, 40 have less than 150 feet of frontage. Future development on these parcels will require driveway access to U.S. 183 and thus perpetuate an existing traffic hazard caused by the numerous driveways which adjoin moving traffic lanes. Table A4 and A5 in the Appendix provide a more detailed inventory of the factors listed in this text.

c. Signs

The proliferation of signs along U.S. 183 results in confusion and distraction to the motorist. The effectiveness of many information and traffic warning signs is diminished or lost. A total of 79 major signs, both off-premise and on-premise, are located along U.S. 183 between R.M. 620 and MoPac Boulevard. Billboards are included in the off-premise category. Most of the signs are concentrated at major commercial nodes. Approximately 70 percent are on-premise signs, in close proximity to the R.O.W. Many businesses have multiple identification signs, which add to the confusion and clutter. The recommendations on signs in a later segment of this report reflect these observations.



MAP 4

COMMITTED FRONTAGE

Table 2 shows the number and percent of off-premise and on-premise signs along U.S. 183.

TABLE 2: Sign Inventory

Signs	Northside of U.S. 183		Southside of U.S. 183		Total	
	No.	%	No.	%	No.	%
Total	79	67.52	38	32.48	117	100
Off-premise	26	22.22	10	8.55	36	30.77
On-premise	53	45.30	28	23.93	81	69.23

2. Population

The 1978 estimated population for the study area is 27,667 persons. The residential developments are new and generally low density. Table A6 in the Appendix gives a detailed account of population and housing densities by subareas. The study area must be understood in terms of the entire northwest region of Travis County from R.M. 2222 on the south, to the Missouri-Pacific Railroad on the east. This larger region has an estimated 1978 population of 31,318 persons, which represents an increase of 188 percent from the 1970 Census. The growth reflects two major factors: the movement of the residential population toward the fringes of the county; and the growth of major employment centers in the area. These forces are inter-related in that each stimulates the growth of the other. Residential and employment concentrations bring a demand for supporting services ranging from retail sales to medical clinics, which in turn produce a wider range of new employment, residential and support service demand.

The area generally ranks at the high end of the income spectrum. The 1976 Special Census shows a family median income of \$23,333 for residents in this northwest area. The average family size is 3.32. The median age is 29.7 years. The region is predominantly suburban in nature with 75 percent of the housing units being owner-occupied, and 25 percent being renter occupied. The housing density is 2.89 units per residential acre, although concentrations of apartment complexes can be found along major roadways. Most of the residential development has taken place since 1960. The population and housing characteristics of the northwest region in general, and the U.S. 183 study area in particular support the assumption that this will continue to be a viable sector for population and economic growth.

3. Utilities

Availability of water and wastewater systems has a strong influence on growth. The City of Austin supplies both services to much of the study area. Most utility lines have been sized for much larger capacities than they are currently serving and the potential exists to expand utility connections to new areas.

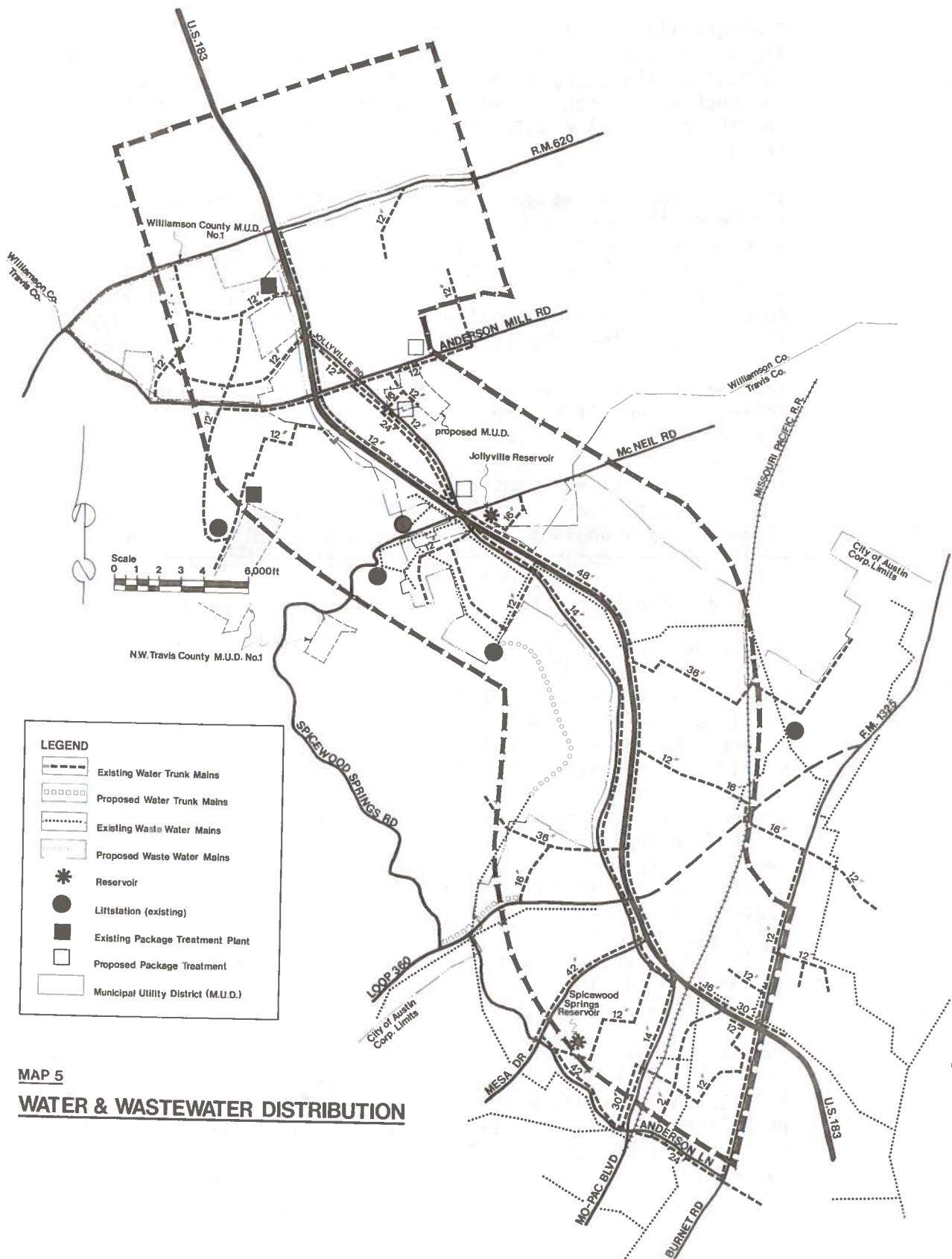
The City supplies water to a major portion of the study area, including the area within Williamson County M.U.D. #1. Water trunk mains, in general, follow U.S. 183 and Old Jollyville Road from Mesa Drive to R.M. 620 with feeder mains to adjacent subdivisions. Spicewood Springs Reservoir with a capacity of 10 million gallons and Jollyville Reservoir with a capacity of 11 million gallons are located in the study area.

Wastewater services extend to portions of the study area. Major collection facilities are illustrated on Map 5. Effluent is channelled by the Big Walnut Creek and by the Bull Creek interceptor via the Crosstown Tunnel to the Walnut Creek Treatment Plant. Williamson County M.U.D. #1, serves the Anderson Mill Subdivision area, while the Spicewood at Balcones Subdivision is served by a private package treatment plant. Other areas are on individual septic tank systems. Bull Creek lateral "A" has the potential to provide services to most of the area north of Great Hills and north of McNeil Road within the study area.

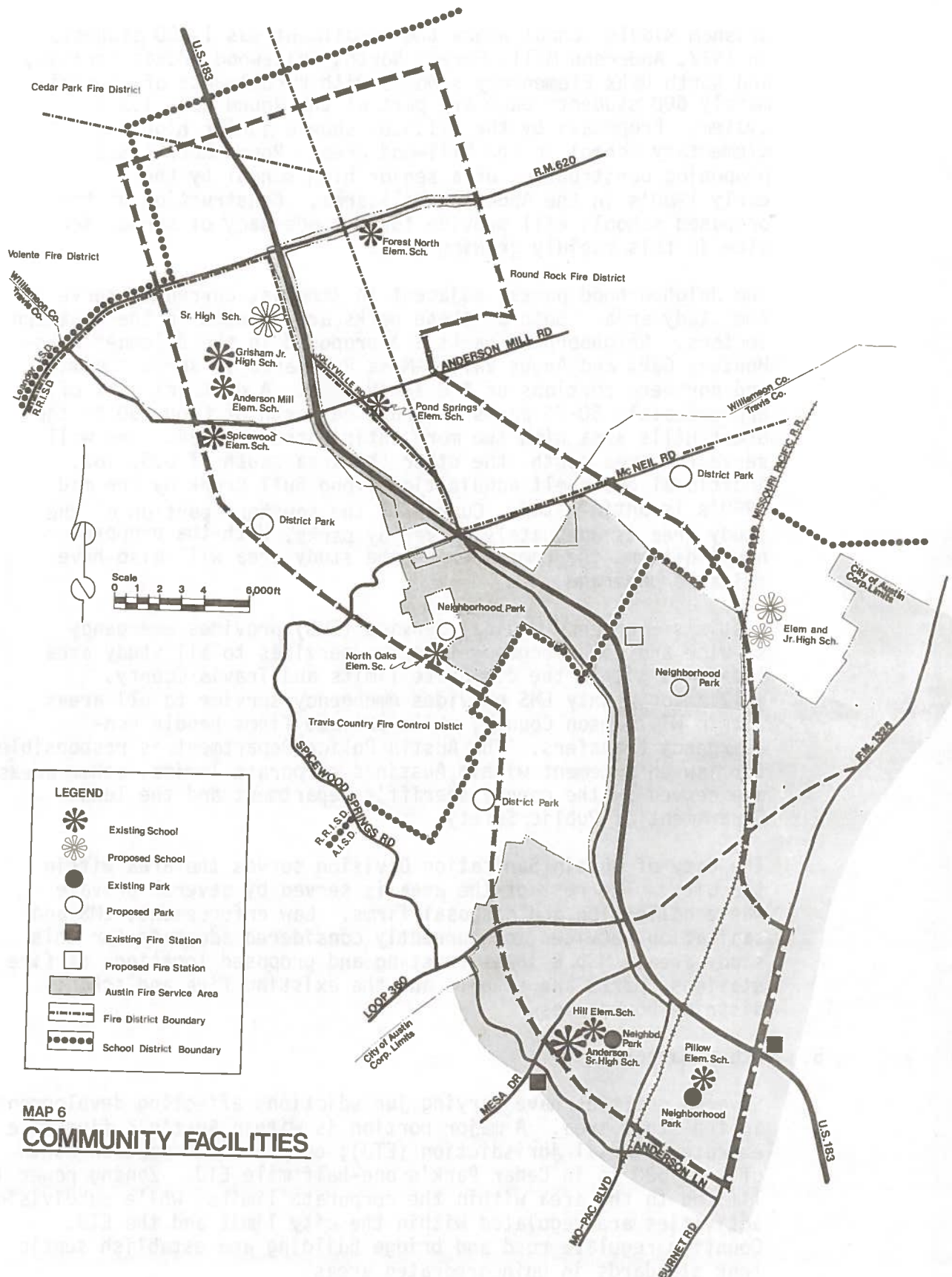
4. Community Services and Facilities

Good schools, fire and police protection, and proximity to recreational facilities will tend to stimulate and attract growth. Rapid increases in development, however, can severely strain the capacity of these services. Fire protection in the study area is currently the shared responsibility of five different fire departments with some overlapping jurisdictions. These fire departments are the City of Austin Fire Department, Travis County Fire Control District, Round Rock, Volente and Cedar Park Volunteer Fire Departments. The City provides fire protection to areas within Austin's corporate limits. Two municipal fire stations are located in the southern portion of the study area. The proposed northwest fire station on W. Duval should improve fire protection in the northern sectors of the study area.

The study area is predominantly within the Austin and Round Rock Independent School Districts. There are currently nine facilities located in the study area. Anderson Senior High with a 1977 enrollment of 2,384 students, Hill and Pillow Elementary Schools with enrollments of 540-560 students are part of the A.I.S.D. system in the southern sections of the study area.



MAP 5
WATER & WASTEWATER DISTRIBUTION



Grisham Middle School where the enrollment was 1,200 students in 1977, Anderson Mill, Forest North, Spicewood, Ponds Springs, and North Oaks Elementary schools with enrollments of approximately 600 students each are part of the Round Rock I.S.D. system. Proposals by the A.I.S.D. show a junior high and elementary school in the Millwood area. Round Rock I.S.D. is proposing construction of a senior high school by the early 1980's in the Anderson Mill area. Construction of the proposed schools will provide for the adequacy of school service in this rapidly growing area.

Two neighborhood parks, adjacent to schools, currently serve the study area. Both of these parks are located in the southern sectors. Neighborhood parks are proposed in the Balcones Oaks-Hunters Oaks and Angus Valley-Mesa Park area to serve the mid and northern portions of the study area. A district park of approximately 50-75 acres is proposed north of Loop 360 in the Great Hills area with two more anticipated by 1984. One will serve the area north, the other the area south of U.S. 183. Additional greenbelt acquisition along Bull Creek by the mid 1980's is anticipated. Currently the southern portion of the study area is adequately served by parks. With the proposed new additions the remainder of the study area will also have suitable coverage.

Austin's Emergency Medical Service (EMS) provides emergency service and non-emergency transfer services to all study area locations within the corporate limits and Travis County. Williamson County EMS provides emergency service to all areas within Williamson County, while private firms handle non-emergency transfers. The Austin Police Department is responsible for law enforcement within Austin's corporate limits, other areas are served by the county sheriff's department and the Texas Department of Public Safety.

The City of Austin Sanitation Division serves the area within the City. The rest of the area is served by several private waste collection and disposal firms. Law enforcement, EMS and sanitation services are currently considered adequate for this study area. Map 6 shows existing and proposed locations of fire stations, parks and schools and the existing fire and school district boundaries.

5. Other Factors

Several entities have varying jurisdictions affecting development in the study area. A major portion is within Austin's five mile extraterritorial jurisdiction (ETJ); only a small portion north of R.M. 620 is in Cedar Park's one-half mile ETJ. Zoning power is limited to the area within the corporate limits, while subdivision activities are regulated within the city limit and the ETJ. Counties regulate road and bridge building and establish septic tank standards in unincorporated areas.

Two Municipal Utilities Districts (M.U.D.) are currently located in the study area and a proposal for a third M.U.D. is under consideration. Williamson County M.U.D. #1 serves the Anderson Mill area and N.W. Travis County M.U.D. #1 serves the Balcones Hills-Northview Hills Subdivisions. Forest North and Jollyville Estates will be served by the proposed M.U.D. A city has specific statutory rights regarding the creation of a M.U.D. within its ETJ and may review its appropriateness as related to the city's future development. If a city decides to annex a M.U.D. it assumes the assests and liabilities. A state statute passed in 1977 requires that cities annex the total M.U.D. and not just a portion. Three school jurisdictions are within the study area; the Austin I.S.D., the Round Rock I.S.D., and the Leander I.S.D. The Robinson tract, a major landholding to the east of the study area, imposes constraints to development, due to its size, nature and location. The boundaries of this tract of land along with the jurisdictional boundaries are shown on Map 7.

