PEARLAND
TEXAS

PREPARED FOR
THE CITIZENS OF PEARLAND
CITY COUNCIL PLANNING COMMISSION

BY
MARMON, MOK & GREEN INC.
PLANNING CONSULTANTS

COMPREHENSIVE DEVELOPMENT PLAN

INITIAL REPORT 1968
TOPIC UPDATE 1978

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PLANNING CONSULTANTS

Marmon, Mok & Green, Inc.
Robert H. Green, Principal Planner
Janet J. Ridley, Assistant Planner

During the year 1968 planning surveys were initiated that culminated in the publication of a Comprehensive Development Plan setting forth the findings and recommendations of the survey and offering guidelines for directing the City's growth during a formative period. City population has more than doubled in the decade following the release of the 1968 report. Responding to the growth rate and emergence of new local and regional development influences the City Council of the City of Pearland in 1978 authorized a Topic Update relative to the plans previously formulated. The report that follows presents the findings and recommendations of the Topic Update investigations and outlines longrange planning guidelines relative to the situation found during 1978.

Contents and Users Guide

The report that follows is presented in three parts. These parts and the information presented under each title is:

Part I GROWTH RATE & SCOPE OF PROJECTED POPULATION PLANS

Consideration relating to the trends in the City's growth rate, the composition of the population, the density and scope of future residential developments are presented.

Part II PLANS

A Topic Update Plan for each component of the City's Comprehensive Longrange Development Plan is presented and discussed. Previous plans have been corrected to reflect the influence of current development influences and growth characteristics.

Part III IMPLEMENTATION, PRIORITIES, PLANNING GOALS, & DEVELOPMENT STANDARDS & PLANNING ALTERNATIVES

The contents outlined at the conclusion of the Report broaden the base for the planning and decision making process and presents a challenge to the City and governmental representatives regarding PEARLAND'S TOMMORROW.

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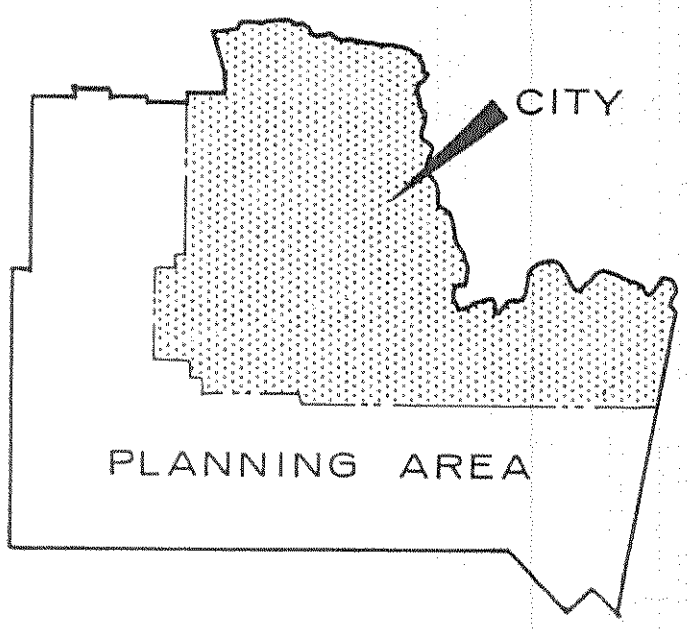
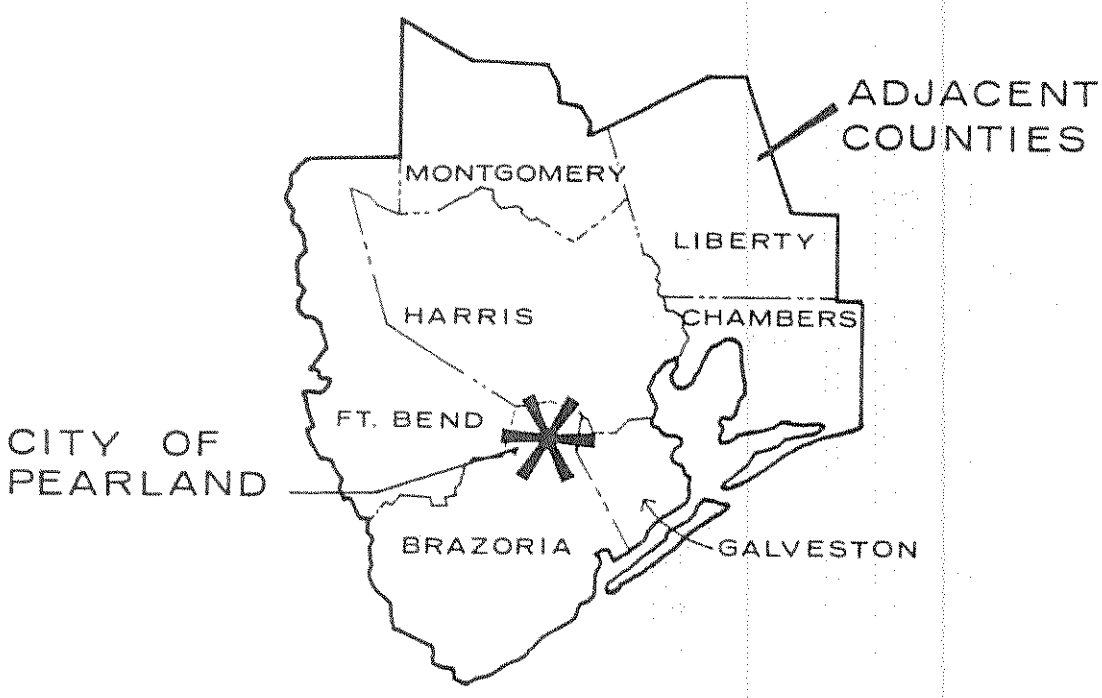
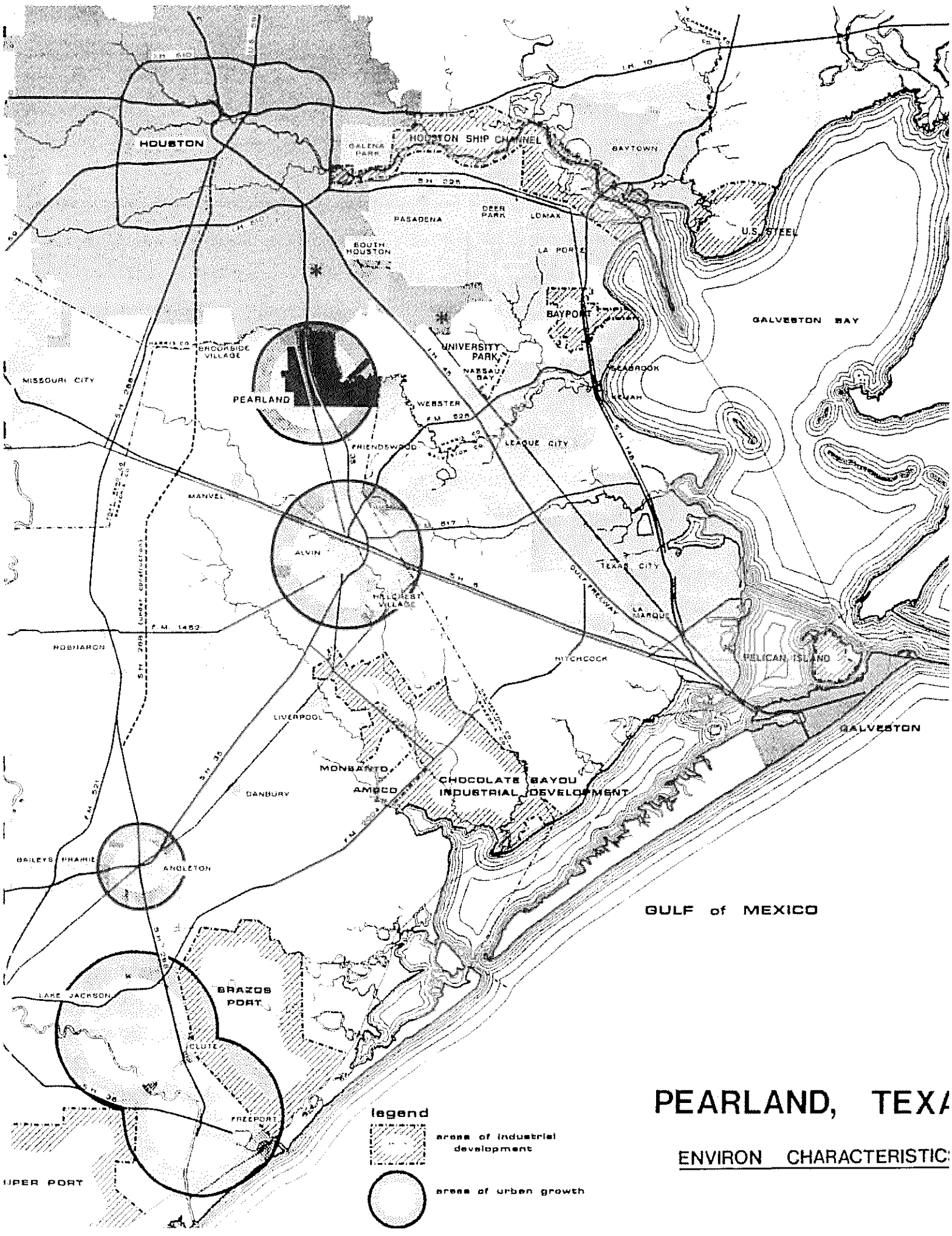


THE REGION

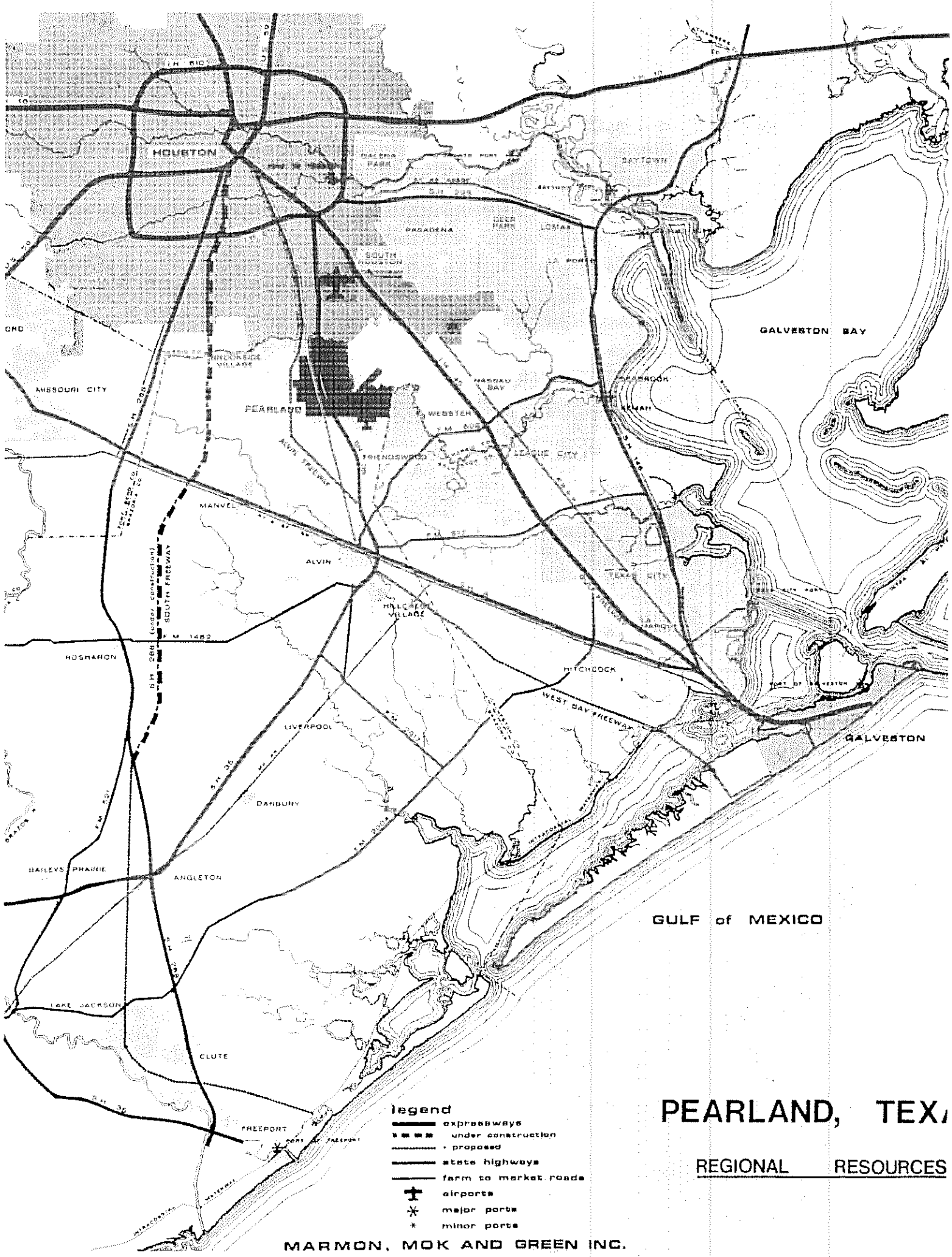


Maps of the City of Pearland and it's environs are repeated many times in the Comprehensive Plan Report. The sketches on this page present a visual outline of the geographic coverage and relationship of Pearland with the region.



PEARLAND, TEXA

ENVIRON CHARACTERISTIC



PEARLAND, TEX

REGIONAL RESOURCES

MARMON, MOK AND GREEN INC.

PART: 1

GROWTH RATE AND SCOPE OF PROJECTED POPULATION

PART I GROWTH RATE AND SCOPE OF PROJECTED POPULATION

The population of the City of Pearland was first reported in 1940 when there were 30 people residing in the City. Current estimated population is 15,000 persons. These figures represent only a milestone in the continued increase of the City's population. The ultimate population of the designated Planning Area could exceed the current estimate by 100,000 to 150,000 persons.

Past and projected population trends are outlined in Table P-1 as follows and shown graphically on the diagram reproduced below.

TABLE P-1 POPULATION TRENDS 1940-2020
PEARLAND AND BRAZORIA COUNTIES

Year	Pearland Planning Area	Number Increase	Brazoria County (1)	Ratio (2)
1940	30		27,069	1:902
1950	300	270	46,549	1:155
1960	1,497	1,197	76,204	1:54
1970	6,444	4,947	108,312	1:17
1980	17,000	10,556	201,500	1:12
1990	30,100	13,000	400,000	1:13
2000	60,000	29,900	558,000	1:9
2010	90,000	30,000	669,000	1:7
2020	115,000	25,000	750,000	1:6

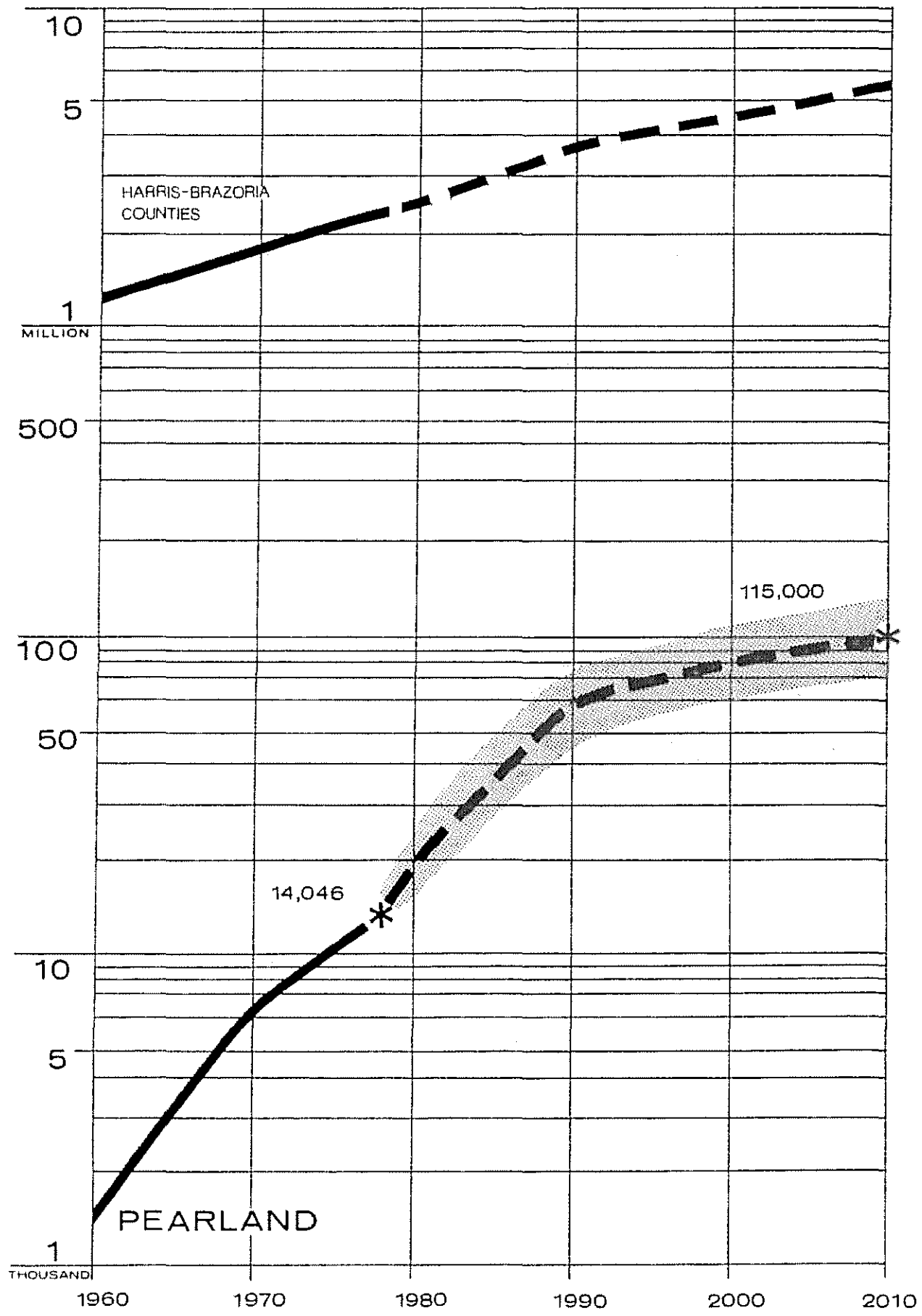
(1) Population Projections 1970-2020 by the Houston-Galveston Area Council.

(2) Ratio of Pearland population to Brazoria County total.

The population trends reported in Table P-1 reflect a more conservative rate of growth for the current decade than estimated in 1968. The projected increase in population anticipated for the current decade may yet be realized during the 1980-1990 period. The rate of population change by decades serves as an indicator for the timing of improvements which are to be programmed consistant with the population holding capacity of the Planning Area (ultimate population). Increased growth rates translate into faster rates for providing City services and facilities. Reference to Table P-1 shows that Pearland is expected to have a large proportion of the County's population. In 1940 there was only one person living in Pearland for each 902 persons living in the country; there is now one person for each Twelve.

POPULATION GROWTH

AND RELATIONSHIPS: 1960 - 2010



PEARLAND, TEXAS
GROWTH RATE AND SCOPE OF PROJECTED POPULATION

Land Use and Population

Basic relationships between land development in Pearland's projected population which are significant to the Planning Process.

- The most fundamental relationship between land development and projected population is the determination of how much land will be used for residential purposes and the density of persons per acre.

- Presently 41 percent of the developed land in the City is used for residential purposes: about 21 percent of the land in the City is now used for urban purposes.

- By the year 2000 approximately 51 percent of the Planning Area will be in some stage of urban development. The City should have obtained approximately 50 percent of the population that will eventually occupy the Planning Area.

Composition of the Population

The composition of the population does not remain constant. An overview of the past and projected trends in the composition of the population is:

- Age: Data shown in Table P-2 indicate a reduction in the ratio for preschool age population to total population due to smaller families and longer age span that are anticipated.

  The number and percentage of the population in the retired age group will continue to increase.

  The median age in 1990 for Harris County is projected to be 27.9 years. The same median age projection is considered valid for the Pearland area.

- Sex: Table P-3 shows the composition of the population by sex and that in 1960 females out-numbered males by a small margin. The 1970 census data indicated that males out-numbered females by a small margin. Due to the close percentages in previous years it is estimated that 50 percent of Pearland's population is male and 50 percent female in 1978.

TABLE P-2 TRENDS IN COMPOSITION OF AGE GROUPS
PEARLAND PLANNING AREA

Age Group	1960 (1) Number	%	1970 (1) Number	%	1978 (2) Number	%
0-4 Pre-School	192	12.84	591	9.7	1264	9.0
5-19 School	446	29.81	2306	35.79	4916	35.0
20-39 Younger Work Force	460	30.70	1859	28.85	4214	30.0
40-64 Mature Work Force	333	22.28	1446	22.44	3090	22.0
65+ Retired	65	4.37	242	3.75	562	4.0
	1496	100.00	6444	100.0	14046	100.0

TABLE P-3 TRENDS IN COMPOSITION OF SEX
PEARLAND PLANNING AREA

1960 (1) Number	%	1970 (1) Number	%	1978 (2) Number	%
Male					
745	49.80	3232	50.15	7023	50
Female					
751	50.20	3212	49.85	7023	50
1496	100.0	6444	100.0	14046	100.0

(1) Figures from 1960 & 1970 Census Population Data.
(2) Figures estimated by Marmon, Mok & Green, Inc. 1978.

PEARLAND, TEXAS

GROWTH RATE AND SCOPE OF PROJECTED POPULATION

The characteristics of population distribution and density represent the framework for determining where City utilities and services are needed and a scale for sizing these elements of urban development. Population density is a consideration of ultimate growth.

Population Distribution

Present population distribution indicated graphically on the Population Distribution by Neighborhood Units Map reproduced on page 1-7. Population distribution characteristics reflected on the map as compared to population distribution in 1968 are:

- Large concentrations of people are found not only in the original townsite, as recorded in 1968, but also in the residential subdivisions located in the eastern part of the City along F.M. 518 and west of the original townsite.

- Population outside of the Corporate City Limits is still widely scattered except for a few built-up subdivisions where fairly large concentrations of population can be found.

Population distribution patterns in Pearland will change each year as new homes are constructed. Because of the fluid nature of each years' distribution pattern, the population analysis gives greater emphasis to the delineation of neighborhood units and the density of household units within the neighborhoods. It is more important to know how many households will be provided in a given area than how many exist at a given date.

Trends in Population Density

- The character of the City in 1968 was low density single family development with many residential units situated on large lots and small farm-like tracts.

- Since 1968 most new subdivision contain a medium density having 7000 to 8000 square feet per dwelling unit or four units per acre.

- Some multi-family developments with a high density have occurred between 1968 and 1978.

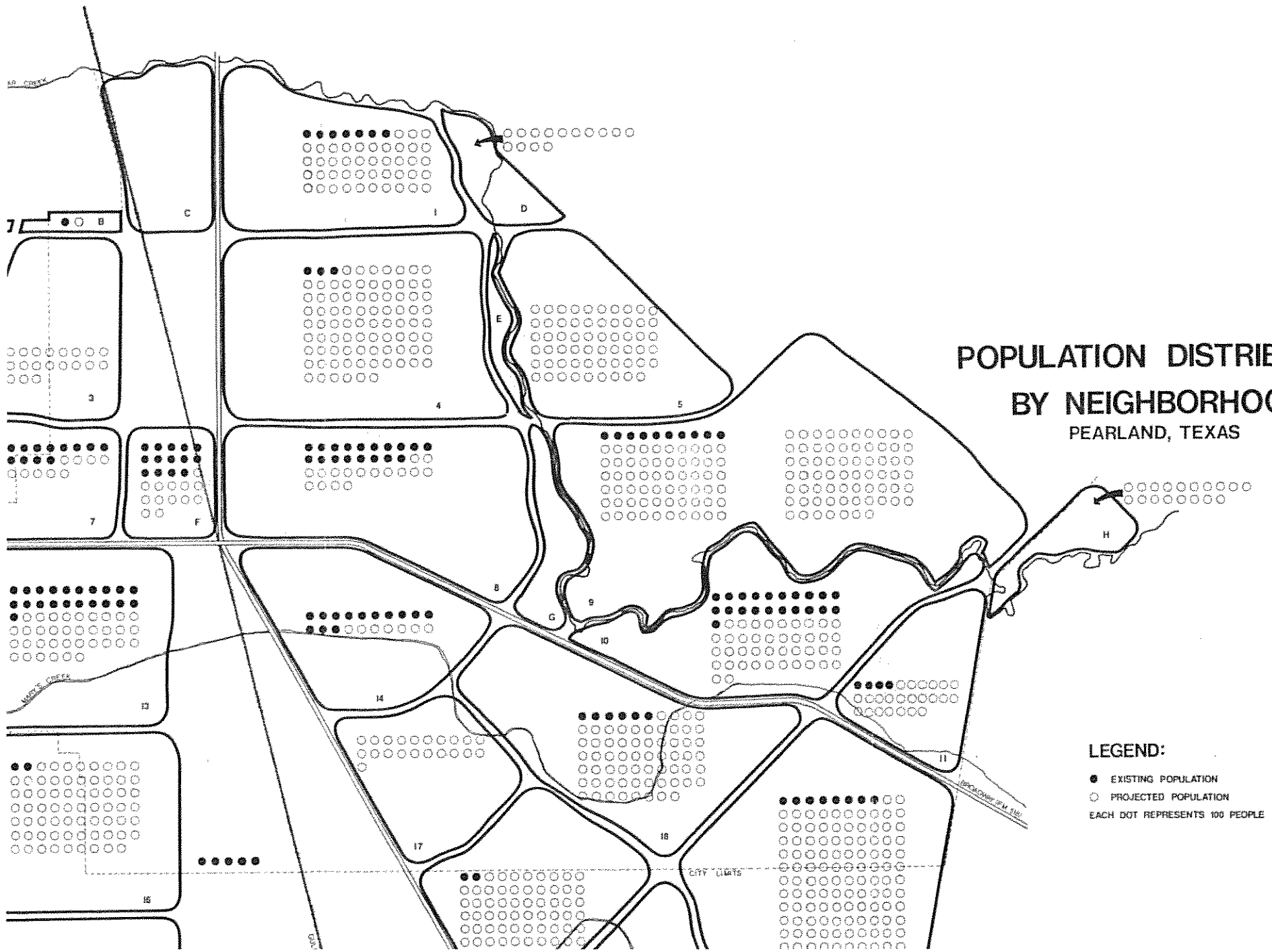

POPULATION DISTRIBUTION
BY NEIGHBORHOODS
PEARLAND, TEXAS
LEGEND:
EXISTING POPULATION
PROJECTED POPULATION
EACH DOT REPRESENTS 100 PEOPLE
CITY LIMITS
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TABLE P-4 PEARLAND, TEXAS

RELATIONSHIP OF LOT AREAS AND POPULATION DENSITY

Land Use District		Net Lot Area/Unit	% Lot Area of Total Area	% Streets & Community Facilities	Units Per Acre	People (1) Per Acre
R-1	(low density-single family)	8,800	73	27	3.6	12.6
R-2	(med.density-single family)	7,000	71	29	4.4	15.4
GR-SF	(gen. residence - single)	6,000	70	30	5.1	17.8
GR-TH	(gen. residence-town home)	2,500	64	36	11.1	33.3
MF	(multi-family)	2,000	52	48	11.3	33.9
MH	(mobile home)	4,000	66	34	7.2	21.6

(1) Based on 3.5 persons per household in single family units and 3.0 persons per household in multi-family units.

Density Proposals: The population densities relating to the projection were determined in part from the lot sizes delineated for each of the land use districts set by the City's Land Use and Urban Development Ordinance adopted in 1973. Table P-4 identified the range of densities represented on the Land Use Plan as allowed by the Ordinance.

PART: 2

PLANS

The transition from agricultural land use to urban development is taking place daily and in many different locations within Pearland. It follows that any plan designed to aid the urban growth process must be both comprehensive and long range. Comprehensive in the sense that there must be a careful examination of each separate element of the development process: longrange in that events past and events anticipated for the future must be considered.

The finding and recommendation for each major element of Pearland's Comprehensive Longrange Plan are outlined in the pages that follow.

LAND USE ANALYSIS PLANS

The homes, businesses, shops, services centers, warehouses, schools, churches and all uses to which land and building within Pearland are developed represent the land use of the City. These uses change from month to month. They also create the form and intensity of development within the City and have many planning applications. Urban land uses are the yardstick for measuring and planning public services and facilities consistant with development trends. Land use also determines the City's physical plant and it's accessible valuation which are major considerations for determining the City's ability fo finance normal service functions and new improvements.

Land Use 1968 - 1978: An inventory of land use in Pearland was conducted during the summer of 1968. After ten years a second field inventory of land uses was conducted in the Spring of 1978. A bird's eye view of existing land uses is provided by reference to the Land Use Map reproduced and shown on page 2-5 .

Changes: The findings of the 1978 survey were tabulated and compared with the 1968 statistics. The findings reported in Table L-1 compares the acreage for each major land use category inventoried in 1968 to the acreage used in 1978 found within the Corporate City of Pearland. Table L-2 compares the acreage inventoried in the Planning Area outside of the Corporate City. The significant findings related to the land use acreages reported are:

Only thirty (30) percent of the land in the Corporate City is developed for urban land uses.

TABLE L-1- LAND USE CHARACTERISTICS

Corporate City Area

CITY OF PEARLAND 1968-1978

PART - I Trends In Land Use Areas 1968-1978

City of Pearland	1968 Acres	1968 %	1978 Acres	1978 %	Acres Increase	% Growth 1968-78
Residential						
Single Family	548.0	30.5	1226.5	39.5	678.5	123.8
Multi Family	2.0	0.1	54.0	1.7	52.0	2600.0
Public & Semi-Public Openspace	106.0	6.0	426.0	13.7	320.0	301.9
Public & Semi-Public Buildings	42.0	2.3	80.0	2.6	48.0	114.3
Office & Professional	14.5	0.8	22.0	0.7	7.5	51.7
Retail	22.0	1.2	79.0	2.6	57.0	259.1
Commercial	197.0	11.0	34.5	1.1	*	
Industrial						
Light	87.0	4.9	140.0	4.5	127.0	146.0
Heavy			74.0	2.4		
Railroads, Trans., Utilities	85.0	4.7	140.0	4.5	55.0	64.7
Streets	691.0	38.5	827.0	26.7	136.0	19.7
Total Developed Land	1794.5	100.0	3103.0	100.0	1308.5	73.0
Vacant & Agriculture	6573.5		6945.0		**371.5	
Total Area In City Limits	8368.0		10,048.0		1680.0	20.1

* Commercial and light industrial land uses were combined in 1968. Reduction of commercial area due to separation of commercial and light industrial classifications in 1978.

** Increase in vacant, agricultural land uses and size of city area is due to annexations, 1968-78.

PART - II Acres Per 100 Persons

City of Pearland	1968 Acres	1968 Acres Per 100 Persons	1978 Acres	1978 Acres Per 100 Persons
Residential				
Single Family	548.0	11.39	1226.5	8.97
Multi Family	2.0	0.04	54.0	.40
Public & Semi-Public Openspace	106.0	2.21	426.0	3.11
Public & Semi-Public Buildings	42.0	.87	80.0	.59
Office & Professional	14.5	.50	22.0	.16
Retail	22.0	.46	79.0	.58
Commercial	197.0	4.10	34.5	.25
Industrial				
Light	87.0	1.81	140.0	1.02
Heavy			74.0	.54
Railroads, Trans., Utilities	85.0	1.80	140.0	1.03
Streets	691.0	14.40	827.0	6.05
Total Developed Land	1794.5	37.38	3103.0	22.68
Vacant & Agricultural	6573.5		6945.0	
Total	8368.0		10,048.0	

TABLE L-2 - LAND USE CHARACTERISTICS

Planning Area

CITY OF PEARLAND

PART - I Trends In Land Use Areas 1968- 1978

City of Pearland Planning	1968 Acres	1968 %	1978 Acres	1978 %	Acres Increase	% Growth 1968-78
Residential						
Single Family	615.0	42.5	1061.0	48.8	446.0	72.5
Multi-Family	0.0	0.0	0.0	0.0	0.0	0.0
Public & Semi-Public Openspace	0.0	0.0	22.0	1.0	22.0	
Public & Semi-Public Buildings	0.0	0.0	11.0	0.5	11.0	
Office & Professional	1.0	0.1	1.0	0.1	0.0	0.0
Retail	4.5	0.3	40.0	1.8	35.5	788.9
Commercial	157.0	10.8	8.0	0.4	*-149.0	(94.9)
Industrial						
Light	11.0	0.8	34.5	1.6	154.5	1404.5
Heavy			131.0	6.0		
Roads, Trans., Utilities	450.0	31.2	484.0	22.3	34.0	7.5
Streets	206.0	14.3	381.0	17.5	175.0	84.9
Total Developed Land	1444.5	100.0	2173.5	100.0	729.0	50.5
Vacant & Agricultural	8418.5		8052.5		**-366.0	(4.5)
Planning Area Total	9863.0		10226.0		363.0	3.7
City & Planning Area Total	18231.0		20274.0		2043.0	11.2

* Commercial and light industrial land uses were combined in 1968. Reduction of commercial area due to sepatation of commercial and light industrial classifications in 1978.

