1984
FRESNO GENERAL PLAN

November, 1984

City of Fresno
Development Department

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RESOLUTION NO. 84-469

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO CERTIFYING FINAL ENVIRONMENTAL IMPACT REPORT NO. 10085 AND CONTAINING FINDINGS REGARDING SIGNIFICANT EFFECTS IDENTIFIED IN FINAL ENVIRONMENTAL IMPACT REPORT NO. 10085, RELATING TO THE 1984 FRESNO GENERAL PLAN AND REVISED SPHERE OF INFLUENCE/URBAN BOUNDARY LINE

WHEREAS, Final Environmental Impact Report No. 10085 relating to the 1984 Fresno General Plan and Revised Sphere of Influence/Urban Boundary Line has been prepared in compliance with the California Environmental Quality Act; and

WHEREAS, Final Environmental Impact Report No. 10085 has been presented to the Council of the City of Fresno for review and consideration.

NOW, THEREFORE, BE IT RESOLVED the Council of the City of Fresno certifies that Final Environmental Impact Report No. 10085 has been completed in compliance with the California Environmental Quality Act, the State CEQA Guidelines, and the City of Fresno's Environmental Quality Ordinance, and that the Council has reviewed and considered the information contained therein.

BE IT FURTHER RESOLVED, the Council finds certain mitigation measures which will mitigate or avoid significant adverse effects on the environment identified in Final Environmental Impact Report No. 10085 have been incorporated into the project.

A. AIR QUALITY

1. Support the currently operating Fresno County Vehicle Inspection program and encourage expansion of the program to other counties in the San Joaquin Valley Air Basin.

2. Continue to refer environmental documents for projects identified as potential area sources, stationary sources, and indirect sources of air pollution to the Air Pollution Control Officer of the Fresno County Air Pollution Control District.

B. WATER QUALITY

1. Conduct a comprehensive study of contaminant movement in groundwater to determine the directions and rates of movement of dibromochloropropane through the aquifer from areas of known concentrations.

   a. Analyze appropriate means to feasibly remove harmful levels of dibromochloropropane from groundwater supplied by the City of Fresno.

   b. Require resolution of water contamination problems before permitting development in Southeast Growth Areas.

2. Select locations for water wells outside the area of potential effects attributed to salt contaminated groundwater in the West Growth Area and in the westerly portion of the Fresno High-Roeding Community Plan area.

C. DEPLETION OF GROUNDWATER RESOURCES

1. Continue the intentional recharge of groundwater with allocated surface water, in cooperation with other agencies.

2. Continue the location and development of ponding basins with recharge capabilities in cooperation with other agencies.

D. CONVERSION OF LAND WITH CLASS I AND CLASS II SOILS TO URBAN USES

Recommend approval of the proposed Sphere of Influence/Urban Boundary to the Fresno County Local Agency Formation Commission.

E. URBAN USES IN CLOSE PROXIMITY WITH ACTIVELY CULTIVATED FARM LAND

In order to determine feasible measures to mitigate the effects of sprayed agricultural chemicals on adjacent urban uses, establish a process which provides for review and analysis of actively cultivated farm land within one-eighth mile of the boundaries of any proposed residential subdivision or use.

F. CONSUMPTION OF NONRENEWABLE ENERGY SOURCES

1. Ensure solar access to all buildings through the design review and environmental review processes, pursuant to State Solar Access and Solar Shade Acts.

2. Identify and encourage energy conservation in building and subdivision design which exceed the minimum provisions of Title 24.

3. Continue the present conservation measures and use of methane gas to offset waste energy use by the City of Fresno in the operation of equipment and facilities.

G. INCREASES IN TRAFFIC GENERATED NOISE

Adopt the noise Element of the 1984 Fresno General Plan and implement the recommendations of the Element relating to traffic generated noise.

BE IT FURTHER RESOLVED, the Council finds the implementation of the rules for control of stationary and area source emissions recommended by the 1982 Clean Air Plan to be the responsibility of the Fresno County Air Pollution Control District and such mitigation measures to reduce air pollution can or should be implemented by such agency.

BE IT FURTHER RESOLVED, the Council finds the approval of the Revised Sphere of Influence/Urban Boundary associated with the 1984 Fresno General Plan - Balanced Growth Alternative which will pressure areas with Class I and Class II agricultural soils is the responsibility of the Fresno County Local Agency Formation Commission and such Revised Sphere of Influence/Urban Boundary can or should be approved by such agency.

BE IT FURTHER RESOLVED, the Council finds the retention of certain areas for agricultural uses as designated by the existing McLane and Roosevelt Community Plans in the Southeast Growth Area to be infeasible because of the retention of larger areas with Class I and Class II agricultural soils as the result of the Revised Sphere of Influence/Urban Boundary and the protection afforded by other measures which require resolution of groundwater quality problems associated with dibromochloropropane before development entitlements are granted in the Southeast Growth Area.