B. Trends, Analysis and Projections

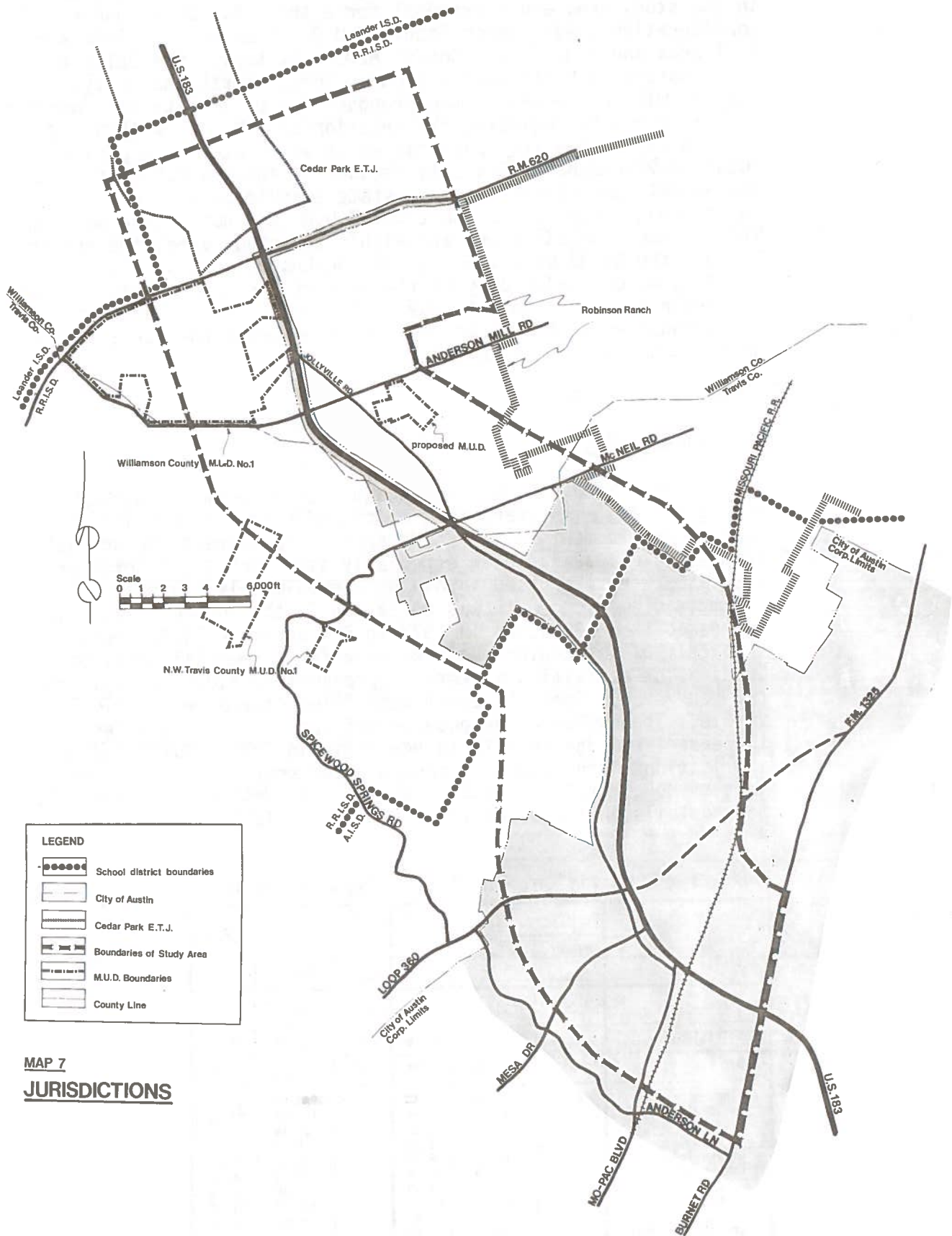
1. General Activity

The vigorous subdivision, zoning and special permit activity during the last few years is a major indication of the intense rate of development in the study area. The increase in activity from 1977 to 1978 has been especially significant. A total of 175 cases were processed involving approximately 2,490 acres. The most dramatic growth was reflected in the zoning load, which increased from 132 acres in 1977 to 524 acres in 1978. More than half of the zoning requests were for commercial developments. Subdivision activities affected approximately 1,600 acres in the two year span. Special permit activities stayed relatively stable. The number of proposed multi-family units, however, increased from 354 in 1977 to 946 units in 1978. Multi-family applications were primarily concentrated south of Loop 360 and west of MoPac Boulevard and in the Sonesta West Subdivision. For more details on these activities, refer to Table 3.

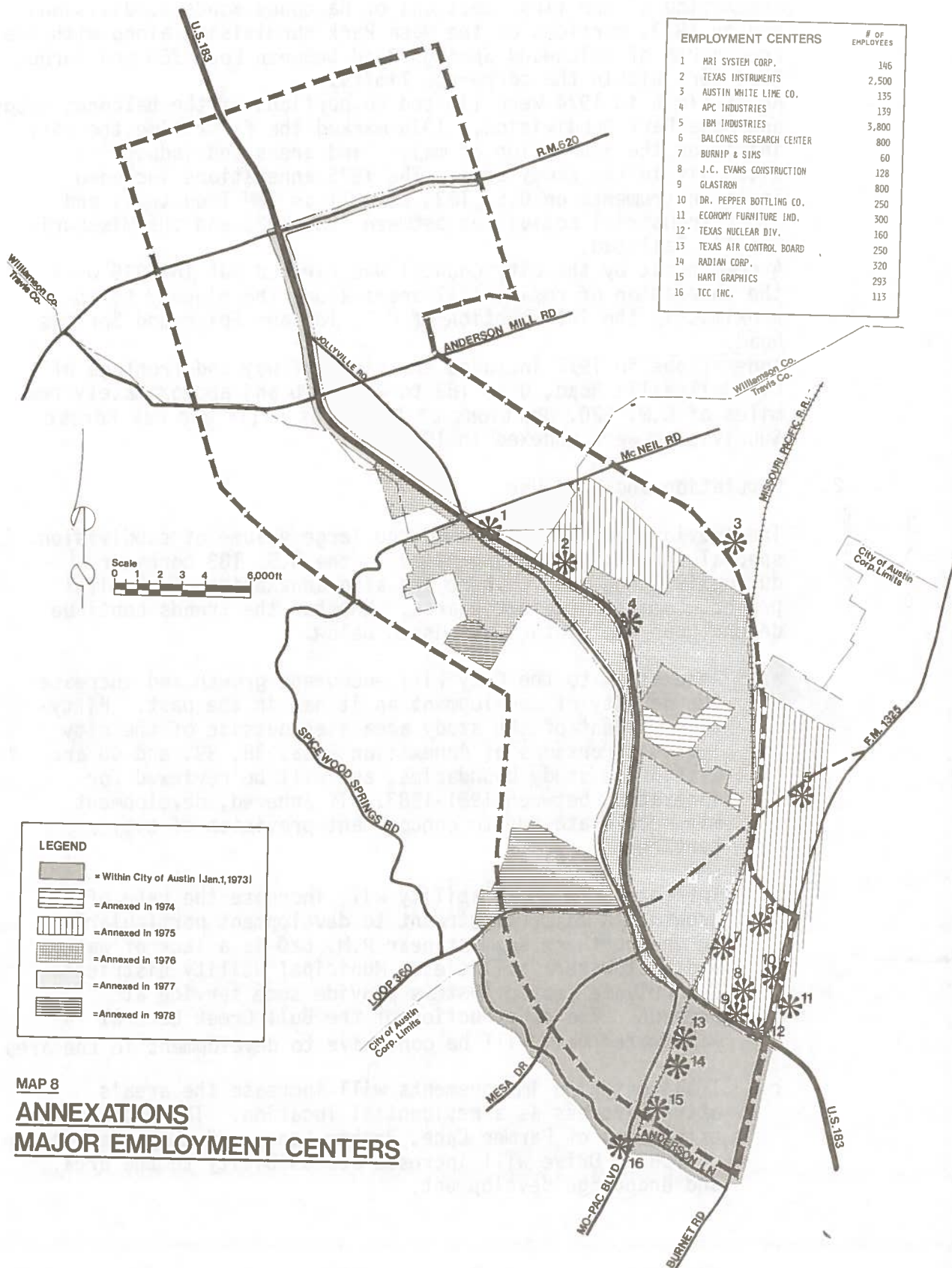
TABLE 3 - Subdivision, P.U.D., Zoning and Special Permit Activity

Types of Activity	1977			1978		
	Number of Cases	acres	%	Number of Cases	acres	%
All Activities	82	1071.62	100	93	1416.91	100
Subdivisions*	27	881.77	82.28	24	803.92	56.74
P.U.D.'s	3	22.10	2.06	4	30.34	2.14
Zoning	47	131.80	12.30	54	524.19	37.00
Residential Total		31.04	23.55		121.81	23.24
A & AA		26.38	20.02		106.29	20.28
BB & B		4.66	3.53		15.52	2.96
Office Total		11.26	8.54		133.98	25.56
Commercial Total		68.59	52.05		254.59	48.57
LR		3.68	2.79		2.38	0.45
GR		61.59	46.73		215.28	41.07
C, C-1 & C-2		3.32	2.53		36.93	7.05
Industrial Total		20.91	15.86		13.81	2.63
Special Permits	5	35.95	3.36	11	58.46	4.12
Multi-Family	2	26.78	74.49	8	56.44	96.54
# of M. F. Units		354 units			946 units	

*Only long form subdivisions considered



MAP 7
JURISDICTIONS



Annexation activity along U.S. 183 began in 1970 with the annexation of the first sections of Balcones Woods Subdivision, and by 1973, portions of the Mesa Park Subdivision along with the area north of Spicewood Springs Road between Loop 360 and Burnet Road were within the corporate limits.

Annexations in 1974 were limited to portions of the Balcones Woods and Mesa Park Subdivision. 1975 marked the first time the city initiated the annexation of major land areas and industrial sites within the study area. The 1975 annexations included Texas Instruments on U.S. 183, as well as IBM Industries and other industrial activities between F.M. 1325 and the Missouri-Pacific Railroad.

A commitment by the City Council was carried out in 1976 with the annexation of residential areas along the highway to approximately the intersection of U.S. 183 and Spicewood Springs Road.

Annexations in 1977 included the right-of-way and frontage of Old Jollyville Road, U.S. 183 to R.M. 620 and approximately two miles of R.M. 620. Portions of the Great Hills and Oak Forest Subdivision were annexed in 1978.

2. Population and Land Use

The previous section discussed the large volume of subdivision, special permit, and zoning cases in the U.S. 183 corridor during 1977 and 1978. There are also annexation and capital project commitments in the area. Whether the trends continue depend upon the factors discussed below.

- a. Annexation to the City will encourage growth and increase the density of development as it has in the past. Fifty-five percent of the study area lies outside of the city limits. Portions of Annexation Areas 38, 39, and 40 are within the study boundaries, and will be reviewed for annexation between 1981-1983. If annexed, development may accelerate due to concomitant provision of city services.
- b. Infrastructure availability will increase the rate of growth. A major constraint to development particularly in the northern segment near R.M. 620 is a lack of water and wastewater facilities. Municipal Utility Districts and private septic systems provide some service at present. The construction of the Bull Creek Lateral "A" wastewater main will be conducive to development in the area.
- c. Transportation improvements will increase the area's attractiveness as a residential location. The proposed extensions of Parmer Lane, Braker Lane, and the construction of McNeil Drive will increase accessibility to the area and encourage development.

- d. Employment in Austin will increase and the northwest sector will continue to attract major employers. Employment centers in the area, and possible expansion of existing ones will encourage population growth assuming that people tend to minimize their travel distance from home to work.
- e. Round Rock, Cedar Park, Leander, and Georgetown areas will continue to attract population. Population and economic growth in the southern Williamson County communities of Round Rock, Georgetown, Brushy Creek, Cedar Park, and Leander will have an impact on the U.S. 183 Corridor. Persons living in these communities use U.S. 183 as both a destination to their places of employment or shopping, and as a through route to employment and shopping further south. To a lesser extent people who live in the areas adjacent to U.S. 183 travel north to employment centers in the Round Rock area.
- f. Desirable school districts will attract residential development. Past trends indicate that people consider a good school system a high priority in choosing where they will reside.
- g. Severe topography to the south of the corridor will inhibit development or restrict it to low density residential. Land with slopes under 5 percent is commonly preferred for commercial and industrial use. Residential construction is usually acceptable with slopes up to 15 percent. If the slope is between 15 and 30 percent, construction is possible, but it requires supplemental engineering and design for most structures making it extremely expensive. In addition, development activities on slopes greater than 15 percent may cause erosion, flooding or water pollution, and result in unsightly scarring of hillsides.
- h. A large portion of the study area falls within Priority Area IV of the Comprehensive Plan. Although Priority Area IV is not recommended as a high priority area for development, the area is experiencing rapid development. The principles guiding development in Area IV, outlined in Chapter IV of the Comprehensive Plan, should be adhered to in order to assure orderly, regulated growth.
- i. The number of households will increase, however, the average household size will continue to decrease slightly as past trends indicate. The changes in the household size distribution in Austin between 1970 and 1976 show the increase in one-person households from 17.8 to 26.9 percent of all households, and the decrease in percentage of households with five or more persons, from 16.6 to 10.6 percent.

The commitments in the area, and the factors that will affect future development outlined above indicate that the population will continue to increase.

The 1985 projected population for the study area is 49,544 persons, an increase of 79 percent from 1978. The overall population density in 1985 for the area is expected to be 3.73 persons per gross acre. Higher population densities are anticipated in two areas. The area south of Loop 360 will have an approximate population density of 6.36 persons per gross acre; and the Anderson Mill Subdivision 10.72. The Williamson County Municipal Utility District contributed to the rapid and dense development in Anderson Mill by providing water and wastewater service to the area. The population forecast for the study area in 1995 is 79,623 persons. This is a 61 percent increase during the ten year period from 1985 to 1995. The 1995 population density for the study area will reflect the typical Austin density of 6.0 persons per gross acre. Existing growth trends are also anticipated to continue in the southern Williamson County communities adjacent to the U.S. 183 corridor. Table 4 below gives the existing and projected population for these communities.