** Increase in vacant, agricultural land uses and size of city area is due to annexations, 1968-78.

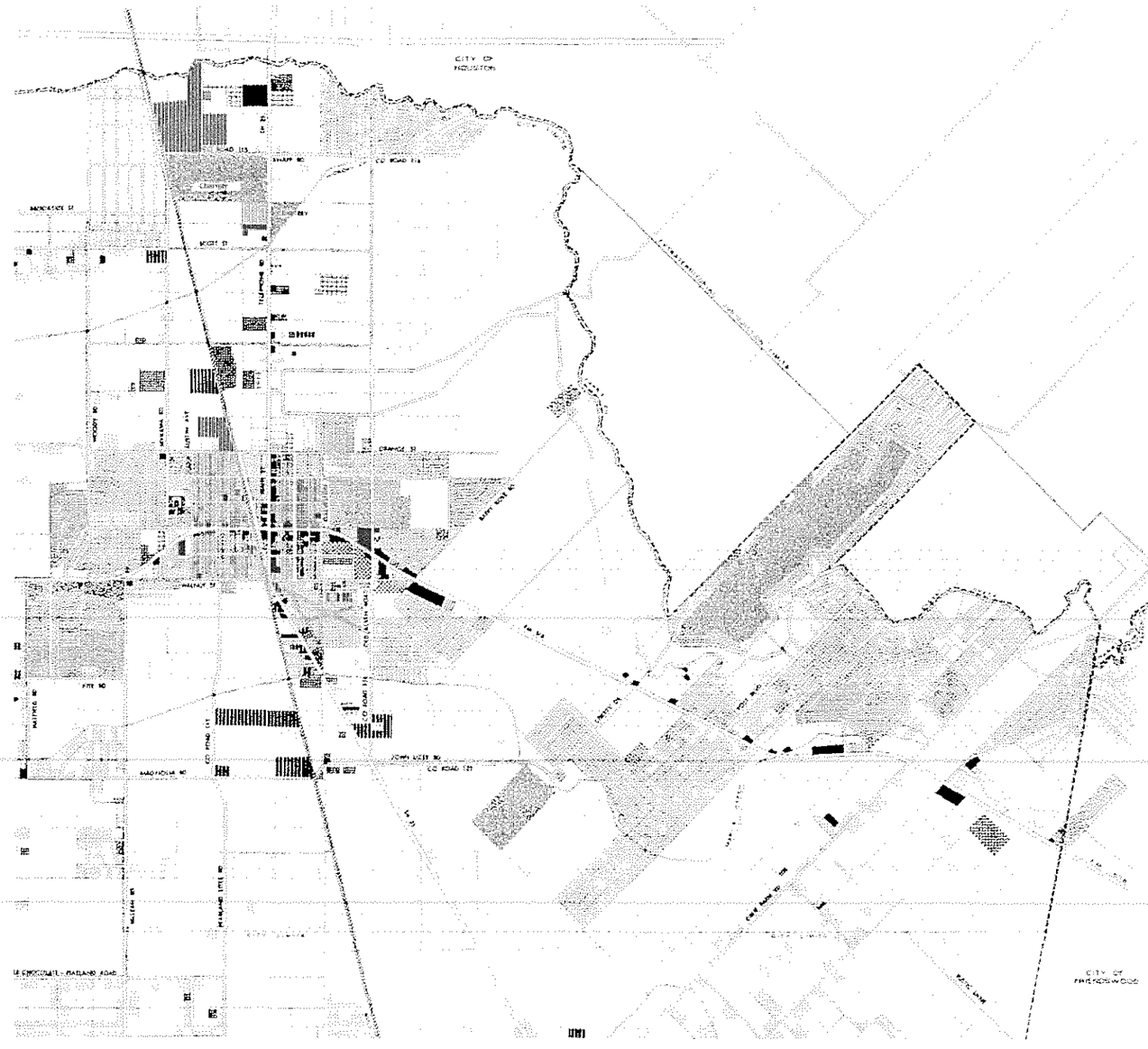
PART - II Acres per 100 Persons

	1968 Acres	1968 Acres per 100 Persons	Acres	Acres per 100 Persons
Residential				
Single Family	615.0	40.19	1061.0	21.70
Multi-Family	0.0	0.00	0.0	0.00
Public & Semi-Public Openspace	0.0	0.00	22.0	0.45
Public & Semi-Public Buildings	0.0	0.00	11.0	0.23
Office & Professional	1.0	0.07	1.0	0.02
Retail	4.5	0.29	40.0	0.82
Commercial	157.0	10.30	8.0	0.16
Industrial				
Light	11.0	0.72	34.5	0.71
Heavy			131.0	2.68
Railroads, Trans., Utilities	450.0	29.40	484.0	9.90
Streets	206.0	13.46	381.0	7.80
Total Developed Land	1444.5	94.43	2173.5	44.45
Vacant & Agricultural	8418.5		8052.5	
Total	9863.0		10226.0	

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

LAND USE

1978



LEGEND

RESIDENTIAL
- SINGLE FAMILY
- MULTI-FAMILY
- TRADE & SERVICES
- OFFICE & PROFESSIONAL
- COMMERCIAL

INDUSTRIAL
- LIGHT
- HEAVY
- RAILROADS, TRANSPORTATION & UTILITIES
- PUBLIC & SEMI-PUBLIC BUILDINGS
- PUBLIC & SEMI-PUBLIC OPEN SPACE

- There has been an increase in the number of acres in both the Corporate City and in the outside Planning Area due to the annexation of land to the Corporate City and the extension of Pearland's Extraterritorial Jurisdiction Limits.

- The acreage devoted to single-family residential in the Corporate City increased 124 percent since 1968.

- The acreage devoted to public and semi-public openspace in the Corporate City increased over 300 percent since 1968.

- The acreage devoted to dedicated streets is proportionally high reflecting the character of small city blocks in the original townsite and extent of roads serving agricultural uses in the remaining area.

The Land Use Plan

The process for achieving more efficient and functionally sound land use pattern is the Land Use Plan.

The design of the 1978 Land Use Plan reflects many of the same basic design criteria as found in the 1968 Land Use Plan. The design criteria is:

- To provide several classes of residential development, with sites for single-family and multi-family developments.

- Establish a basic structure for neighborhood and planning unit developments and the land uses supporting these units.

- Give a strong identity or definition to a central city.

- Utilize land adjacent to drainage courses for parks and openspaces.

- Make allowances for commercial uses and to provide areas for light and heavy industry.

The 1978 Land Use Plan is found on page 2-5 . The proposals for each of the separate classes of land use shown are more fully outlined as follows:

Residential Development: The areas best suited for homes and people must be shaped into neighborhood units. Units may consist of both multi-family and single-family dwellings. The areas designated for residential development on the 1978 Plan vary only slightly from the 1968 Plan. These variations are:

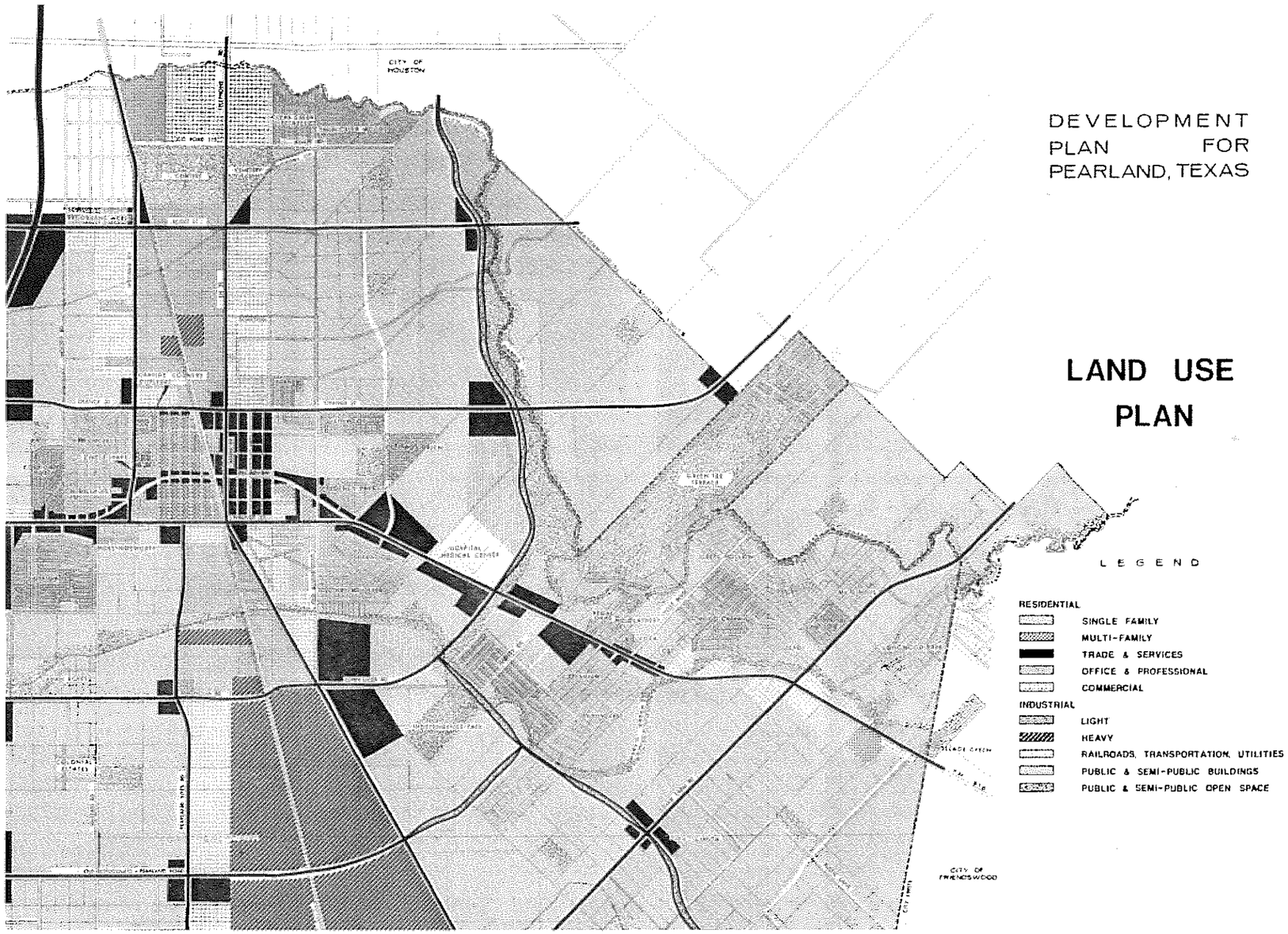
- Residential development in the southwest sector of the Planning Area shall extend only as far east as the Pearland-Sites Road.
- No residential development is anticipated between the railroad and Telephone Road north of Knapp Road.
- Multi-family residential development is not anticipated in any areas other than those already zoned for multi-family use.
- Consideration should be given to the arrangement of streets and lots within all neighborhood units that more efficient use of land and a better living environment may be achieved.

Trades and Services: The activities comprising the trade and service category are those which have to do with the selling of merchandise and services to customers for personal and household use. In many cases trade and service centers will be complemented with other activities such as office and professional, public and semi-public buildings and commercial. Trade and service locations proposed are:

- Zone near the intersection of John Lizer Road with State Highway 35.
- Zone at the intersection of F.M. 518 and Barry Rose Road.
- Along F.M. 518 east and west of Telephone Road.

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

LAND USE PLAN



LEGEND

RESIDENTIAL
- SINGLE FAMILY
- MULTI-FAMILY
- TRADE & SERVICES
- OFFICE & PROFESSIONAL
- COMMERCIAL

INDUSTRIAL
- LIGHT
- HEAVY
- RAILROADS, TRANSPORTATION, UTILITIES
- PUBLIC & SEMI-PUBLIC BUILDINGS
- PUBLIC & SEMI-PUBLIC OPEN SPACE

- The original townsite east of the railroad.

- At the intersections of major city streets with the proposed Houston-Alvin Freeway and at selected sites along the proposed freeway.

- Neighborhood shopping centers are anticipated at the intersection of major streets adjacent to the neighborhood units.

Office and Professional: Facilities providing service to business such as banks, real estate offices, and areas used for office space compose the land use classification. Any medical services such as physicians and dentist offices, except hospitals, also fall under this classification. These activities are anticipated at locations where people assemble in large numbers and which are served with good major street access. The major concentrations of office and professional developments anticipated are:

- Selected sites along the proposed Houston-Alvin Freeway

- The Central Business Zone along John Lizer Road; Old Alvin Road south of Walnut Street; the proposed Clear Creek Esplanade; and the west side of Liberty Drive north of residential development.

- Along F.M. 518 at Green Tee Drive

- South side of F.M. 518 at Longwood Drive

Commercial: Wholesale operations, repair shops and business services and related activities are classified as commercial uses. Commercial uses are anticipated:

- North of County Road 115 and Knapp Road adjacent to Telephone Road

- Adjacent to Telephone Road from Scott Street to Orange Street

- South side of Scott Street from Woody Road to Mykawa Road

LAND USE

- West side of Mykawa Road from Scott Street to just north of Orange Street
- North side of Orange Street from Mykawa Road to San Antonio Avenue
- North side of F.M. 518 from proposed Houston-Alvin Freeway to Corrigan North Subdivision
- West side of Galveston Avenue at Walnut Street
- South side of Walnut Street from Pearland Sites Road to railroad
- East side of State Highway 35 at Pearland Airport location
- East side of State Highway 35, south of Mary's Creek and west of Old Alvin Road
- Selected sites along F.M. 518 east
- Selected sites along the Houston-Alvin Freeway
- East side of Pearland Sites Road between Magnolia Road and County Road 100

Industrial: The functional requirements for successful industrial development are railroad, good major street access, adequate utility service and freedom from environmental conflicts (conflicts with residential development). In Pearland, the desired conditions are found adjacent to the Gulf, Colorado and Santa Fe Railroad. The extent of suitable areas is large and may require that interim development be permitted until such time the quantity of available land is needed for industrial purposes.

The locations proposed of industrial development vary only slightly from the 1968 Land Use Plan. These variations are:

- Industrial development added east of the railroad and north of Knapp Road.

- Industrial development added adjacent to north side of Scott Street east of the railroad and west of Telephone Road.

- Industrial development between Walnut Street and Magnolia Road to extend only as far west as Pearland Sites Road.

Railroad, Transportation and Utilities: This land use classification consists of transportation rights-of-way, trackage, terminals, and maintenance areas: utilities distribution systems, and plant sites for telephone, gas, eater, electricity and sewerage. Utility services to the population and business community is most important to the functional needs. Since most of these facilities also require maintenance access-ibility is also an important consideration in location particularly in residential neighborhoods. The major sites to be used for the functions outlined are shown on the Land Use Plan.

Public and Semi-Public Buildings: Buildings used for governmental services (except Utilities), educational facilities, cultural centers and historic sites, hospitals, churches, non-profit organizations such as Red Cross, V.F.W.,country clubs and recreational centers not an integral part of a park are all included under this classification.

Most public buildings are people oriented land uses and should be planned in relation to their effective service radius. Reference to the Land Use Plan can help determine the best relationship of public buildings with the neighborhood unit or their effective service radius.

Semi-Public Open Space: This land use classification consists of all open space including space accessory to structures designated for use by the public or a designated group. Most openspaces are a people oriented land use and should be planned in relation to their effective service radius. Reference to the Land Use Plan can help determine the best relationship of openspaces proposed for the neighborhood unit, such as neighborhood parks, and other facilities designed for the City at large such as golf courses, zoos and stadiums and athletic fields with the area they are intended to serve.

In addition to the openspace planned for by service radius, the 1978 Land Use Plan proposes that openspace be preserved along the major drainage courses. Openspaces located adjacent to the drainage courses is easily adopted for hike, bike and jogging trails which could also serve to link various parts of the City.

Projected Area Relationships: Table L-3 reports the land use area requirements that are projected if future development takes place in conformance with the Land Use Plan. Land use relationships anticipated as development occurs include:

- Almost one half of the Pearland Planning Area would be used for residential development.
- Street rights-of-way are anticipated as the second largest user of land followed by public and semi-public openspace, industrial and trade and services.
- The Planning Area has little land unsuited for urban development which increases the efficiency of the gross acreage needed for each 100 persons of the projected population.
- Comparatively, a larger percent of total land area should be developed for residential and business uses and a smaller percent for streets by the year 2000.

TABLE L-3 PROJECTED LAND USE AREA CHARACTERISTICS
PEARLAND PLANNING AREA

Land Use Classification	Acres 1978	Acres Projected	Acres Change	Acres Per 100 Persons	% of Total Area
Residential					
Single Family	2,287.5	8,872.0	6,584.0	5.8	43.80
Multi-Family	54.0	524.0	470.0	.3	2.60
Trade & Services	119.0	1,217.0	1,098.0	.8	6.00
Office & Professional	23.0	495.0	472.0	.3	2.40
Commercial	42.5	920.0	878.0	.6	4.50
Industrial					
Light	174.5	669.0	494.5	.4	3.30
Heavy	205.0	1,377.0	1,172.0	.9	6.80
Railroads, Transportation & Utilities	624.0	252.0	(-372.0)	.2	1.20
Public & Semi-Public Buildings	91.0	426.0	335.0	.3	2.10
Public & Semi-Public Openspace	448.0	1,613.0	1,165.0	1.0	8.00
Streets & Roads	1,208.0	3,909.0	2,701.0	2.5	19.30
Total Developed Land	5,276.5	20,274.0	14,997.5	13.1	100.0
Vacant & Agricultural	14,997.5	(1)			
TOTAL	20,274.0	20,274.0			

(1) Land not developed upon realization of the Comprehensive Plan, Land Use Projection to be considered as public and semi-public soenspace.

NEIGHBORHOODS AND PLANNING UNITS

There is little evidence of neighborhoods existing in Pearland today. Few neighborhood amenities have been provided to the residential developments of the City. The many fragment subdivisions that now exist must somehow be shaped into definable neighborhood units.

The guidelines for neighborhood planning are outlined in part three of the Comprehensive Plan Report under Development Goals and Standards. Each neighborhood should be designed to provide sites for a variety of living unit types complimented with the services people need. Population within the units will vary but should be approximately 7000 persons. The role of the neighborhood in the planning process is:

- To fit together individual subdivisions into units that can more effectively be provided with water, sewers, drainage, streets and other people oriented services with the ultimate result being the development of a safe and pleasant living environment.

- Provide a basic structure within which a variety of housing types, densities and design for community facilities occur.

- Serve as building blocks for shaping the total form of the City.

Careful and detailed planning for neighborhood units assumes greater significance when the neighborhood is viewed as occupying a large percent of the developed area of the City and is that part of the City where present and future population will live.

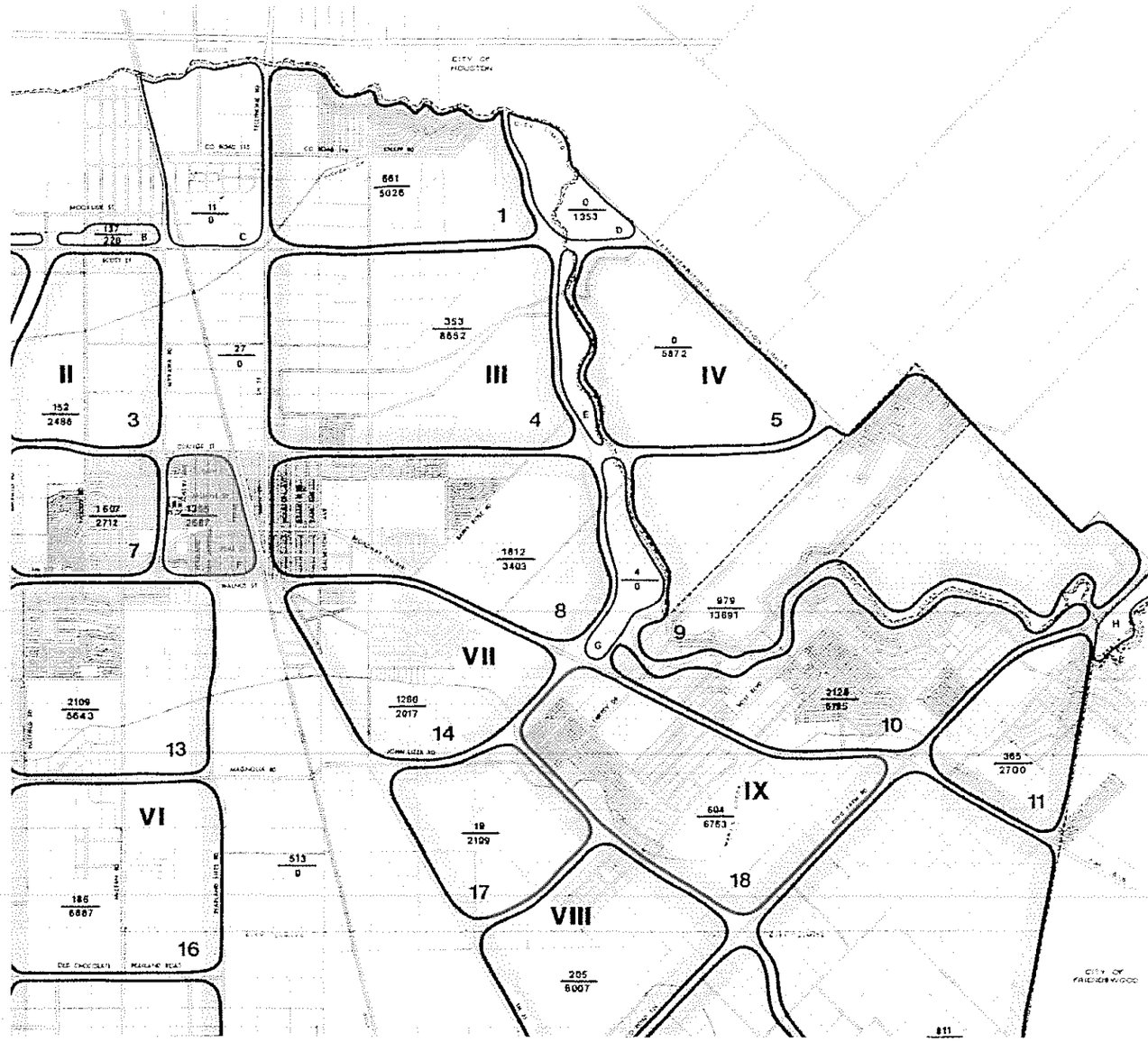
Plan For Neighborhood and Planning Units

A plan for shaping the residential areas of the Planning Area into neighborhood units is reproduced on page 2-17. Although the arrangement of neighborhood units on the current map varies from the 1968 arrangement, similar design criteria was utilized in the formulation of both plans. Aspects of this critera are:

Area of Units: The neighborhood and planning units vary in size and form. The Plan proposes 23 neighborhood units and 8 additional planning units. The average size of the neighborhood unit is 750 acres of land with the actual size of the units ranging between 300 and 1400 acres of land.

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

NEIGHBORHOODS AND PLANNING UNITS



LEGEND

- NEIGHBORHOOD BOUNDARY
- 4 or C UNIT NUMBERS
- PLANNING UNITS
- 385/2700 1978 POPULATION / ULTIMATE
- COMMUNITY BOUNDARY
- VI COMMUNITY REFERENCE NUMBER

Community of Units: Some services are best programmed to serve several thousand persons and require more than one neighborhood unit for support. Communities are formed by combining several closely related neighborhoods. The Plan proposes 10 communities each composed of two or more neighborhoods.

The recommendations for neighborhoods, planning units and communities is identified on the above referenced map. Situations which should receive special consideration in the development of Neighborhood and Planning Units are:

Northeast Pearland:

- Neighborhood Units 1 & 4 = Community III
  Neighborhood Units 5 & 9 = Community IV
- The influences of Clear Creek on adjacent land uses.
- Need for buffer zones between residential areas, major streets and business activities.

Central City:

- Neighborhood Units 8 & 14 = Community VII
- Relationship of residential and non-residential land uses.
- Impact of traffic concentration, parking and railroad operations on all land uses.

Southeast Pearland:

- Neighborhood Units 10, 11 & 18 = Community IX
  Neighborhood Units 17 & 21 = Community XIII
  Neighborhood Units 22 & 23 = Community X
- Integration of Mary's Creek and drainage courses with adjacent urban developments.
- Need for buffer or transitional zones between residential development, major streets and business activities.

- Impact of Clover Field Airport and the Hastings Oil Field on neighborhood structure and all urban land uses.

- Impact of industrial land uses when adjacent to neighborhood units.

Northwest Pearland:

- Neighborhood Units 2 & 6 = Community I
  Neighborhood Units 3 & 7 = Community II

- Impact of proposed freeway on adjacent land uses.

- Impact of prospective westward expansion of the Planning Area and formulation of possible additional neighborhood units.

Southwest Pearland:

- Neighborhood Units 12,15 & 19 = Community V
  Neighborhood Units 13,16 & 20 = Community VI

- Integration of Mary's Creek and drainage courses with adjacent urban developments.

- Impact of proposed freeway on adjacent land uses.

- Impact of industrial land uses when adjacent to neighborhoods.

- Need for buffer or transitional zones between residential areas and regionally oriented major streets.

Implementation

There is much work to be done in order to realize a substantially improved structure for the neighborhoods in the Pearland area. Fundamental to building the neighborhood structure is the establishment of planning design standards and principles is to direct attention to situations where greater effort should be extended to solve existing problems. The objective of this process is not to dictate a single solution but rather to encourage a great variety of solutions each incorporating the essential qualities of good urban design. Future development of the Pearland area should:

- Provide transitional land uses between thoroughfares and residential areas.
- Incorporate land adjacent to drainage courses into parks and open space while still allowing for drainage and maintenance right-of-way.
- Provide neighborhood amenities such as schools, parks, and churches.
- Provide original and creative neighborhood design.
- Eliminate inefficient lot and street patterns.
- Encourage the care and maintenance of all developments.

Neighborhood design need not be limited to characteristics which do not offer a functional solution. A better approach is to employ more adequate design principles as the measure of evaluating all new subdivision plats, organize the population within the subdivisions as partners in the neighborhood planning process and offer as many incentives as possible for implementing a common goal.

HOUSING ANALYSIS

Home building in Pearland may be associated with three periods - before 1883, 1884 to 1960 and the present. There is a direct correlation between the age and condition of housing and these periods.

Housing Characteristics and Trends

Prior to 1940 there were approximately 10 housing units in the City of Pearland. There were 77 units in 1950 and 342 in 1960. A survey conducted in the summer of 1968 revealed that there were 964 housing units in the incorporated City area.

Characteristics 1960: The 1960 Census of Housing revealed that 68.8 percent of all housing units were sound and had all plumbing facilities, 17 percent were deteriorating, 8.1 percent were dilapidated, 62.6 percent were owner occupied and 37.4 percent were renter occupied.

Characteristics 1968: During the summer of 1968 a survey of the condition of each housing unit was made from an exterior inspection.

For the corporate City Area over 90 percent of housing units were found to be in sound condition, with 6.5 percent deteriorating and 3.4 percent dilapidated: 78.2 percent of housing units in the Planning Area were sound, 14.1 percent were deteriorating and 7.7 percent dilapidated.

Housing Trends 1968 - 1978

A survey of the condition of each housing unit in the Pearland Area was made from an exterior inspection during the Spring of 1978. A comparison of the number of housing units, condition and type found in the Pearland Area in 1968 and in 1978 can be found in Table H-1. The Housing Characteristics by Neighborhood Unit Map reproduced on page 2-25 indicates percentages of each housing type and condition inventoried in 1978 reported by neighborhood units. The findings were:

- The structural condition of about 92 percent of the housing units within the Corporate City Area and 55 percent in the outside Planning Area was found to be standard.

- The condition of about 5 percent of the housing in the survey area are classified as deteriorating and about one percent are classified as dilapidated.

TABLE H-1 COMPARATIVE HOUSING CHARACTERISTICS

CITY OF PEARLAND	1968 Number	% (1)	1978 Number	% (1)	Change Number Increase	Change % Increase
Single Family						
Standard	1560	90.1	3089	82.2	1529	98.0
Deteriorating	112	6.5	132	3.5	20	17.9
Dilapidated	59	3.4	18	.5	(41)	(-69.5)
Multi-Family	(2)		462	12.3		
Mobile Home	(2)		56	1.5		
% Of All City Units	1731	100.0	3757	100.0	2026	117.0
% Of All Units		78.0		74.1		
PLANNING AREA ONLY						
Single Family						
Standard	377	78.2	707	53.8	330	87.5
Deteriorating	68	14.1	94	7.1	26	38.2
Dilapidated	37	7.7	19	1.5	(18)	(-48.6)
Multi-Family	(2)					
Mobile Home	(2)		494	37.6		
% Of All City Units	482	100.0	1314	100.0	832	176.6
% Of All Units				25.9		
COMBINED AREAS						
Single Family						
Standard	1937	87.5	3796	74.9	1859	96.0
Deteriorating	180	8.1	226	4.5	46	25.5
Dilapidated	96	4.4	37	.7	(59)	(-61.5)
Multi-Family	(2)		462	9.1		
Mobile Home	(2)		550	10.8		
All Units	2213	100.0	5071	100.0	2858	129.1

(1) Percent of Units within designated areas.

(2) Not reported 1968. Less than 20 Units total all categories.

Source: Field Inventory
Marmon, Mok & Green, Inc. 1968 and 1978.

- Almost 37 percent of the housing units in the Planning Area situated outside of the Corporate City are mobile homes.

- All of the multi-family housing units inventoried are located within the Corporate City Limits of Pearland. Only 13 percent of housing units are multi-family.