BE IT FURTHER RESOLVED, the Council finds Alternative No. 5, No Project/No New Plan (existing Sphere of Influence) to be infeasible as the result of reasonable anticipated impacts attributable to the projected population of 588,000.

BE IT FURTHER RESOLVED, the Council finds that slightly less vehicle emissions projected for Alternative No. 2, 1981 Preliminary Fresno General Plan - Western Growth Only (existing Sphere of Influence, westerly alignment modified) and for Alternative No. 3, Urban Intensification - 1984 Fresno General Plan densities (within the existing Urban Limit Line) do not outweigh the benefits of Alternative No. 1 - 1984 Fresno General Plan with the Revised Sphere of Influence/Urban Boundary, considering the projected population of 588,000 common to each of these alternatives, and are, therefore, infeasible.

BE IT FURTHER RESOLVED, the Council finds the effects on the environment identified for Alternative No. 1, 1984 Fresno General Plan - Balanced Growth with the Revised Sphere of Influence/Urban Boundary will be substantially mitigated to acceptable levels.

* * * * * * * *

CLERK'S CERTIFICATION

STATE OF CALIFORNIA
COUNTY OF FRESNO } ss:
CITY OF FRESNO

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 20th day of November, 1984.

JACQUELINE L. RYLE
City Clerk

By _____
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

By: _____
Assistant

RESOLUTION NO. 84-470

RESOLUTION AMENDING THE GENERAL PLAN FOR THE FRESNO-CLOVIS METROPOLITAN AREA AND ADOPTING THE 1984 FRESNO GENERAL PLAN

WHEREAS, A General Plan for the Fresno-Clovis Metropolitan Area was adopted by the Council on July 17, 1958; and

WHEREAS, there have been major revisions adopted by Council on August 20, 1964 and June 6, 1974; and

WHEREAS, conditions have changed substantially since the adoption of the 1974 General Plan for the Fresno-Clovis Metropolitan Area and have necessitated major review and revision of policies and the plan; and

WHEREAS, the City of Fresno has completed a number of studies pertinent to the revision of the General Plan and summarized in the 1983 Preliminary Fresno General Plan, and has conducted numerous workshops with the Fresno County Board of Supervisors and the Council of the City of Clovis, agreeing upon an Urban Boundary Line, and has met over a period of two years with interested individuals and groups; and

WHEREAS, the Planning Commission of the City of Fresno considered the contents of the preliminary plan document initiated by the Council in October 1983 and heretofore filed with the Development Department; the Draft Environmental Impact Report No. 10085, published on December 14; 1983 and filed with the Development Department; and presentations from staff and testimony from interested citizens during public hearings, duly noticed as required by law on the matter of adoption of mandated and permissive elements of the General Plan including goals and policies, and on further areas of geographical growth; and

WHEREAS, the Planning Commission on January 4, 1984, after lawful notice did adopt Resolution No. 8132 certifying the Draft EIR No. 10085 and recommend to the Council that it adopt the Preliminary 1983 Fresno General Plan with modifications and did forward that recommendation and extensive background documentation included as Resolution No. 8133 and Compendium Volumes I and II; and

WHEREAS, the Council, having received the recommendation of the Planning Commission and thereafter having conducted twelve public hearings duly noticed as required by law, during which presentations were made by staff and testimony was given by interested citizens, such hearings beginning on March 27, 1984, and concluding on October 16, 1984; and

WHEREAS, the Council has received and considered the information included in the Final Environmental Impact Report No. 10085, and has received a staff presentation and citizen testimony on the information included therein and has certified Final EIR No. 10085, in the manner required by law; and

WHEREAS, the Council, having considered material presented to them regarding issues and proposed modifications relating to the Preliminary Fresno General Plan indicated their intent to adopt a plan as represented in formal materials to be prepared by staff in its resolution of intention on October 16, 1984.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Fresno that the proposed amendment to the General Plan for the Fresno-Clovis Metropolitan Area, including the land use map, the circulation element, the Urban Boundary Line, the goals and policies as included within the Fresno General Plan report and the modifications attached thereto as Exhibit "A" and further represented on the plan map, are hereby approved and adopted as the Fresno General Plan, as amended; and

BE IT FURTHER RESOLVED that it is the intent of the Council that the Bullard, Edison, Fresno High-Roeding, Hoover, McLane, Roosevelt and Woodward Park Community Plans' land use maps shall be amended to bring them into consistency with the adopted 1984 Fresno General Plan, and that pending such amendments they and related specific plans and policies shall remain in full force and effect as integral parts of the General Plan, and shall be interpreted in a manner consistent with the General Plan, as amended hereby; and

BE IT FURTHER RESOLVED that the City Clerk is hereby authorized and directed to make the appropriate certification on the original and file the same as a permanent record in the Office of the City Clerk.