TABLE 4 - Existing and Projected Population for Adjacent Communities

Communities	1978	1985	1995
Round Rock	10,000	28,700	48,000
Georgetown	9,000	13,500	21,000
Cedar Park	1,335	1,982	2,907
Brushy Creek	1,600	7,600	19,000
Leander	566	719	845

Source: Estimates and projections made by local governments of above communities, Census Statistical Areas Committee, CAPCO (North Sector Study), and City of Austin Planning Department.

In order to gain a perspective of the current land use distribution in the study area, a comparison is made to the City land use distribution in Table 5.

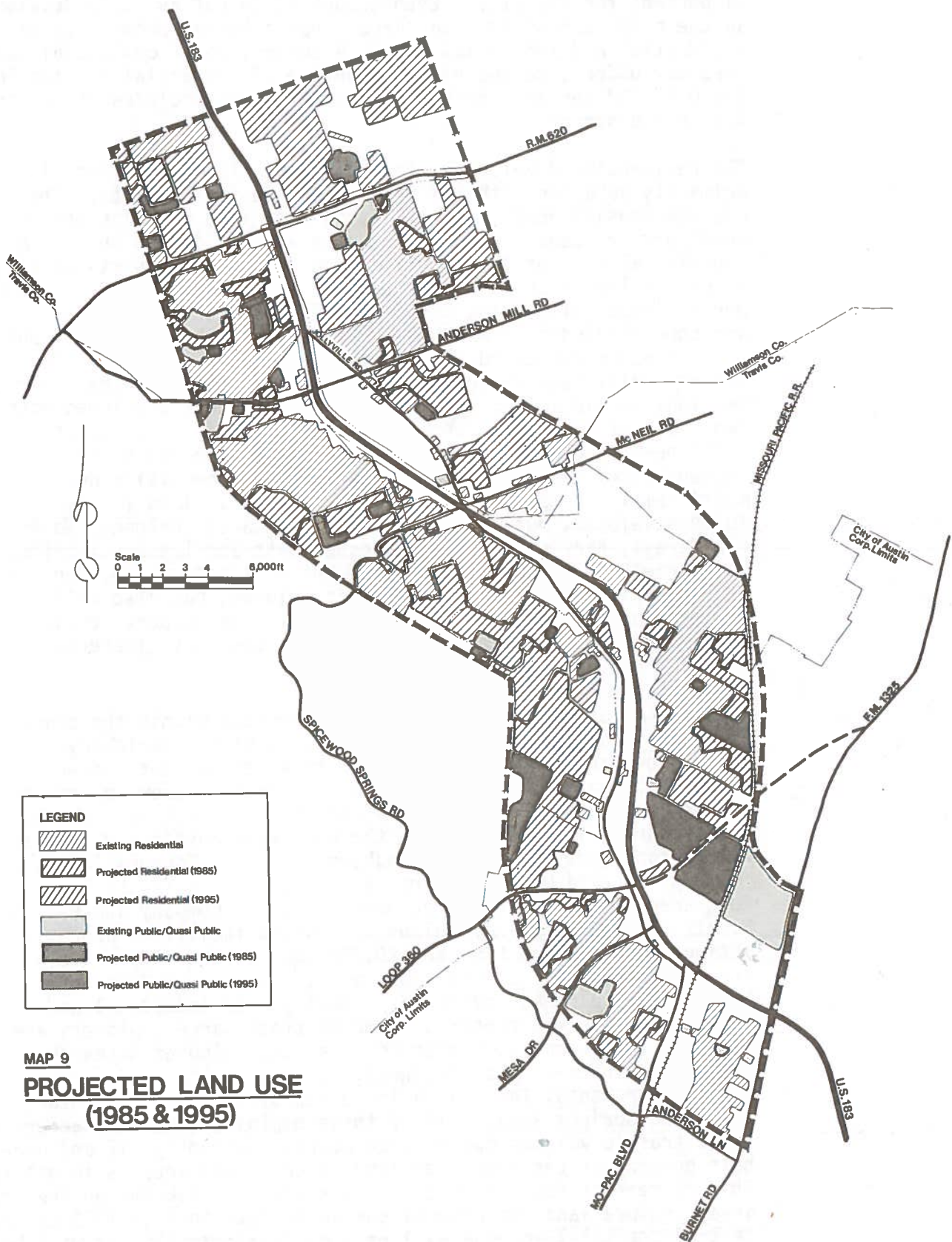
TABLE 5 - 1978 Land Use Distribution (Study Area and City)

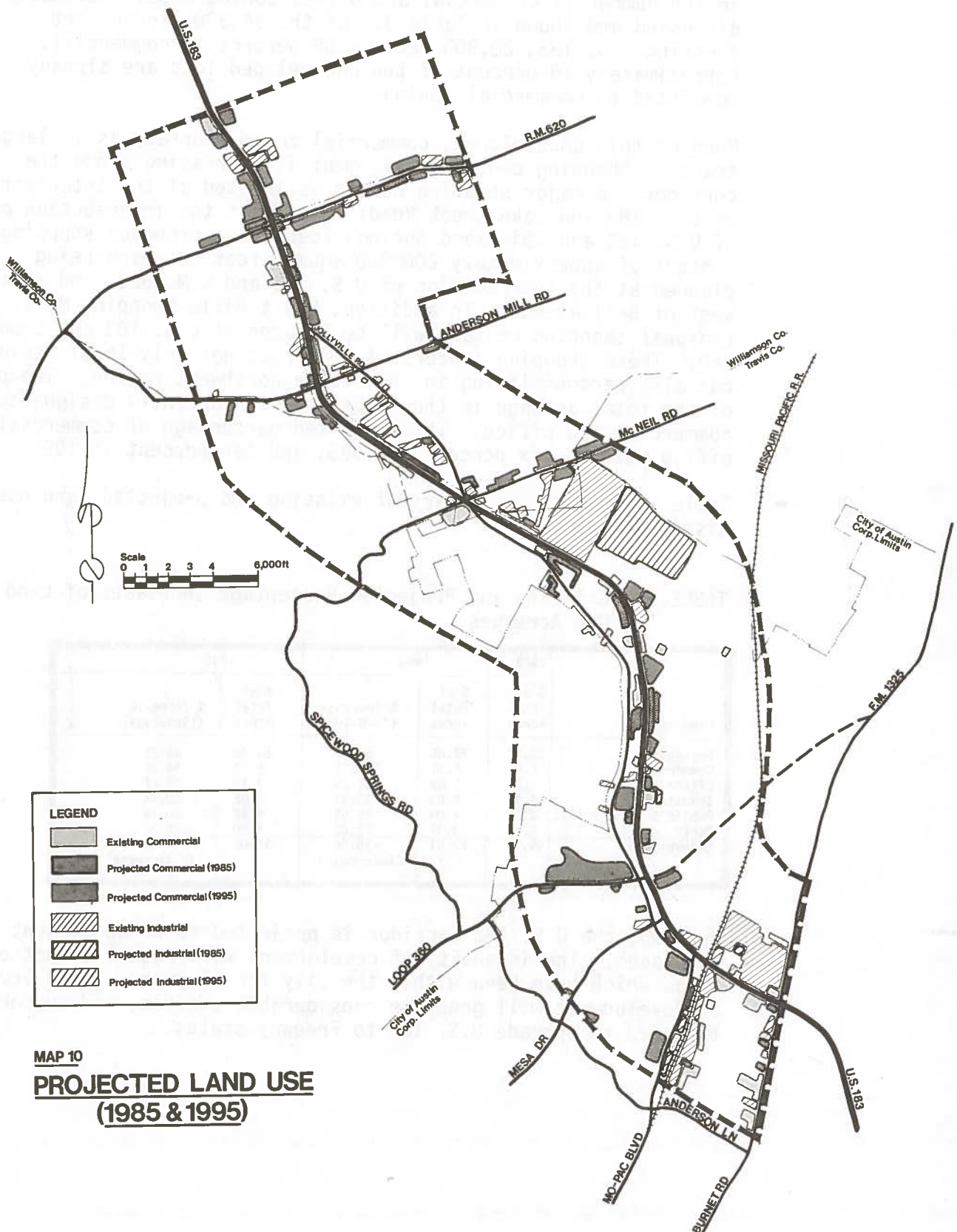
Land Use	Study Area Percent Distribution of Developed Acres	City Percent Distribution of Developed Acres
Developed	34.86	60.85
Residential	64.74	57.59
Commercial	6.73	6.70
Industrial	12.75	4.80
Public & Quasi-P.	15.78	30.91

Thirty-five percent of the study area is developed as compared to 61 percent for the city. Even though it is not as fully developed as the city, the study area already has a higher proportion of residential and industrial uses. A comparison of commercial land uses may understate the high percentage of commercial acreage in the U.S. 183 corridor because the city figure includes the central business district.

The residential development that is currently taking place is primarily suburban with low density single-family units. The average housing density of the study area is 3.06 units per developed residential acre. The city average is 4.6 units. A substantial part of the subdivision development consists of large tracts of land such as: Anderson Mill, Balcones Village, Forest North, Angus Valley, and The Great Hills. Higher densities are concentrated in the southern sectors, south of Loop 360 and west of MoPac Boulevard, and in the Anderson Mill area. The Anderson Mill subdivision, near the R.M.620 and U.S. 183 intersection, is unique in that it became 70 percent developed within two years after development began with a housing density of 3.71 units per residential acre. By 1995 it is expected to be 95 percent developed, with significantly higher densities due to multi-family units. Other residential subdivisions likely to be fully developed, but with lower densities are: Balcones Woods, Oak Forest, Barrington Oaks, Balcones Oaks and The Great Hills. This growth in residential development will not only burden the corridor with an increase in traffic volumes, but also will create a demand for retail establishments and support services such as banks, gas stations, medical offices, dry cleaners, beauty shops.

Fourteen major employment centers are located within the study area with four additional centers located at the periphery. Map 8 shows the general location of these employment centers along with the number of employees. A steadily growing industrial sector consisting of principally electronics and high-technology manufacturing is developing in the northwest Austin and southern Williamson County area. Westinghouse Electric Corporation, B.J. Hughes, Inc., and McNeil Laboratories are located in the Round Rock area. Also in that area Gardner-Denver Company and Reliance Electric Corporation have plans for future facilities approximating 70,000 square feet and 20,000 square feet respectively. The southern sector of the study area, east of the Missouri-Pacific Railroad has developed primarily with industrial and scientific research centers. Some of these large employers are: Glastron Boat Company, Radian Corporation, Balcones Research Center and International Business Machines at the periphery. Texas Instruments, Inc., is a large employer on U.S. 183 near Spicewood Springs Road. All of these employment centers generate large traffic volumes during peak hours. Currently, 12 and one-half percent of the developed land in the study area is industrial. This represents four percent in industrial use for the entire study area. Future land use projections anticipate that in 1985 six percent of the total acreage will be industrial; in 1995 it will be seven percent.





MAP 10
PROJECTED LAND USE
(1985 & 1995)

Commercial development is active as evidenced by the increase in the number of commercial and office zoning cases previously discussed and shown in Table 3. Of the 34,330 linear feet fronting U.S. 183, 20,300 feet or 59 percent is commercial. Approximately 18 percent of the undeveloped lots are already committed to commercial zoning.

Much of this undeveloped, commercial zoned frontage is in large tracts. Shopping center development is increasing along the corridor. A major shopping center is located at the intersection of U.S. 183 and Lake Creek Road; another at the intersection of U.S. 183 and Spicewood Springs Road. Two proposed shopping centers of approximately 200,000 square feet each are being planned at the intersection of U.S. 183 and R.M. 620, and just west of Bell Avenue. In addition, Great Hills Shopping Mall, a regional shopping center, will be located at U.S. 183 and Loop 360. These shopping centers will attract not only local residents, but also persons living in the entire northwest region. Two percent of the total acreage in the study area is currently designated commercial and office. The projected percentage of commercial and office uses is six percent in 1985; and ten percent in 1995.

Table 6 provides a summary of existing and projected land use distribution.

TABLE 6 - Existing and Projected Percentage Increases of Land Use Acreages

Land Use	1978	1985		1995	
	% of Total Acres	% of Total Acres	% Increase (1978-1985)	% of Total Acres	% Increase (1985-1995)
Residential	22.57	38.06	68.63	53.38	40.25
Commercial	1.63	4.31	164.77	6.73	56.34
Office	.72	1.88	161.24	3.19	69.27
Industrial	4.35	5.83	33.57	7.02	20.44
Public & Quasi-Public	3.22	4.04	25.53	6.48	60.44
Parks	2.37	3.37	42.82	4.20	24.36
Undeveloped	65.14	42.51	-35.00 (%decrease)	19.00	-55 (% decrease)

By 1995, the U.S. 183 Corridor is projected to be 80 percent developed. The intensity of development will resemble that of areas which have been within the city for 15 years. This level of development will generate considerable traffic, and supports the need to upgrade U.S. 183 to Freeway status.

3. Commercial Uses - Supply vs. Demand

Estimates of the current and future demand for retail goods and services in the study area were made in an effort to subsequently estimate the supply of land required to satisfy this demand. The objective was to interpret this estimated supply as an appropriate amount of land which should be zoned for retail and service uses. This approach, however, suffers several shortcomings, particularly in its application to the U.S. 183 study corridor.

Current estimates and future projections of local retail and service acreage were generated using several different standard methodologies, each employing a different combination of input variables, e.g., population, travel distances, site size, family income and buying power. The results of the analysis of market support for retail and services uses varied widely depending upon the methods, standards, assumptions, trade area and data sources used in the estimation. It should be noted that professional market consultants usually analyze market support for very specific retail and service stores, and maintain that market estimations for aggregate retail and service facility support are not satisfactory.

The problems of this approach are best illustrated by some of the results of the analysis. The calculations for local retail and service acreage currently supportable by the study area ranged from 26 acres to 83 acres. Recent surveys, however, indicate a total of 216 acres of retail and service uses presently in the study corridor.

The demand estimates, variable as they may be, indicate that the study corridor is providing retail and service facilities to a much larger trade area than the study corridor. Review of recent traffic volumes on U.S. 183, R.M. 620, R.M. 1431 and R.M. 2243 offer evidence that the commercial uses along the U.S. 183 corridor are serving a trade area and commuter-shed or employment-shed stretching from Jonestown to Bertram, Georgetown and Round Rock, including Leander and Cedar Park. The study corridor, it would seem, is serving a local, a community and a regional population with highway oriented retail and service uses. In light of this, it seems inappropriate to estimate market demand based on such a restricted study area and, furthermore, conceptually unattractive to usurp the function of free market forces and unilaterally determine a fixed supply of commercially developable land upon which to predicate zoning decisions. It can be argued that, in the long run, the supply of commercial uses will equal the demand, and that the proper role of local government should be to influence the location, configuration, accessibility and external impacts of the commercial uses in the interests of public safety and welfare. Such a conclusion shifts the emphasis of this study from limiting the supply of commercially developable land to managing commercial development so as to avoid or mitigate adverse impacts on the public safety and welfare.