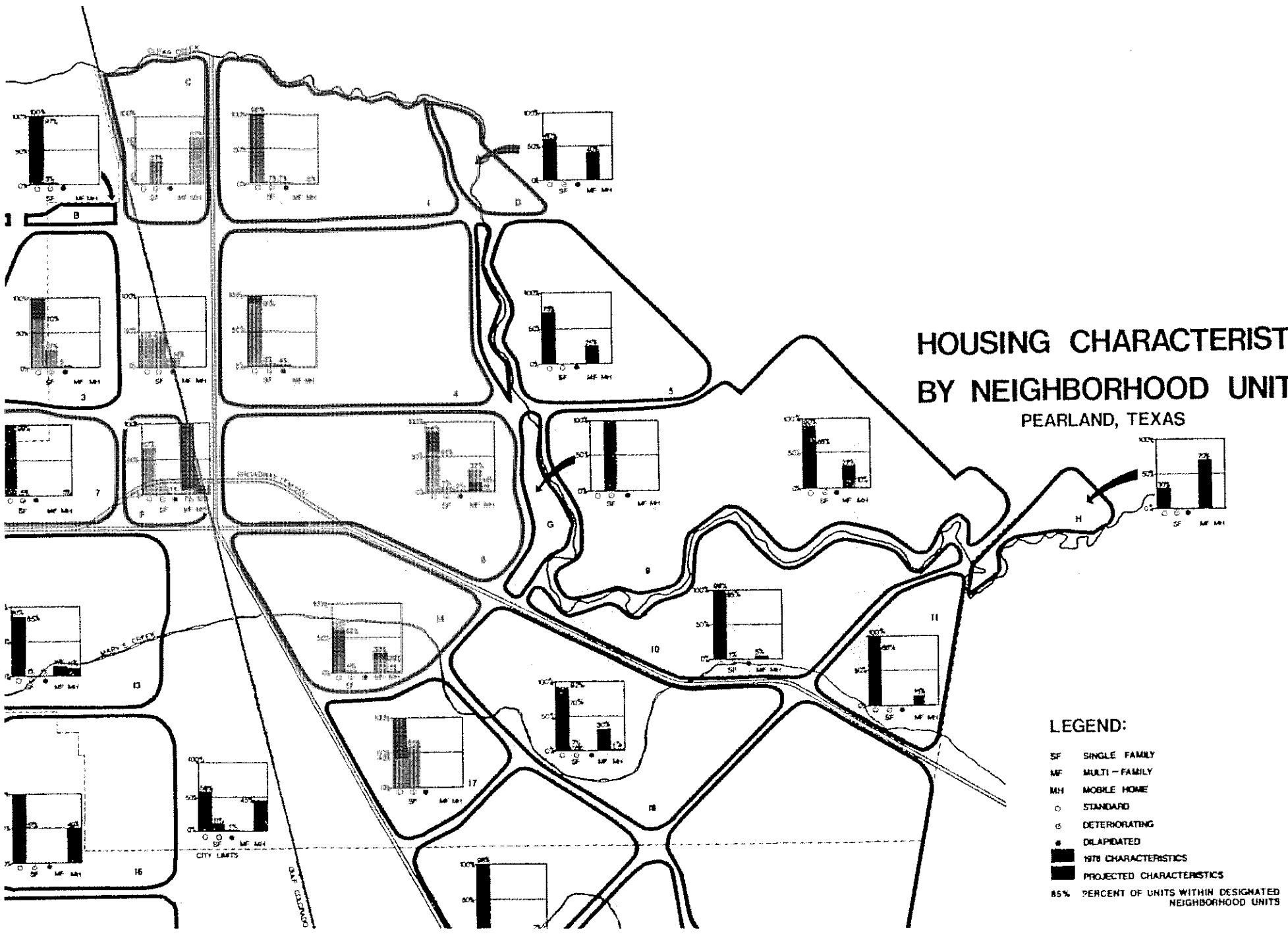
- For all housing surveyed in 1968 and again in 1978 there has been a decrease in the number of dilapidated housing units, however the number of deteriorating housing units has increased.

The rate at which new housing has been added within the Corporate City during the period 1970 to 1978 is reported in Table H-2.

TABLE H-2 HOUSING UNIT CHARACTERISTICS 1970-1978
CITY OF PEARLAND

Year	Single Family	Duplexes	Multi Family	Demolished Units
1970	94			
1971	222			4
1972	156		174	3
1973	140			1
1974	117			1
1975	237		156	4
1976	290	6	240	7
1977	377	9		1
1978 (1)	147	6	130	2
Total	1780	21	700	23

Source: Data from City of Pearland Building Inspector's Records
(1) Part year January to April only.


HOUSING CHARACTERISTICS
BY NEIGHBORHOOD UNITS
PEARLAND, TEXAS
LEGEND:
SF SINGLE FAMILY
MF MULTI – FAMILY
MH MOBILE HOME
O STANDARD
D DETERIORATING
DILAPIDATED
1978 CHARACTERISTICS
PROJECTED CHARACTERISTICS
85% PERCENT OF UNITS WITHIN DESIGNATED NEIGHBORHOOD UNITS
CITY LIMITS
MARY'S CREEK
BRAZORIA COUNTY
GULF COLORADO

It can be seen that since 1971 an average 100 new single family units have been added to the City per year with the total for 1977 being over 300. A substantial number of multi-family units have been added to the City since 1972. Twenty-three housing units have been demolished since 1970. Table H-3 indicates the number of housing units by type and condition in each neighborhood unit. This table reveals that:

- Pearland area contains approximately 5000 housing units with over 3000 of them being single family units in standard structural condition.
- Less than 500 multi-family units are found in the City.
- The City's original townsite, has the largest concentration of deteriorating and dilapidated housing units.
- Neighborhood Unit 12 contains a large number of deteriorating housing units.
- The largest number of mobile homes are found in the neighborhood units outside of the Corporate City Limits and are in the southwest and southeast sectors of the Planning Area.

Planning Considerations

Conditions that tend to accelerate the deterioration of housing and which are found in all parts of the Planning Area were:

- Areas only recently subject to any building, plumbing or electrical code standards.
- Areas still beyond the influence of building and planning standards.
- Areas without a source of public water or sewer service.
- Areas with poor drainage; areas divided by drainage ditches.
- Widely separated subdivision development poorly coordinated.

TABLE H-3 1978 HOUSING CHARACTERISTICS BY NEIGHBORHOOD UNITS
PEARLAND PLANNING AREA

Neighborhood Unit No.	Standard No. Units	%(1)	Deteriorating No. Units	%(1)	Dilapidated No. Units	%(1)	Multi-Family No. Units	%(1)	Mobile Home No. Units	%(1)	Total
1	171	98.0	1	0.7	1	0.7	-	-	1	0.6	174
2	74	58.0	13	10.0	1	1.0	-	-	39	31.0	127
3	28	70.0	11	27.0	1	3.0	-	-	-	-	40
4	85	91.0	5	5.0	3	4.0	-	-	-	-	93
5	-	-	-	-	-	-	-	-	-	-	-
6	67	85.0	6	8.0	-	-	-	-	6	7.0	79
7	421	99.0	1	0.5	-	-	-	-	1	0.5	423
8	288	58.0	34	7.0	11	2.0	161	32.0	4	1.0	498
9	235	90.0	-	-	-	-	26	10.0	-	-	261
10	555	99.0	5	1.0	-	-	-	-	-	-	560
11	96	100.0	-	-	-	-	-	-	-	-	96
12	111	65.0	25	14.0	1	1.0	-	-	34	20.0	171
13	482	87.0	8	1.0	5	1.0	-	-	60	11.0	555
14	235	66.0	14	4.0	-	-	100	29.0	1	1.0	350
15	123	70.0	8	4.0	1	1.0	-	-	44	25.0	176
16	25	51.0	-	-	-	-	-	-	24	49.0	49
17	2	40.0	3	-	-	-	-	-	-	-	5
18	147	92.0	11	7.0	-	-	-	-	1	1.0	159
19	58	43.0	2	2.0	1	1.0	-	-	73	54.0	134
20	128	61.0	5	2.0	6	3.0	-	-	72	34.0	211
21	53	98.0	-	-	-	-	-	-	1	2.0	54
22	21	28.0	3	4.0	-	-	-	-	51	68.0	75
23	52	22.0	5	2.0	2	1.0	148	64.0	26	11.0	233
A	2	33.0	1	17.0	-	-	-	-	3	50.0	6
B	35	97.0	1	3.0	-	-	-	-	-	-	36
C	-	-	1	33.0	-	-	-	-	2	67.0	3
D	-	-	-	-	-	-	-	-	-	-	-
E	-	-	-	-	-	-	-	-	-	-	-
F	241	67.0	44	12.0	2	1.0	27	7.0	46	13.0	360
G	-	-	1	100.0	-	-	-	-	-	-	1
H	-	-	-	-	-	-	-	-	-	-	-
No. Industrial Zone	3	43.0	3	43.0	1	14.0	-	-	-	-	7
So. Industrial Zone	58	43.0	15	11.0	1	1.0	-	-	61	45.0	135
TOTAL	3796	75.0	226	4.0	37	1.0	462	9.0	550	11.0	5071

(1) Percent of units within designated neighborhood units.

Source: Field Inventory
Marmon, Mok & Green, Inc. April 1978

- Absence of comprehensive planning with a resulting loss of neighborhood amenities. No community wide development objectives or goals to be implemented.

- Little insight into housing needs.

- Limited base from which to finance public improvements.

Housing Projections

Projections have been made as to the numbers of housing units needed to serve the future population of Pearland and the designated Planning Area. These projections are based on the densities assumed for the designated residential areas on the Land Use Plan.

The number of each type of housing unit projected for the neighborhood unit and by geographic section of the Planning Area shown on the Housing Characteristics by Neighborhood Unit Map reproduced on page 2-25 are reported in Tables H-4 and H-5. These projections indicate that:

- Over 40,000 housing units will be needed to house the population projected for the Planning Area.

- An additional 35,000 single family units will have to be provided.

- An additional 5,000 multi-family units will have to be provided.

- Over 80 percent of the housing units will be single family.

- Approximately 15 percent of the housing units will be multi-family.

- Table H-5 indicates the projected number of additional housing units required by geographic sectors of the City.

Housing Strategy and Action Programs

The characteristics reported on the preceding pages document existing conditions important to the consideration of housing as an element of the Comprehensive Plan. Housing characteristics, although important to the determination of what action should be initiated in the best interest of the City, are not by themselves a means to the end. Housing strategy and specific action programs are required to apply the information gained from the housing analysis.

TABLE H-4 PROJECTED HOUSING CHARACTERISTICS BY NEIGHBORHOOD UNITS
PEARLAND PLANNING AREA

Neighborhood Unit No.	Single Family No. Units	% (1)	Multi-Family No. Units.	% (1)	Total
1	1436	100.0	-	-	1436
2	2224	100.0	-	-	2224
3	710	100.0	-	-	710
4	1966	100.0	-	-	1966
5	1272	75.0	430	25.0	1702
6	1158	100.0	-	-	1158
7	775	100.0	-	-	775
8	891	86.0	150	14.0	1041
9	2772	68.0	1330	32.0	4102
10	1700	95.0	82	5.0	1782
11	673	85.0	114	15.0	787
12	2322	96.0	105	4.0	2427
13	1406	85.0	241	15.0	1647
14	380	62.0	229	38.0	609
15	2519	100.0	-	-	2519
16	2003	100.0	-	-	2003
17	602	100.0	-	-	602
18	1456	70.0	555	30.0	2011
19	2408	100.0	-	-	2408
20	2061	100.0	-	-	2061
21	1752	100.0	-	-	1752
22	1758	85.0	319	15.0	2077
23	3737	96.0	148	4.0	3885
A	-	-	686	100.0	686
B	65	100.0	-	-	65
C	-	-	-	-	-
D	247	60.0	163	40.0	410
E	-	-	-	-	-
F	-	-	847	100.0	847
G	-	-	-	-	-
H	143	30.0	340	70.0	483
	38,436		5739		44,175

(1) Percent of Units within designated neighborhood units.

Source: Marmon, Mok & Green, Inc. Projections, 1978

TABLE H-5 HOUSING TRENDS BY GEOGRAPHIC AREAS
PEARLAND PLANNING AREA

	1978 Housing (1)		Projected Addtional Housing		
	Single Family	Multi Family	Single Family	Multi Family	Total
Northeast Pearland					
(Units 1,4,5,9,D & H)	491	26	7345	2237	10,099
Central City					
(Units 8 & 14)	523	261	748	118	1,650
Southeast Pearland					
(Units 10,11,17,18,21 22 & 23)	926	148	10,752	1070	12,896
Northwest Pearland					
(Units 2,3,6,7,A,B & F)	868	27	4307	1263	6,465
Southwest Pearland					
(Units 12,13,15,16,19 & 20)	927	-	11,792	346	13,065
TOTAL	3,735	462	34,944	5,034	44,175

(1) Excludes existing sub-standard units and excludes existing housing in industrial zoned areas.

Strategy: There is relatively high degree of citizen awareness regarding situations such as damaged streets or low water pressure. There is a lower level of awareness regarding neighborhood amenities and the condition of individual structures. Citizens who expect governmental action as a part of the city planning and growth process often fails to comprehend or are unwilling to acknowledge a deteriorating roof on his home and junk automobiles in his yard. With recognition that different levels of public awareness on different issues exists, the housing strategy for application with the City's planning process is more fully outlined as follows:

- Create an awareness that irrespective of how good existing housing and neighborhood conditions may be there is still room for substantial improvement.

- "An ounce of prevention is worth a pound of cure", e.g. a house once built in the flood plain is subject to flooding.

- Recognize that some substandard and deteriorating housing does exist and that some citizens do not have the financial resources or technical knowledge to correct problem situations, "unassisted".

- Recognize that long-range planning and housing conservation programs have distinct environmental and financial benefits.

- That housing goals and standards must be more thoroughly debated and known by all residents of Pearland.

- That housing goals and objectives will not be achieved unless there is a team action involvement. Citizens with local elected officials and on a continuing basis.

Action Programs: The emphasis for local housing action programs is the implementation of the neighborhood environmental planning and development standards. This emphasis responds well to the fact that 15,000 or more new dwelling units are anticipated within the Planning Area before the year 2000. This does not imply that no attention should be given to existing housing and neighborhoods. Existing housing will however represent only 20 percent or less of the year 2000 housing requirement. This fact illustrates the great potential of the problem solving constructive planning approach. The action program applies to Pearland and should include the following provisions:

Codes and Ordinances: - Preparation or up-dating the provisions for:

- Minimum Housing standards
- Subdivision Platting
- Land Use and Urban Development
- Management for air and water quality
- Incentives for developers to offer imaginative design and for making essential drainage, street and other improvements.

Administrative Organization: With provisions for:

- Direct involvement of the public, City Council, Planning Commission and developers in housing process.
- Strengthen the capability of the City's Building Inspection Department and Planning Commission to work efficiently with private developers and citizen groups.
- Fixed responsibility for the administration of codes and ordinances.
- Program evaluation and continuous refinement of procedures.

Comprehensive Development Plan: With provisions for:

- Directing attention to development problems and the ability to solve such problems.
- Basic neighborhood unit planning and for the essential utility, drainage, recreation, street and community facilities required to serve these units.
- Development of goals and objectives for the housing and neighborhood plan components.

Implementation

Immediate attention should be given to gaining a broader understanding of the Comprehensive Planning process applied to housing and of the identity of the team members who will help to make plans and objectives a reality. Considerations in the interest of initiating housing action are:

- A systematic review of the housing element of the Comprehensive Plan by the City Council, the City Planning Commission and selected City Staff members.

- Following plan review the adoption of specific items to be accomplished during 1979 and 1980. Actions representative of priority considerations may include:

    - Designation of a City Staff representative to coordinate and maintain records and communication relative to housing interests.

    - An extended effort to identify all home owner and neighborhood improvement interests of residents in the developing parts of the City and to initiate communication and the exchange of ideas with these people.

    - Preparation of aids and guidelines that may be provided to interest groups of citizens to help organize for the purpose of accomplishing housing and neighborhood conservation.

    - Effort to identify the land planners, developers and home builders who will be working in the City and to organize and conduct workshops with these groups to review the City's plans and housing objectives.

    - Prepare annual calendars of events designating the workshops and program evaluation needs to formulate and adopt new and continuing program activities.

The day by day activities of the City's growth process determine the implementation or departure from the City's plan and planning policy. Implementation of short range goals will go a long way in implementing the long range results. In addition implementation of the street, park, drainage, land use, neighborhood development and other components of the Comprehensive Plan is an integral part of the long range housing strategy.

The Pearland Planning Area forms one segment of a much larger region. A vast network of major streets consisting of Interstate and State Highways, Freeways, and major city streets support the movement of goods and people within the region and to other points. This network plays an important role in the ability of the region and it's parts to grow and function properly and to the health, safety and welfare of it's people, industry and business.

Inventory of Streets and Traffic Characteristics

The purpose of the street and traffic inventory is to document the patterns and volume of vehicular movements and the ability of existing streets to accommodate the present and projected traffic flow patterns. The situations examined and findings of the 1960-1970 and the 1978 work periods are:

Rights-of-Way: Right-of-way widths were inventoried and revealed that except for the streets designated as Farm to Market or State Highway, right-of-way width ranged from 40 to 60 feet. The information assembled showed that in most situations additional right-of-way would be required to meet the development standards proposed for all classes of major street improvement.

Pavement Types and Conditions: Asphalt surface has been the most frequently used street surfacing material. Many shell or gravel streets were also in use in 1968. The width of many street surfaces was less than that recommended for urban streets and the condition of the surface only fair to poor.

Street Drainage: Street drainage has been primarily achieved in open swale ditches. Many ditches had obstructions or other problems.

Traffic Characteristics:

Highest traffic volumes are on State Highway 35 (Telephone Road) and F.M. 518 (Broadway). Based on traffic counts reported by Traffic Engineers, Inc. in 1977 and reproduced in the schedule that follow volumes have increased as much as 157%. Most other local streets, including the collector routes had less than 1000 vehicles daily in 1968 and 3000 in 1978.

Location	Volume	Volume	Increase
S.H. 35 Broadway to Orange	14,000	20,081	43%
S.H. So. of Walnut	8,000	9,789	22%
F.M. 518 E. of S.H. 35	8,068	15,890	96%
F.M. 518 W. of S.H. 35	6,000	15,426	157%

- Local traffic reaches it's peak volume between 7:00 to 8:00 a.m. and 5:00 to 6:30 p.m. Peak hour volume constituted between 9.5 and 10.5 percent of the averaged 24 hour daily traffic.

- Daily traffic ranges between 10.5 and 16.0 percent of the seven day weekly total. The highest volume day is Thursday and the lowest day is Sunday.

- It is further reported by Traffic Engineering, Inc., December 1977, that the approaching traffic where S.H. 35 and F.M. 518 intersect with the major local streets exceeds the capacity of these intersections by 1.59 and 2.25 times.

Trip Production by Neighborhood: Trip production for the proposed neighborhoods and planning units indicated a projected high of over 40,000 trips to and from the City's major activity center, with most neighborhoods generating closer to 20,000 vehicular trips daily. Trip production was calculated on the basis of 1.4 cars per family and 62 percent of all trips by household passenger vehicles.

Traffic Assignment (Future Traffic Flow): Trip production as projected through 1990 was assigned to major street routes responding to the origin and destination of trips. The accumulation of trips were then diagrammed as a projected traffic flow map. Future traffic on selected major desire line routes could reach 35,000 to 40,000 vehicles daily with 3,500 to 4,500 of the total trips occuring during the peak hour.

Regional Thoroughfare Plans

Major streets in Pearland must function within the framework of regional plans in addition to their local purpose. Current proposals for major streets outside of but affecting Pearland were mapped as shown on the Regional Thoroughfares Plan found on page 2-37. An anlysis of the proposals revealed that there has been a general continuity in the development of street plans among the State and Local government units involved.

REGIONAL THOROUGHFARES

LEGEND

EXISTING	PROPOSED	STUDY DESIGN	
━━━	━ ━ ━	○○○○	INTERSTATE HIGHWAYS
———	- - - -		STATE HIGHWAYS
———	- - - -		MAJOR STREETS

MARMON, MOK & GREEN INC.
PLANNING CONSULTANTS
HOUSTON & SAN ANTONIO

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The degree of refinement and public acceptance of proposed regional thoroughfare routes is not the same in all cases. Some routes had been positively established while others were under design study. Also some would have a greater impact on local development.

The planning implications of the Regional Thoroughfares Plan in relationship with Pearland's Major Street Planning are:

- The proposed: South Belt, Pearland-Alvin Freeway (Route 35), and Gulf Freeway; would form the basic structure of Pearland's ties with regional highways.

- The major street system proposed for Pearland, supported by F.M. 518 and F.M. 1128, the extension of Cullen Road, South Park Boulevard and other existing regional routes, would accomplish the interchange of local and regional traffic.

- Pearland's Major Street Plan is virtually linked with the regional major thoroughfare planning and decision making process. Modifications to regional plans should be paralleled by re-evaluation of Pearland's Plans.

Major Street Plan

The Topic-Updated Major Street Plan is shown on page 2-41. A digest of street planning proposals is presented in Table MS-1. The recommendations for major streets as detailed on the Plan and relative to the 1968 proposals are:

- Scott Street: Same alignment and section as 1968 Plan and a grade separation at railroad crossing.

- Orange Street: Same alignment and section as 1968 Plan except without grade separation at railroad crossing.

- F.M. 518 via Walnut Street: Same alignment as proposed in 1968 Plan, but with no grade separation of railroad crossing.

- Magnolia Road and John Lizer Road: The extension of John Lizer Road to F.M. 518 west is now proposed farther to the west than recommended in 1968 Plan in order to avoid land which has recently been platted.

- County Road 100 (Old Chocolate-Pearland Road): Same location as recommended by the 1968 Plan.

- County Road 100 and 126 (Dixie Farm Road): Same alignment and section as recommended by the 1968 Plan.

- County Road 127 (Dixie Friendswood Road): Proposed alignment is located more to the south than shown on the 1968 Plan to better connect with a proposed City of Friendswood major street. The location where County Road 127 is proposed to intersect with the John Lizer Road has also been relocated further to the southwest to avoid recent land platting in this area.

- F.M. 1128 Manvel-Pearland Road) with County Road 108 (South Park Extension): County Road 108 provides a better connection with South Park Boulevard than the route proposed in the 1968 Plan. (Ray Road, County Road 105): the new amends the 1968 recommendation.

- Harkey Road-O'Day Road: Eliminated as a major street due to it's close proximity to the proposed Houston-Alvin Freeway.

- Houston-Alvin Freeway: A corridor alignment has been designated by the Texas Department of Highways and Public Transportation. The corridor is to be located between Harkey Road and O'Day Road and McLean Road and Woody Road.

- McLean Road: McLean Road is now recommended as a secondary street due to it's close proximity to the proposed Houston-Alvin Freeway.

- Mykawa Road: Same alignment and section as recommended by 1968 Plan.

- Pearland-Sites Road: Now recommended as a major street.

- Proposed Industrial Boulevard: As shown on the 1968 Plan is now recommended to be eliminated from the Major Street Plan as Pearland Sites Road performs the function intended for this boulevard.

- State Highway No. 35: The one-way street system through the original townsite shown on the 1968 Plan is now eliminated due to development occurring at the end of Grand Boulevard, north of Orange Street.

- Proposed Clear Creek Parkway: Now recommended that the alignment of this route be adjusted to the west to better connect with Monroe Street, a major street located in Harris County.

DEVELOPMENT PLAN FOR PEARLAND, TEXAS

MAJOR STREET PLAN

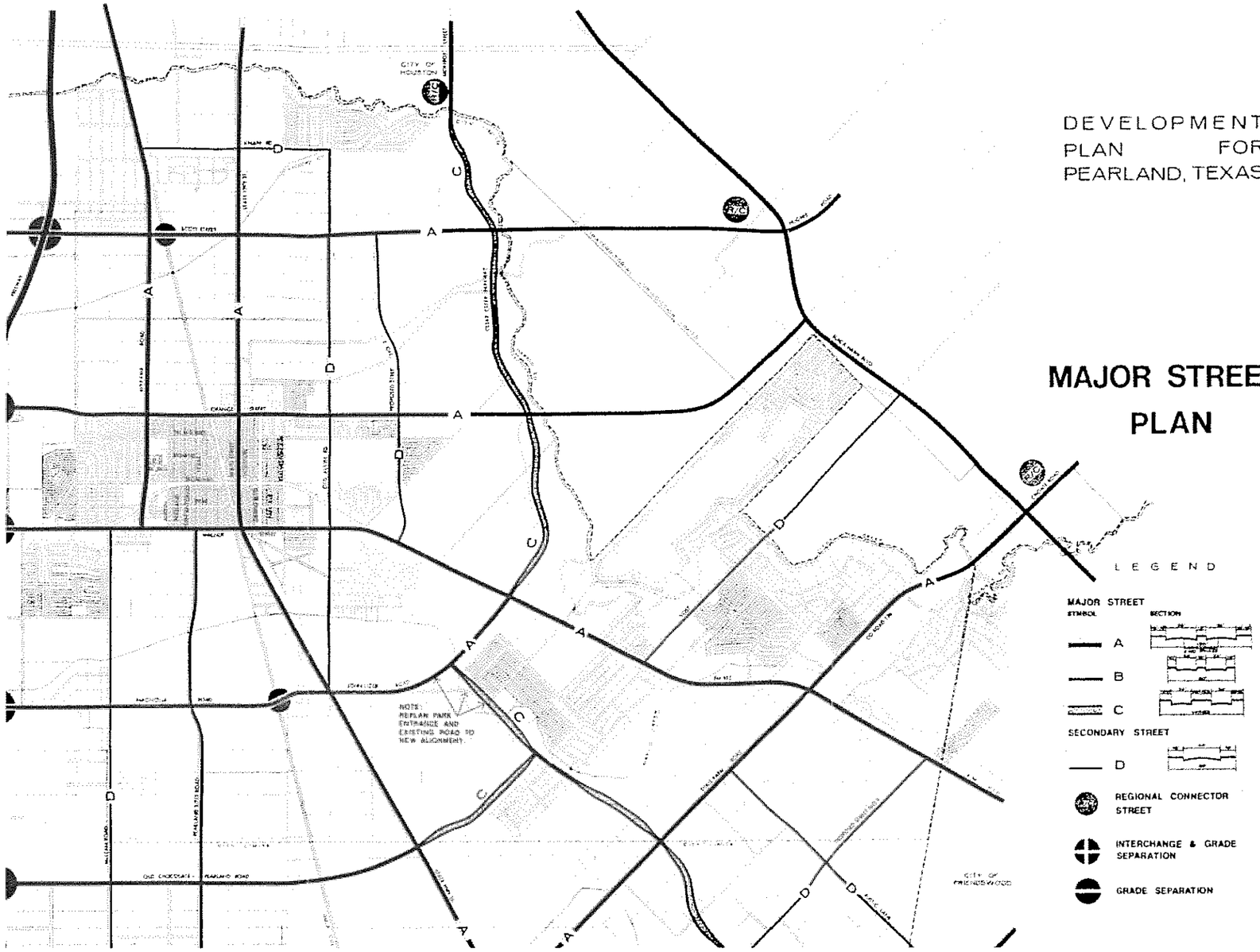


TABLE MS-1 DIGEST OF MAJOR STREET PLAN PROPOSALS
PEARLAND PLANNING AREA

Street	Rights-of-Way Existing	Rights-of-Way Proposed	Connector Regional Hwy	Building * Line	** Pavement Existing	** Pavement Proposed	Section Type	Remarks
East - West Routes								
Scott Street	40-50	120	X	60	16	60-84	A	Connector to Hughes Road
Orange Street	60	120	X	60	20-22	60-84	A	Connector to Hughes Ranch Road
FM 518 via Walnut Street	50-100	120	X	60	24-53	60-84	A	
Magnolia Road - John Lizer Road	40-50	120	X	60	20	60-84	A	Connector to Dallas Street Road
C.R.101 Old Chocolate-Pearland Road	60	120	X	60	18	60-84	A	
Extension	-	100+	X	-	-	24-48	C	
C.R.100 & 126 Dixie Farm Road	40	120	X	60	20	60-84	A	Connector to Del Bello Rd & Chote Rd
C.R.127 Dixie-Friendswood Road	60	100+	X	-	-	24-48	C	
FM 2351 Hastings Road	100	120	X	60	18	60-84	A	
Yost Boulevard	100	100		30		44	D	
Proposed Street PR-1	-	80		30		44	D	
Proposed Street PR-3		80		30		44	D	
North - South Routes								
FM 1128 - Manvel Drive	60-110	120	X	60	18	60-84	A	Connector to Martin L. King Blvd.
Mykawa Road	60	120	X	60	23	60-84	A	
Pearland-Sites Road	60	80	X	40	22	48	B	
State Hwy 35-Telephone Road	100	120	X	60	44	60-84	A	
Clear Creek Parkway		120+	X			24-48	C	Connector to Monroe Street
Suburban Gardens Road	60	80		30		44	D	
McLean Road	60	80		30	20	44	D	
Proposed Street - PR-2		80		30		44	D	

* From the Center Line of the Right-of-Way

** First Phase 60' with Median
Second Phase 84' with Median

C.R. County Road

Implementation

It is recommended that all future major streets have curbs and gutters and that the maximum rights-of-way widths be acquired concurrent with the platting of any land adjacent to the proposed street alignments. It is further proposed:

- That all platting and proposed land developments be verified as consistant with the Major Street Plan.
- All traffic lanes be a minimum 12 feet wide.
- A median or continuous left turn lane be provided on all major streets.
- That building lines be established on all major streets providing for the proposed widening.

People and goods are circulated within Pearland and to points outside of the City by means other than the passenger car. The elements of the transportation system affecting Pearland and the development trends anticipated for the systems is more fully outlined as follows:

RAIL TRANSPORTATION

The railroad serving Pearland is known as the Gulf Colorado and Santa Fe Railroad and is part of the Santa Fe System.

The construction of the railroad through the area in 1883 was a formative step in the origin and following development of the City of Pearland. Although todays rail facilities are not extensive, they are expected to be of increasing importance as more industrial development occurs. The ability of the railroad to continue to provide service to the business and industrial community with minimal conflict between train and vehicular movements will become a major concern as urban development increases.

Development Trends

Existing railroad facilities include the main line which runs in a south-easterly direction through the center of the Planning Area, a passing track with a 105 car capacity, a team track with a 10 car capacity, several private industrial spurs and a freight depot. The main line accommodates traffic from the Santa Fe, Missouri Pacific, Rock Island and Burlington Lines, however the Santa Fe line provides the only freight service to Pearland. The major vehicular point of crossing is F.M. 518 with other railroad crossing at grade existing at Knapp Road, Orange Street, Walnut Street, and Magnolia Road.

Development Program

Proposals for expanding service and achieving a safe and more effective relationship between railroad operations and future City development are:

Vehicular and Train Movements: The Major Street Plan proposes three additional railroad crossings. Treatments proposed for the locations where train and vehicular movements intersect:

. Grade Crossings - controlled with automatic gates and lights at the intersection of the railroad with:

Knapp Road
Orange Street
Walnut Street
Broadway (FM 518)
Old Chocolate - Pearland Road
Dixie Farm Road

- Grade separations - structures at the intersection of the railroad with:

  Scott Street
  Magnolia Road

Service to Industry: Spur tracks at right angles to the main line may easily be constructed at almost any point along the railroad serving a greatly expanded industrial complex in Pearland.

Other Railroad Facilities: If it should prove necessary or desirable in the future, expanded team tracks or freight facilities should be located south of Walnut Street since it is there that the greatest industrial development is anticipated. The location for more extensive freight handling facilities should be selected to best satisfy the rail function it is to perform and achieve good control of vehicular and train movements. Safety is a very important planning consideration regarding railroad and city development.

TRUCK ROUTES

An active and growing motor freight industry has been established within the urban complex of which Pearland is a part.

The number and operation of trucks have an affect upon the design of streets and other facilities which are necessary to their operation and upon the business and industrial community which they service. Development of a motor freight plan should accomplish the following:

- Reduction of conflicts between trucks and auto trip movements.
- Reduction of truck movements in residential neighborhoods.
- Fix truck routes and provide for street construction having heavier bases for greater weight and larger turning radii.

Development Trends

The volume of traffic using Pearland's major through streets (State Highway 35 and FM 518) has increased substantially since 1968. The Traffic Engineering Plan published in December of 1977 reported a 43 percent increase in the volume of traffic on State Highway 35 between Orange Street and Broadway (FM 518) since 1968. The Plan also reported a 96 percent increase in traffic on FM 518 east of State Highway 35 and a 157 percent increase of traffic on FM 518 west of State Highway 35 since 1968. This increase in the volume of total traffic would also indicate an increase in commercial truck traffic. It appears, however, that there are still few local businesses which require extensive truck services so that most commercial vehicles are simply passing through, having no distination in the City. To facilitate the movement of commercial vehicles through the City, those streets recommended as truck routes in the Traffic Engineering Plan have been designated as truck routes by the City. These routes are:

- State Highway 35
- FM 518
- Mykawa Road south to Knapp Road
- Knapp Road from Mykawa to State Highway 35
- Walnut Street from west FM 518 to Pearland Sites Road
- Pearland Sites Road
- Magnolia Road from Pearland Sites Road to State Highway 35.

Development Program

Streets recommended as truck routes as urban development continues and proposed major streets are built, are indicated on the Comprehensive Plan Map reproduced on page 2-52 . Streets proposed for truck routes are:

- State Highway 35
- Proposed Houston-Alvin Freeway
- Pearland Sites Road
- Scott Street
- FM 518 via Walnut Street
- Magnolia Road
- Dixie Farm Road

Trucks providing local pick-ups and deliveries should use major streets avoiding residential areas. It is not necessary to designate these streets as truck routes.