* * * * * * * *

CLERK'S CERTIFICATION

STATE OF CALIFORNIA
COUNTY OF FRESNO
CITY OF FRESNO } ss:

I, JACQUELINE L. RYLE, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, California, at a regular meeting held on the 20th day of November, 1984.

JACQUELINE L. RYLE
City Clerk

By: _____
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

By: _____
Assistant

CWB:jeg
6603/107
11-15-84

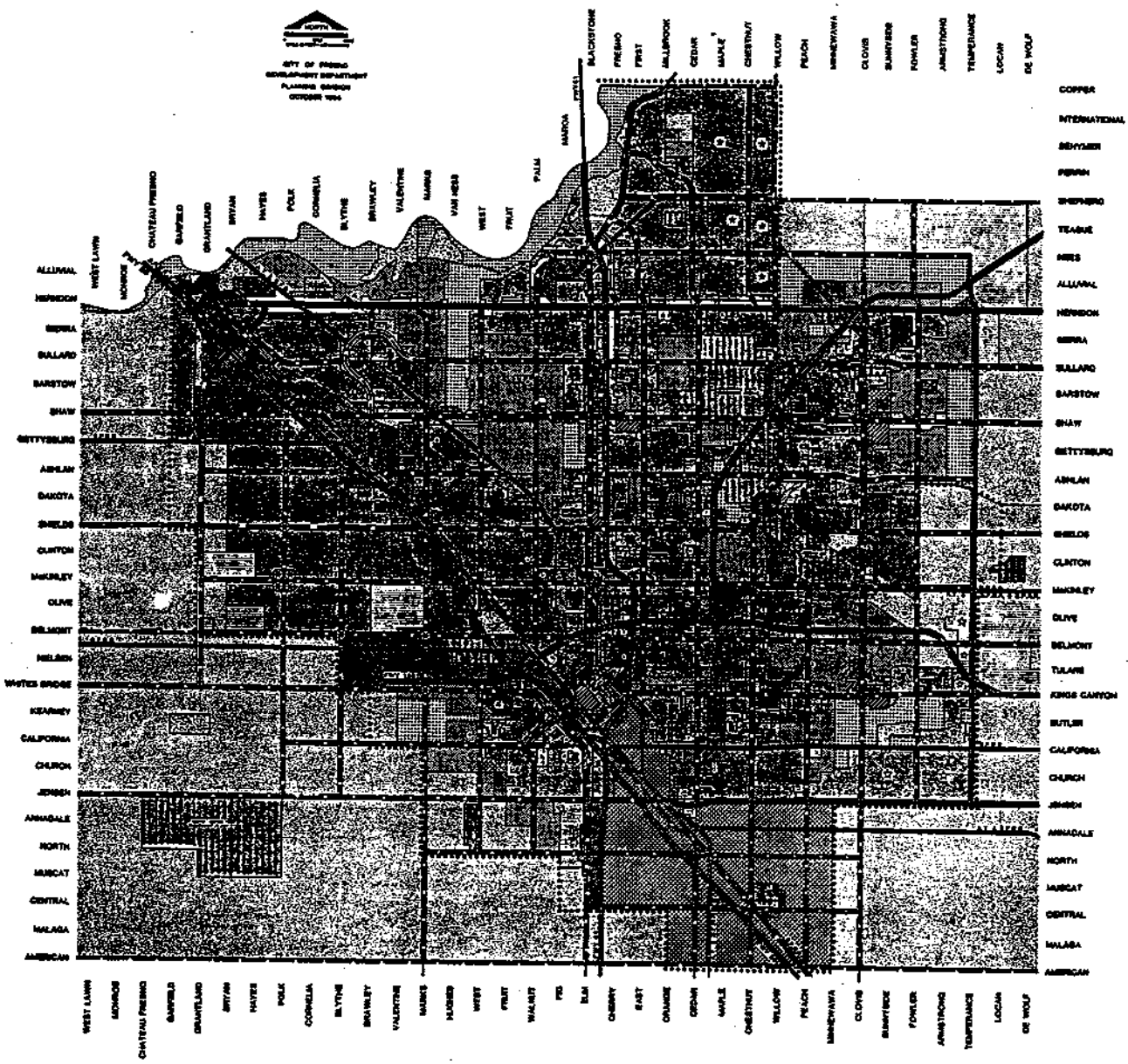
EXHIBIT "A"