C. Examination of Alternatives

1. Alternatives to Existing Land Use Trends

Alternatives to existing urban trends are proposed by three relevant documents: the Austin Tomorrow Goals, the Comprehensive Plan, and the "Balcones Hills Neighborhood Plan."

The citizen's goals document and the Comprehensive Plan are sequential and related products of the Austin Tomorrow Program. Both documents present goals and objectives which promote transportation efficiencies, and the functional and aesthetic compatibility of the roadway system with the adjacent land uses. The objectives emphasize the use of buffering and landscaping; beautification and planting for parking lots; aesthetics along roadways, including the removal of unsightly and cluttering elements; desirable land use patterns; stringent zoning controls; regulating access along roadways; plus the development and use of public transportation systems.

The Comprehensive Plan encourages regulations requiring such conditions as service or frontage roads, adequate lot widths, off-street parking, increased building setbacks, sign control, landscaping and screening, plus limitations on the number of curb cuts and driveways. Criteria for the spacing of curb cuts should be based on traffic flow characteristics, and should encourage landowners to coordinate their driveway plans. The plan advises against overzoning, and encourages the development of unified shopping areas under the planned unit development concept, which would benefit the small businessman who cannot afford to locate in a center and would otherwise prefer to locate in a commercial strip. Such commercial nodes should be established in newly developing areas in lieu of strip development.

The growth management section of the Comprehensive Plan designates six priority areas which emphasize the concepts of development suitability and more efficient use of land in the central city. The highest priority for development is Area I, the core area; the lowest priority is Area VI. The corporate boundary of the city defines Area II, which has the second highest priority for urban development. In this area the Plan recommends the improvement of the level of municipal services and facilities to promote the use of underutilized land. Outside the city limits the U.S. 183 corridor is in Area IV, and the following principles apply: new subdivision activity should be contingent upon connection to the City's water and wastewater services, which should be available on a cost-sharing basis between the City and the developer; an impact analysis should be the basis of each major City infrastructure or annexation decision; and a development guidelines manual with standards addressing particular conditions in this area should be promulgated.

The Balcones Hills Civic Association presented its preliminary neighborhood plan to the City for consideration in December 1978. The Planning Commission voted in March 1979 to accept the plan for reference on land use decisions in the area. The plan includes land use, zoning and transportation goals and recommendations for the area south of U.S. 183 between MoPac and Loop 360. Goals included restricting commercial development from their residential area; providing easy and convenient access into and out of the neighborhood; preventing high-volume through-traffic and commercial traffic on residential and collector streets; traffic management and control to ensure effective flow and safety; orderly planning and development of major peripheral streets and arterials; and efficient public transportation services and facilities. The plan presented specific recommendations for the use of particular pieces of property near U.S. 183, and advised that old Jollyville Road be improved with curbs and gutters and downgraded to a collector street after the MoPac/U.S. 183 interchange is completed.

2. Alternatives to Existing Policy

Several innovative techniques are appropriate for use in the U.S. 183 corridor.

Overlay Zoning

An overlay zone is a mapped zone that imposes a set of requirements in addition to those of the underlying or regular zoning district. While the underlying district controls uses, bulk, dimension, etc., the overlay zone presents additional special standards. In areas where overlay zones are established, the land may be developed only under the conditions and requirements of both zones. Overlay zones typically are applied when there is a special public interest in a geographic area that does not coincide with the underlying zone boundaries.

Overlay zones have relatively sound legal footing because they are described in the zoning text, mapped, and adopted by City Council in a manner similar to conventional zoning. Provisions are administered through the usual zoning process. Permission for development in overlay zones is usually granted through a special permit process, or a required site plan review.

The MoPac Environmental Design Study, written for the City of Austin by the consulting firm of Skidmore, Owings and Merrill in association with Alan M. Voorhees and Associates, November 1976, recommends the creation of a "Highway Impact Overlay Zone" for the properties within 500 feet of the MoPac Expressway R.O.W. This zone would allow apartment, commercial and industrial development only by special permit after compliance with additional requirements of the zoning ordinance. The consultants advise that the review procedures include the consideration of access and egress provisions, landscaping and grading (including buffers), parking requirements, propensity to generate traffic, percent of land covered by impervious surfaces, exterior and interior ambient noise levels, on-site lighting, and signing.

Access Easements and Minimum Lot Frontage

A reduction in the number of driveways, with greater spacing between each, should ameliorate traffic problems on U.S. 183. Two techniques, each to work in conjunction with the other, may help achieve this end. City ordinances, particularly for zoning and perhaps subdivision, must be amended before the City can effectively require either provision.

First, a large minimum frontage requirement for commercial lots on high-volume arterials should significantly reduce the number of drives permitted by the current driveway ordinance. Second, in cases where the owner wishes to subdivide his lot into smaller commercial tracts, the City would require an access easement adjacent for a right turn lane to the right-of-way. This would provide for common access, and fewer curb cuts, for several or more adjacent commercial lots.

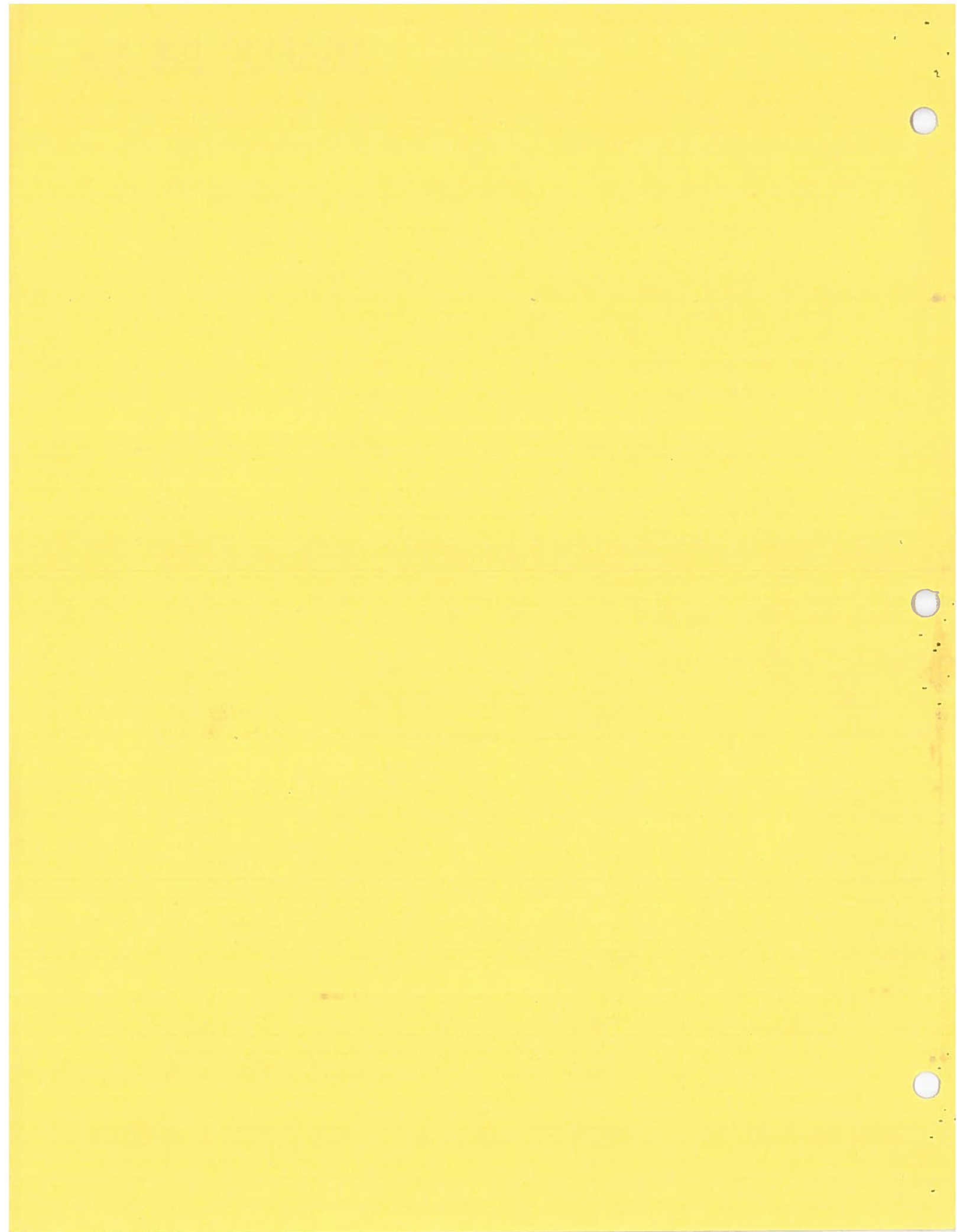
Landscaping Requirements

Landscaping requirements for lots adjacent to major roadways are primarily intended to provide more pleasing aesthetics, including visual buffering between the traffic and nearby development, particularly parking lots. If aesthetics is considered to be a major problem along U.S. 183, then landscaping requirements comprise one of the few corrective options available.

Sign Control

Improved aesthetics is the primary objective of sign controls, although traffic safety and preservation of property values are parallel purposes. The construction of signs and billboards in Austin is regulated by the sign ordinance enacted in 1976. In 1978 the Council approved, on an interim basis, more restrictive requirements for signs to be placed within 200 feet of Loop 360 or MoPac Boulevard. If standards more stringent than the current sign ordinance are desired for U.S. 183, the inclusion of these standards in a special overlay zoning district would be an effective method of imposing them.

TRAFFIC ISSUES



III. TRAFFIC ISSUES

A. Inventory

The study area includes approximately 9.5 miles of U.S. 183, from Burnet Road to R.M. 620. The highway has served primarily as a high-speed arterial through Austin from northwest to southeast, but has come to function more and more as an arterial providing access to abutting properties (commercial, industrial, and residential development).

A number of roadways intersect U.S. 183 in the study area. R.M. 620 Spicewood Springs Road, Loop 360, Balcones Drive, and Burnet Road all connect U.S. 183 to the Austin regional area.

R.M. 620 provides a connecting link to the Round Rock area to the northeast. Others, such as Anderson Mill Road, Duval Road, and Balcones Woods Drive, primarily serve residences in the study area, and still others, e.g. United Drive, Reid Drive, Texas Instruments entrance, provide access to industrial areas.

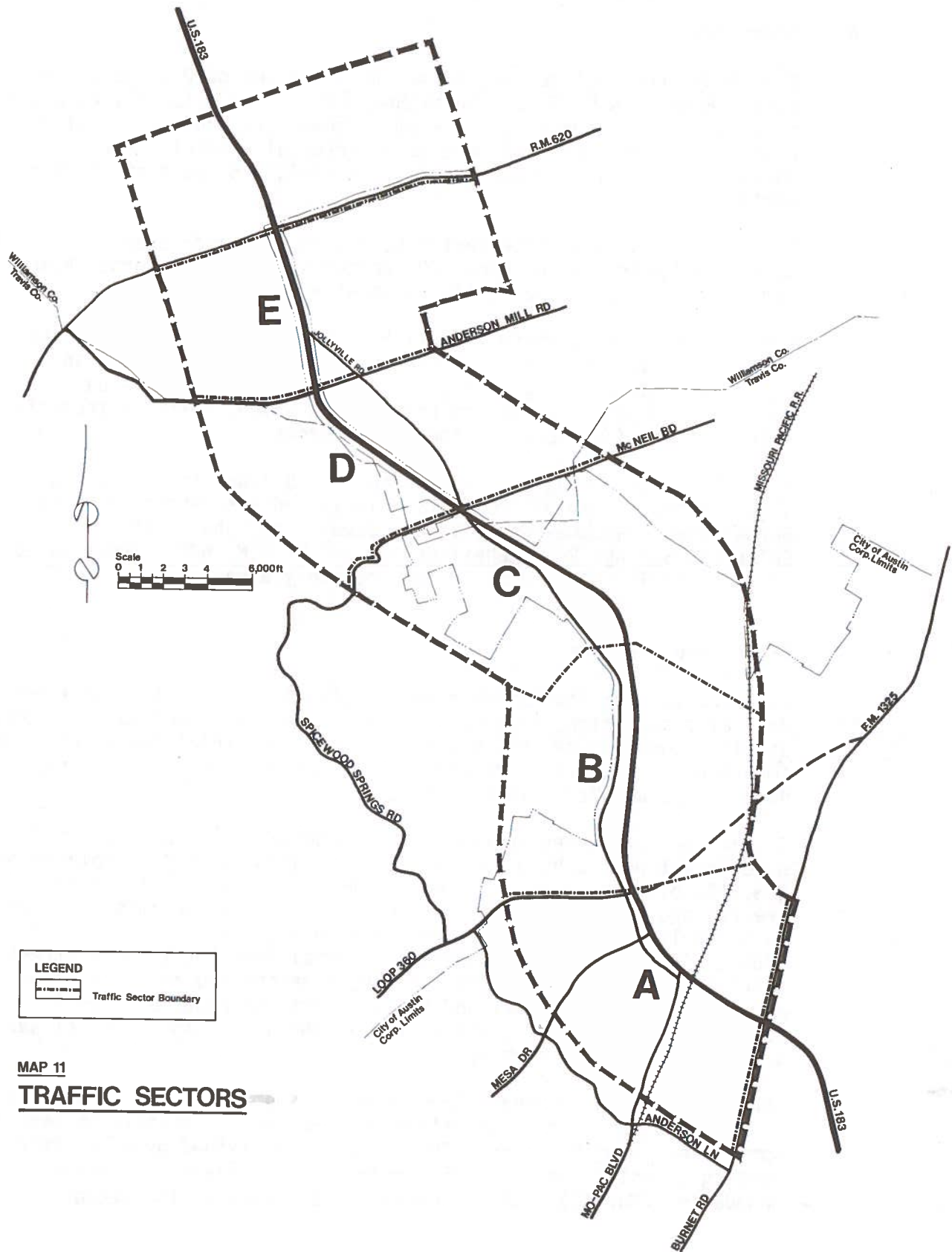
U.S. 183 in the study area is currently 2-3 lanes in each direction with a right-of-way of 200 feet. Signalized intersections exist at Burnet Road, Balcones Woods Drive, Duval Road, the south T.I. entrance, Spicewood Springs Road/McNeil Drive, and at R.M. 620. There is no transit service along U.S. 183 in the study area.

B. Trends and Analysis

The U.S. 183 corridor study area is characterized by intensive residential subdivision throughout, with supporting commercial development abutting the highway and, occasionally, a commercial center of regional importance. Industrial development is concentrated in areas near Burnet Road and Texas Instruments.

Significant increases in residential, commercial, and industrial development have caused substantial increases in traffic volumes on U.S. 183 over the past five years. Intersecting streets, median breaks, and driveways have been constructed to serve this development. As a result, the function of the highway has changed in that time from a high-speed, limited-access arterial into Austin to a street which must provide access to numerous adjacent and abutting properties as well. It was not designed to serve both purposes and conflicts now exist in terms of the capacity of U.S. 183 and a high level of serious accidents along the highway.