AIRPORT DEVELOPMENT

Air transportation is a relatively recent mode for moving goods and people yet it is having a major impact on todays urban centers including Harris and Brazoria Counties and the Pearland Planning Area.

The basic objecive of the airport element of the Pearland Development Plan is to analyze the relationship of the existing and possible future airports in the Planning Area with local needs. In addition, the evaluation should:

- Consider the impact of aircraft operations on urban development.
- Consider the environmental impact of aircraft operations from airports within or affecting the Planning Area.

Development Trends

There are several airport facilities located in the Pearland Planning Area and it's environs. These include the William P. Hobby Continental Airport, Pearland Airport and Clover Field Airport. Hobby Airport had experienced a steady increase in general aviation operations and recent air line passenger service. This trend was expected to continue with anticipated increases in population and industrial employment.

Of the two airports within the Pearland Planning Area, Clover Field Airport is the best situated for providing expanded operations. The Pearland Airport is located on the edge of the Central District of the City and is being encircled by residential development and business establishments. Clover Field Airport is located outside of the Corporate City of Pearland but within the Planning Area with few obstacles present to hamper opoeration and expansion.

Development Program

It is anticipated that all flight operations at the Pearland Airport will be stopped in the near future and the airport discontinued. It is recommended that Clover Field Airport continue as a General Aviation Operation facility providing industrial, agricultural, instructional, and other flight activities. It should be possible for Clover Field Airport to sustain a healthy growth as a private field if several development proposals are followed which will enhance the future capabilities of the airport, namely:

- Acquire additional land.
- Maintain clear zones at end of runways.
- Establish light industrial and commercial land uses in relation with the airport operations.
- Improve access to airport and administrative center.

Plan Implementation

To reinforce the development programs outlined for truck and railroad facilities the City should:

- Regulate truck routes as necessary
- Designate that new development will provide off-street loading and unloading spaces.
- Set design standards for wheel loads and turning radii for designated truck routes.

Implementation of airport objectives will require cooperation from the airport owner or acquistion and operation of a public airport.

Implementation of a Parks and Open Space Plan has the following applications.

- Enhancement of the enviornment contributing to the quality of urban life.
- Preservation of points of historic significance and natural beauty.
- Make available essential space for leisure time activity which will become increasingly important as the City's population increases.
- Aid the acquisition of land for park purposes before price and other developments make such acquisition impractical.

Development Trends

Following the 1968 Plan the City has acquired the 50 acre City wide, Independence Park located south of Mary's Creek. In addition , privately owned recreational facilities have been developed in the City. A country club development with golf course and tennis center has been developed in conjunction with Green Tee Residential Subdivision. There is still open space land and natural tree cover along creek bottoms available for park development and open space preservation.

Development Program

The Comprehensive Plan Map on page 2-52 identifies sites recommended for acquisition and development for parks and open space areas. The plan recommends:

- Each neighborhood unit to have a park developed in conjunction with school sites when this approach offers an efficient solution to meeting the needs of the people living within the neighborhood service area.
- Development of the lands east and west of Clear Creek as a parkway and scenic area and selected park sites.
- Development of a parkway following Mary's Creek and passing through Independence Park.
- Development of parks oriented to the more intense business, educational, medical development proposed for the Central Pearland Area.
- Major recreational area developed adjacent to Cowart Creek and Cloverfield Airport.

TABLE PS-1 DIGEST OF PARK FACILITIES
PEARLAND, TEXAS

eighbor-od Unit	Identification	Approx. Area	Picnic Area	Play Apparatus	Paved Games Area	Field Sports	Swimming Pool	Rest Rooms	Concession Building	Other
1	Community Park	15 ac	X	X	X	X	X	X		
2	Community Park	15 ac	X	X	X	X	X	X		
3	Neighborhood Park	11 ac	X	X	X	X				
4	Neighborhood Park	14 ac	X	X	X	X				
5	Neighborhood Park	12 ac	X	X	X	X				
6	Neighborhood Park	9 ac	X	X	X	X				
7	Neighborhood Park	8 ac	X	X	X	X				
8	Community Park	16 ac	X	X	X	X	X	X		
9	Neighborhood Park	12 ac	X	X	X	X				
10	Neighborhood Park	11 ac	X	X	X	X				
11	Neighborhood Park	10 ac	X	X	X	X				
12	Neighborhood Park	11 ac	X	X	X	X				
13	Neighborhood Park	10 ac	X	X	X	X				
14	Neighborhood Park	7 ac	X	X	X	X				
15	Community Park	18 ac	X	X	X	X	X	X		
16	Community Park	10 ac	X	X	X	X	X	X		
17	Independence Park	50 ac	X	X	X	X	X	X	X	Selected Facilities
18	Civic Center Plaza & Parks									Or Vest Pocket Park
19	Neighborhood Park	9 ac	X	X	X	X				
20	Neighborhood Park	9 ac	X	X	X	X				
21	Neighborhood Park	9 ac	X	X	X	X				
22	Regional Rec. Park	170 ac	X	X	X	X	X	X	X	Selected Facilities
23	Neighborhood Park	15 ac								
	Community Park									
	Clear Creek Parkway	180 ac	X	X		X				Ponds/Landscape Features

Sites and Facilities programmed consistant with projected population.

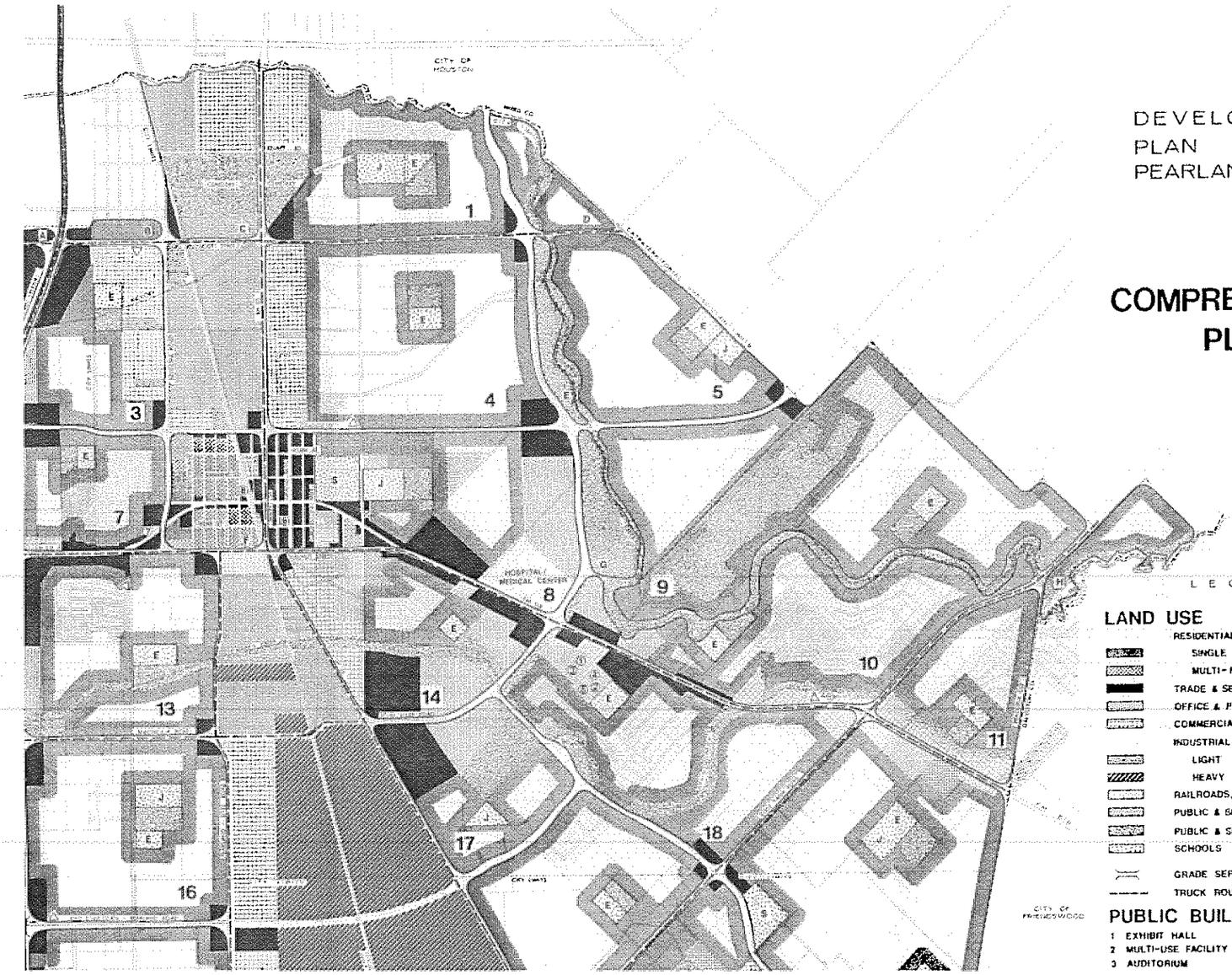
Table PS-1 suggests appropriate recreational facilities to be provided on park sites in each neighborhood unit.

Plan Implementation

Implementation of the Parks and Open Space Plan should be a continuous process. The Planning Commission should work with developers to assure that new developments maintain a proper ratio of open space to developed area. The Planning Commission should also coordinate park development with subdivision planning and neighborhood development. The City should preserve and acquire scenic and historic areas. Early acquisition of park sites makes recreational facilities and programs possible when needed at future dates. It is recommended that the programming and management of the recreational activities be coordinated under a Park and Recreational Department organized by the City of Pearland.

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

COMPREHENSIVE PLAN



LEGEND

LAND USE

- RESIDENTIAL
  - SINGLE FAMILY
  - MULTI-FAMILY
- TRADE & SERVICES
- OFFICE & PROFESSIONAL
- COMMERCIAL
- INDUSTRIAL
  - LIGHT
  - HEAVY
- RAILROADS, TRANSPORTATION & UTILITIES
- PUBLIC & SEMI-PUBLIC BUILDINGS
- PUBLIC & SEMI-PUBLIC OPEN SPACE
- SCHOOLS E-ELEMENTARY J-JUNIOR HI S-SENIOR HI
- GRADE SEPARATION
- TRUCK ROUTE

PUBLIC BUILDINGS

1 EXHIBIT HALL
2 MULTI-USE FACILITY
3 AUDITORIUM
6 POST OFFICE
7 DRAINAGE DIST. OFFICE
8 POLICE STATION

SCHOOL SITE ANALYSIS AND PLANS

School sites and buildings provide a nucleus for neighborhood life and culture. The process by which school sites are acquired and improved requires a coordinated effort between the City Governmental Officials, Independent School District Officials and Staff and the people within the District.

Planning Application

Some of the benefits that may be gained from an early consideration of school location requirements are:

- The coordination of school site acquisition and development with the plans for other urban development.
- Availability of sites for use when needed.
- Savings in required land acquisition.
- Safer access to the schools.
- Enhancement of the appearance and function of the school within the neighborhood it serves.

Development Trends

The Pearland Independent School District encompasses the northeastern corner of Brazoria County which is a larger area than the study area of the Comprehensive Development Plan. The school district is bounded by the Houston, Manvel, Alvin, Friendswood and Clear Lake Independent School Districts. Approximately 43 square miles are served by the District including Pearland, Brookside Village, and rural areas west of the present Pearland City Limits. Existing school sites and improvements located within the district are as follows:

Elementary Schools:

- Brookside located on Brookside Street and Suburban Gardens Road.
- Pearland located on Grand Boulevard between Broadway and Jasmine Street.
- Shadycrest located on Shadybend Street.
- Tract of land acquired on Harkey Road for future school.

Pearland Junior High School: Structure recently built located on the west side of Old Alvin Road between Plum Street and Broadway.

Pearland Senior High School: School complex occupies most of the City block bounded by Galveston Avenue on the west, Plum Street on the north, Old Alvin Road on the east and Broadway on the south.

Currently development occurring north and east of Clear Creek, in Harris County, is in the Clear Creek School District and scholastics living in these areas must attend Clear Creek Schools.

Development Program

Planning Development Standards for school sites which were used in developing the school site plan are as follows:

Elementary School: A school composed of grades 1-5 which serves one neighborhood. The recommended capacity is 600-900 students. The school should be located on a 8 to 10 acre site situated so that all students live within walking distance of the school ($\frac{1}{2}$ mile) and that no major street is crossed to reach the school.

Junior High School: A school composed of grades 6-8 which serves three or more neighborhoods. The recommended capacity is 1200 students. The school should be located on a 20-25 acre site and on a major street. All students should live within one mile of the school.

Senior High School: A school composed of grades 9-12 which serves a community. Recommended capacity is 2500 students. The school should be located on a 30-35 acre site and on a major street All students should live within 2 miles of the school.

The Comprehensive Plan Map reproduced on page 2-52 suggests locations for proposed school sites, and has shown the location of existing school complexes which are to remain operational in the future. The recommendations of the school plan are:

- Discontinue use of Pearland Elementary School as much of the land in central area is zoned for business and the number of young children is expected to decrease.

TABLE SL -1 PROJECTED SCHOOL SCHOLASTICS AND SITE REQUIREMENTS
PEARLAND INDEPENDENT SCHOOL DISTRICT

	SCHOLASTICS				CLASSROOM REQUIREMENTS *			
Neigh. Unit	Total	Elem.	Jr. High	Sr. High	Elem.	Jr. High	Sr. High	Elem. Remarks
1	1256	640	327	289	27	28		
2	2226	1135	579	512	38	35		2 schools preferably
3	621	317	161	143	12			
4	2163	1103	562	498	37			2 schools perferably
5	1468	749	382	337	25	47		Clear Lake I.S.D.
6	1274	650	331	293	22			
7	678	346	176	156	22			
8	851	434	221	196		38	86	To Neigh.Unit 14
9	3423	1746	809	787	66			Clear Lake I.S.D. (2 Schools)
10	1549	790	403	356	26			
11	675	344	176	155	11			
12	1975	1007	514	454	34			2 schools preferably
13	1411	720	367	324	24			
14	504	257	131	116	23			
15	2096	1069	545	482	36	53		2 schools perferably
16	1722	878	448	396	29	42		
17	527	269	137	121		37		To Neigh. Unit 21
18	1691	862	440	389	29			
19	2076	1059	540	477	35		85	2 schools perferably
20	1772	904	461	407	30			
21	1502	766	391	345	34			
22	1538	784	400	354	26			
23	3343	1705	869	769	57	43	83	2 schools necessary
A	514	262	134	118				To Brookside Elem.
B	57	29	15	13				To Neigh. Unit 3
C								
D	338	172	88	78				To Neigh. Unit 1
E								
F	672	343	175	154				To Neigh. Unit 7
G								
H	445	232	118	105				To Neigh. Unit 9

* The Pearland Independent School District prefers not to exceed 30 students per room for normal classroom instruction

- Utilize the Pearland Elementary School site for administration buildings.

- The school district should attempt to acquire the city block between the Pearland Elementary School and the Pearland High School for use with their athletic programs.

- Elementary aged scholastics living outside the planning area shall be assigned to existing and new schools in conformance with the best program for school plant utilization at any given date.

Table SL-1 presents a tabulation of the projected scholastics to be residing in the planning area when full utilization of land area occurs and the projected classroom requirements to accommodate the scholastics.

Each new school site will have different topographic, access and general characteristics. Each site will have some unique features, although there will be similarities regarding programs to be provided on the sites. Therefore individual site utilization plans should be accomplished for each school locality programmed. Basic planning principles which should be incorporated with each site plan include:

- Provision for classroom expansion.
- Provision for expansion to the parking and other service zones.
- Provisions for plan space oriented to the plan apparatus and school programs.
- Provision for public use area oriented to the neighborhood or service area the school supports.
- Provision for general open space and landscape architectural features.

Plan Implementation

The role of the City in implementing the school plan is to correspond with the District to coordinate the provision of school sites in the subdivision planning process and with neighborhood development. It should be noted that early acquisition of sites, as soon as funds permit such action to be taken by the School District, will reduce acquisition costs. School buildings however should not be built until the neighborhood population warrants.

PUBLIC BUILDINGS PLAN

Local, State and Federal Governmental units are responsible for the planning, operation and management of many functions essential to the public welfare and safety such as fire and police protection, hospitals, and libraries. These services must be located conveniently to the public and programmed in proportion to the population.

Planning Application

The benefits to be gained from a long-range public building program for the City of Pearland for providing these services are:

- More adequate and efficient fire protection.
- Locating public buildings more efficiently to perform their intended purpose.
- Expansion of the public educational, cultural and social opportunities.
- More efficient and less expensive land acquisition and management.

Development Trends

Table PB-1 identifies the existing public building located in the Pearland area along with a brief evaluation of the condition of the facility. The evaluation of the existing facilities indicates an urgent need for expansion of the City Hall Complex and the Police Station. Towards this end the City has acquired a tract of land located on Liberty Drive and Shadybend Drive for a new City Hall Complex. Most of the other existing public building facilities should serve the area adequately. However, currently there are no hospitals or other health facilities in Pearland.

Development Program

The locations proposed for public buildings are identified on the Comprehensive Plan Map reproduced on page 2-53 . Briefly stated the facilities recommended are:

Civic Complex: Some governmental services function well when grouped together while others should be separated. The plan proposes that:

- The City Council and the administrative governmental functions should be located in a new structure located on the site already acquired by the City for this purpose and located on Liberty Drive and Shadybend Drive.

TABLE PB-1 CHARACTERISTICS OF EXISTING PUBLIC BUILDINGS
PEARLAND, TEXAS

BUILDING	LOCATION	COMMENTS
City Hall	2335 North Texas Ave.	Size inadequate to meet present needs.
City Barn	Orange Street at Old Alvin Road	Adequate facility with present expansion & remodeling program.
Police Department	2337 North Texas Ave.	Small, expansion anticipated.
Central Fire Station	Orange Street at Old Alvin Road	Adequate Facility
Branch Fire Station	McLean Road	Adequate Facility
Branch Fire Station	East Broadway	Adequate Facility
Brazoria County Drainage No. 4 Office & Barn	Broadway & Pear St.	Adequate Facility
U.S. Post Office	Pear Street & Grand Blvd.	Inadequate facility, expansion anticipated in near future.
Pearland Branch Brazoria County Library	Grand Boulevard	Inadequate Facility

Note: Adequate with respect to 1978 population only.

- A Library, auditorium, multi-use center and other structures designed for public use shall be grouped together and located adjacent to the governmental center as shown on the Comprehensive Plan Map or grouped separately on a suitable site. It is anticipated that a main Library centrally located will serve the needs of Pearland.

- Public safety (police and fire stations) shall be located separately from the governmental complex.

- Utility plant sites shall be located to best provide their respective functions.

Police Station - Corporation Court: The present site on which the Police Station and Corporation Court is located should be adequate for the future expansion of these facilities. Future development should include:

- Preparation of a site utilization plan which gives careful attention to site access and circulation and needs for expansion of the station. The existing City Hall could be incorporated into the plan for expanding the police functions.

- Provisions for a central communications center.

- Maintenance and service of police vehicles at the site of the existing City Barn.

Fire Stations: The programming of all fire stations should closely follow the site location recommendations of the State Board of Insurance and the National Board of Fire Underwriters. Their service criteria gives consideration to the time required to reach any given point within the designated service area of each station and the equipment that would best respond to the source of possible fires.

Three additional branch fire stations are recommended. The service area and location for these stations are:

- Northwest Pearland - vicinity of Scott Street and Mykawa Road.

- Southwest Pearland - vicinity of Old Chocolate-Pearland Road and the proposed Houston-Alvin Freeway.

- Southeast Pearland - vicinity of Dixie Farm Road and State Highway 35.

These proposed fire stations have been coordinated with the proposals for major streets. It should be noted that the opening and extension of major streets is essential to the effective function of the proposed fire stations.

Post Office: Although the existing post office is a relatively new facility, the rapid growth of the City has brought about overcrowding of the present facility. It is anticipated that the present facility will either be enlarged at its present site or a new facility may be built on a new site within the next 3 to 5 years. To relieve congestion of the main post offices, in the future, contract post office stations may be located in major retail and office centers.

Hospital/Medical Center Complex: Although the Comprehensive Plan Map suggests a site for a hospital/medical center complex located on F.M. 518 and the proposed Clear Creek Parkway this is by no means the only acceptable site for these facilities. There are many other undeveloped sites in the area which would be suitable for a hospital/medical center complex. These facilities may be either publically or privately owned. It is anticipated that the City should be able to support a medical complex.

Plan Implementation

Implementation of the Public Building Plan requires monitoring of needs and appropriate action to coordinate the location of sites for branch fire station, libraries, and other public buildings with subdivision planning and neighborhood development.

Historically the Telephone Road and Broadway intersection was the City's Central Business District responding to the communities need for a post office, general store, hotel and railroad depot. Today there are many competing business and trade centers within the City and the surrounding region. Looking to the future the historic Central City may find it difficult to function and grow at a comparative rate with the decentralized location. Specific plans and a positive action are needed to foster and maintain viability in the Central City.

Central Area Frame

Streets and other features that define the central area are known as it's frame. The frame proposed for comprehensive long range planning purposes relative to Pearland's Central Area is a rectangular space bounded by:

North - Orange Street
South - Walnut Street
East - Old Alvin Road
West - Mykawa Road

Planning Applications and Problems

Plans are needed as an incentive for action and to relate the continued growth and development of the Central Area to the land use, major street and development patterns occuring in the remainder of the City.

Problems: The situations (problems) in conflict with the implementation of planning objectives related to the Central City are unique. Problem situations include:

- The area is in transition i.e. business activities are encroaching on residences in use as homesteads;
- there is no clear definition of land useage;
- The townsite was originally platted anticipating home site developments. Lot areas are generally inadequate for the accessory parking and truck service needed by most business activities.

- Land ownership is generally by individual (and small) lots. It is difficult to assimilate sufficient land on which to establish businesses.

- Street paving and roadway drainage is inadequate (not wide enough and has open drainage ditches) to function properly for business uses.

- Little thought has been given or improvement made related to enhancing the character and appearance of the area.

- Vehicular circulation is inadequate for business functions. Virtually no improvements have been made providing for pedestrian circulation.

Central Area Plan

Reference is made to the Central Area Plan Map reproduced on page 2-65 The Plan presents a closer focus on the proposed long range development of the Central City area, both within the frame previously defined and on contiguous sites. The elements of the plan are more fully described as follows:

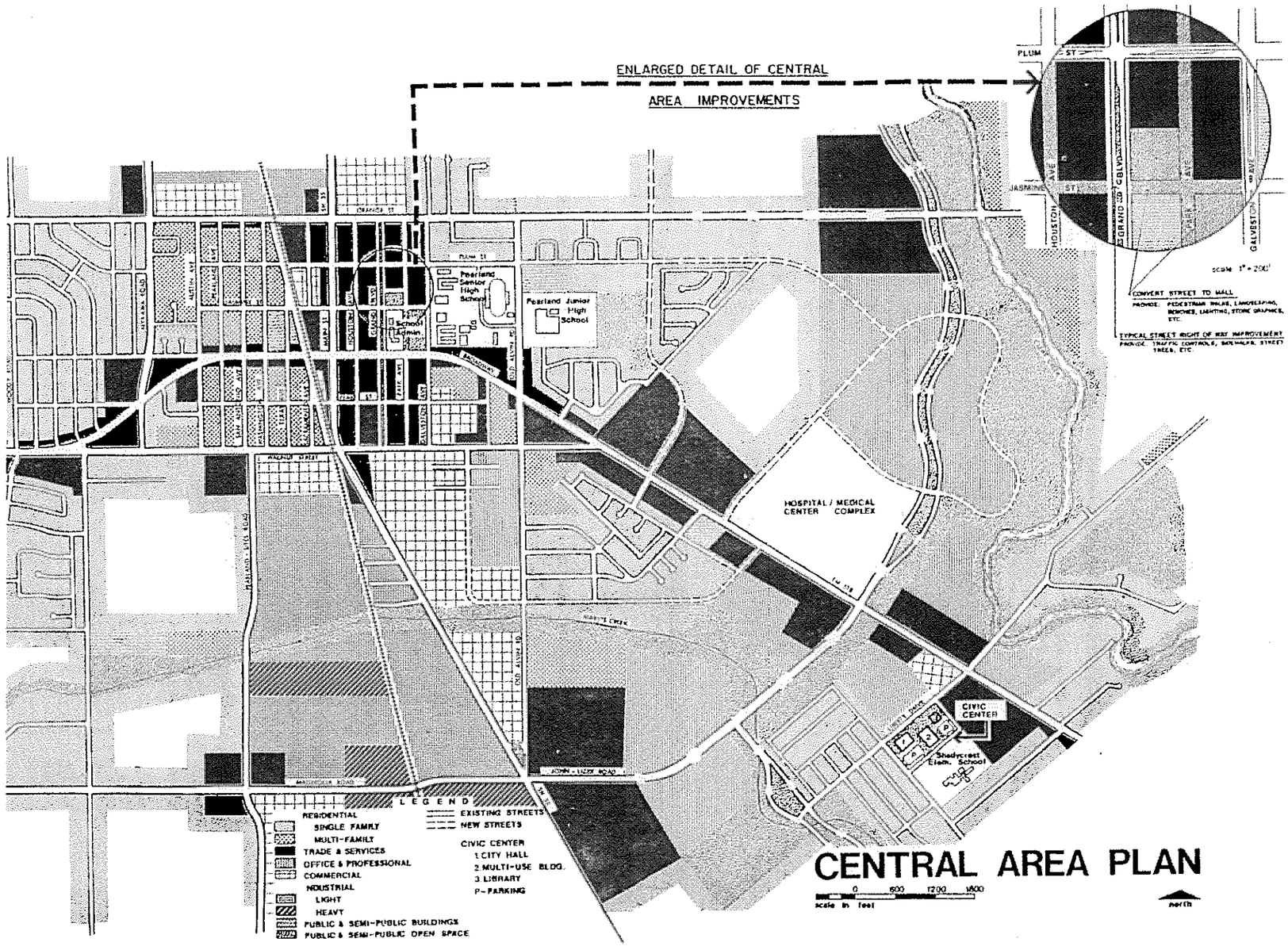
Land Use: The land uses shown on the plan are primarily those now established by the Land Use and Urban Development Ordinance, namely:

- The land east of the railroad is proposed for a concentration of personal and professional services.

- West of railroad the major use and support facilities are keyed to multiple-family development.

- In both locations, the frontage of FM 518 is identified for business use. Recognition is also made of the school facilities and for properties presently developed for business or apartment purposes.

Particular attention is directed to the office and professional use prospects. The Central City may find it difficult to compete with the neighborhood shopping center where large volumes of space and parking is desired but should respond much better to situations where smaller units of space and accessories are needed.



CENTRAL AREA PLAN

Vehicular Circulation: Access to the Central City locations from suburban areas is comparatively good and should improve as more segments of the major street plan are opened and existing streets are improved. The condition of the local access streets namely Plum, Jasmine, Pear, Houston, Grand, Park and Galveston is not as favorable. The recommended approach for improving this situation is to concentrate on improving selected streets employing traffic controls and adequate traffic lanes. Streets proposed for improvements are Grand, Galveston and Plum.

Pedestrian Circulation: A new concept is warranted for pedestrian movements. This concept proposes:

- Converting the secondary streets, namely Houston, Park, Pear and Jasmine into pedestrian malls.

- Providing adequate sidewalks adjacent to the streets improved for vehicular circulation.

Character and Appearance: Human attraction and interest to the Central Area must be an essential part of any plans for revitilization of this location. Examples of techniques for improving the appearance are:

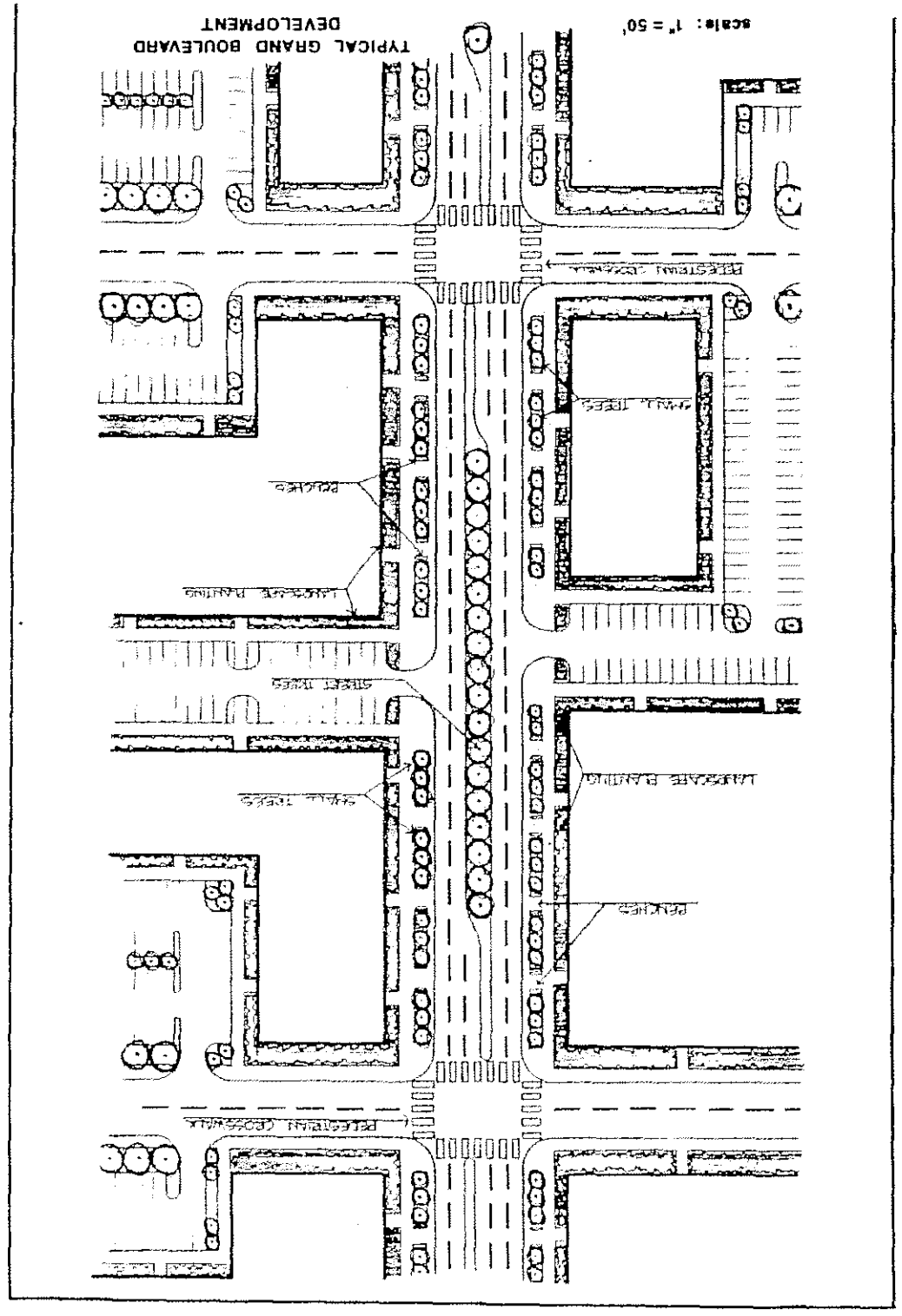
- The entire space, from building front to building front should be considered as street improvement plans. Landscaping and tree planting must be an integral part of the improvements.