The 18 "planning subareas" have been combined into five "traffic sectors" in order to demonstrate the effect of land use on traffic volumes and operations along U.S. 183. The sectors are divided by major intersecting streets, and boundaries coincide with planning subarea boundaries (Map 11). Table 7 characterizes each of the sectors (A



MAP 11
TRAFFIC SECTORS

through E), including: sector boundaries; significant traffic-generating development; the extent of strip commercial development; signalized and other intersections; driveways and median breaks; and traffic accidents during 1977-1978.

1. Types of Traffic and Traffic Volumes

Table 8 indicates that daily traffic volumes at major intersections along U.S. 183 range from under 20,000 average daily trips (ADT) at R.M. 620 to over 45,000 ADT at Burnet Road and at Balcones Drive. These volumes represent increases of from 36.5 to 91 percent since 1974, reflecting the increased level of development within and adjacent to the study area.

Traffic along U.S. 183 may be classified as peak-hour or off-peak traffic and as local or "through" traffic. Peak-hour traffic consists primarily of home-to-work trips and is generated by residential, office, and industrial development. Off-peak traffic usually involves trips with commercial and recreational uses. Local traffic is generated within the study area, and "through" traffic is represented by those trips which use U.S. 183 for travel from outside the study area through the corridor.

Peak hour volumes are listed in Table 9 and indicate that traffic accumulates at intersections in the southern portion of the U.S. 183 corridor. This is because employment centers, industry and offices, are primarily south and southeast of Burnet Road. Other major employment centers along Burnet Road, e.g. IBM, must use this route. About 75 percent of morning peak hour traffic is traveling southbound in much of the corridor and the major contributor to that volume is the extensive residential development north of Loop 360 (Sectors B-E and north of R.M. 620).

Residential development accounts for about 70-85 percent of existing development in Sectors B, D, and E, with the remainder mostly commercially developed. About 500 vehicles per hour enter the U.S. 183 traffic during the morning peak hour between R.M. 620 and Anderson Mill Road, reflecting trips generated by over 2,400 dwelling units in Sector E (Anderson Mill and other subdivisions). Similarly, an additional 300 trips are accumulated between Anderson Mill Road and Spicewood Springs Road, mostly from the Balcones Village subdivision area of Sector D.

Sector C analysis is complicated by the presence of Texas Instruments in addition to significant residential development. Traffic is generated both into and out of this sector at peak hours. Sector B also includes some traffic passing through to T.I., but an increase of over 400 vehicles per peak hour between Duval Road and Hamilton Road (about half southbound) indicates the effect of the Balcones Woods subdivision on traffic volumes.

TABLE 7 - U.S. 183 Traffic Sectors

Sector	Description	Significant Development	Strip Commercial	Signalized Intersection	Other Intersections	Drive-ways	Median Breaks	Accidents Jan. 77 - Dec. 78
A	Burnet Road-Loop 360 (1.55 miles)	3,600 housing units 200 acres private indus. 105 acres commercial/ office Balcones Research Center	Extensive near Burnet Road	Burnet Road	Balcones Dr. Loop 360 Shoal Creek Blvd. United Drive Reid Drive McCann Dr.	17	8	.227
B	Loop 360-Duval Road (2 miles)	917 housing units	scattered through-out	Balcones Woods Dr. Duval Road	Loop 360 Great Hills Trail Hamilton Road Caleta Lane Angus Road	37	6	108
C	Duval Road-Spicewood Springs Road (2 miles)	1,276 housing units Texas Instruments other industry	scattered through-out-extensive near Spicewood Springs	Duval Road South T.I. entrance Spicewood Springs/ McNeil Drive	W. Cow Path Bell Avenue Highland Oak Tr. Oak Knoll Drive	39	9	140
D	Spicewood Springs Rd.-Anderson Mill Road (1.65 miles)	740 housing units	scattered through-out	Spicewood Springs Road	Anderson Mill Rd. Balcones Club Dr. Oceanire Blvd. Fathom Circle	26	6	61
E	Anderson Mill Road-R.M. 620 (1.38 miles)	2,441 housing units	near Anderson Mill Road and at Lake Creek Parkway	R.M. 620	Anderson Mill Rd. Lake Creek Pkwy. Woodland Valley Dr. Caldwell Hidden Meadow	17	8	60

TABLE 8 - U.S. 183 Weekday Traffic Volumes, 1974 vs. 1979

Location - U.S. 183 at:	Vehicles Per Day		% Increase Since
	1974	Current	1974
R.M. 620	14,590	19,911	36.5
Anderson Mill Road	NA	25,845	NA
Spicewood Springs Road	17,400	30,444	75.0
T.I. entrance gate	17,730	33,850	90.9
Duval Road	NA	36,706	NA
Hamilton Road	NA	39,768	NA
Loop 360	28,546	41,547	45.5
Balcones Drive (MoPac Boulevard)	25,210	45,755	81.5
Burnet Road	30,308	45,234	49.2

TABLE 9 - U.S. 183 Weekday Peak Hour Traffic Volumes - 1979

Location - U.S. 183 at:	Vehicles Per Hour						
	A.M. Peak				P.M. Peak		
	Northbound	Southbound	Total		Northbound	Southbound	Total
R. M. 620	387	1,328	1,715		1,162	652	1,814
Anderson Mill Road	530	1,719	2,249		1,700	779	2,479
Spicewood Springs Rd.	694	1,889	2,583		2,201	874	3,075
T.I. entrance gate	931	1,999	2,930		2,118	1,092	3,210
Duval Road	900	2,361	3,261		1,763	1,462	3,225
Hamilton Road	1,142	2,566	3,708		2,431	1,220	3,651
Loop 360	1,195	2,681	3,876		2,460	1,377	3,837
Balcones Drive	1,370	3,189	4,559		2,526	1,609	4,135
Burnet Road	1,503	2,778	4,281		1,850	1,981	3,831

Sector A is substantially different from the others, being influenced the least by residential development. Industrial development near Burnet Road is probably responsible for additional trips generated within the sector, along with vehicles entering U.S. 183 from Loop 360 and Balcones Drive. Most residential development generates peak-hour trips which are not dependent on U.S. 183 north of Burnet Road.

Residential development is also responsible for most of the "through" peak-hour traffic since little employment activity exists north of R.M. 620. Over 1,300 vehicles enter the study area during the morning peak hour from north of R.M. 620, representing almost 80 percent of that hour's traffic flow at that point. In fact, morning peak hour volumes on U.S. 183 in sectors C, D and E are split 75-80 percent southbound, reflecting the singular (residential) nature of land use in this area.

Two traffic problems have become evident on U.S. 183. They are: (1) insufficient capacity to handle peak-hour volumes, and (2) the frequency of serious accidents during off-peak periods. Capacity is examined in the following Traffic Operations Analysis, and accidents and off-peak traffic are described in the Vehicle Collision Analysis.

2. Traffic Operations Analysis

Because of increased traffic, several sections of U.S. 183 are currently operating at an undesirable level of service during peak periods. Increases in average daily traffic along the corridor since 1974 have been indicated previously in Table 8.

Roadway capacities for U.S. 183 have been calculated at the major intersections in the corridor. Calculations reflect capacity at Level of Service D, assuming three lanes in each direction, and account for right and left turn movements, the percentage of trucks and buses on the highway, and signalization timing. Level of Service D "approaches unstable flow" and is generally considered to be only marginally acceptable. Streets are designed at a much higher service level (Level of Service C).

Table 10 indicates that existing traffic flows exceed capacity at many of these intersections. Differences between northbound and southbound capacities at T.I., Duval Road, and Balcones Woods Drive are the result of numerous northbound right-turn movements. Of particular importance is the tendency of traffic volumes to accumulate as traffic progresses from R.M. 620 to Burnet Road. These traffic volumes consist of considerable "through" traffic plus traffic generated within the study area.

An estimated 18,000 ADT pass through the corridor (9,000 in each direction), entering north of R.M. 620 and exiting south of Burnet Road, or vice-versa. The general pattern of traffic accumulation is illustrated by the southbound morning peak hour flow (Figure 1). Similar situations exist on a daily basis northbound during the afternoon peak.

TABLE 10 - U.S. 183 Capacities and Current Volumes

Location-U.S. 183 at:	Vehicles Per Hour			
	Direction	Capacity ¹	Peak-Volume ²	Volume/ Capacity
R.M. 620	Northbound	2,385	1,162	0.49
	Southbound	1,939	1,328	0.68
Anderson Mill Road	Northbound	1,696	1,700	1.00
	Southbound	1,541	1,719	1.12
Spicewood Springs Road	Northbound	1,564	2,201	1.41
	Southbound	1,579	1,889	1.20
T.I. Entrance Gate	Northbound	1,578	2,118	1.35
	Southbound	3,096	1,999	0.65
Duval Road	Northbound	2,107	1,763	0.84
	Southbound	2,640	2,361	0.89
Balcones Woods Drive ³	Northbound	2,022	2,431	1.20
	Southbound	2,641	2,566	0.97
Burnet Road	Northbound	1,398	1,850	1.32
	Southbound	2,336	2,778	1.19

¹ At Level of Service D; three lanes each direction

² Averaged over 2 days (1979)

³ Current volumes recorded at Hamilton Road, just south of Balcones Woods Drive.

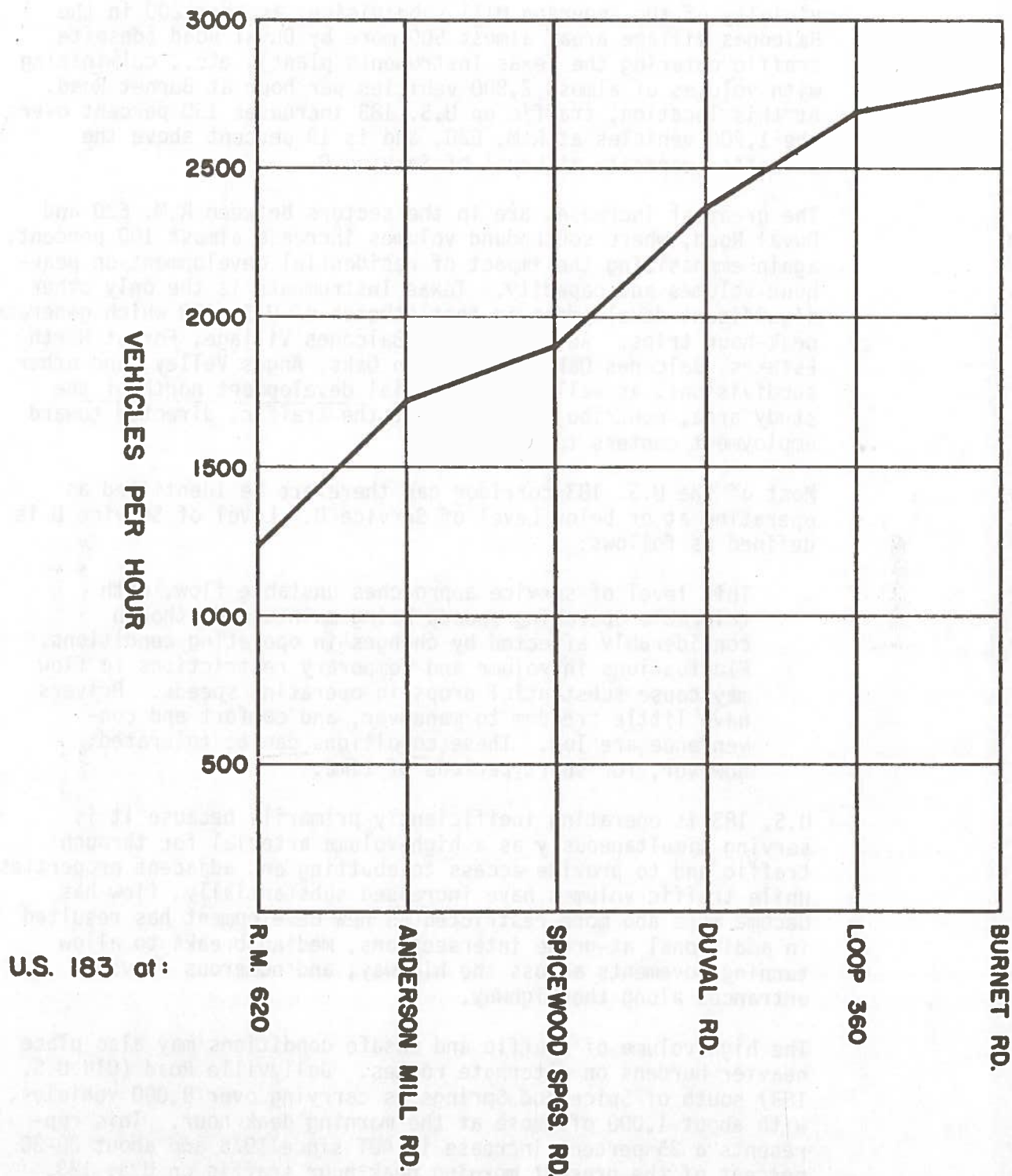


FIGURE I
SOUTHBOUND A.M. PEAK HOUR VOLUMES

Over 1,200 vehicles per hour enter the morning peak flow on U.S. 183 from north of R.M. 620. About 500 more are added in the vicinity of the Anderson Mill subdivision, another 200 in the Balcones Village area, almost 500 more by Duval Road (despite traffic entering the Texas Instruments plant), etc., culminating with volumes of almost 2,800 vehicles per hour at Burnet Road. At this location, traffic on U.S. 183 increases 150 percent over the 1,200 vehicles at R.M. 620, and is 19 percent above the street's capacity at Level of Service D.

The greatest increases are in the sectors between R.M. 620 and Duval Road, where southbound volumes increase almost 100 percent, again emphasizing the impact of residential development on peak-hour volumes and capacity. Texas Instruments is the only other significant development in that stretch of U.S. 183 which generates peak-hour trips. Anderson Mill, Balcones Village, Forest North Estates, Balcones Oaks, Barrington Oaks, Angus Valley, and other subdivisions, as well as residential development north of the study area, contribute the bulk of the traffic, directed toward employment centers to the south.

Most of the U.S. 183 corridor can therefore be identified as operating at or below Level of Service D. Level of Service D is defined as follows:

This level of service approaches unstable flow, with tolerable operating speeds being maintained, though considerably affected by changes in operating conditions. Fluctuations in volume and temporary restrictions to flow may cause substantial drops in operating speeds. Drivers have little freedom to maneuver, and comfort and convenience are low. These conditions can be tolerated; however, for short periods of time.

U.S. 183 is operating inefficiently primarily because it is serving simultaneously as a high-volume arterial for through traffic and to provide access to abutting and adjacent properties. While traffic volumes have increased substantially, flow has become more and more restricted as new development has resulted in additional at-grade intersections, median breaks to allow turning movements across the highway, and numerous driveway entrances along the highway.

The high volume of traffic and unsafe conditions may also place heavier burdens on alternate routes. Jollyville Road (Old U.S. 183) south of Spicewood Springs is carrying over 8,000 vehicles, with about 1,000 of those at the morning peak hour. This represents a 25 percent increase in ADT since 1976 and about 20-30 percent of the present morning peak hour traffic on U.S. 183. Jollyville Road will be closed at Great Hills Trail and at Loop 360.

The City of Austin and the SDHPT are currently undertaking a joint effort to implement numerous interim measures to improve operational aspects of U.S. 183 and enhance traffic safety. These measures are listed in Table 11 and are proposed within an 18-month time frame. They are designed to minimize traffic hazards until U.S. 183 is upgraded to Freeway status. The most significant improvement, widening the roadway to six lanes throughout the study area, will allow for a greater volume of traffic on U.S. 183; but other improvements, such as more signals and lower speed limits, will tend to decrease traffic flows and capacity.

TABLE 11 - Joint City/State Program for Interim Measures to U.S. 183

Phase I (6 months)

1. Widening of U.S. 183 to six lanes from R.M. 620 to Burnet Road.
2. Reduction of speed limits (City/State)
3. Installation of more effective traffic signs (City/State)
 - a. More speed zone signs
 - b. Advance street name signs
 - c. Identify streets, major driveways, plant entrances
 - d. Standardization of "signal ahead" signing
 - e. Eliminate any unnecessary signing.
4. Provision of additional traffic signals (City)
5. Establishment of any interconnect signal systems (City)
6. Expansion of traffic enforcement (City)

Phase II (12 months)

1. Modification of crossovers (State)
 - a. Construction of dual left-turn lanes
 - b. Extension of left-turn lanes
 - c. Relocation and/or closing of crossovers
2. Establishment of a Traffic Safety Awareness Program (City/State)

Phase III (18 months)

1. Construction of acceleration/deceleration lanes at major streets and driveways (State)
2. Expansion of transit service to U.S. 183 corridor (City)
3. Extend a modified sign control ordinance to U.S. 183 (City)
4. Restrict number and spacing of existing and future driveways (City/State)

3. Vehicle Collision Analysis

Due to continued residential, commercial, and industrial development along U.S. 183, the number of potentially hazardous locations continue to increase. High speeds and traffic volumes, compounded by numerous intersecting streets, driveways, and cross-over locations, combine to create unsafe travel conditions.

There were a total of 293 accidents recorded in the study area in 1977 and 303 accidents in 1978, an increase of slightly more than 3 percent. Since vehicle-miles traveled increased by about 7.6 percent, the accident rate actually fell from 302 accidents per 100 million vehicle-miles in 1977 to 290 accidents per 100 million vehicles-miles during 1978. However, as noted in Table 12, an alarming increase occurred in the severity of accidents during the year. Twenty-seven more accidents (a 54 percent increase) involved injuries, and six accidents resulted in fatalities (a total of nine deaths), compared to no fatal accidents in 1977. Thus far in 1979, an additional three fatalities have occurred as a result of accidents on this stretch of U.S. 183.

Property damage and direct costs related to these accidents have also been substantial. Using the National Safety Council data, the accidents which have occurred along U.S. 183 in the study area during 1977 and 1978 have resulted in a loss to the general public of 12 million dollars.

An analysis of the 1978 accident data reveals that of the 303 accidents, over 70 percent occurred in the off-peak hours. Equally as important, however, almost 80 percent of the injury-related accidents and 83 percent of the fatal collisions occurred in off-peak hours (Table 13).

TABLE 12 - Accident Trends - U.S. 183; 1977-1978

Accidents	1977	1978	Total	% Increase 1977-1978
Total	293	303	596	3%
Involving Injuries	50	77	127	54%
Involving Fatalities	0	6	6	-

TABLE 13 - 1978 Accident Times

Accidents						
Time of Day	Total	%	Involving Injuries	%	Involving Fatalities	%
Peak Period ¹	84	27.7	15	21.7	1	16.7
Off-Peak Day ²	121	39.9	23	31.9	2	33.3
Off-Peak Night ³	98	32.4	33	46.4	3	50.0
Total	303	100.0	71	100.0	6	100.0

¹ 7:00 a.m. - 9:00 a.m.; 4:00 p.m. - 6:00 p.m. Weekdays

² 9:00 a.m. - 4:00 p.m. Weekdays; 9:00 a.m. - 6:00 p.m. Weekends

³ 6:00 p.m. - 7:00 a.m. Weekdays; 6:00 p.m. - 9:00 a.m. Weekends

A number of factors combine to create unsafe traffic conditions at off-peak periods. The first of these is the significant volumes of traffic generated by commercial activity abutting U.S. 183, most of which supports residential development in the study area. This local traffic is supplemented by through traffic to regional centers south of the study area. Current off-peak volumes (generally 1,800-2,500 vehicles per hour) do not create capacity problems as do peak-hour volumes, but are sufficient to contribute to hazardous conditions. U.S. 183 is a major State route with many trips made for recreational or intra-state purposes. Included in through traffic are many heavy trucks which contribute to unsafe travel conditions (2 of the 6 fatal accidents in 1978 involved heavy trucks). These trucks presently make up only 1-2 percent of peak-hour vehicles, but 5-6 percent of off-peak vehicles.

A second factor is the number of turning movements occurring during off-peak hours. Traffic is not primarily one-directional as it is at peak hour, and commercial properties usually have access directly from U.S. 183 via a driveway. Median breaks allow turning movements across the highway into commercial areas or onto intersecting streets, and allow U-turns. Finally, intersecting streets provide access to residences served by the commercial development and involve additional turning movements. Most of the rear-end collisions, which comprised 41 percent of all accidents, occurred as one vehicle stopped or slowed to turn at a signal, other intersection, or driveway.

The third factor contributing to unsafe travel conditions on U.S. 183 in off-peak hours is the high speeds that many vehicles travel. Data from the State Department of Highways and Public Transportation indicate that the 85th percentile speed for each segment of the highway from Burnet Road to R.M. 620 is from 55-60 miles per hour. In other words, 15 percent of the vehicles

travel above the statewide speed limit. Speeds as high as 68 mph were recorded at several locations.

The combination of commercially-generated traffic with numerous associated turning movements and high speeds, then, creates sometimes critically unsafe traffic conditions in the U.S. 183 corridor during off-peak hours.

Table 14 indicates accidents occurring at signalized intersections in the study area in 1977-78. Less than one-third of the intersecting streets along U.S. 183 from Burnet Road to R.M. 620 are controlled by traffic signals. Although there were a total of 290 accidents at the 20 significant intersections along that stretch of U.S. 183, approximately 49 percent of these accidents occurred at the five signalized intersections (T.I. entrance not included--data not available). It should be noted that the 1977 figures for Balcones Woods Drive, Duval Road, and Spicewood Springs Road include accidents for several months prior to installation of traffic signals. While the figures appear to indicate a decline in accidents at signalized intersections, they do not reflect accidents occurring in mid-block involving vehicles slowing or stopped because of the signal.

TABLE 14 - Accident Analysis at Signalized Intersections

U.S. 183 at:	No. of Accidents		
	1977	1978	Total
Burnet Road	35	21	56
Balcones Woods Drive	10	5	15
Duval Road	9	4	13
Spicewood Springs Road	12	3	15
R.M. 620	4	14	18
Total	70	47	117
All intersections (20)	125	115	250

C. Future Conditions

1. Population and Trip Generation

Projected population figures for 1985 show an increase of over 20,000 persons (almost 78 percent) from 1979 to 1985 in the study area. Table 15 lists population figures for each traffic sector in 1979 and 1985 and estimates "person-trips" generated from within the sectors. The most significant increases occur in Sectors B, D, and E, with 4,000-6,000 more people expected to reside in each by 1985.

TABLE 15 - Population and Trip Generation - 1985

Sector	1979 Population	%	1985 Population	%	% Increase 1979-1985	1985 Person-Trips ¹
A	10,522	38.7	13,707	28.4	30.3	38,380
B	3,162	11.6	9,066	18.8	186.7	25,385
C	3,936	14.5	5,794	12.0	47.2	16,223
D	2,220	8.2	6,744	13.9	203.8	18,883
E	7,323	27.0	13,023	26.9	77.8	36,464
TOTAL	27,163	100.0	48,334	100.0	77.9	135,335

¹ 2.8 trips per person per day.

TABLE 16 - Trip Generation on U.S. 183 - 1985

Sector	1985 Person-Trips Generated	1985 Vehicle-Trips Generated ¹	% Using ² U.S. 183	1985 Vehicle-Trips Onto U.S. 183
A	38,380	31,983	15.0	4,797
B	25,385	21,154	65.6	13,877
C	16,223	13,519	68.2	9,220
D	18,883	15,736	88.8	13,974
E	36,464	30,387	34.7	10,544
TOTAL	135,335	112,779	46.5	52,412

¹1.2 persons/vehicle

²percent of 1979 vehicle-trips which use U.S. 183.

Table 17 indicates vehicle-trips generated within the study area for 1985 and distributes the trips onto U.S. 183 much as they are presently distributed. These trips are added to "through" traffic to estimate traffic volumes at intersections along U.S. 183 (see Future Traffic Operations Analysis).

Trip generation calculations are based on increased residential and support commercial development and do not account for new regional-serving commercial and industrial development. Commercial and office development (about 177 acres total) at and near Great Hills Mall will produce approximately 26,000 additional daily trips in Sector B, and possible additional industrial development near Texas Instruments might generate as many as 3,000 more trips in Sector C. Traffic from these developments will be generated through other sectors depending on how many people come from within the sector, within the study area, or outside of the study area.

The impact of significant population growth in the study area by 1985, particularly in Sectors B, D, and E, will not only be felt on U.S. 183, but also on streets intersecting with the highway. In addition, increased population will encourage more support commercial land uses, resulting in more driveways and median breaks to serve those properties.

1995 population and trip generation figures are given in Table 17, but are not assigned to U.S. 183 because of the uncertainty of the roadway network at that time. Additional population and subsequent person-trips expected to occur will be significant, particularly in Sectors C, D and E. Increases would not, however, be as great as those experienced in the 1979-1985 period.

TABLE 17 - Population and Trip Generation, 1995

Sector	1985 Population	%	1995 Population	%	% Increase 1985-1995	1995 Person-Trips ¹
A	13,707	28.4	14,070	21.3	2.6	39,396
B	9,066	18.8	10,774	16.3	18.8	30,167
C	5,794	12.0	10,642	16.1	83.7	29,798
D	6,744	13.9	12,865	19.4	90.8	36,022
E	13,023	26.9	17,775	26.9	36.5	49,770
Total	48,334	100.0	66,126	100.0	36.8	185,153

¹ 2.8 Trips per person per day

2. Proposed Transportation Improvements

(a) U.S. 183

U.S. 183 is being considered for upgrading to freeway status, with right-of-way expanded from 200 feet to 300 feet throughout the study area. Construction would be the responsibility of the Texas State Department of Highways and Public Transportation (SDHPT). The SDHPT's current 20-year plan indicates that the bulk of the construction, from R.M. 620 to Loop 360, would not occur for at least ten years. Studies are currently underway, however, to develop a revised construction schedule placing a higher priority on U.S. 183.

The City of Austin's Capital Improvements Program 1978-1983 includes funding for right-of-way purchases along U.S. 183 at Loop 360 and Loop 1 (MoPac Boulevard) for an interchange and at selected intersections between Loop 360 and R.M. 620.

(b) Other Roadways

The Proposed Austin Metropolitan Area Roadway Plan indicates a roadway network which can relieve some of the traffic burden on U.S. 183 generated by future development in the area. Of particular significance are:

- (1) The construction/extension of Parmer Lane as a major arterial parallel to U.S. 183 from R.M. 620 to IH-35 (substantial diversion of traffic heading to Burnet Road and IH-35 from northeast of the study area);
- (2) The construction/extension of Braker Lane from U.S. 183 (near Hamilton Road) east to IH-35 (as many as 15,000 vehicles per day may be diverted between Balcones Woods Drive and Loop 360);
- (3) The construction of McNeil Drive as a major arterial extending from IH-35 to R.M. 2222 and providing access to east-west routes, such as R.M. 2222, Parmer Lane, and Howard Lane, and to IH-35 (minimal impact).

None of these facilities are currently programmed in the 1979-1983 Capital Improvements Program.

(c) Transit Improvements

Bus service currently is not provided along U.S. 183. The Public Transportation Plan, however, proposes bus service northwest along U.S. 183 to Anderson Mill Road and developing an "area terminal" in the vicinity of U.S. 183 and Duval Road. The terminal would serve as a "park-and-ride" facility for the area. The City of Austin Capital Improvements Program 1978-1983 includes funding for the land purchase and construction of the terminal.

3. Future Traffic Operations Analysis

Future traffic volumes can be expected to increase considerably as additional development occurs in the study area and to the north. Estimated 1985 daily traffic volumes are listed in Table 18. These figures are based primarily on home-based trips (population) increasing and do not completely reflect traffic generated by non-home based trips (regional-serving industrial and commercial development). Through traffic is assumed to increase by approximately 50 percent, somewhat less than the 60 percent increase generated within the study area. All volumes were reduced 10-20 percent to account for some diversion to other roadways (Braker Lane, R.M. 2222, etc.) and possibly to transit.

1985 traffic increases over 1979 volumes at significant intersections are anticipated to range from 34 percent to over 60 percent. The largest increases occur at Spicewood Springs Road and at Loop 360, reflecting the large population increases in Sectors D and B, respectively.

Daily traffic volumes have been converted to peak hour volumes based on approximately the same percentage as presently exists, in Table 19. Table 20 estimates peak one-directional flow for 1985 and compares them to roadway capacities at Level of Service D. Future volume/capacity ratios indicate that capacity would be exceeded during peak hours at all intersections south of R.M. 620. Again, the problem becomes most severe as traffic progresses toward the southeast, with peak hourly southbound volumes of over 4,000 vehicles at Burnet Road, 74 percent above capacity.

Anticipated residential development in the next several years, then, will intensify existing traffic problems on U.S 183, and will result in a roadway operating well below desired levels of service during peak periods. In addition to peak hour capacity problems, off-peak volumes will increase and may lead to more accidents in the future.

1995 traffic volumes will be significantly larger yet, but the effect of such volumes on traffic conditions, including capacity and levels of service, is uncertain since the development of U.S. 183 and the surrounding roadway network at that time is unknown. A limited-access freeway with frontage roads would have considerably more capacity than presently exists, and alternate routes and transit may divert substantial amounts of auto traffic from U.S. 183.

TABLE 18 - U.S. 183 Weekday Traffic Volumes
1985 vs. 1979

Location-U.S. 183 at:	Vehicles Per Day		% Increase
	1979	1985 ¹	
R.M. 620	19,911	26,730	34.2
Anderson Mill Road	25,845	36,220	40.1
Spicewood Springs Road	30,444	48,796	60.3
Duval Road	36,706	53,922	46.9
Loop 360	41,547	61,852	48.9
Burnet Road	45,234	65,234	45.2

¹ based on population increases at 2.8 person-trips per day;
1.2 persons per vehicle; through traffic from north of
R.M. 620 at 50% above 1979 level; adjusted down 10-20%
to reflect diversion to other roadways and to transit.