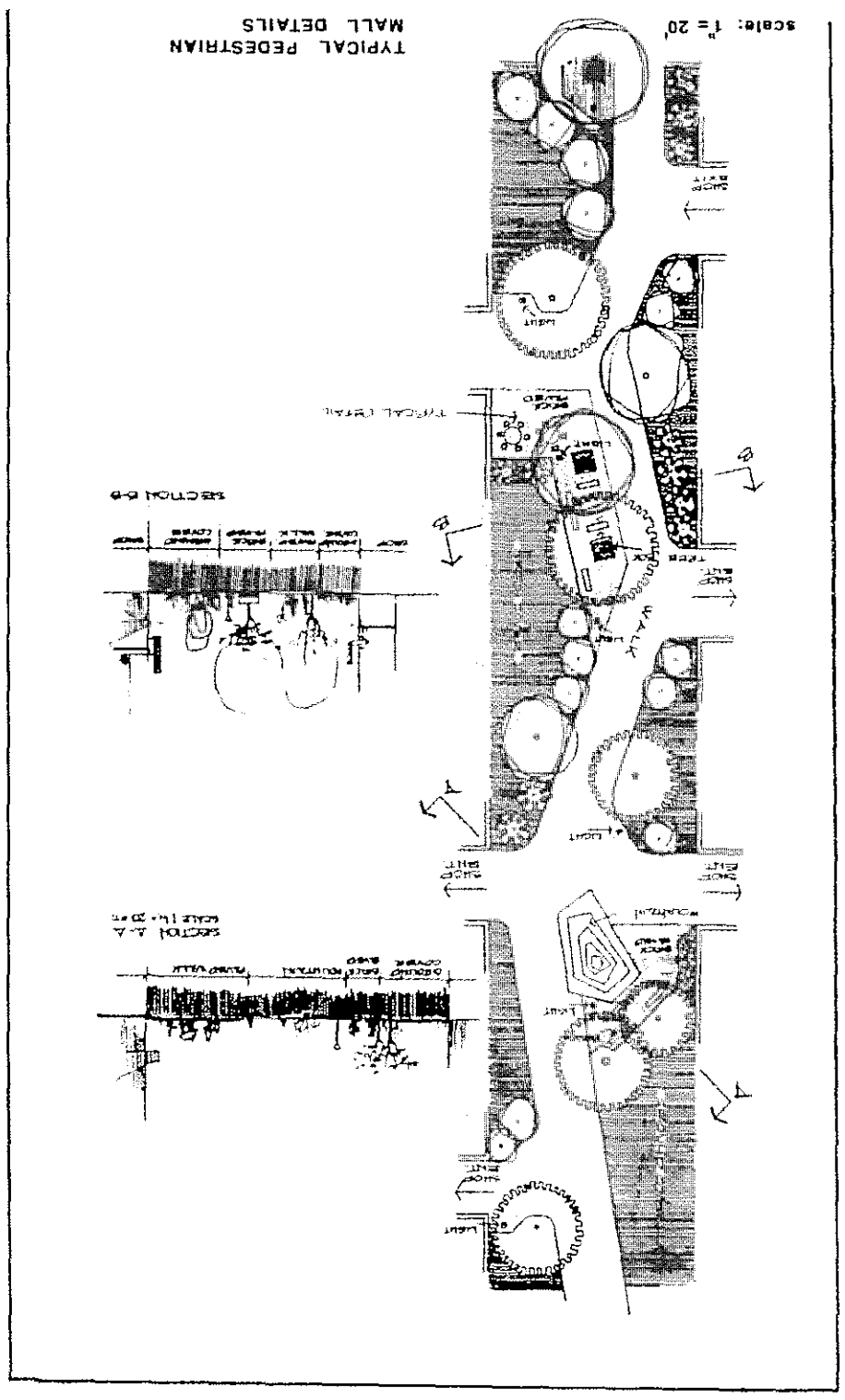
- In addition, a basic landscape site development plan should be prepared and employed to accomplish landscaping of public and private properties and to provide seating, lighting, sign control and related amenities throughout the Central Area.

Enlarged Frame

Commercial and community facilities related to the Central Area Development Plan are proposed or may be anticipated in an enlarged frame which projects beyond the Central Area primarily to the east along Broadway (FM 518).

Existing and proposed developments within the enlarged frame and which would be generally beneficial to the renovation and extended development of the Central Area are:


TYPICAL GRAND BOULEVARD
DEVELOPMENT
scale: 1" = 50'
PEDESTRIAN CROSSWALK
LANDSCAPE PLANTING
STREET TREES
PLANTING
PEDESTRIAN CROSSWALK
LANDSCAPE PLANTING
STREET TREES
PLANTING


TYPICAL PEDESTRIAN
MALL DETAILS
scale: 1" = 20'
SECTION B-B
TYPICAL DETAIL
WALK
SECTION A-A

- Pearland Intermediate School, Pearland High School, School Sports Complex.

- City of Pearland, proposed Civic Center location at Liberty Drive off FM 518.

- Proposed medical and professional activity node adjacent to FM 518 and the extension of the John Lizer Road.

- Redevelopment of the Pearland Airport site.

- Prospective commercial and industrial developments paralleling the railroad and State Highway 35.

Plan Implementation

Most elements of the Comprehensive Plan are directly concerned with public improvements and are implemented through governmental action. By contrast land in the Central Area is privately held. Implementation of Central Area renovation plans will be particularly difficult because there is not a unified interest or financial capability to achieve such objectives. Somehow a team effort must be initiated. It is possible that further obsolescence occurs and the situation becomes more fragmented before the business interest and local government are truly mobilized into an effective redevelopment team. Actions that may be initiated in the interest of Central City renewal are:

- Incorporation of a Central City Development Corporation. The Corporation would be open to all property owners and business operators located within the Central Area frame.

- The corporation would be responsible for charting a specific redevelopment plan and for the priority for implementing specific objectives.

- In addition the corporation would seek the cooperation of the local Chamber of Commerce in promoting the Central City and would work closely with the local governmental officials that any public improvement scheduled for the Central City be consistant with on-going renovation plans.

Comparative data reflects a 140 percent increase in water connections and that water usage has more than doubled between January 1970 and 1978. In the report that follows the components of the water works system are examined and up-dated regarding the programming of future needs.

Existing Waterworks

The Pearland waterworks consists of:

Supply: The source of the City's present water supply is four wells located at

- Broadway and Texas Avenue
- McLean Road south of Walnut Street
- Broadway (F.M. 518) and Dixie Farm Road
- Alice Street

The wells dug before 1970 are approximately 640 feet deep and may be pumped at rates ranging from 450 to 700 gallons per minute. The newer well is approximately 1000 feet deep and may be pumped at a rate of 1000 gallons per minute. Total well pumpage is 2750 gallons per minute and approximately 3.96 million gallons daily.

Water Pumpage: Seven booster pumps are presently used to lift water into storage and to circulate water from the ground storage units. These pumps have a combined capacity of 4000 gallons per minute.

Storage: The City presently has three 500,000 gallon and one 250,000 gallon ground storage tank and one 50,000 gallon elevated storage tank.

Distribution: Water is distributed to existing developments through lines constructed from bond and other public improvement project funds and in lines constructed by private interests and then incorporated into the City's system. Lines range in size from two to ten inches with a major portion of the system consisting of lines four inches in size or larger.

Planning Critera

Several established criteria should be recognized relative to programming Pearland's future waterworks; namely these are:

- Texas State Board of Insurance
- National Board of Fire Underwriters
- Analysis of past system operations

In some cases the minimum referenced criteria sould be exceeded to avoid local problems.

Per Capita Water Usage (future programming):

- Average Demand: 130 or more gallons/capita/day
- Peak-day-demand: 1.8 above annual average

Fire Flow Water Requirements:

State Board of Insurance:

- Single-family Dwellings: 500-750 gallons/per minute
- Multi-family High Rise: 750-1500 gallons/per minute
- Recommended National Standards by Population: 4000-7000 gallons/per minute

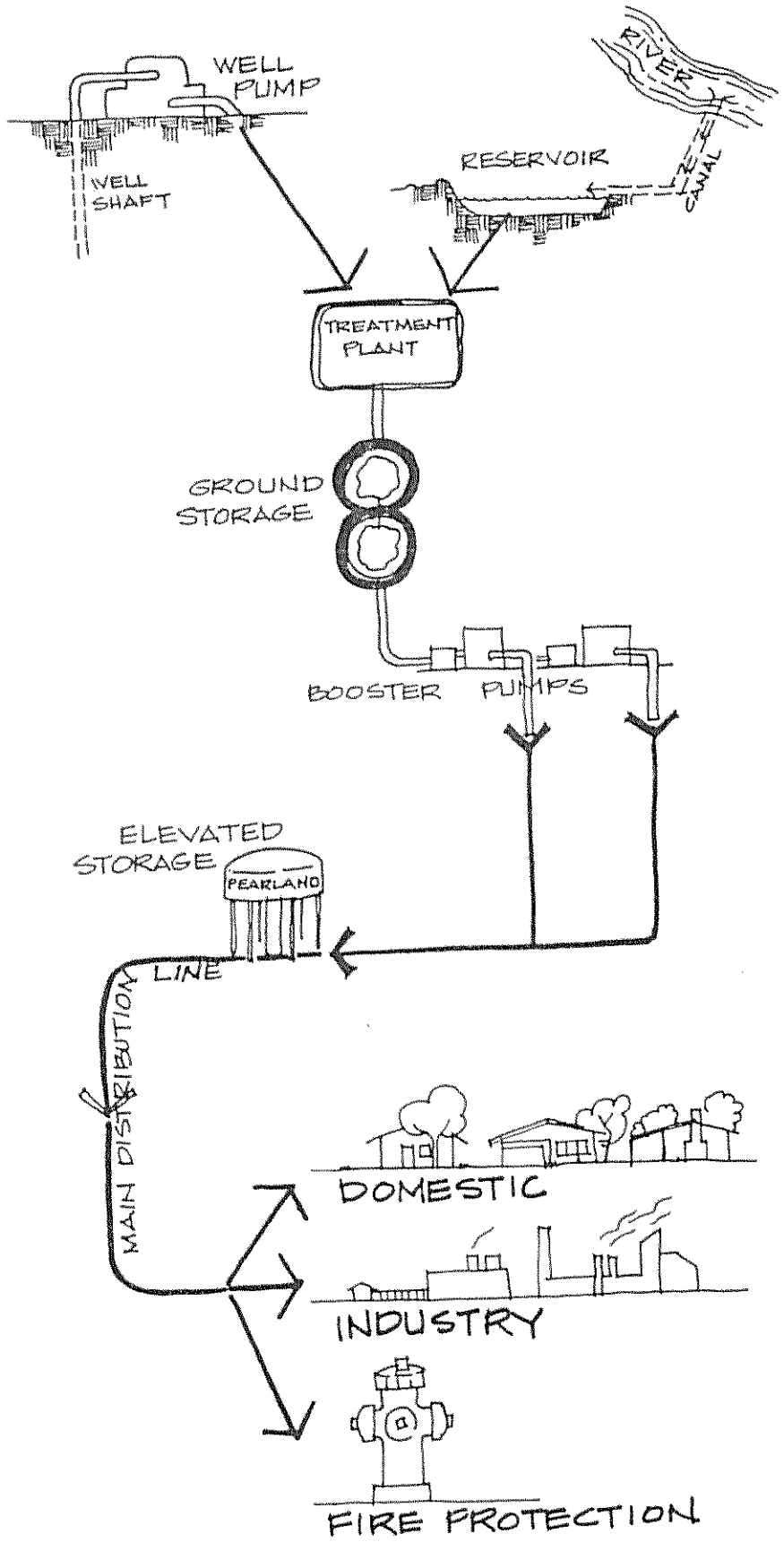
Water Storage Requirements:

- Ground Storage: 130 gallons/capita/per day
- Elevated Storage above 100 feet high: 10 hour supply computed at 130 gallons/capita/per day

Distribution System Requirements:

- No lines in mercantile area smaller than eight (8) inch diameter.
- Six (6) inch looped lines for fire protection in residential areas.

WATER WORKS



WELLS:
- WATER QUALITY
- DEVELOPMENT COSTS
- AVAILABILITY

WELL PUMPS:
- DELIVERY RATE (G.P.M.)
- COSTS

TREATMENT:
- AMOUNT REQUIRED
- COSTS

GROUND STORAGE:
- ADEQUACY

ELEVATED STORAGE:
- ADEQUACY
- BALANCE OF SYSTEM PRES.
- FIRE FLOW RESERVES

DISTRIBUTION PUMPAGE:
- WATER USEAGE
- WATER PRESSURES
- FIRE PROTECTION

DISTRIBUTION SYSTEM:
- TRANSPORTING TO DESIRED LOCATIONS

- Fire hydrants spaced so that maximum area served will be approximately:
  - 40,000 square feet in the principal mercantile area (at 300' spacing).
  - 115,000 square feet in the single-family dwellings of the residential area (at 600' spacing).
  - 100,000 square feet in the multi-family high rise residential areas (at 500' spacing).

- Fire hydrants and mains must be adequate to deliver the required flows with a residual pressure of 20 pounds per square inch or more when measured at the hydrant nozzle.

- Maximum gate valve spacing:
  - 500 feet in mercantile area
  - 300 feet in residential areas
  - 1,300 feet on arterial water mains

- Arterial water mains (10 inches or larger)should be spaced approximately 3,000 feet apart and looped.

- The gridiron of minor distributors for supplying residential districts should consist of mains at least 6 inches in size arranged so that the service on the long sides of the block (between intersecting mains) does not exceed 600 feet. Where necessary to use longer services of six (6) inch pipe, eight (8) inch pipe or larger,intersecting mains should be provided.

- Two (2) inch lines should be limited to providing domestic water demand to small areas with a limited number of homes and should be looped.

Water Production Facilities:

- Production plus storage must be able to meet maximum system demand with largest unit out of service.

- Supply mains to distribution system should be in duplicate.

- Pumping stations and other important structures shall contain no combustible materials in their construction; otherwise, automatic sprinkler equipment should be provided.

Water Usage Trends 1970-2000:

Tables W-1 to W-3 review the past water usage trends and requirements to serve the projected population within the planning criteria. The findings of the tables are:

W-1 Water Use Trends 1970-1978:

- The annual average monthly use of water has increased 264 percent during an eight year period when the population increased 110 percent.

- The rate of use increased substantially during 1977 and 1978.

W-2 Per Capita Water Usage Characteristics 1970-2000:

- The per capita usage of water on an average annual basis has increased 65 percent during the past eight years.

- Future increases may be anticipated, although the future growth rate should be less than the 1970 to 1978 trend.

W-3 Projected Water Supply Requirements 1980-2000:

- Projections are a forecast of future events.

- Assuming the projected high range of 60,000 population, Pearland's water system may be required to deliver over 13 million gallons on the peak day and at a rate in excess of 14,000 gallons per minute.

Water Storage Trends 1978-2000:

Table W-4 reports the present and projected levels of required ground and elevated water storage and relates the required storage to available capacity within the system.

TABLE W-1 WATER USE TRENDS 1970-1978
PEARLAND, TEXAS

MONTH	TOTAL MONTHLY USE - MILLION GALLONS			
MONTH	1970	1975	1977	1978
January	16.798	26.362	35.255	37.509
February	13.793	22.978	46.015	39.368
March	15.754	28.306	36.031	41.582
April	16.222	27.079	36.242	44.402
May	16.569	28.338	47.344	65.076
June	18,119	29.165	48.757	55.024
July	19.922	32.393	54.901	67.923
August	23.627	29.729	57.681	63.153
September	18.133	33.648	38.254	61.675
October	20.778	34.905	43.274	61.873
November	15.989	28.391	35.997	49.007
December	13.184	29.073	39.453	51.433
Total	175.292	350.367	519.204	638.025
Average Monthly	14.608	29.197	43.267	53.169
Estimated Population January 1	6440	9370	11,940	13,500

Source: City of Pearland
Water Works Division

TABLE W-2 PER CAPITA WATER USAGE CHARACTERISTICS 1970-2000
PEARLAND, TEXAS

YEAR		AVERAGE DAILY DEMAND ANNUAL BASIS		AVERAGE DAILY DEMAND PEAK MONTH		PEAK DAY DEMAND (1)	
		M.G.	PER CAPITA	M.G.	PER CAPITA	M.G.	PER CAPITA
Past Trends							
1970		0.480	75.0 gal/per	.762	119.1 gal/per	.864	120
1975		0.960	86.0 gal/per	1.125	120.2 gal/per	1.728	120
1977		1.422	109.9 gal/per	1.860	155.8 gal/per	2.559	156
1978		1.748	124.8 gal/per	2.191	156.5 gal/per	3.146	156
Projection (2)							
1980		2.28	130.0 gal/per	2.80	160.0 gal/per	4.10	160
1990	H	5.60		6.80		10.10	
	L	4.20	140.0 gal/per	5.10	170.0 gal/per	7.56	170
2000	H	8.00		10.8		16.20	
	L	7.50	150.0 gal/per	9.0	180.0 gal/per	13.50	180

Source: Past Trends - City of Pearland, Water Division
Projections - Marmon, Mok & Green, Inc. - January 1979

(1) Peak day computed at 1.8 above annual average.

(2) Projected Population

1990 - High Range (H) 40,000; Low Range (L) 30,000
2000 - High Range (H) 60,000; Low Range (L) 50,000

TABLE W-3 PROJECTED WATER SUPPLY REQUIREMENTS 1980-2000
PEARLAND, TEXAS

A. FIRE FLOW REQUIREMENTS (1)

YEAR	FLOW	FLOW REQUIRED G.P.M.	HOUR DURATION	WATER REQUIRED
1980	17,500	4000	10	2.4 M.G.
1990	40,000	6000	10	3.6 M.G.
2000	60,000	7000	10	4.2 M.G.

(1) National Board of Fire Underwriters Standards

B. GENERAL USAGE CONSUMPTION RATES (2)

YEAR	AVERAGE ANNUAL DAILY CONSUMPTION RATE			PEAK DAY CONSUMPTION RATE		
	M.G.D.	G.P.M. (24 hr)	18 Hr. Day	M.G.D.	G.P.M. (24 hr)	18 Hr. Day
1980	2.28	1583	2111	4.10	2840	3550
1990	5.60	3888	5185	10.10	7010	8760
2000	8.00	5555	7407	16.20	11250	14060

(2) Based on use characteristics reported in Table W-2.

C. PROJECTED SUPPLY AND WATER DELIVERY RATES (3)

Year	GENERAL USAGE		FIRE FLOWS		COMBINED USEAGE	
	M.G.D	G.P.M. 18 hr.	M.G.D.	G.P.M.	M.G.P.	G.P.M.
1980	2.3	2130	2.4	4000	4.7	6,130
1990	5.6	5185	3.6	6000	9.2	11,185
2000	8.0	7407	4.2	7000	13.2	14,407

(3) Combines projected average daily demand, Annual Basis and Fire Flow Requirements. Fire Flow exceeds State Board of Insurance requirements.

TABLE W-4 WATER STORAGE REQUIREMENTS 1978-2000
PEARLAND, TEXAS

A. GROUND STORAGE (1)

YEAR	STORAGE REQUIRED	STORAGE AVAILABLE	EXCESS OR DEFICIENCY
1978	1,885,000	1,750,000	135,000
1980	2,275,000	1,750,000	525,000
1990	5,200,000	1,750,000	3,450,000
2000	7,800,000	1,750,000	6,050,000

(1) 24 hour supply at 130 gallons per capita State Board of Insurance Requirement - High Range Population Projection.

B. ELEVATED STORAGE (2)

YEAR	STORAGE REQUIRED	STORAGE AVAILABLE	EXCESS OR DEFICIENCY
1978	784,200	50,000	734,200
1980	946,400	50,000	896,400
1990	2,163,200	50,000	2,113,200
2000	3,244,800	50,000	3,194,800

(2) 10 Hour Supply - computed at rate of 130 per capita and 24 hour period High Range Population Projection.

Facilities Program

The magnitude of improvements required to expand the existing waterworks to meet projected needs and the programming of improvements within the system are two major considerations of the facilities program.

Digest of Future Requirements

Water Supply: Above present capacity

.	1980	.74	M.G.D.*
.	1990	5.24	M.G.D.
.	2000	9.24	M.G.D.

Pumpage: Above present capacity

.	1980	2130	G.P.M.*
.	1990	7185	G.P.M.
.	2000	10407	G.P.M.

Ground Storage: Above present capacity

.	1978	.135	M.G.*
.	1980	.525	M.G.
.	1990	3.450	M.G.
.	2000	6.050	M.G.

Elevated Storage: Above present capacity

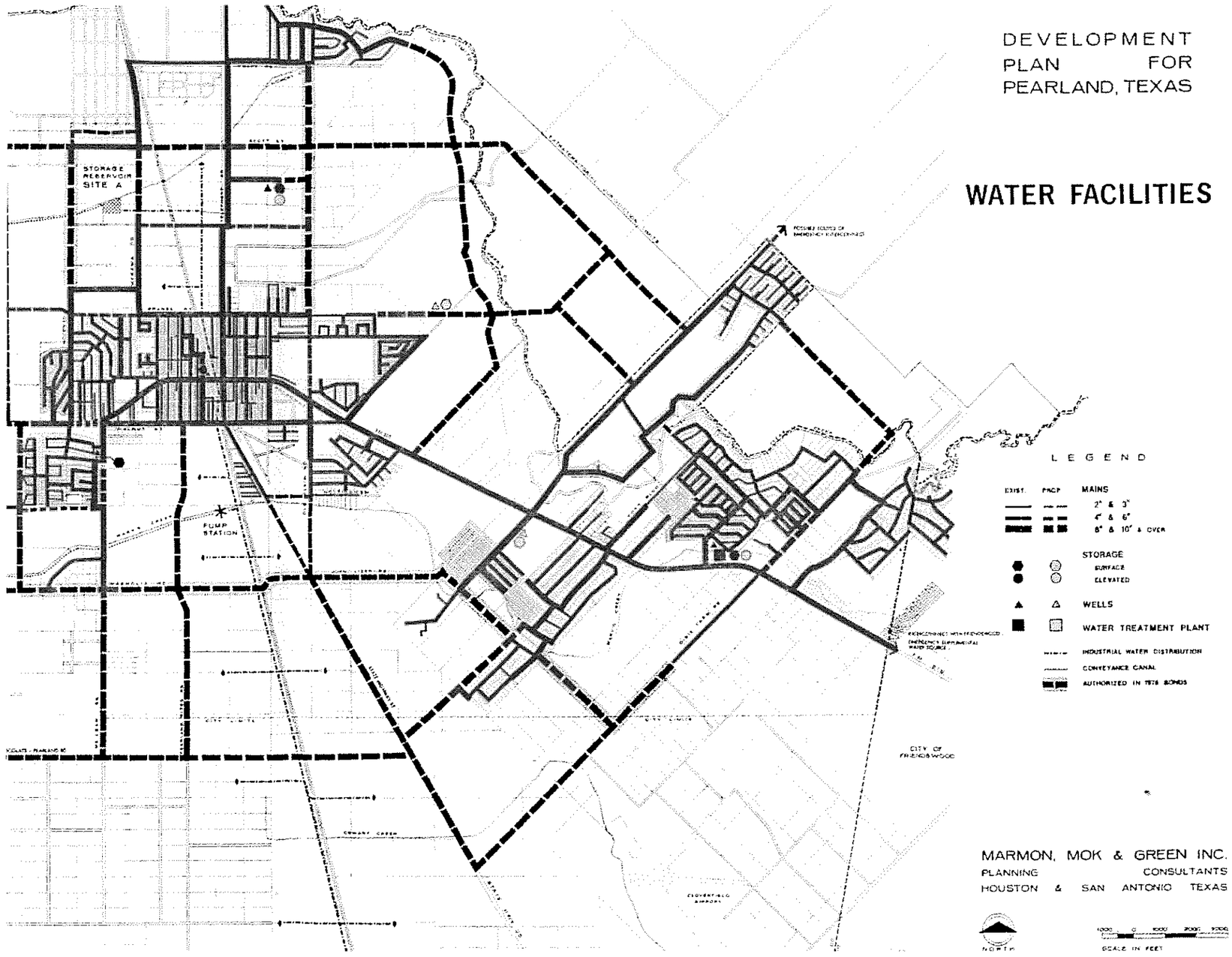
.	1978	.734	M.G.
.	1980	.896	M.G.
.	1990	2.113	M.G.
.	2000	3.195	M.G.

* M.G.D. Million Gallons Daily
G.P.M. Gallons Per Minute
M.G. Million Gallons

A Water Facilities Plan Map is reproduced and found on page 2-79 . This map illustrates the basic existing and proposed facilities outlined in this report.

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

WATER FACILITIES



MARMON, MOK & GREEN INC.
PLANNING CONSULTANTS
HOUSTON & SAN ANTONIO TEXAS

Source of Supply: An estimated 10.0 million gallons daily of additional capacity has been projected for the City's water supply system by the year 2000. A short term demand in excess of the projected 10.0 million gallons daily may occur during period of peak usage.

Alternatives: The viable alternatives regarding sources of water supply for meeting Pearland's project requirements are:

- More local deep wells;
- Surface water from the Brazos River or City of Houston via the San Jacinto or Trinity River Systems.

Planning Strategy:

- Deep well water is of excellent quality and is the least expensive source to develop. The sands underlying Pearland are not excessively pumped and there is evidence that reduced regional pumpage in Harris and Galveston Counties could improve the situation in Brazoria County. It may be feasible that the short term requirements of 10.0 million gallons daily projected through the remainder of the century may be met through the addition of seven local wells having an average production of 1000 gallons per minute or 1.44 million gallons daily.

- Positive action should also be initiated that will provide the City a source of supplemental surface water. Surface water may be delivered to the City as raw water or purchased as treated water. Greater efficiency in the management of the region's water resources would be achieved if a single treatment plant processing 50 million gallons or more of water daily was to be developed by one or more of the river authorities. Pearland could be an active partner in a regionally oriented surface water development project or could contract with a river authority, the City of Houston or other agency for a future delivery of surface water. A lead time necessary is to plan and construct the facilities required to treat and transport surface water to Pearland and could be as much as ten years thus a timetable for decision making regarding a specific course of action should be established.

Distribution Pumpage: Production from the deep wells is accumulated at ground storage tanks. High pressure booster pumps draw water from the ground system lift it to elevated storage and under pressure circulate the water throught the distribution system. Increased distribution pump will be required as the City increases it's deep well pumpage and it's ground storage. Each new well unit should increase the available supply by and average 1000 gallons per minute.

The present level of distribution pumpage would be adequate for several years if no allowance for fire protection was considered. In responding to the combined domestic and fire flow requirements consideration should be given to increasing pumpage as follows.

- By 1980 Add 3 (750 G.P.M. Pumps)
- 1980-1990 Add 6 (750 G.P.M. Pumps)
- 1990-2000 Add 5 (750 G.P.M. Pumps)

Storage: Water storage accomplishes several essential functions, namely:

- Equalization of water flow within the distribution system.
- Improvement and stabilization of water pressure.
- Reserve supply to offset possible power failures, meet fire flow and peak period demands which could be in excess of the normal operating elements of the system.

The water storage units should be constructed at selected locations within the system to accomplish the above noted objectives. The proposals of the facilities program are as follows:

Ground Storage:

By 1980 - One 500,000 gallon unit in the vicinity of Liberty Road off FM 518.

1980-1990 - Three 1,000,000 gallon units; southwest sector; east central; northwest sector.

1990-2000 - Add 2,500,000 gallons additional storage; south central plus additonal capacity at existing well sites.

Elevated Storage:

By 1980	1,000,000 gallon - Highway 518.	Liberty Road off
1980-1990	1,000,000 gallon - northeast sector.	
1990-2000	1,000,000 gallon southwest sector.	

Distribution Mains: The function of the trunk and principal lateral water lines (eight inches of size and over) is to transport adequate water to meet customer and fire flow requirements. Facilities programming should respond to the following guidelines:

By 1980	Current waterworks improvements are designed to strengthen the trunk system which encompasses the central city (approximate location: Woody Road, Knapp Road, Magnolia Road, Old Alvin Road).
1980-1990	Priority should be given to increased water supply to locations where development is occuring. Locations anticipated for near future trunk mains are: . Scott Lane from Mykawa Road, east, crossing Clear Creek and then south to Country Club Drive. . F.M. 518 west from McLean Road to Hartfield Road and then south on Hartfield Road to Magnolia Road.
1990-2000	Respond to future development patterns with attention to northwest sector(north of F.M. 518 west of Woody Road) and southeast and south central sectors.

The system should also provide for emergency interconnections with the cities of Friendswood and Houston to augment the local system in the case of extreme emergency.

Concept for Industrial Water System

The 1968 Plan Report relative to water facilities outlined a concept for a self contained system for supplying water to Pearland's principal industrial districts. The concept is illustrated on the current Water Facilities Plan Map and proposes that raw water from the Brazos River would be transported by way of an existing irrigation canal to a point on the west side of Pearland where a holding reservoir and treatment plant would be constructed. From this point the water would be distributed in a trunk main that parallels the Santa Fe Railroad.

The concept is functional yet may not be necessry or the most practical method for serving the industrial district. Points to be considered as further attention is given the concept are:

- Types of industries that locate in Pearland. It is anticipated that most of the industries to locate in Pearland, will not require large volumes of water.

- Availability and cost of purchasing treated surface water from regional source.

- Adequacy of the City's basic distribution system to provide the volume of water needed by the industries.

- Anticipated (relatively high) cost for treating and distributing water limited to only industrial usage.

The growth in the wastewater to be treated during the past ten years parallels that of water consumed and is more than twice the volume treated in 1968. In addition new standards have been established for the quality of wastewater treatment and for Environmental Protection. Responding to population increase and up-graded standards for wastewater treatment the City in 1975 initiated design studies for expanding treatment facilities and for reducing infiltration inflows.

The report that follows reviews the present system capabilities relative to projected growth trends and reports findings and recommendations for programming future improvement in balance with future needs.

Existing Facilities

The legend shown on the Sewerage Facilities Map found on page 2-93 . identify the major components of the sewerage system. The sewers and lifts stations that are functional parts of the system are easily related to the location where treatment occurs and reference as:

- Plant # 2 Barry Rose Road
- Plant # 3 Longwood Park
- Plant # 4 Twin Creek Woods-Clear Creek Estates

The improvements that have been developed within the areas feeding into the plants are more fully outlined as follows:

Sewers

Plant Site # 2: Size 6 to 27 inches diameter
Footage: 157,500 lineal feet of sewers, representing 53 percent of the total system.
Plant Site # 3: Size 6 to 27 inches diameter
Footage: 103,675 lineal feet of sewers, representing 35 percent of the total system.
Plant Site #4: Size 6 to 15 inches diameter
Footage: 34,954 lineal feet of sewers, representing 12 percent of the total system.

The footage is for gravity sewer line only excluding force main pipe. The oldest sewers are concrete pipe, followed by vitrified clay and epoxy-lined asbestos concrete and since 1970 Armco Truss Pipe, PVC and plastic. Depth of sewer pipe ranges from 3 to 20 feet.

PEARLAND, TEXAS
SANITARY SEWERAGE FACILITIES

Lift Stations: In addition to treatment plant lifts:

- 5 main lift stations
- 3 air eductor type
- 3 secondary to small

Ages and condition of equipment:

- 1 unit 6 to 7 years operation
- 10 units 3 to 4 years operation
- Some loss of capacity because of wear.

Treatment Plants:

Plant #2 Barry Rose Road
- Constructed 1966 and 1967
- Contact stabilization, circular design
- Capacity 1.0 M.G.D. (million gallons daily)
- Good condition

Plant # 3 Longwood Road
- Constructed 1965
- Contact stabilization
- Capacity .50 M.G.D.
- Condition, some elements worn

Plant # 4 Twin Creek Woods - Clear Creek
- Constructed 1969 and 1970
- Contact stabilization, circular design
- Capacity .25 M.G.D.
- Good condition

The locations in the City where sewers have been provided are primarily:

- Northeast location adjacent to the creek
- Central City, west on FM 518 to McLean Road
- East and east central City

The remainder of the incorporated city and all of the contiguous planning areas is within the sphere of influence of the treatment sites but is beyond the area served by existing sewers. Because of the land relief and direction of gravity flows the sewerage treatment plants are located on Clear Creek at the east side of the City. The cost of extending the system into the Planning Area becomes increasingly greater as the distance west of the plant sites increase.

Planning Criteria

A basis or planning criteria is necessary as the yardstick for programming the projected needs of the sanitary sewerage system. Design standards are subject to change. It is recommended that the City Engineer verify for consideration and adoption by Resolution, the criteria to be met or exceeded. Said criteria to be in effect until amended following recommendation of a qualified engineer's proposal and approved by the City Council.