TABLE 19 - U.S. 183 Weekday Peak Hour Volumes - 1985

Location-U.S. 183 at:	Vehicles Per Hour	
	A.M. ¹	P.M. ²
R.M. 620	2,272	2,539
Anderson Mill Road	3,079	3,441
Spicewood Springs Rd.	4,148	4,636
Duval Road	4,583	4,853
Burnet Road	6,241	5,584

¹ at R.M. 620, Anderson Mill Road, Spicewood Springs Road,
and Duval Road: 8.5% of ADT.
at Burnet Road: 9.5% of ADT.

² at R.M. 620, Anderson Mill Road, and Spicewood Springs Road:
9.5% of ADT.
at Duval Road: 9/0% of ADT.
at Burnet Road: 8.5% of ADT.

Note: These percentages are the same as existing (1979)
peak hour/ADT percentages.

TABLE 20 - U.S. 183 Peak Volumes and Capacities - 1985

Location-U.S. 183 at:	Vehicles Per Hour		Volume	
	Direction	Capacity ¹	Peak Volumes ²	Capacity
R.M. 620	Northbound	2,385	1,777	0.75
	Southbound	1,939	1,590	0.82
Anderson Mill Road	Northbound	1,696	2,409	1.42
	Southbound	1,541	2,155	1.40
Spicewood Springs Rd.	Northbound	1,564	3,245	2.07
	Southbound	1,579	2,904	1.84
Duval Road	Northbound	2,107	2,669	1.27
	Southbound	2,640	3,208	1.22
Burnet Road	Northbound	1,398	2,792	2.00
	Southbound	2,336	4,057	1.74

¹at Level of Service D; assumes three lanes each direction.

²Southbound

R.M. 620, Anderson Mill Road; Spicewood Springs Road, and Duval Road:
70% of peak A.M. flow.

Burnet Road: 65% of peak A.M. flow.

³Northbound

R.M. 620, Anderson Mill Road, and Spicewood Springs Road:
70% of peak P.M. flow.

Duval Road: 55% of peak P.M. flow.

Burnet Road: 50% of peak P.M. flow.

Note: These percentages are the same as existing (1979) southbound/northbound splits during peak hours.

SUMMARY AND CONCLUSIONS

IV. SUMMARY AND CONCLUSIONS

A. Summary

1. Residential development is low-density, single-family in nature with an average of 3.06 units per residential acre. Continued growth is anticipated, with a 69 percent increase in the number of housing units from 1978 to 1985. Residential growth in turn will stimulate commercial development along U.S. 183. The increase of subdivision zoning and special permit activities over the last few years indicates that the growth trend will continue.
2. Population will increase at a rate of 79 percent from 27,667 persons in 1978 to 49,544 persons in 1985.
3. Intense residential development adjacent to U.S. 183 is the most significant contributor to peak hour traffic volumes on U.S. 183 which presently exceed capacity at Level of Service D.
4. Additional residential development will worsen traffic capacity problems in peak periods, as well as encourage support commercial development and contribute to traffic volumes at off-peak periods.
5. Traffic is "funneled" from north to south in the corridor so that the most critical point in terms of capacity is at Burnet Road, which is currently 19 percent over capacity southbound at the morning peak hour.
6. Relatively steep slopes to the south and west and the Robinson tract to the north have resulted in a rather narrow development corridor along U.S. 183 which serves as the only through traffic route and a major distribution for local traffic.
7. Commercial establishments are primarily located in strip developments along U.S. 183, serving both a neighborhood and regional function. The growth of commercial uses over the next seven years is projected to increase approximately 165 percent.
8. The steadily growing industrial sector is a prime generator of traffic along U.S. 183. Over 12 and one-half percent of the developed area is already industrial, as compared to the city-wide figure of less than 5 percent.
9. Commercial development generates significant off-peak volumes on U.S. 183 and, along with industrial and residential development, requires numerous driveway entrances, additional streets, and median breaks, all of which create points of conflict with high-speed traffic on U.S. 183.

10. If the vacant but commercially zoned frontage of U.S. 183 were developed, commercial land use would increase by over 50 percent. This could happen without any additional zoning changes.
11. The economic base of the area has shifted from a local to a regional market. Development in the area is responding to neighborhood and regional supply and demand factors.
12. The number of accidents on U.S. 183 remained fairly constant from 1977 to 1978, but the severity of those accidents increased significantly, including six accidents involving fatalities in 1978 compared to none in 1977, and a 54 percent increase in accidents involving injuries.
13. The vast majority of accidents and an even greater percentage of injury-related accidents occur during off-peak periods.
14. Vehicles along U.S. 183 from Burnet Road to R.M. 620 commonly travel over the speed limit during off-peak periods.
15. Traffic accidents on U.S. 183 are a function of: significant traffic volumes, high speeds, and conflicting types of vehicles and movements, all of which occur together at off-peak periods when commercial traffic is heaviest and speeds are greatest.
16. The proliferation of directional and business signs along U.S. 183 result in confusion and distraction to the motorist.

B. Conclusions

1. Traffic volumes at service level D on U.S. 183 are exceeded during peak hour traffic movement. The combination of increased traffic due to continued development and the traffic control measures which must be implemented to make the roadway safe will further increase congestion. Immediate steps should be taken to increase the capacity of U.S. 183 and divert traffic to alternate routes.
2. The increasing number of serious injury and fatality-producing accidents warrants immediate action to improve the safety of U.S. 183. The existing hazards to safety and the projected increase in both peak and off-peak hour traffic attest to the need for steps to improve the roadway and measures to slow the rate of development until the hazards are mitigated. Zoning, construction and development activities continue unabated and accelerate and aggravate the existing hazards that threaten the safety and welfare of persons who must use U.S. 183.
3. The impact of the high proportion of industrial development is manifest by market forces which create an unusually rapid and intense rate of development. It would require extraordinary government intervention to permanently stop or reverse development that is occurring and will occur in response to the existing market situation.

Suggest

4. Timing and spatial distribution patterns of development are the elements most susceptible to control by the city's current purview and legal authority.
5. Remedial actions must address the rate of development which is the prime force behind particular interrelated problems. Specific measures to mitigate the individual problems will not be sufficiently effective unless they are coordinated, mutually reinforcing, and implemented in a climate where the basic cause is at least temporarily held at bay. All zoning, special permit and site development plans should be examined with a view toward minimizing their traffic generation potential on U.S. 183.
6. Commercial and residential development should be limited and controlled in a coordinated manner to coincide with the traffic safety and capacity improvements on U.S. 183.
7. Conflicts arising from access driveways and median breaks to commercial properties should be minimized, thereby reducing the likelihood of accidents along U.S. 183.
8. Zoning and subdivision policies should encourage land use patterns which promote safety convenience and compatability. Specifically land uses should not contribute to traffic hazards or detract from or conflict with more restrictive adjacent uses.

1. The first part of the report deals with the general situation of the country and the position of the various groups of the population.

2. The second part of the report deals with the economic situation of the country and the position of the various groups of the population.

3. The third part of the report deals with the social situation of the country and the position of the various groups of the population.

4. The fourth part of the report deals with the cultural situation of the country and the position of the various groups of the population.

5. The fifth part of the report deals with the political situation of the country and the position of the various groups of the population.

6. The sixth part of the report deals with the international situation of the country and the position of the various groups of the population.

RECOMMENDATIONS

1871-1872



V. RECOMMENDATIONS

Declare a 90-120 day moratorium on zoning in the study area. This moratorium shall coincide with immediate remedial steps to increase capacity and improve safety on U.S. 183. Additionally it will provide the time necessary to design and implement other measures to mitigate future problems. The following actions will be accomplished during the moratorium.

A. Improvements to U.S. 183 (Phase I)

1. Widening of U.S. 183 to six lanes from R.M. 620 to Burnet Road
2. Reduction of speed limits
3. Installation of more effective traffic signs (City/State)
 - a. More speed zone signs
 - b. Advance street name signs
 - c. Identify streets, major driveways, plant entrances
 - d. Standardization of "signal ahead" signing
 - e. Eliminate any unnecessary signing.
4. Provision of additional traffic signals
5. Establishment of any interconnect signal systems (City)
6. Expansion of traffic enforcement (City)

B. The development of a Traffic Impact Analysis (TIA) to be required as part of zoning and subdivision applications, indicating:

- a. Average daily traffic and peak hour traffic estimated to be generated by the development
- b. Daily and peak hour trip distribution, including those trips expected to be generated onto U.S. 183
- c. Any transit measures proposed
- d. Any measures designed to minimize traffic on U.S. 183.

C. Highway Impact Overlay Zone with the following ordinance-required provisions:

1. Transitional buffer zones in any "BB" or less restrictive zoning district abutting residential developments. No parking is to be permitted to prevent noise, glare or odor problems. The table below outlines recommended widths for various zoning districts.

<u>Zoning District</u>	<u>Minimum Buffer Width</u>
BB	10 feet
B, O	15 feet
LR, GR, C, C-1, C-2	25 feet
DL or less restr.	50 feet

2. Landscape requirement as follows:

- a. A 10-15 foot wide strip within the front setback, directly abutting the R.O.W. or its proposed extension.

- b. Parking lots with 20 or more spaces shall have five percent of their gross area landscaped.
 - c. A minimum 5 foot strip in the transitional buffer zone.
- 3. Sign-control with the following requirements:
 - a. On-premise signs to be 70 percent of the size allowed elsewhere in the city.
 - b. No off-premise signs within 200 feet of U.S. 183 R.O.W.
 - c. No flashing signs.
 - d. Businesses and properties to be restricted to a single sign.
 - e. Single standards for multiple signs for adjoining businesses not located in shopping centers.
- 4. Rollback zoning to the most restrictive zoning category consistent with the actual use of a property. This provision to be effective one year after a zoning change is granted. If the parcel should remain undeveloped after one year, the zoning would roll back to "AA: with notice and public hearing.

5. Driveway Standards

The interval of driveways should be changed to a distance of 200 feet along high-speed arterials, to eliminate overlapping conflict points. Right turn lanes should be provided on the developed parcel at the developer's expense for any property on a street with anticipated average daily traffic volumes of more than 1,000 vehicles and an average peak hour volume of 50 right turns. A continuous right turn lane should be provided for adjacent properties which front a road where it is anticipated that 20 percent of the direction volume per mile makes right turns and speeds are at least 35 mph.

In addition to the above recommendations, which will be complete or ready for implementation at the end of the moratorium, steps to implement the following actions can be taken immediately.

- A. Where existing driveways along U.S. 183 pose critical traffic safety problems, the City should exercise its option to upgrade or close such driveways. When rezoning property with non-conforming driveways along U.S. 183, consideration should be given to requiring the driveways be brought up to standard.
- B. Median breaks on U.S. 183 should be located only at intersections of arterials and other major streets. On such high speed arterials, a new standard of at least 1,000 feet between median breaks should be established. The actual spacing of these breaks would be adjusted to occur where turning movements require breaks or intersecting arterials will be located in the future.

- C. U.S. 183 should be designated a proposed freeway with 300 foot R.O.W. This would allow the city to impose building setback standards to coincide with R.O.W. requirements in anticipation of a revised schedule for construction by the State.
- D. Jollyville Road (Old U.S. 183) should be designated as a residential collector street from Great Hills Trail to Spicewood Springs Road; Loop 360-MoPac Boulevard.
- E. Diversion of traffic to alternate routes should be accommodated by C.I.P. projects upgrading Parmar Lane and Braker Lane and McNeil Drive to relieve some of the traffic burden on U.S. 183.
- ~~F.~~ Regional commercial developments should be discouraged from locating in the area or delayed until the street system is adequately improved to accommodate the additional traffic.
- ~~G.~~ New industrial or major employment centers should be discouraged from locating in the area or coordinate their construction and operation with scheduled transportation improvements.
- H. Commercial zoning should be restricted to parcels located within five hundred (500) feet of an intersection. Those parcels which front on U.S. 183 and are beyond five hundred (500) feet of an intersection should be more restrictively zoned at "O", "BB", "B" or "A". Such a policy would encourage objectives promulgated by the Comprehensive Plan which encourage commercial nodes, as opposed to strip commercial development.
- I. Any subdivision of land fronting on U.S. 183 and not within five hundred (500) feet of an intersection should meet the following criteria:
 - (1) Subdivided parcels requiring access from U.S. 183 should have a minimum of two hundred (200) feet of frontage.
 - (2) Subdivided parcels with less than two hundred (200) feet frontage will be prohibited access to U.S. 183 if alternate access is available. Such parcels should have a minimum depth of one hundred fifty (150) feet and should provide access to an interior street or, in the alternative, provide a right-turn easement in conjunction with adjacent parcels and a common access driveway.

1. The first part of the report is a general introduction to the subject of the study. It discusses the importance of the study and the objectives of the research.

2. The second part of the report is a detailed description of the methodology used in the study. It includes information about the sample size, the data collection methods, and the statistical analysis techniques.

3. The third part of the report presents the results of the study. It includes a summary of the findings and a discussion of the implications of the results.

4. The fourth part of the report is a conclusion and a list of references. The conclusion summarizes the main findings of the study and provides a final statement on the research.

5. The fifth part of the report is a list of references. It includes a list of all the sources used in the study, including books, articles, and other documents.

6. The sixth part of the report is a list of appendices. It includes a list of all the additional materials that are included in the report, such as tables, figures, and other documents.

7. The seventh part of the report is a list of acknowledgments. It includes a list of all the people and organizations that have provided support and assistance during the study.

8. The eighth part of the report is a list of footnotes. It includes a list of all the footnotes that are included in the report, providing additional information and references.

9. The ninth part of the report is a list of tables. It includes a list of all the tables that are included in the report, providing a summary of the data presented in each table.

10. The tenth part of the report is a list of figures. It includes a list of all the figures that are included in the report, providing a summary of the data presented in each figure.