The criteria outlined for such consideration is:

Sewage Collection:

- Velocity in sewers: Not less than two (2) feet/second when flowing full or half-full.
- Maximum contribution to sewer system:
  - Areas of less than 700 acres: 6000 gallons/acre/day
  - Areas from 700 acres to 3400 acres: 5000 gallons/acre/day
  - Areas greater than 3400 acres: 4000 gallons/acre/day
  - Lift stations: capacity sufficient to pump maximum contributing flows.

Sewage Treatement:

- Organic loads: 0.17 pounds/capita/day
- Suspended solids: 0.20 pounds/capita/day
- Per capita contribution:
  - Average flow: 110 gallons/capita/day
  - Peak Hour: 140 gallons/capita/day
- Hydraulic loadings:
  - Trickling filter type plants: 300 percent of average flow.
  - Aeration type plants: 250 percent of average flow.

Effluent Characteristics:

		Effluent Concentrations		Effluent Loading	
	Unit of Measurement	30-day Average	7-day Average	30-day Average	
Biochemical Oxygen Demand (5-day)	mg/l	20	30	BOD_5 BOD_5	114 kg/day 250 lbs/day
Suspended Solids	mg/l	20	30	TSS TSS	114 kg/day 250 lbs/day
Fecal Coliform Bacteria .. Number/100ml		200	400		

The effluent shall contain a chlorine residual of at least 1.0 mg/l after a detention time of al least 20 minutes (based on peak flow).

Projected Flows

The investigations completed in support of the City of Pearland's application for upgrading it's waste water treatment facilities and for the bond referendum required to finance these improvements was presented during 1975 and 1976. The information outlined plant expansions with an estimated capable of treating averaged daily dry weather flows through 1998. Alternate approaches for accomplishing wastewater treatment with a further alternate for treating the sewage from Brookside Village were considered. Looking to the future one alternate proposed that Plant No. 4 be discontinued with the sewage flow of this unit directed to Plant Site No. 2. The factors governing future sewage flows and thus the need for waste water treatment are how many homes and businesses will be connected to the sewers and what is the volume of flow generated.

Population Served: The 1975 Waste Water Facilities Plan projects a contributing year 2000 population of 41,200. The geographical area corresponding to the projection is the present incorporated city. The projection is too conservative if any allowance is made for location contiguous with the City where concentration of population will develop before the year 2000 and which can be sewered within Pearland's system are considered.

SS-1 PROJECTED SEWAGE FLOWS 1980-2000
PEARLAND, TEXAS

	Estimated Population	Average Daily Dry Weather Flow	Wet Weather Flows
A. PLANT SITE NO. 2 Barry Rose Road			
1980	11,000	1.21	1.54
1990	15,300	1.68	2.14
2000	31,500	3.47	4.41
B. PLANT SITE NO. 3 Longwood Park			
1980	5,300	.58	.74
1990	13,000	1.43	1.82
2000	26,000	2.86	3.64
C. PLANT SITE NO. 4 Twin Creek Woods Clear Creek Estates			
1980	700	.08	.09
1990	1,800	.21	.25
2000	2,500	.28	.35

(1) Per Capita Dry Weather Flows @ 110 gallons
(2) Per Capital Wet Weather Flows @ 140 gallons

Population to be served, adjusted to be consistant with the land use and population projections of the Comprehensive Plan indicate the following:

1980	17,000
1990	30,000
2000	60,000

Waste Water Flows: Flow characteristics measured at the time of the 1975 investigation revealed:

- Per capita dry weather flow average at 192 gallons
- Per Capita dry weather flow averaged at 345 gallons

The investigations further showed a high volume of infiltration inflow into the sewer lines. Assuming correction of the inflow ground water problems the average per capita dry weather flow at the plant are estimated to be 100 gallons and the wet weather flows to be 140 gallons.

Facilities Program

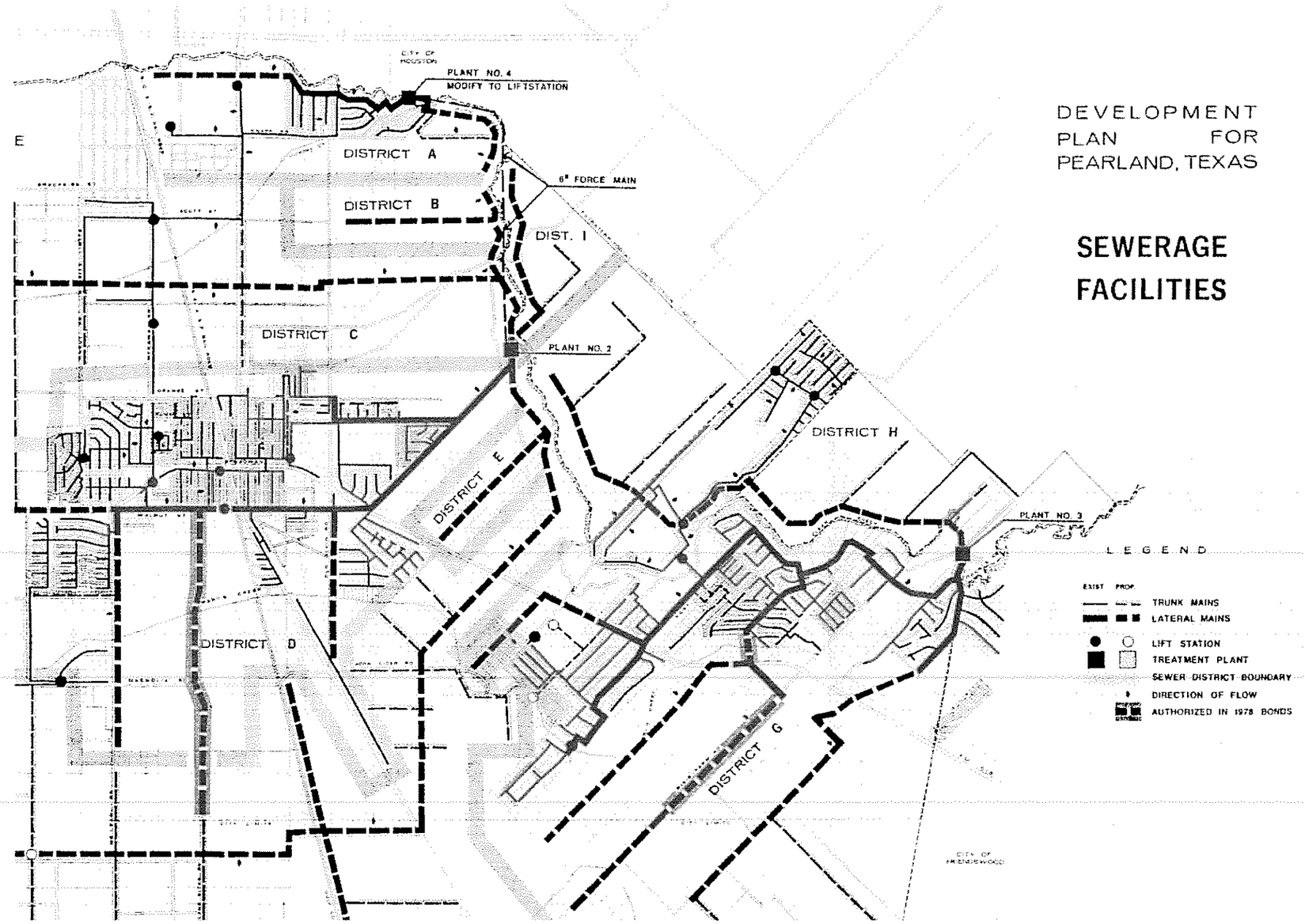
Existing sewage treatment plants No. 2 and 3 are being expanded to approximately twice their present capacity and several new trunk sewers will be constructed under revenue bond financing approved in 1978. Looking ahead for the next ten years the situation may require substantially greater improvements than during the past ten years in order to keep pace with an accurate rate of population growth and development.

Consideration for programming improvements to the sewerage system and the scope of improvements anticipated to keep the system in balance with the City's growth rate are more fully described as follows.

Sewer Districts: The conceptual approach for collecting and treating sewage reflected by the 1968 planning analysis linked all treatment plant sites to Clear Creek and the east boundary of the City. This concept functions well within the limits of the City's present boundaries but would become increasingly expensive should the City annex additional area to the west responding to growth stimulated by the Proposed Highway # 35 Expressway.

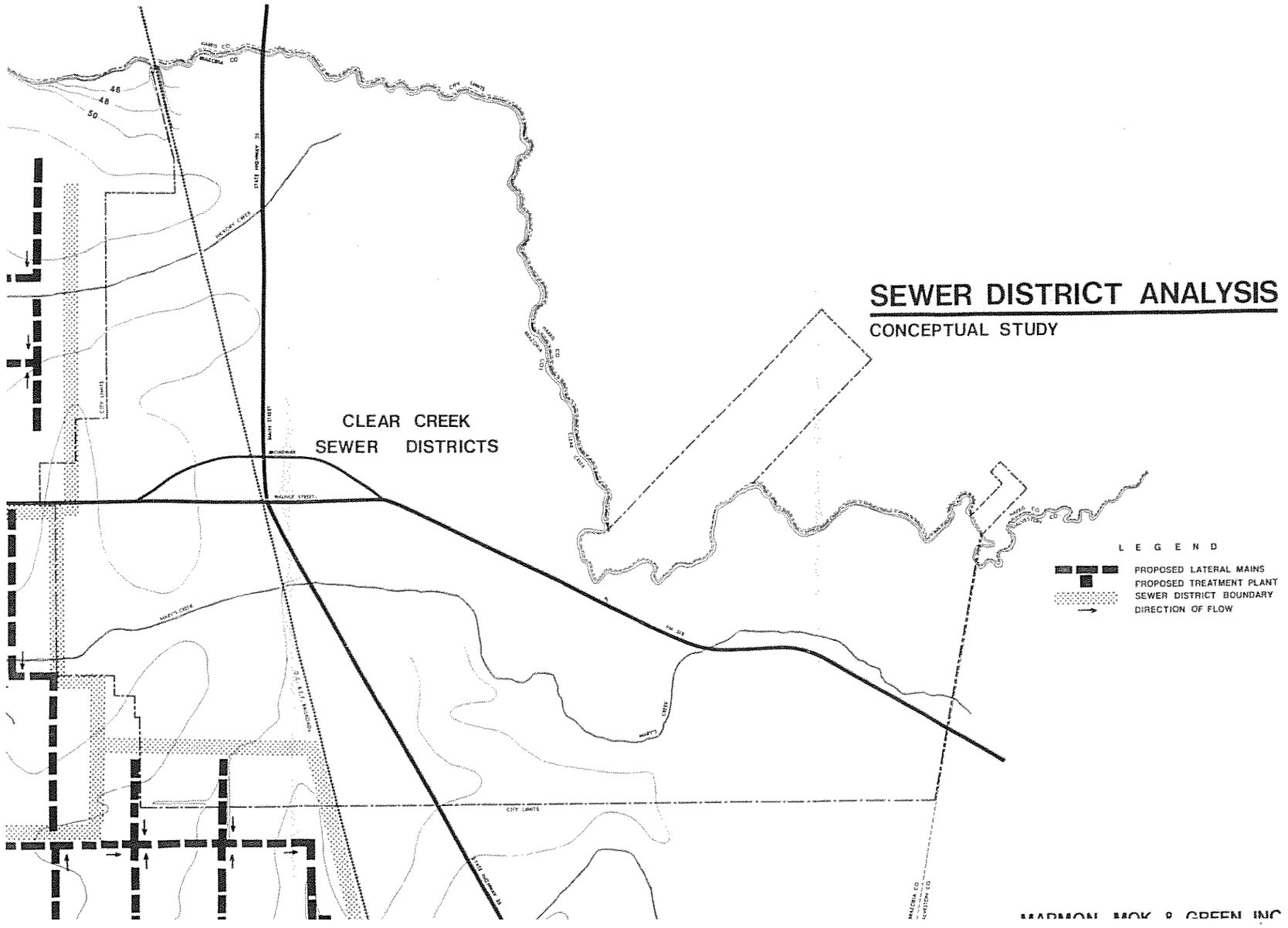
DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

SEWERAGE FACILITIES



SEWER DISTRICT ANALYSIS

CONCEPTUAL STUDY



MARMON, MOK & GREEN, INC

Reference is made to the Sewer District Analysis Map reproduced on page 2-91 . This map illustrates in a conceptual form an approach for collecting and treating sewage in the western part of the Planning Area. Regarding this concept:

- The City has a few years lead time before a final decision and committment must be made to either continue the existing approach or initiate additional districts and treatment plant sites.

- More detail engineering feasibility studies should be authorized to provide sufficient data upon which planning and decision making policy may be based. The investigation would evaluate considerations such as compatative costs, ability to adequately treat sewage, environmental impact on adjacent development, etc.

- The alternate approach may prove enviornmentally sound and show a substantial saving to the City.

Treatement Plants: Table SS-2 reports on the sewage projected for each of the tributaries sewered to the existing treatment plants calculated on the population growth and developments projected for the City through the year 2000. The projection indicates that approximately five million gallons per day in treatment plant capacity would be required above the capacity accomplished under the current improvement program. At least three alternatives regarding the future system should be considered. These are:

- Expand Plants No. 2, 3 and 4 proportionally to accommodate the flows.

- Retire Plant Site 4 and direct this sewage to Plant No. 2.

- Establish new treatment plants west of the City at approximate location designated as alternate districts 1, 2, and 3 on the map shown on page 2-92.

Sewers: The projection of sewers shown on the Sewerage Facilities Map found on page 2-91 is somewhat conceptual as the analysis that precedes the preparation of construction plans may provide alternate details in the interest of the City.

SS-2 WASTE WATER TREATMENT REQUIREMENTS 1975-2000
PEARLAND, TEXAS

		Capacity MGD	(1) With Schedule Improvements	Required	Deficiency
A.	Plant No. 2 Barry Rose Road				
	1975	1.0	2.0	1.1	0
	1980			1.54	0
	1990			2.14	.14
	2000			4.41	2.41
B.	Plant No. 3 Longwood Park				
	1975	.5	1.0	.30	0
	1980			.74	0
	1990			1.82	.82
	2000			3.64	2.64
C.	Plant No. 4 Twin Creek Woods Clear Creek Estates				
	1975	.25	.25	.0	0
	1980			.09	0
	1990			.25	0
	2000			.35	.10

Projected Population:
1980 - 17,000
1990 - 30,100
2000 - 60,000

Requirement calculated on wet weather flow equal 140 gal/per/day

(1) Scheduled under 1978 Bond Program

The Facilities Plan does illustrate that sewers must be extended if new developments within the Planning Area are to be sewered and that some of the sewer extensions would be a long distance west of the existing treatment plant sites.

Lift Stations: The relatively flat relief of the Pearland Area limits the distance (3000' to 4000') that sewers may be extended before a lift station that will pump the sewage to an elevation where gravity flows are required. Looking to the future:

- Additional lift stations will be required; the actual number will vary in response to where the sewage is to be treated. Fewer lift stations will be required if the number of treatment plants are increased.

- Economy may result if force mains are used to increase the sewage that may be accommodated at selected lift station locations.

Plan Implementation

It is anticipated that sometime between 1980 and 1990, depending upon the rate of City growth, the capacity presently being provided at the sewage treatment plants will be exceeded. The rate of growth should be monitored annually. If the monitoring is coordinated with the calendar year and accomplished in January this would allow adequate time for project review prior to the preparation of the next fiscal and budgeting year.

The need and thus the programming of sewers is in direct response to locations where platting, homebuilding, and commercial development is taking place. Implementation of sewer construction should be in response to building trends and may most effectively be programmed one or two years in advance of construction.

The 1968 Plan Report noted that some investigation had been made regarding the concept of regional waste water treatment. Todays situation is not too changed from the previous report namely:

- There are no definite plans in progress that would involve Pearland in a major regional waste water treatment project.

- The concept for regional sewage collection and treatment is not as viable as for water treatment and distribution.

- Inter governmental actions relative to waste water treatment may be anticipated where relatively small gravity flow sewers cross political boundaries, i.e. Pearland with Brookside Village, Friendswood and the City of Houston. Cooperation to help solve local problems does not imply the beginning of a regional system.

DRAINAGE FACILITIES

The jurisdiction relative to the comprehensive longrange planning of surface drainage for the location including Pearland is the Brazoria County Drainage District No. 4. Within the City of Pearland's incorporated area drainage plans and improvements are jointly reviewed by the City and the Drainage District.

The topic update relative to drainage is reported as follows:

Existing Characteristics

The Pearland Planning Area drains into four natural drainage divisions which are identified on the Drainage Facilities Map reproduced on page 2-105 These districts are:

- Clear Creek: Clear Creek is the primary natural drainage channel affecting Pearland. Each of the drainage tributaries originating in the Pearland Planning Area terminate at Clear Creek. From Pearland, Clear Creek flows south and east to Clear Lake and into Galveston Bay. The channel has been analyzed for drainage and flood control improvements but has not received extensive channel rectification.

- Hickory Creek: The direction of Hickory Creek discharge is east and northeast and it is the first drainage course south of Clear Creek. Low density residential is the primary urban type development that has occurred in the area drained by the creek. Some improvements to the natural drainage channel have been made.

- St. Mary's Creek: The St. Mary's Creek progresses from west to east midway through the Planning Area and is the principal drainage tributary south of Clear Creek. Much of the developed portion of Pearland is located within the drainage course. The St. Mary's Creek channel has received some improvements to the natural flow.

- Cowart Creek: The Cowart Creek drainage channel does not extend as far west as do the tributaries of the other creeks. It does however drain a major portion of the southeast Pearland Planning Area. Very little urban development has occurred within the limits of this tributary. Some minor improvements to the natural flow of the creek have been accomplished.

Other Tributaries: Several other small drainage courses primarily in the form of open ditches discharge directly into Clear Creek and drain small localized areas. These ditches are found in the vicinity of Barry Rose Road and in the Green Tee Subdivision.

Planning Criteria

The guidelines for achieving more adequate drainage in coordination with urban developments are:

Runoff Rates:

- Design frequency to vary with the size of the area:

Area in Acres	Design Frequency
50	2-year
100	3-year
250	4-year
500	6-year
1,000	8-year
2,000	10-year
5,000	18-year
10,000	23-year
15,000	25-year

Normal practice is to design the municipal storm sewer systems for a 2 to 3 year frequency.

Primary drainage channels in the urban development portions of Brazoria County should be designed on a 25 year frequency.

Large outfall ditches should be designed on an 8 to 10 year frequency.

- Results of design frequencies:

For a 2 year storm, there is no ponding in curb and gutter streets. The small lateral sewers are full, the outfall sewers are below design capacity and the water level in the primary drainage channel is well below the top of the bank.

For a 10-year storm, there is some ponding in the streets (but not above the curbs), the small lateral sewers are somewhat overloaded, the outfall sewer is at design capacity, and the water level in the primary drainage channel is still below the top of the bank.

For a 25-year storm, there is considerable ponding in the streets (but the water level is safely below the foundations of nearby houses), the entire storm sewer system is overloaded, and the water level in the primary drainage channel is nearly at the top of the bank.

Other Design Considerations:

- Minimum Storm Sewer Sizes:

Residential Areas:	18 inches
Commercial Areas:	24 inches

- Manning's "N: Values:

Pipe Sewers:	0.013
Boxes and Lined Ditches:	0.015
Unlined Ditches:	0.030

- Velocities:*

Sewers and Boxes:	6.0 fps normal 10.0 fps maximum
Ditches - Unlined:	3.0 fps normal 5.0 fps maximum
Ditches - Lined:	6.0 fps normal 10.0 fps maximum

* fps - foot per second

PEARLAND, TEXAS
DRAINAGE FACILITIES

Facilities Program

The planning and implementation of improvements for the control of storm water discharge and for the integration of drainage facilities is a multi-governmental activity. The agencies who are active in the process and the role each will play is briefly outlined as follows:

- Brazoria County Drainage District No. 4: The planning and management for drainage facilities in the Planning Area are under the jurisdiction of the County Drainage District. The District has taxing jurisdiction to finance it's operations and construction programs.

- City of Pearland: The City of Pearland's jurisdiction over the planning and management of local drainage facilities is somewhat limited. The City is the processing agency for subdivision planning. Land platting and other activities which affect drainage must be coordinated with the districts plans and improvement programs. The City is a partner in the implementation of these objectives.

- U.S. Army Corps of Engineers: At the invitation of local political subdivision and the approval of the U.S. Congress, the Corps of Engineers has accomplished a Survey Report on "Clear Creek, Texas Flood Control". This report recommends that a Federal Project for rectification of Clear Creek be authorized. The Pearland Planning Area is within the Clear Creek Watershed.

- Clear Creek Authority: The Clear Creek Authority has recently been chartered by the State of Texas. It's jurisdiction includes the watershed of Clear Creek; it's purpose is primarily water quality control.

Planning and Management Requirements

Storm runoff gravitates to the low points of the landscape where it continues to coastal discharge points or if obstructed enponds. The governmental jurisdiction who has a role in the storm water management process have common objectives relative to the implementation of the City's Comprehensive Plan. The common objective of all jurisdictions who must manage water runoff is the adequacy and effective operation of the entire system.

DRAINAGE FACILITIES

The Drainage Facilities Map reproduced on page 2-103 represents information of record at the Drainage District that identified the drainage channels and rights-of-way needed for the channels. The patterns for drainage improvements are shown on this map and are the patterns that will be established on the ground. The City of Pearland is an active member in the process to acquire rights-of-way for drainage easements as designated on the Plan Map and for further refinements, namely local ditches and storm sewers as they may affect land within their jurisdiction. The process is two fold, namely:

- Continued application and of drainage standards to the development process.

- Refinements in the Process.

Refinements in the process that should be initiated immediately but may take several years to fully implement and in which the City must participate are:

Design Criteria: "Planning and design criteria" as used in Drainage Facilities Report mean basically the same thing. The criteria is a declaration regarding the level of runoff that will be accommodated by the improvements established on the ground. To this end:

- The City may wish to establish a more comprehensive regulation than that adopted by District No. 4 on August 14, 1978, namely the Planning Criteria outlined in this report.

- Once established, the design criteria should be setforth in printed form and distributed to engineers, developers, and people engaged in land planning and development. All ordinances or policies inconsistant with the criteria should be corrected.

Drainage Engineer: A qualified civil engineer should be designated as the drainage coordinator and inspecting officer of the City. It is not the intent of this proposal to duplicate functions performed by the Drainage District. The role of the drainage engineer is to insure that action is taken to correct inherent drainage problems and that new development plans are consistant with the design criteria.

Up-Grading of Ditches and Culverts: The City has many inherent drainage problems namely ditches that are obstructed, too small or without adequate grade. To correct this situation the City should:

- Map locations where ponding or flooding is repeatedly occuring.
- Map and identify all ditches and culverts, noting all situations inconsistant with the design criteria.
- Establish the profile and section to be applied to ditches and culverts along the drainage courses.
- Establish a priority for correcting local drainage problem situations and a time table for implementing specific improvements.
- Adopt and publish policy covering jurisdictional responsibility for drainage improvements and maintenance i.e. property owner/developer, City of Pearland, Drainage District.

Flood Damage Prevention

Real property within the City has a flood history. The scope of property damage and monitary loss has not been great as many of the properties most frequently flooded were used for cropland or grazing. The land use situation is changing and agricultural land is being absorbed for urban purposes. Flood damage prevention is a subject of increasing importance to the City.

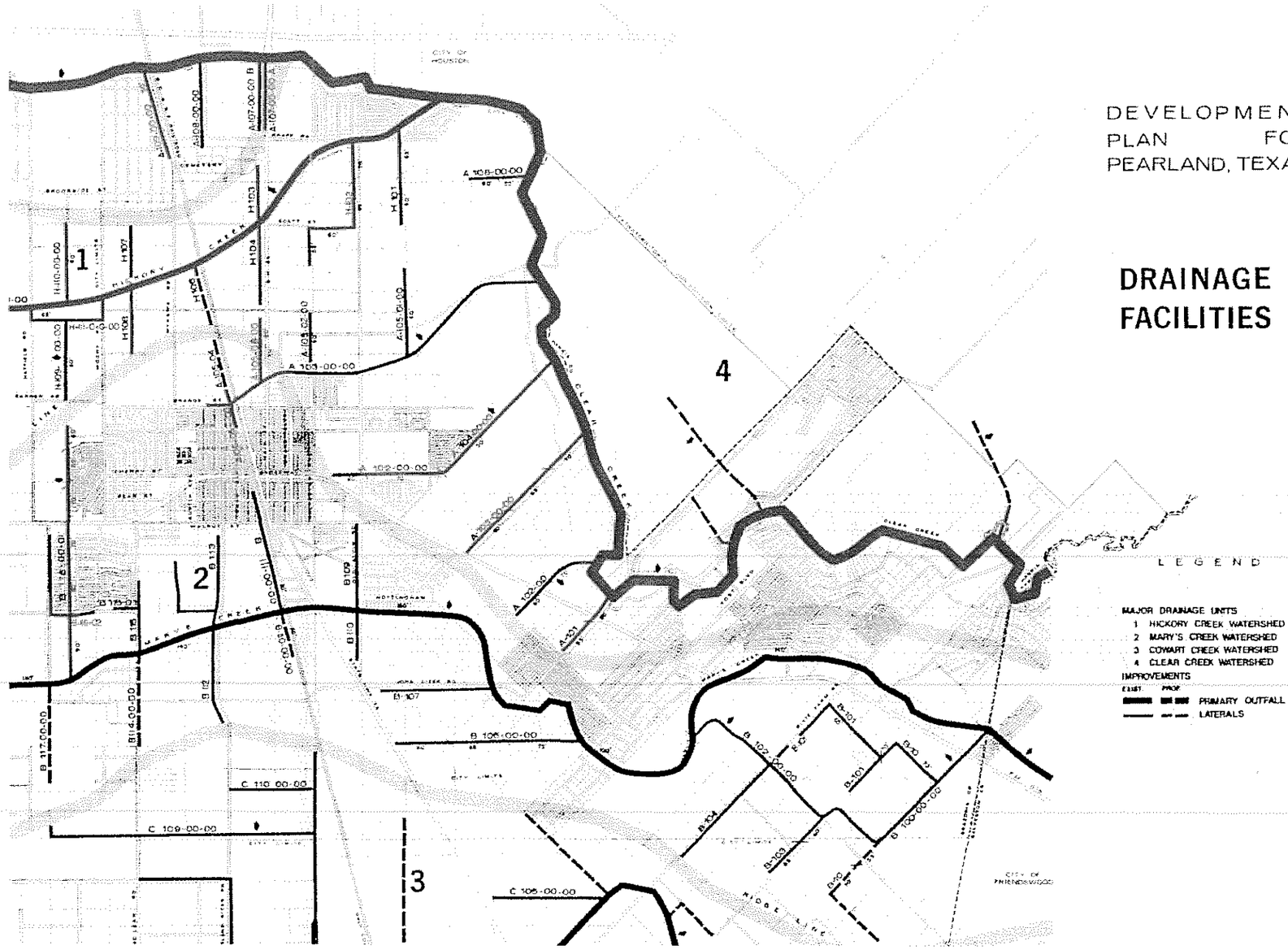
In February 1978 the City of Pearland adopted a Flood Damage Prevention Ordinance. This ordinance has identified flood plain and flood hazard locations and the methods of reducing flood losses in the problem location. This ordinance is a part of the Comprehensive Planning and Development process. In addition the City should be an active partner responding to any findings and proposals of the U.S. Army Corps of Engineers relative to proposals for rectification of the Clear Creek drainage channel which is a significant factor controlling the scope of local flooding.

Multiple Use of Drainage Easement and Rights-of-Way

Substantial acreage will be absorbed by the rights-of-way required to locate, construct and maintain drainage facilities. The rights-of-way, if poorly maintained, will become unsightly. By contrast, they may be more adequately maintained, and functionally serve more than on purpose. The findings and one recommendation for the management and use of drainage easements is as follows:

DEVELOPMENT
PLAN FOR
PEARLAND, TEXAS

DRAINAGE FACILITIES



LEGEND

MAJOR DRAINAGE UNITS
1 HICKORY CREEK WATERSHED
2 MARY'S CREEK WATERSHED
3 COWART CREEK WATERSHED
4 CLEAR CREEK WATERSHED

IMPROVEMENTS
EXIST. PROP.
PRIMARY OUTFALL
LATERALS

- Unobstructed access must be provided that the drainage channel may be maintained. This precludes the placement of recreational equipment and landscaping contiguous to the channel.

- Improvement of maintenance roads adjacent to the drainage channels that could also function as hike, bike and bridle trails along the channel is a compatible multiple-use. Circulation thus provided could make other recreational and park lands more accessible and functional.

- Development of required drainage easements correctly integrated into the neighborhood design, can provide valuable openspaces and in otherwise builtup and somewhat repetitious developments.

PART: 3

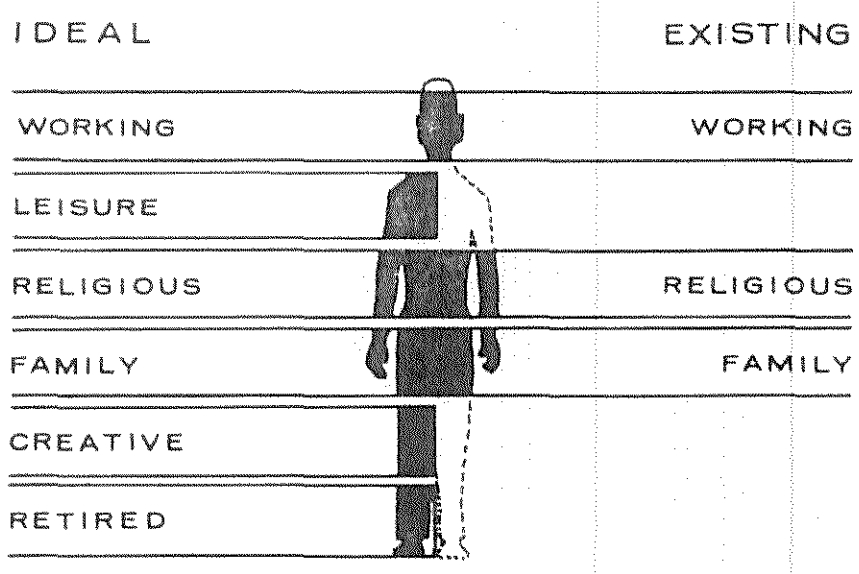
GOALS, DEVELOPMENT STANDARD & IMPLEMENTATION PRIORITIES

PART III GOALS, DEVELOPMENT STANDARDS AND IMPLEMENTATION PRIORITIES

The goals that are identified and described in the pages that follow are keyed to the broad aspects of the Comprehensive Planning Process as it is employed to accomplish plans for Pearland. A similar process of inventory and assessment may be employed when local interest desires to formulate goals for any aspect of their City's development.

Environment - Man as the Measure

Goals can represent both general objectives and proposals for specific improvements. Many general objectives have been identified and are setforth through the Comprehensive Plan Report. Others will follow as plans for the City take more complete form. In all cases, man is the measure for planning the City.



The sketch above illustrates that the City and it's Comprehensive Plan must respond to all of man's basic environmental needs. The incompleted parts of the illustration represent the void of Pearland's present development. Helping to correct these situations is the most important goal of Pearland's Plan.

PEARLAND, TEXAS
GOALS, DEVELOPMENT STANDARDS AND IMPLEMENTATION PRIORITIES

Local Identity - In a Regional Surrounding

Pearland will eventually be encircled by incorporated cities and places, each having very similar characteristics of land use and urban development.

A significant goal of the comprehensive planning process is that of creating an identity for Pearland. This goal as outlined in the 1968 Plan read as follows:

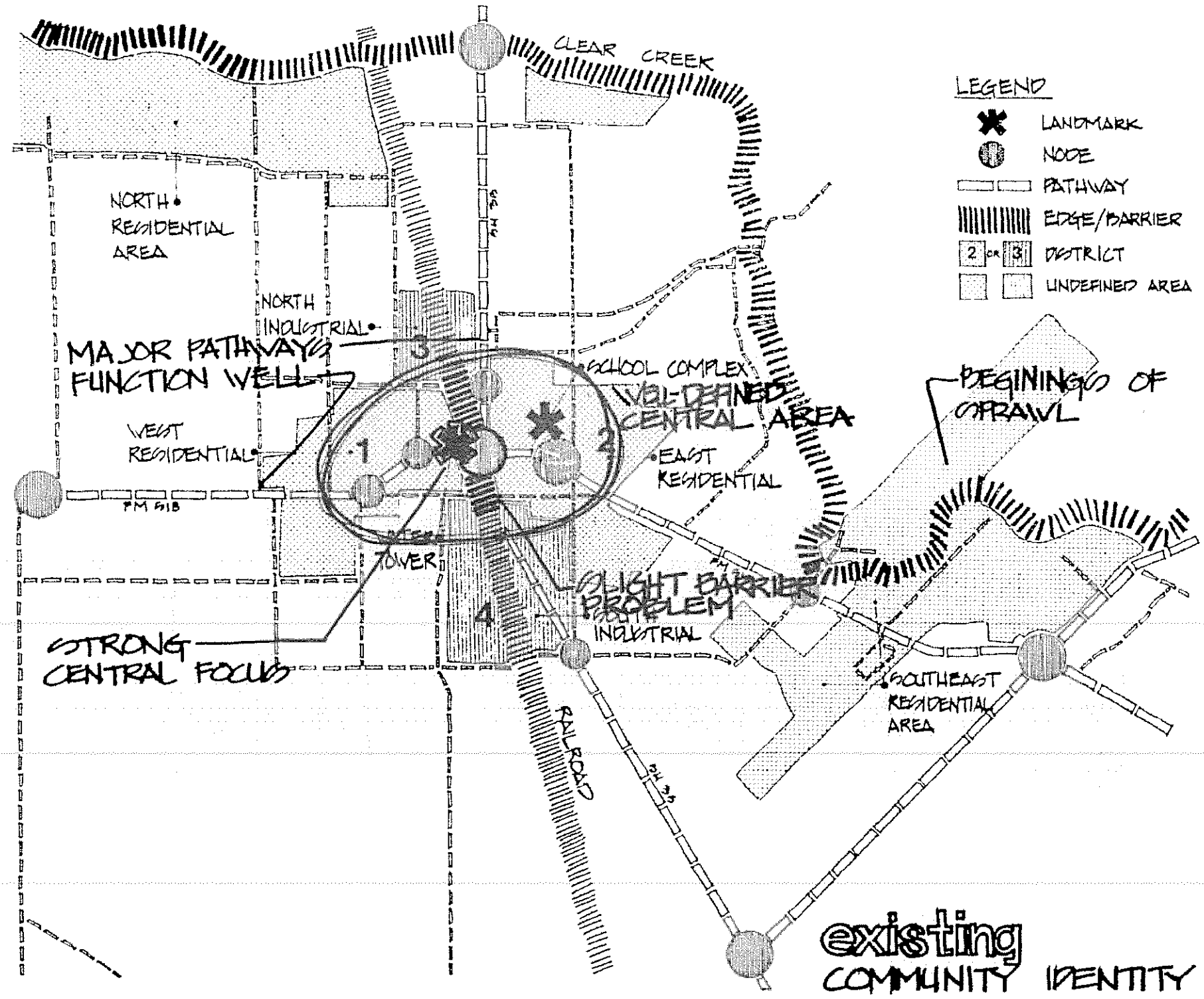
> "It is important that the City have an identity and that it's identity is favorable. Such identity can be reflected in the City's visual appearance, the public buildings, it's carefully selected industries, it's planned industrial parks - each built around the City's inherent good qualities. Pearland should not attempt to compete with the extensive cultural and entertainment developments in Houston or the recreational development of the Gulf Coast. It should do well those things which it has the capacity and resources to accomplish."

It is appropriate that the goal for "local identity in a regional setting" be re-examined in 1978 in sufficient detail that application of the goals process is more fully understood and that the Comprehensive Plan functions to distinguish Pearland from it's surroundings. Factors to be considered relative to local identity are:

Baseline: It is difficult to obtain a single birds-eye-view perspective of Pearland. In fact there are many images that may be formed and many perspectives. Thus the first step in appraising local identity is to select specific focal points to be examined that each may be brought into perspective.

Focal Points: People relate to their environment with respect to how they view selected basic elements of the environment. A well defined community identity will promote citizen interes, orientation and civic pride. No identity may see the loss of valuable natural resources. Elements basic to community identity are:

- Landmarks: The major or strongest orientation elements in the community are landmarks such as major buildings, tall buildings or structures, or locations with strong identities.


CLEAR CREEK
NORTH RESIDENTIAL AREA
NORTH INDUSTRIAL
MAJOR PATHWAYS FUNCTION WELL
WEST RESIDENTIAL
SCHOOL COMPLEX
WELL-DEFINED CENTRAL AREA
EAST RESIDENTIAL
FM 518
TOWER
STRONG CENTRAL FOCUS
LIGHT BARRIER PROBLEM
SOUTH INDUSTRIAL
RAILROAD
SOUTHEAST RESIDENTIAL AREA
BEGININGS OF SPRAWL
LEGEND
LANDMARK
NODE
PATHWAY
EDGE/BARRIER
2 or 3 DISTRICT
UNDEFINED AREA
existing
COMMUNITY IDENTITY

- Nodes: A node is any location having a specific identity. Major street intersections, shopping centers, parks, and schools are nodes. Nodes may be of a major focus such as where a person enters and then must make a decision on how to exit, or they may simply be areas of concentrated activity.

  Nodes may be of either major or minor importance . Usually landmarks may be perceived from a distance; by contrast nodes do not orient persons, until they are entered. Nodes serve as important community and neighborhood centers.

- Pathways: Pathways create a sense of directional movement and may be major streets, secondary streets, or highways which most people relate to as major identity elements. The street, it's orientation, length and the surroundings along both sides are all part of the pathway element. If a pathway becomes over developed and cluttered, it can become an edge or barrier.

- Edge/Barrier: Edges and barriers as they are recognized within the City may be either natural or man-made such as creeks, railroads, highways, or distinct district edges. They may be either major or minor. Edges may have either a good or harmful affect on urban development i.e. good to identify distinct districts, but only if they are easily penetrated by pedestrian and vehicular traffic. Barriers by contrast can cut through and divide communities and are more often harmful.

- Districts: Locations in the City which are different in some ways from the rest of the community often because of a distinct land use, are defined as districts. Districts may be relatively large areas which may have one predominant character such as residential.

- Linkage is a unifying element that serves to correct any objectionable edges and bridge barriers.

PEARLAND, TEXAS
GOALS, DEVELOPMENT STANDARDS AND IMPLEMENTATION PRIORITIES

Existing Identity

The sketch, Existing Community Identity found on page 3-4 directs attention to several focal point considerations, namely:

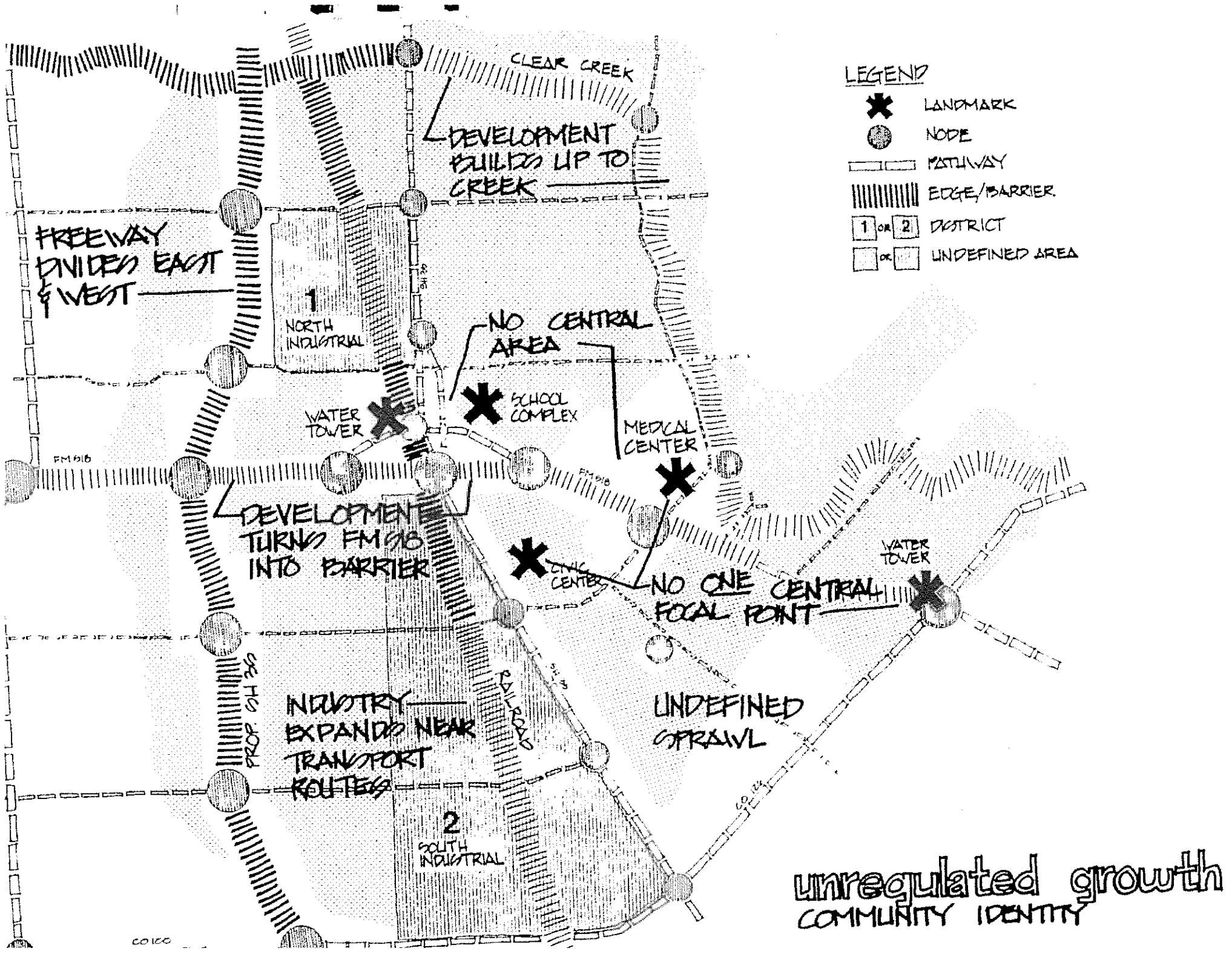
- The original townsite contains several landmarks and a strong central focus point.
- Developments at the intersection of Broadway (F.M. 518) and Main Street (State Highway 35) have the same characteristics of an activity node but the location is too organized to represent a typical node situation.
- Districts are beginning to form in the newer developments occurring on the outskirts of the original townsite.
- State Highway 35 and F.M. 518 are well defined pathways.
- Barrier characteristics are found along the railroad and the Clear Creek Channel.

Growth Alternatives

Two additional sketches, the first shown on page 3-7 illustrates the possible pitfalls of unregulated growth and the second on page 3-9 features growth patterns responsive to anticipated goals and objectives, have been prepared. The significant considerations presented are:

Unregulated Growth:

- Loss of a clearly defined central area may occur.
- Residential areas may sprawl in all directions with little observance of design standards and amenities.
- Industrial districts may form barriers due solely to the intensity of development and absence of linkage with adjacent areas.



unregulated growth
COMMUNITY IDENTITY

- Development along the proposed Houston-Alvin Freeway and F.M. 518 may turn pathways into barriers.

Regulated Growth:

- A strong central focus may be expanded and preserved. A medium development density is proposed for the original townsite location.

- Many districts may be anticipated all similar but yet distinctive.

- Strong linkages are to be provided between districts for both vehicular and pedestrian traffic. Thus eliminating the distructive adges and barriers that tend to divide and fragment urban growth.

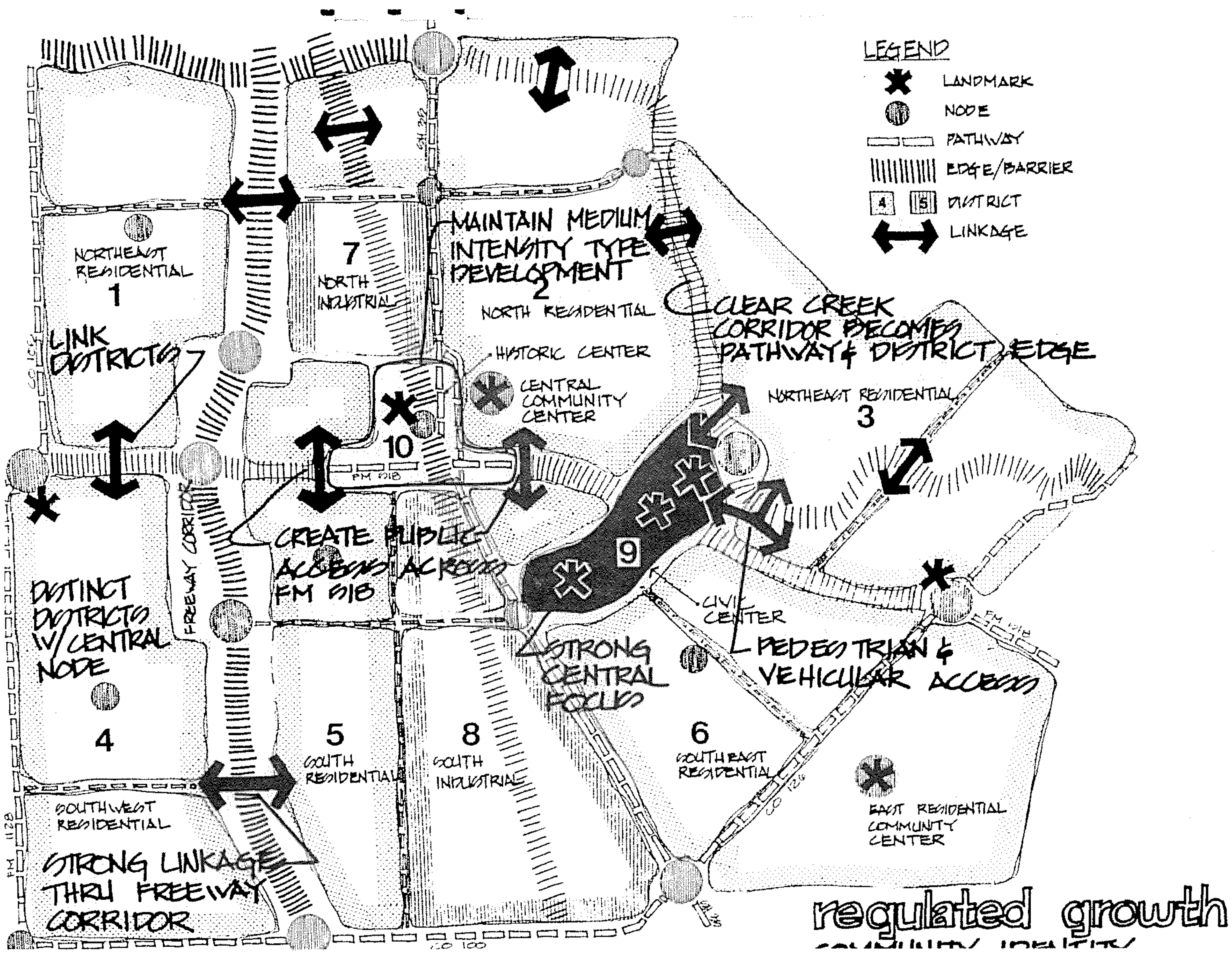
- Commercial development along F.M. 518 to be controlled so that linkages may be established with districts on either side of the street.

- District edges contiguous to Clear Creek to be incorporated into new pathway corridor approaching a major activity node.

Study Design Sketches

Sketches of locations within Pearland are shown on the next six pages. These sketches are part of the inventory and assessment overview related to goals important to the City's image and for Comprehensive Plan. Related observations could be made by a field trip to the location within the City where the sketches were made.

The goals illustrated by the sketches are for using the City's inherent resources to improve the image of Pearland and for reversing problem situations.


LEGEND
LANDMARK
NODE
PATHWAY
EDGE/BARRIER
DISTRICT
LINKAGE
NORTHEAST RESIDENTIAL
1
LINK DISTRICTS
7
NORTH INDUSTRIAL
MAINTAIN MEDIUM INTENSITY TYPE DEVELOPMENT
2
NORTH RESIDENTIAL
HISTORIC CENTER
CENTRAL COMMUNITY CENTER
CLEAR CREEK CORRIDOR BECOMES PATHWAY & DISTRICT EDGE
NORTHEAST RESIDENTIAL
3
10
FM 518
CREATE PUBLIC ACCESS ACROSS FM 518
9
CIVIC CENTER
PEDESTRIAN & VEHICULAR ACCESS
DISTINCT DISTRICTS W/ CENTRAL NODE
FREEWAY CORRIDOR
STRONG CENTRAL FOCUS
4
5
SOUTH RESIDENTIAL
8
SOUTH INDUSTRIAL
6
SOUTHEAST RESIDENTIAL
EAST RESIDENTIAL COMMUNITY CENTER
SOUTHWEST RESIDENTIAL
STRONG LINKAGE THRU FREEWAY CORRIDOR
FM 1128
CO 100
CO 126
regulated growth

Situations that are illustrated are more fully described as follows:

- Sketch 1 of 6: Most everyone entering Pearland from the north on State Highway 35 has seen the City Limits sign and may have experienced traffic congestion. Little else is present at this location that truely distinguished the City from any other location in the region.

- Sketch 2 of 6: This railroad scene is typical of many railroad crossings in Pearland. Assessment that may be mad from conditions seen at this location are:

  - Water tower as a strong landmark, associated with City Hall and Braodway.

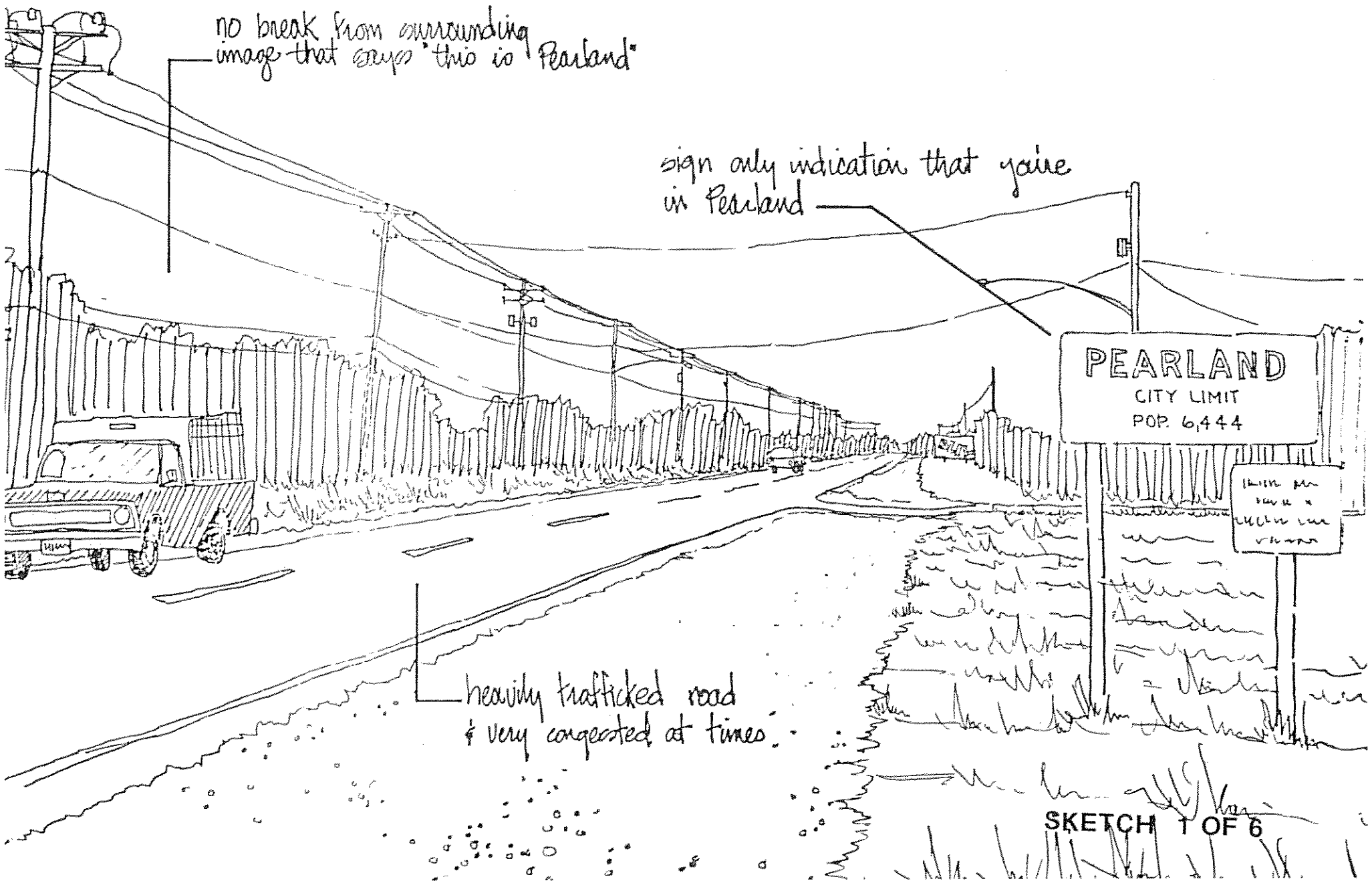
  - Strong distinct edge formed by the railroad trackage and weak linkage between the locations separated by the trackage.

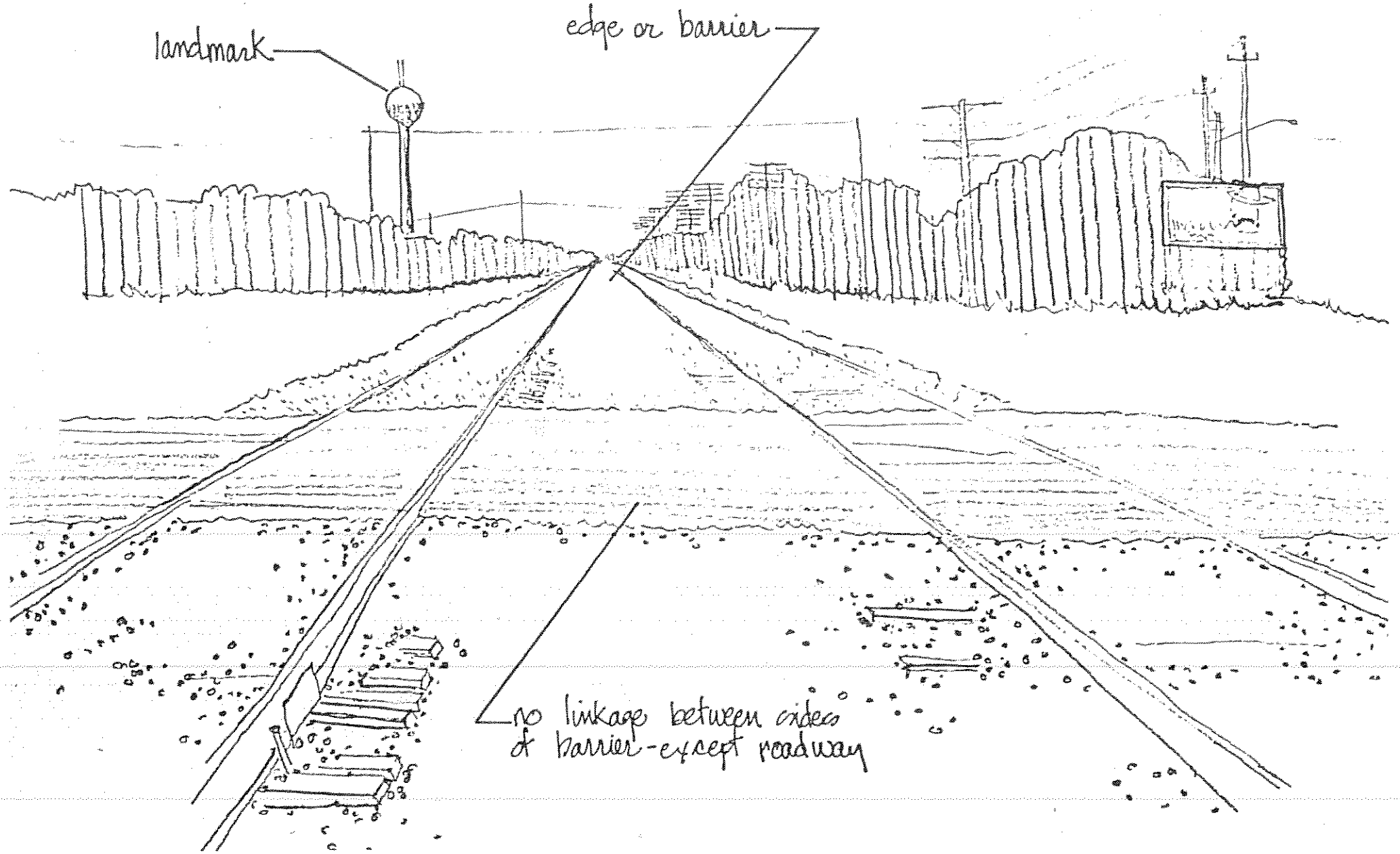
- Sketch 3 of 6: This scene is representative of the development taking place along East Broadway. Several potential sources of problems may be identified at most of the locations where commercial land uses are developing along local street, e.g.

  - Strong edges with little linkage between districts.
  - Congestion in the pathways.
  - Poorly organized node - fragmented with wires, signs, etc.

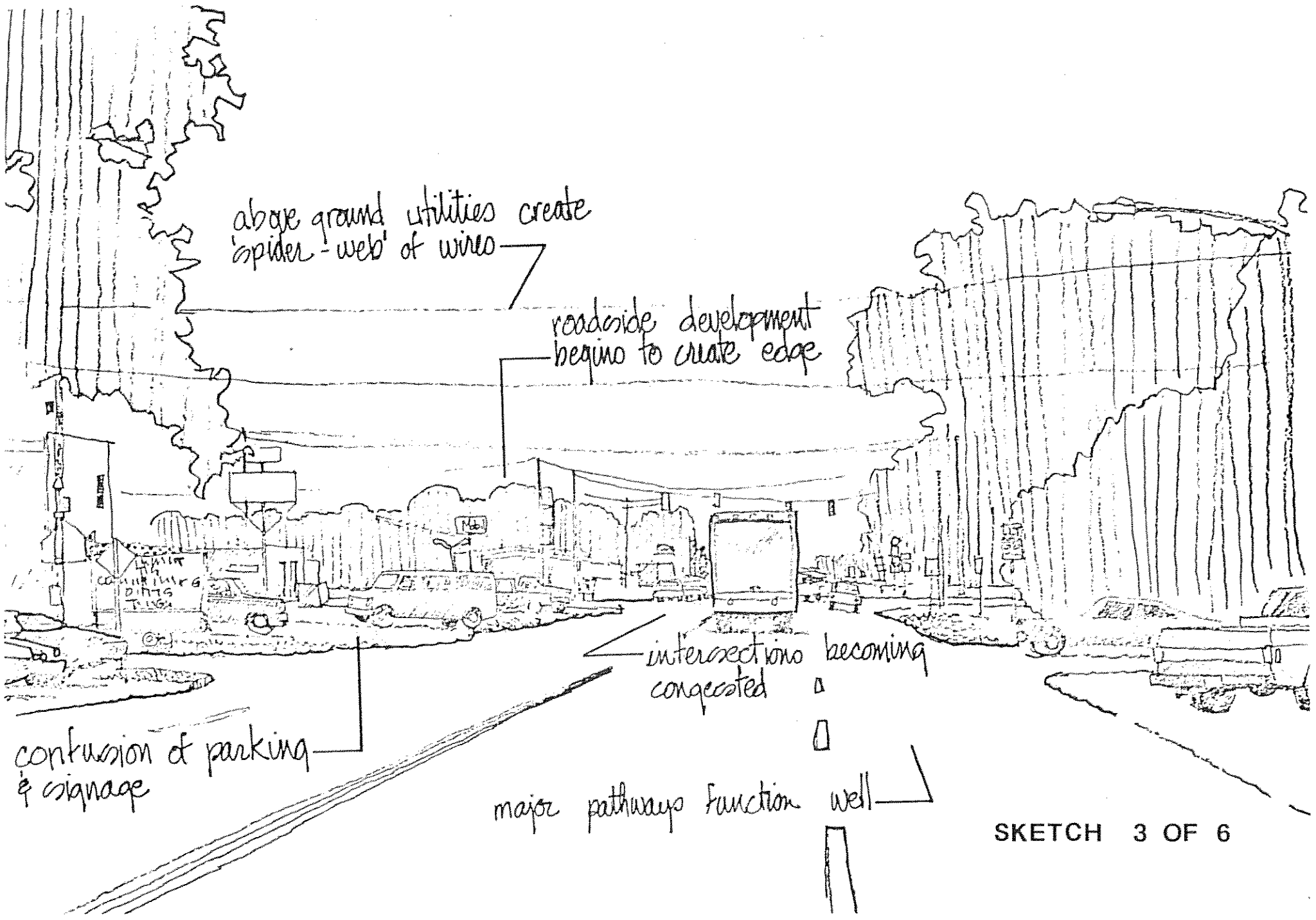
- Sketch 4 of 6: It is assumed that we are looking at the same street scene presented in Sketch 3. The image at this location is appreciably changed when the conflicts of vehicular movements, utility wires, building and signs are reduced. The strong feeling of unrelated developments is also reduced.

- Sketch 5 of 6: This scene is representative of any one of the three major creeks that pass through Pearland. The goal illustrated on this sketch is to incorporate the creek into the development patterns as a valuable openspace and natural adjunct. Streams should not become barriers.