APPENDIX

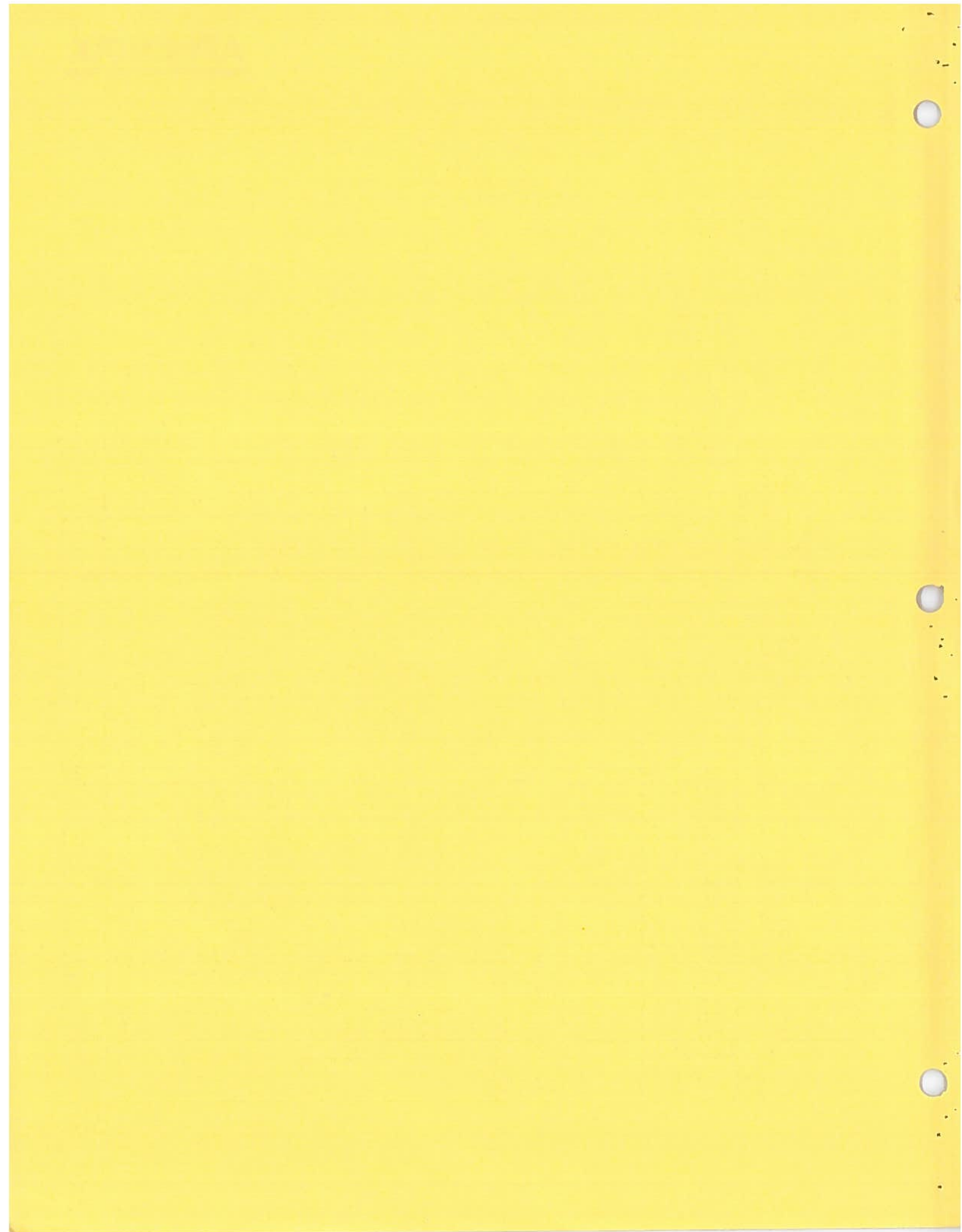


TABLE A4 - U.S. 183 Frontage - Undeveloped Lot Characteristics

Lot-width Ranges	Number of lots		Frontage of lots	
	Number	%	Total feet	%
0-100	10	8.62	650	1.63
100-150	40	34.48	4,410	11.09
150-200	5	4.31	850	2.14
200-300	17	14.65	3,490	8.78
300-400	10	8.62	3,530	8.88
400-500	8	6.90	3,390	8.52
500-1000	18	15.52	12,730	32.01
1000-1500	5	4.31	5,760	14.48
1500 & over	3	2.59	4,960	12.47
Total	116	100.00%	39,770	100.00%

TABLE A5 - U.S. 183 Frontage - Developed-Undeveloped
Committed-Uncommitted

Characteristics of U.S. 183 Frontage (from R.M. 620 to MoPac)	Southside		Northside		Total	
	Feet	%	Feet	%	Feet	%
TOTAL FRONTAGE	40,320	100	40,320	100	80,640	100
DEVELOPED FRONTAGE	14,460	35.86	19,870	49.28	34,330	42.57
Residential - total	3,360	8.33	1,050	2.60	4,410	5.47
- in I-AA	720	1.78	150	0.37	870	1.08
- in LR, GR, C, etc.	2,640	6.55	900	2.23	3,540	4.39
Commercial - total	8,420	20.88	11,880	29.46	20,300	25.17
- in I-AA	1,420	3.52	6,520	16.17	7,940	9.85
- in LR, GR, C, etc.	7,000	17.36	5,360	13.29	12,360	15.32
Industrial - total	1,520	3.77	6,400	15.87	7,920	9.82
- in I-AA	460	1.13	2,510	6.22	2,970	3.68
- in LR, Gr, C or DL	1,060	2.63	3,890	9.65	4,950	6.14
Other - total	1,160	2.88	540	1.35	1,700	2.11
- in I-AA	1,160	2.88	--	--	1,160	1.44
- in GR, LR, C	--	--	540	1.35	540	0.67
STREETS & R.O.W.'s	3,250	8.06	3,290	8.15	6,540	8.11
UNDEVELOPED FRONTAGE	22,610	56.08	17,160	42.56	39,770	49.32
Commercially Zoned (LR,GR,C)*	10,200	25.30	4,180	10.37	14,380	17.83
Other zoning	--	--	--	--	--	--
I-AA Zoning	12,410	30.78	12,980	32.19	25,390	31.49
COMMITTED FRONTAGE	27,910	69.22	27,340	67.81	55,250	68.51
Developed Frontage	14,460	35.86	19,870	49.28	34,330	42.57
Zoned Frontage*	10,200	25.30	4,180	10.37	14,380	17.83
Streets & R.O.W.s	3,250	8.06	3,290	8.16	6,540	8.11
UNCOMMITTED FRONTAGE	12,410	30.78	12,980	32.19	25,390	31.49

*Does not include pending cases

TABLE A6 - Existing Population, Housing Units and Densities

EXISTING POPULATION AND HOUSING UNITS (1978)						
Area	Sub-Areas	Acres	Population	Housing Units	Population Density*	Housing Density**
Southern Portion	I	595.10	4,717	1,766	7.93	7.09
	II	500.65	3,940	1,322	7.87	5.61
	III	398.45	1,865	536	4.68	2.79
	IV	652.02	-	-	-	-
	V	777.23	116	44	0.15	1.61
	VI	434.96	30	10	0.07	1.40
	VII	477.50	100	34	0.21	1.41
	VIII	657.74	2,916	829	4.43	3.40
	IX	575.37	1,225	390	2.13	2.60
	X	1,256.78	1,202	383	0.96	1.27
Northern Portion	XI	609.30	1,371	457	2.25	1.65
	XII	132.85	138	46	1.04	1.49
	XIII	1,084.43	1,749	583	1.61	2.18
	XIV	1,091.71	471	157	0.43	2.13
	XV	863.31	4,500	1,500	5.21	3.71
	XVI	1,352.64	2,823	941	2.09	2.36
	XVII	652.84	444	148	0.68	1.54
	XVIII	1,146.13	60	20	0.05	1.49
TOTAL		13,259.01	27,667	9,166	2.09	3.06

*Population per gross acre.

**Housing units per residential acre.

Source: Austin Planning Department estimates based upon aerial photography (February, 1978), 1976 Travis County Census, and utility hook-ups.

TABLE A9 - Projected Land Use 1985 (Subareas XI to XVIII)

1985 PROJECTED LAND USE																			
Sub-Areas	Size of Area		Undeveloped		Developed		Residential		Commercial		Offices		Industrial		Public & Quasi-Public		Parks		
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	
XI	609.30	8.79	106.72	17.52	502.58	82.48	459.70	75.44	13.88	2.28	7.00	1.15	--	--	12.00	1.97	10.00	1.64	
XII	132.85	1.92	49.39	37.18	83.46	62.82	30.90	23.26	10.14	7.63	9.44	7.10	29.82	22.45	3.16	2.36	--	--	
XIII	1084.43	15.64	287.65	26.53	796.78	73.47	490.18	45.20	24.80	2.29	11.80	1.09	--	--	34.50	3.18	235.50	21.72	
XIV	1091.71	15.75	630.90	57.79	460.81	42.20	330.55	30.28	61.13	5.60	20.59	1.89	35.43	3.24	13.11	1.20	--	--	
XV	863.31	12.45	92.79	10.75	770.52	89.25	591.74	68.54	51.41	5.96	8.14	.94	--	--	102.83	11.91	16.40	1.90	
XVI	1352.64	19.51	697.47	51.56	655.17	48.44	546.23	40.38	34.37	2.54	9.32	.69	5.89	.44	43.14	3.19	16.22	1.20	
XVII	652.84	9.42	434.01	66.48	218.83	33.52	164.27	25.16	16.81	2.57	--	--	--	--	19.75	3.03	18.00	2.76	
XVIII	1146.13	16.52	1102.72	96.21	43.41	3.79	33.41	2.92	8.50	0.75	1.50	.13	--	--	--	--	--	--	
Total	6933.21	100.00	3401.65	49.06	3531.56	50.94	2646.98	38.18	221.04	3.19	67.79	0.98	71.14	1.03	228.49	3.29	296.12	4.27	

TABLE A10 - Projected Population, Housing Units and Densities-1985

PROJECTED POPULATION AND HOUSING UNITS (1985)						
Area	Sub-Areas	Acres	Population	Housing Units	Population Density*	Housing Density **
Southern Portion	I	595.10	4,717	1,766	7.93	7.09
	II	500.65	5,602	1,903	11.19	6.16
	III	398.45	3,388	987	8.50	3.72
	IV	652.02	-	-	-	-
	V	777.23	2,003	793	2.58	2.47
	VI	434.96	1,790	621	4.12	8.05
	VII	477.50	1,310	463	2.74	2.18
	VIII	657.74	3,963	1,137	6.03	3.36
	IX	575.37	2,119	686	3.68	2.58
	X	1,256.78	1,954	632	1.55	1.75
	XI	609.30	1,627	542	2.67	1.18
	XII	132.85	138	46	1.04	1.49
	XIII	1,084.43	4,079	1,392	3.76	2.84
Northern Portion	XIV	1,091.71	2,665	919	2.44	2.78
	XV	863.31	9,258	3,152	10.72	5.33
	XVI	1,352.64	3,765	1,268	2.78	2.32
	XVII	652.84	1,020	348	1.56	2.12
	XVIII	1,146.13	146	50	.13	1.50
TOTAL		13,259.01	49,544	16,705	3.74	3.31

*Population per gross acre.

**Housing units per residential acre.

Source: City of Austin projections based upon aerial photography (February 1978). Infrastructure availability, subdivision activity, and utility hookups.

TABLE A11 - Projected Land Use 1995 (Summary of Subareas I to XVIII)

Area	1995 PROJECTED LAND USE											
	Size of Area		Undeveloped		Developed		Residential		Commercial		Offices	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Total	13,259.01	100	2519.12	19.00	10,739.89	81.00	7077.80	53.38	892.61	6.73	423.13	3.19
											930.80	7.02
											859.08	6.48
											556.47	4.20

TABLE A12 - Projected Land Use 1995 (Subareas I to X)

Sub-Area	1995 PROJECTED LAND USE																	
	Size of Area		Undeveloped		Developed		Residential		Commercial		Offices		Industrial		Public & Quasi-Public		Parks	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
I	595.10	9.41	113.02	18.99	482.08	81.01	248.96	41.83	65.10	10.94	42.65	7.17	104.50	17.56	9.83	1.65	11.04	1.86
II	500.65	7.91	49.73	9.93	450.92	90.07	323.63	64.64	33.99	6.79	26.82	5.36	1.29	0.26	58.93	11.77	6.26	1.25
III	398.45	6.30	76.55	19.21	321.90	80.79	273.51	68.64	22.86	5.74	3.78	0.95	5.81	1.46	11.49	2.88	4.45	1.12
IV	652.02	10.31	207.12	31.77	444.90	68.23	--	--	21.63	3.32	16.43	2.52	139.94	21.46	256.10	39.27	10.80	1.66
V	777.23	12.21	167.05	21.49	610.18	78.51	321.37	41.35	116.52	14.99	80.88	10.41	10.89	1.40	14.71	1.89	65.81	8.47
VI	434.96	6.87	152.97	35.17	281.99	64.83	77.14	17.74	29.93	6.88	5.00	1.15	10.75	2.47	159.17	36.59	--	--
VII	477.50	7.55	164.65	34.48	312.85	65.52	239.68	50.19	26.37	5.52	19.63	4.11	10.58	2.21	8.59	1.79	8.00	1.70
VIII	657.74	10.40	31.85	4.84	625.89	95.16	429.04	65.23	68.86	10.47	8.02	1.22	9.80	1.49	18.68	2.84	91.49	13.91
IX	575.37	9.09	90.41	15.71	484.96	84.29	384.01	66.75	42.20	7.33	26.93	4.68	7.29	1.27	13.53	2.35	11.00	1.91
X	1256.78	19.87	264.58	21.05	992.20	78.95	468.94	37.31	42.89	3.41	25.00	1.99	438.81	34.92	11.56	0.92	5.00	0.40
TOTAL	6325.80	100	1317.93	20.83	5007.87	79.17	2766.28	43.73	470.35	7.44	255.14	4.04	739.66	11.69	562.59	8.89	213.85	3.38

TABLE A14 - Projected Population, Housing and Densities - 1995

PROJECTED POPULATION AND HOUSING UNITS (1995)						
Area	Sub-Areas	Acres	Population	Housing Units	Population Density*	Housing Density**
Southern Portion	I	595.10	4,717	1,766		7.09
	II	500.65	5,896	2,010	11.78	6.21
	III	398.45	3,457	1,080	8.68	3.95
	IV	652.02	-	-	-	-
	V	777.23	2,003	793	2.58	2.47
	VI	434.96	1,790	621	4.12	8.05
	VII	477.50	1,716	608	3.59	2.54
	VIII	657.74	5,632	1,733	8.56	4.04
	IX	575.37	5,666	1,976	9.85	5.15
	X	1,256.78	3,769	1,292	3.00	2.76
	XI	609.30	2,161	786	3.55	1.63
	XII	132.85	138	46	1.04	1.49
	XIII	1,084.43	6,325	2,194	5.83	3.60
	XIV	1,091.71	6,955	2,762	6.37	4.05
Northern Portion	XV	863.31	10,083	3,452	11.68	5.60
	XVI	1,352.64	8,489	2,955	6.28	3.40
	XVII	652.84	3,171	1,133	4.86	2.89
	XVIII	1,146.13	7,655	2,732	6.68	4.34
	TOTAL	13,259.01	79,623	27,939	6.0	3.95

*Population per gross acre.

**Housing units per residential acre.

Source: City of Austin projections based upon aerial photography (February 1978). Infrastructure availability, subdivision activity, and utility hookups.