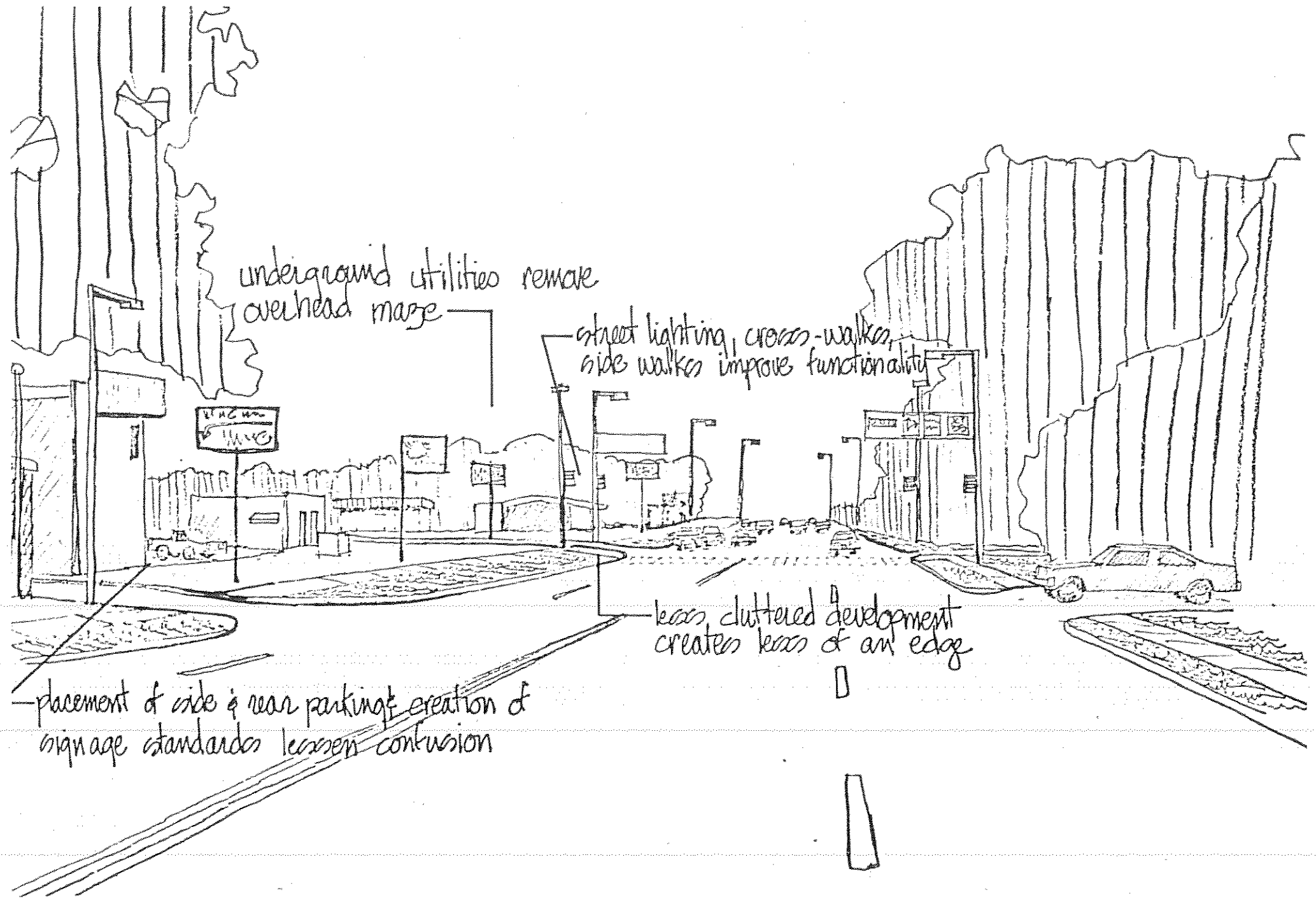

no break from surrounding image that says "this is Pearland"
sign only indication that you're in Pearland
PEARLAND
CITY LIMIT
POP. 6,444
heavily trafficked road & very congested at times
SKETCH 1 OF 6


landmark
edge or barrier
no linkage between sides of barrier - except roadway

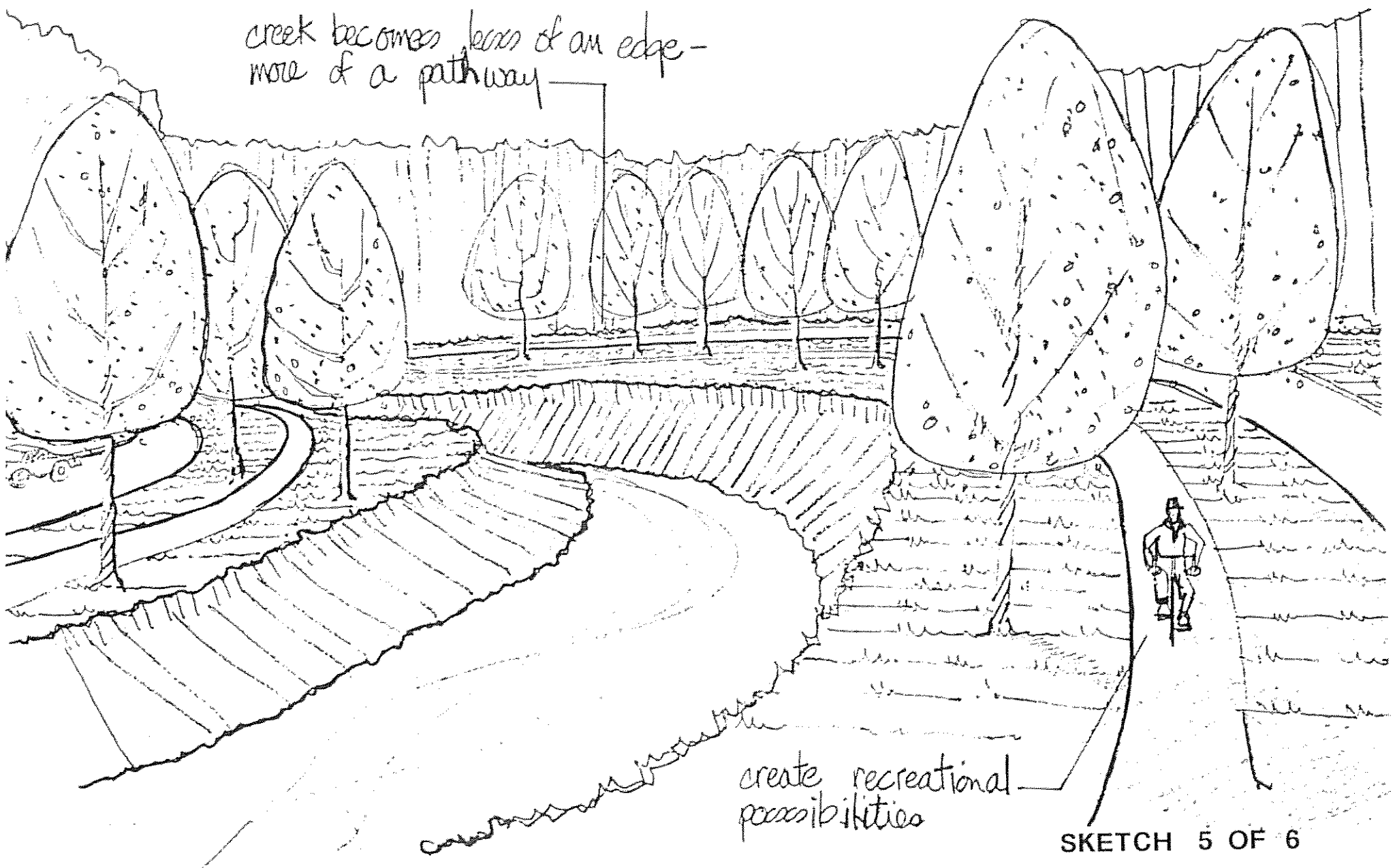
SKETCH 2 OF 6


above ground utilities create 'spider-web' of wires
roadside development begins to create edge
confusion of parking & signage
intersections becoming congested
major pathways function well

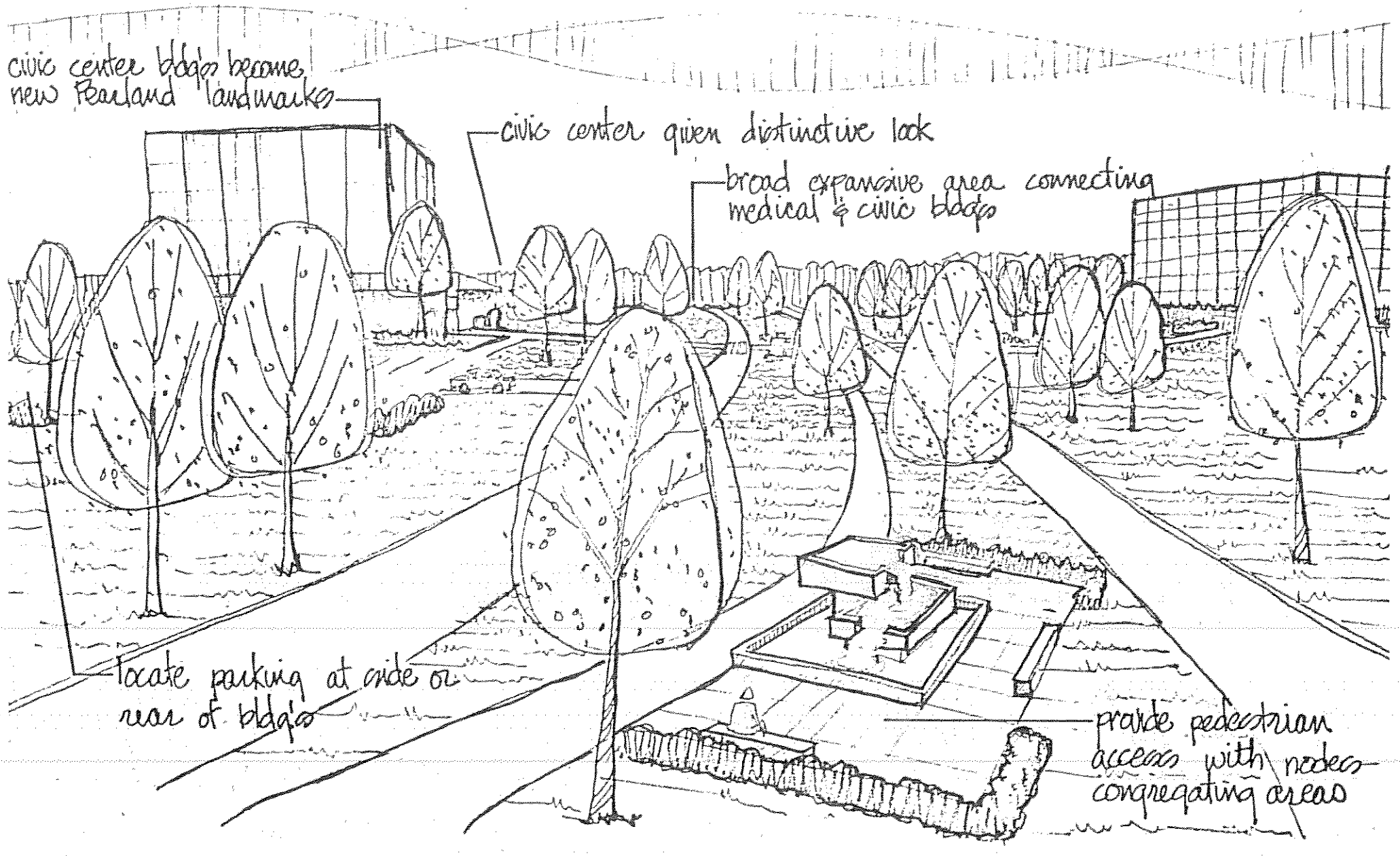
SKETCH 3 OF 6


underground utilities remove overhead maze
street lighting, cross-walks, side walks improve functionality
placement of side & rear parking & creation of signage standards lessens confusion
less cluttered development creates less of an edge

SKETCH 4 OF 6


creek becomes less of an edge - more of a pathway
create recreational possibilities

SKETCH 5 OF 6


civic center bldgs become new Pearland landmarks
civic center given distinctive look
broad expansive area connecting medical & civic bldgs
locate parking at side or rear of bldgs
provide pedestrian access with nodes congregating areas

SKETCH 6 OF 6

Sketch 6 of 6: At least one major multi-use node should be planned for the City. The general location proposed for the node is east of the original townsite near Barry Rose Road and Clear Creek. Sketch 6 illustrates the character anticipated for a major activity node anticipating units of civic, medical, trade and office uses each oriented to an openspace pathway. The results would form a new landmark by which the image of the City is strengthened.

Complimentary Activity Centers

Eventually the Planning Area may accommodate over 170,000 people. Some of the activities that a city of this size could support and which should be considered in Pearland are:

- Hospital and Medical Center
- Cultural and Governmental Center
- Community College
- Major City Park
- Beautification and Openspace Development on Clear Creek with possible lake
- Expanded Central Business Area
- Industrial Park
- Office and Professional Complexes
- Many Neighborhoods

The activity center nodes will require site planning and careful site selection to function adequately. All will need land; some need major streets, parks for example should be related to the natural features of the area.

STANDARDS

The Comprehensive Plan Report would be incomplete without some recognition and comment on development standards for the many land uses and improvements that make up the City. Much attention by City Officials, their Planners and Engineers has been given to design standards for relating public services to public need and to safety and performance. Manual and text books are available on this subject. It is not the intent of this report to duplicate a standard manual. It's purpose is to stimulate an awareness and provide basic orientation of the role of design standards in the planning process.

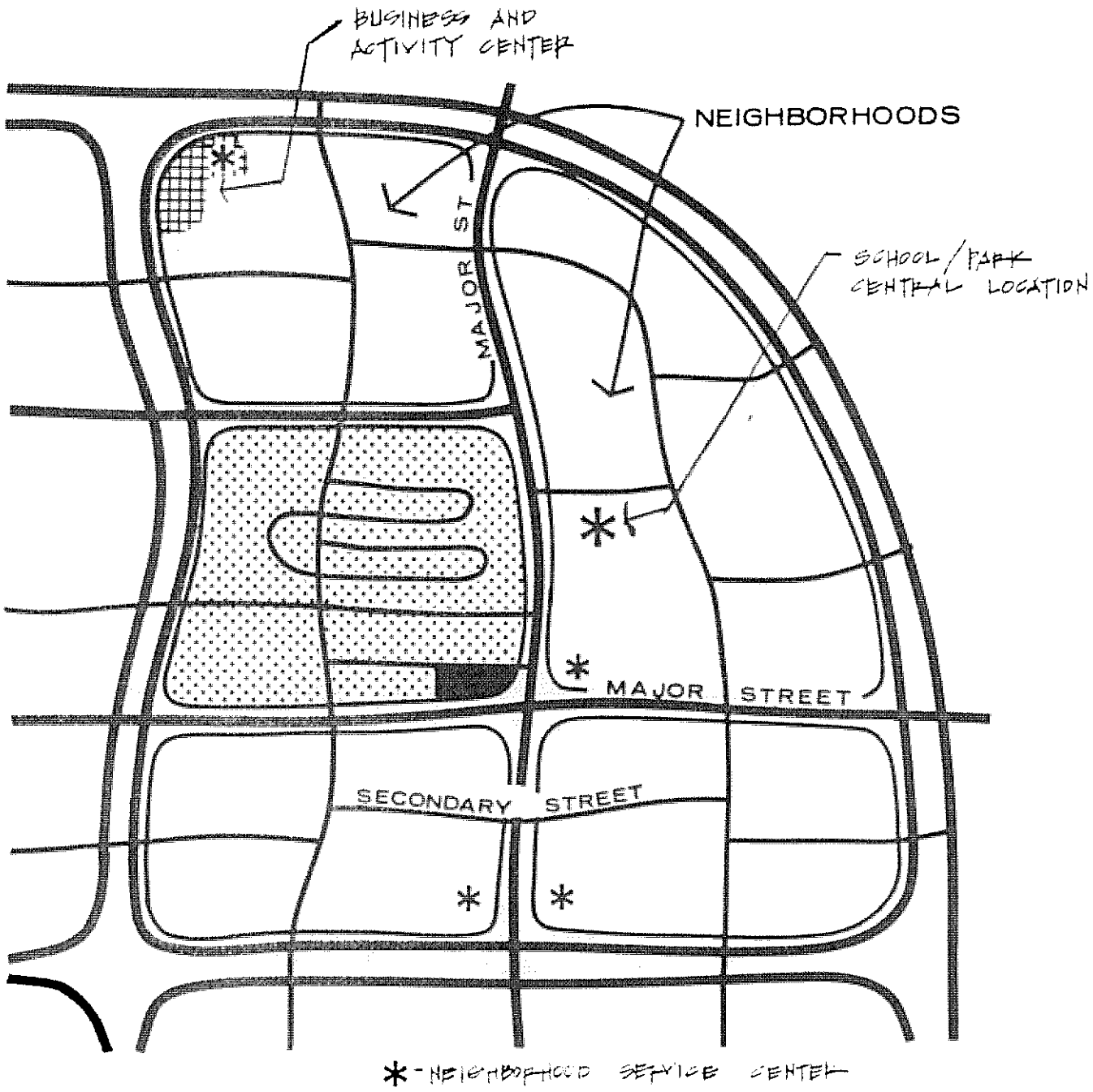
Residential Land Uses

That part of the City devoted primarily to residential land uses i.e. where people will be living is associated with two basic development units, namely the community and the neighborhood.

Community: A community is any part of the City having several contiguous neighborhoods which generally relate to a common center (node) for selected services. The sketch on page 3-19 illustrates a typical community structure. The guiding standards for the delineation of communities are:

- A center for activities oriented primarily to the area and from which the community draws it's identity, usually a high school, junior high school or park. An ideal community center is a combination of junior high school, playfield and park facility.

- Two or more neighborhoods, with a minimum population of 12,000 to 20,000 people.



A TYPICAL COMMUNITY

1. Combines Two or More Neighborhoods.
2. Population Range of 12,000 to 20,000 Persons.
3. Has Network of Collector and Major Streets.
4. Will Support Several Elementary and Possibly a Junior or High School
5. Warrants Park and Recreational Facilities Such as Athletic Field or Pool Which Exceeds Scope of Neighborhood.
6. Needs Supporting Trade and Activity Center.

Neighborhoods: The neighborhood is usually a component of a community. The principles of neighborhood planning are illustrated in the sketch found on page 3-21. More completely defined the neighborhood:

- Should accomplish a social and physical structure against which to measure the adequacy of existing facilities and amenities.

- Is an area within which residents may share the common public services, social activities and facilities required in the vacinity of a dwelling.

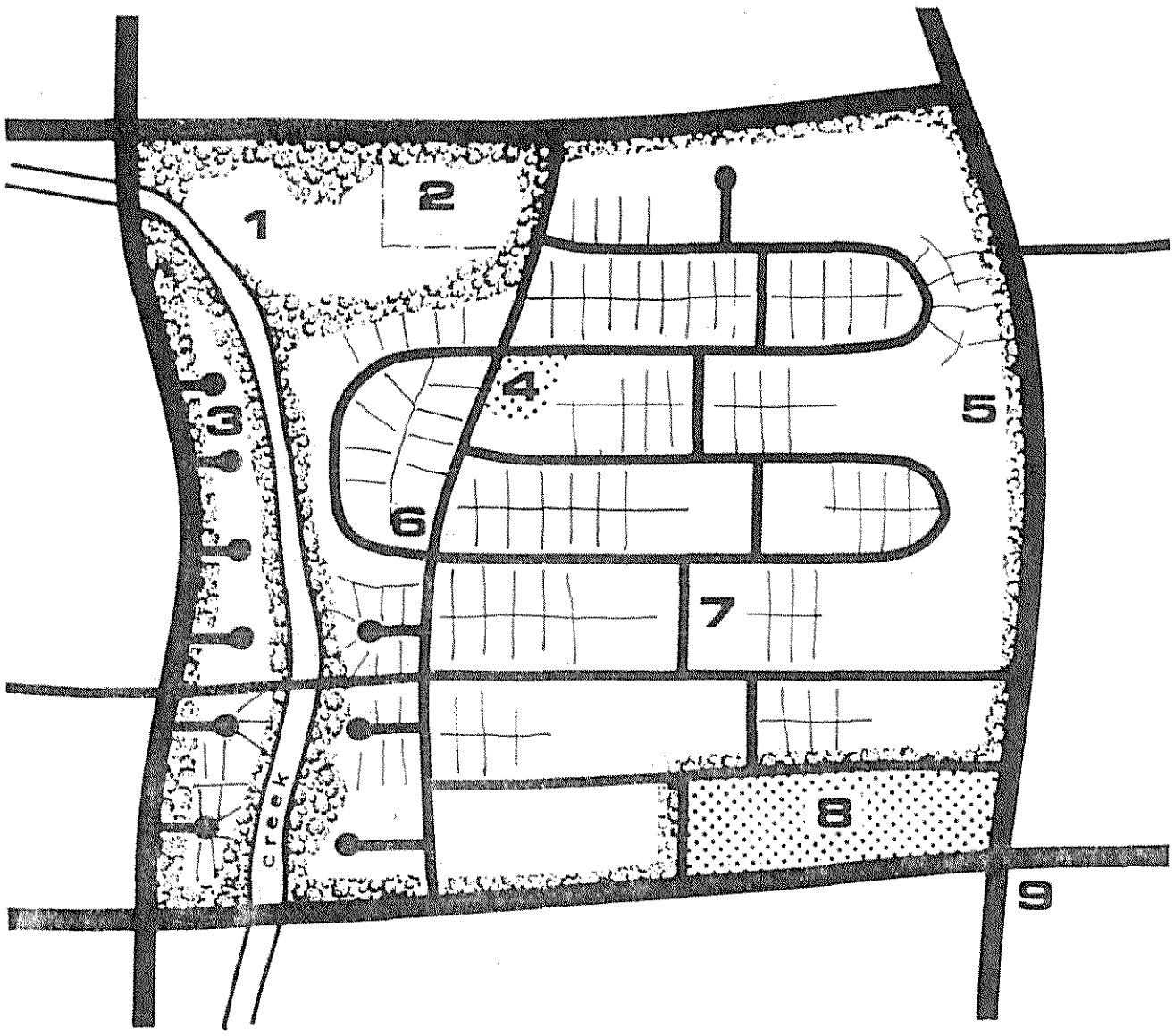
- Should consist of a park and recreational area, local shopping facilities and an elementary school (when sufficient number of children to support this activity are present). In addition, it may:

  - Have a unity of interests and purposes;
  - Have definite boundaries established by natural or man-made barriers;
  - Encompass approximately one square mile of area;
  - Contain approximately 4500 to 7000 persons;
  - Have a distinct topography;
  - Have distinct social and economic characteristics.

A neighborhood should not be bisected by major thoroughfares. It should be a quiet pedestrian oriented area in which children can safely walk and play.

Parks and Openspaces

Parks enrich the urban environment and accommodate the leisure interest of man. These are essential and not merely desired functions within the urban environment. Parks and openspace may also be used to compliment other land use functions and be employed to advantage in problem areas such as flood plains where other types of land use would intensify or conflict with the problem source.



A TYPICAL NEIGHBORHOOD

1 Park

2 School - Elementary

3 Freedom of Design

4 Neighborhood Shopping

5 Good Transitions

6 Secondary Streets

7 Minor Streets

8 Activity Center

9 Major Streets

The Pearland Plan should make provisions for the following park types and for a more comprehensive utilization of all natural features.

Vest Pocket Parks and Tot Lots: A park or play area having an intimate geographic relationship to the people it will serve. Such spaces can be placed in any city block or one or more lots having an area of one third to one fourth acre each.

Neighborhood Park: A neighborhood park is ideally located adjacent to the elementary school in the center of the neighborhood. The park should provide open space and organized play space. It should contain a minimum of five acres with a minimum ratio of one acre per 800 persons. It's most effective service radius is one half mile. Natural and scenic features enhance the passive quality of the park type. A playground should provide recreation for all age groups.

Community Park: A community park serves residents of two or more neighborhoods in a community. It's minimum size should be 15 to 20 acres, with a minimum ratio of 1 acre per 800 persons. A community park serves a radius approximately one and one half miles. Facilities typical of community use are scenic areas, a playfield providing playground facilities, baseball, football, tennis and other active athletic areas. This park is the preferred location for a swimming pool, field house or a community building. The community park should be located in conjunction with a junior or senior high school on a major or secondary street.

Major Park and Recreation Area: Major parks provide recreation for several communities, often the entire urban area: 50-100 acres if the minimum size with a minimum ratio of 5 acres per 1000 persons. A major park and recreation area would serve a radius of three or more miles and 25,000 to 100,000 persons . Facilities would be provided for: golf, fishing, boating, water sports hiking and passive recreation.

Business and Commercial Land Uses

The classification of business and commercial developments and basic development standards are outlined as follows:

Neighborhood Center:

- Providing: convenience goods (food, drugs, sundries) and personal services (laundry) etc.
- Principal Tenant: Supermarket
- Gross Leaseable Area: Average: 50,000 sq ft
  Range: 30,000 to 100,000 sq ft
- Site Area: 4-10 Acres (1 acre per 1,000 persons)
- Trade Area Population: 6,000 to 40,000 persons
- Effective Service Radius: Six minute driving time

Community Center:

- Providing: convenience goods and personal services, plus a wider range of apparel, hardware, and appliances.
- Principal Tenant: Junior Department Store
- Gross Leaseable Area: Average: 150,000 sq ft
  Range: 100,000 to 300,000 sq ft
- Site Area: 10-30 Acres
- Trade Area Population: 40,000 to 150,000 persons

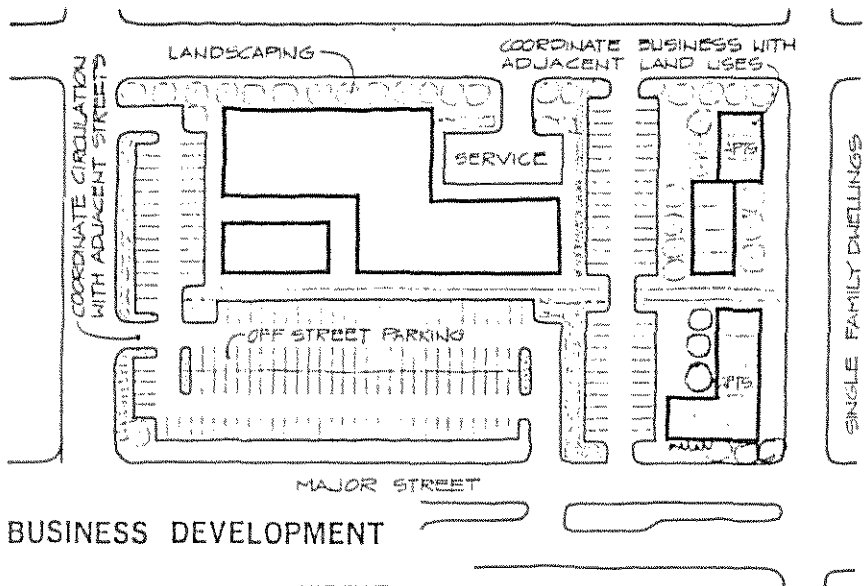
Regional Center:

- Providing: general merchandise, apparel, furniture, home furnishings in depth and variety.

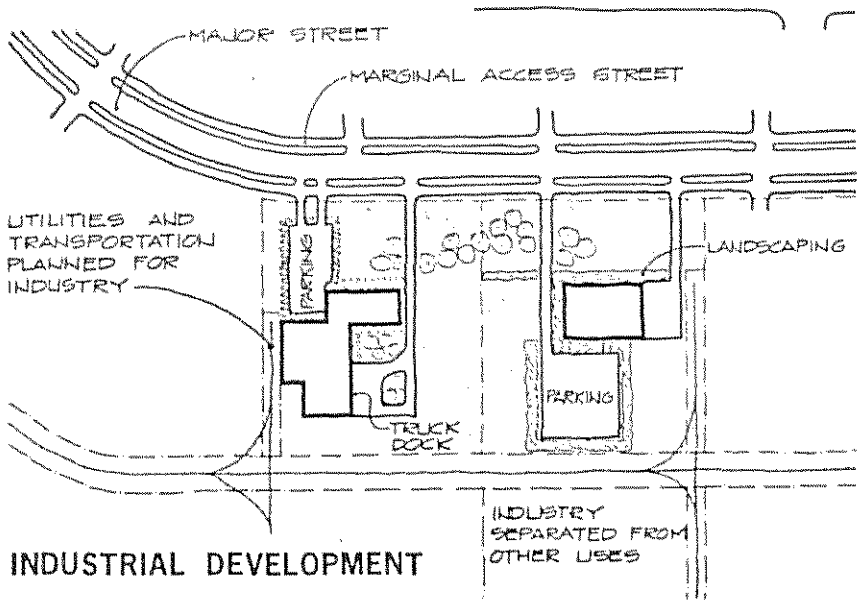
- Principal Tenant: one or two full department stores; can include offices and a theater.
- Gross Leaseable Area: Average: 400,000 sq ft
  Range: 300,000 to 1,000,000 sq ft
- Site Area: 30 or more Acres
- Trade Area Population: 100,000 or more persons
- Effective Service Radius: up to 15 miles

Land Use and Site Planning: The following design principles apply to the development of industrial sites.

- Encourage Planned Unit Development
- Encourage establishment of Industrial Parks
- Select industries that have a high ratio of employment to land coverage and capital investment
- Require adequate off-street parking for all businesses.



BUSINESS DEVELOPMENT



INDUSTRIAL DEVELOPMENT

The City Charter recognizes this need and has provided for both long range comprehensive planning and for the process by which the daily development activities may be appraised and directed to the accomplishment of the comprehensive long range development plan. Building on the base provided by the Charter implementation of the plans and development goals outlined in the Topic Update will require the continued attention and involvement of the elected officials of Pearland and their appointed representatives and City Planning Staff.

The documents for application to the long range development process are the plans found in Part II of this Report. The resources that may be applied for coordinating the daily development activities are those that would be accomplished by a City Planning Department; project initiated on approval of the City Council with recommendation from the Planning Commission, and the Planning Staff and through the inforcement of City Ordinance. Action to be initiated and the priorities anticipated for the task outlined are as follows:

Planning Department and Staff Planners

It is recommended that a Planning Department comprised of the following staff members be established.

- Director: Initially the Planning Director should function as an Administrative Assistant to the City Manager. He will act as the coordinator between the public and governmental policy makers and provide planning guidance to the Planning Commission and City Council for implementation of urgent short term planning policies.

- Planner: A staff planner should also be employed at an early date. The main objective of the planner will be the implementation for elements of the comprehensive plan and that he be free to concentrate on planning without interruption of the daily administrative tasks.

- Draftsman-Technician: The draftsman technician should be available to both the director and planner. Keeping base information current will be one of his duties.

It is further recommended that the Planning Department be formally constituted and operational on or before October 1979 and funded adequately to employ a Director and Draftsman-Technician and to address itself to planning priorities.

Selected Priorities

Equal emphasis should be placed on the selection of specific projected oriented improvements to receive priority and on the process to be used to gain the desired implementation. The importance of a dual approach may be illustrated by relating it to the implementation of a single objective such as the dedication of a connecting street segment. To achieve this end it may be necessary for the City Planning team to take the initiative and communicate the importance of the street extension to the property owners affected that they may incorporate the improvement into their designs for the property improvement.

Administrative Priorities: Formation of a Planning Department and the employment of staff planners will expand the City's ability to implement the recommendations and development standards setforth in the Comprehensive Plan. Possibly the first priority is the consideration of how to most effectively use the new resources. This decision should be made jointly by the City Council, the Planning Commission and the planning staff. Significant points local official should consider relative to the broad and continuous implementation of plans and for the designation of near future priorities are as follows:

- Development of a format for designating project priorities and annual work programs. At least once annually and at a designated date the Planning Commission upon recommendation from the Planning Department should present the City Council with its proposal for projects to be initiated and tasks to receive attention for the next work year. It is possible that the work program proposal be offered jointly with the Planning Commission and Staff recommendations for Capital Improvements.

- Recognition that the development of private property for urban purposes is the major planning activity in effect at this date. This fact signifies that a major portion of the annual work program should be responsive to locations where development is taking place and on the importance of communicating with the developers before they have formulated development patterns that are in serious conflict with the Comprehensive Plan.

- That the request for staff time on planning concerns may be greater than the staff capability, thus the situation of priorities and the effective use of their time becomes increasingly important.

Project Priorities: The long range aspects of development must be kept in focus at all times if well coordinated urban patterns is to result. The patterns emerge only through attention to the many parts which have been noted as the daily planning activity. Currently the City is experiencing an excellerated rate of home building and commercial development. In addition the current water, sewers and street improvements extend the areas of the City that are development prone. With consideration of long range of objectives and current development trends the following outlines suggest relative work priorities.

- Streets:
  - The Clear Creek Parkway and its inconnection with John Lizer.
  - Scott Street from Mykawa Road, east.
  - Orange Street - east to Clear Creek.
  - Dixie - Friendswood Road, John Lizer Road to Dixie Farm Road.

- Parks and Openspaces:
  - Park sites in neighborhood units 1,3,4,10,11,13 & 21.
  - Openspace reserves on Clear Creek and Mary's Creek.

- Land Use:
  - Participation with home owners and developers to effectuate neighborhood design and improvements.
  - Participation with developers for effective site planning and regulation of business and commercial developments along F.M. 518 and State Highway 35.
  - Participation with the Chamber of Commercerce to promote effective use of the City's industrial sites and to achieve planned unit developments for office parks, and shopping centers.

Extended Projects: Planning Commission and Staff offer to endorse, promote and foster:

- Community beautification projects, such as street tree planting.
- Development of the Civic Center Complex.
- Elimination of utility poles in residential areas, implementation of drainage improvements and related community improvements.
- Street development with subdivision planning and annual capital improvements programs programs.
- Coordination of local street planning with county, state and area council regional street development.
- Counsel and technical assistance in planning off-street parking facilities.
- Conduct workshops periodically for gaining a broader understanding of urban land use planning.

Long Range Projects: Most of these would be projects of the planner in the Planning Department with Planning Commission counsel and guidance.

- Prepare more detailed neighborhood unit studies and present concepts to neighborhood organizations or civic groups.
- Develop strategies for acquiring or preserving desirable land for public open space and parks.
- Prepare site improvement programs for park and public building improvements.
- Prepare more detailed plans and concepts for business and industrial development.
- Prepare detailed housing study, housing ordinance draft, and housing rehabilitation program.

- Develop strategies for developing desired character and appearance of the City. Work to prevent edges from becoming barriers.

- Develop plans for providing long range surface water supply and other utility system improvements.