1984 FRESNO GENERAL PLAN MODIFICATIONS

Modification No.	Description
7	Change designation of 61 acres from medium low to medium density residential north of Herndon between Blythe and Cornelia Avenues.
11	Change designation of 221 acres to reflect the Fig Garden Neighborhood Plan: 8 ac. office, 36 ac. medium low density residential, 177 ac. low density residential. This is located southwest of Blackstone and Shaw Avenues.
11a	Delete the arterial status of Ashlan Avenue between Fruit and Palm Avenues.
12	Change designation of 22 ac. on the south side of Parkway Drive, east of Garfield from medium density residential to general heavy commercial.
15	Change designation of approximately 9 ac. located southwest of Fig Garden Drive (Bullard Loop) and bounded by Bullard and Valentine Avenues from medium density to medium high density residential.
16	Change designation of 10 ac. on the southwest corner of Shepherd and Cedar Avenues from medium density to neighborhood commercial.
18	Change designation of 95 ac. located north of Audubon Drive and west of Blackstone Avenue from medium low density residential to 85 acres of medium density residential and 10 acres of medium high density residential.
19	Change designation of 21 ac. southwest of Nees and Ingram from medium density to medium high density residential.
22	Change designation of 39 ac. on northeast corner of Behymer and Millbrook from medium low density to medium density residential.
23	Change designation from medium density residential to community commercial, neighborhood commercial and elementary school in the area generally bounded by Friant Expressway and Fort Washington Road as approved by the Fresno City Council and reflected in the Woodward Park Community Plan for the Grupe Communities Project.
28	Change designation of 110 ac. from "Industrial Reserve" (IR) to Open Space/Recreational use, for the area known as the Fresno Airways Golf Course.
39	Change designation of 85 ac. located between Church and Jensen, on both sides of Fruit from medium density to medium high density residential.
41	Change designation of 20 ac. on the west side of Brawley, south of Ashlan Avenue from medium density to medium high density residential.
42	Change designation of 29 ac. southeast of Dakota and Brawley from medium density residential to medium high density residential.
A	Change designation of 28 ac. on northeast corner of Blythe and Palo Alto Avenues from medium high density residential to medium density residential.
B	Change the circulation pattern in the northwest area.
C	Change designation of 65 ac. bounded by Audubon, Friant, and the proposed Fwy. 41 to eliminate the 25-acre commercial/recreation area and make the entire area a business park.

D	GNRA modification reflecting adopted changes by the Council.
E	Change designation of approximately 12 ac. located on the south side of Ashlan between the Chestnut-Willow Diagonal and Winery Avenue from light industrial to high density residential use.
pp. 83, 103	Per direction of Council and memo for 12-13-83 meeting, "Action or further recommendation as to the re-classification of Herndon Avenue should be set aside..." This would include deleting the "super arterial" designation of the General Plan map as well as the "Herndon Avenue" discussion in the *Special Issues* section of the Plan, and Appendix 14 "Interim Policy for Herndon Avenue Development."
p. 49	POLICIES/IMPLEMENTATION STRATEGIES (final column) 3. Encourage the successful integration of two-story residential projects into the community in order to increase the availability of open space and achieve energy efficiencies.
p. 48	BACKGROUND (final paragraph) The ability to achieve improved open space treatment is at least partially dependent on a greater acceptance of clustered housing design or of two-story residential development by the community. While single family homes can be built with two stories at any appropriately zoned site, there is frequently strong resistance from adjacent neighbors to the use of two stories in planned unit developments or in multiple-family developments. The ability to achieve improved open space design with the reduced lot coverage available to a multi-story project is self-evident. In addition, the energy savings achievable within a two-story residence further reinforce the desirability of moving to a policy which encourages developers to incorporate two-story housing into their projects.
p. 49	MAJOR FINDINGS/CONCLUSIONS 6. Encouraging the development of two-story residential structures and/or clustered housing design as a way of improving open space design and achieving energy efficiences.
HIGH RISE POLICY	The existing policy which limits structures outside of the Central Area to a height of four stories not to exceed 60 feet shall remain in effect until the 1984 General Plan is implemented with the adoption of an amendment to the ordinance.
WATER RESOURCES	POLICIES/IMPLEMENTATION STRATEGIES 10. The City of Fresno shall encourage maintenance cost-sharing proposals to promote recreational open space with water resource management facilities to minimize system costs.
p. 30	ENERGY CONSERVATION - "Drainage" There are several advantages from the point of view of energy conservation with on-site drainage programs. These primarily concern the savings involved in reduced construction and maintenance costs of drainage facilities or storm runoff, but also the increased opportunities for water recharge, open space amenities and incorporation of other energy conserving devices in the development. The use of such techniques to achieve energy related benefits shall be consistent with the provisions of the Storm Drainage and Flood Control Master Plan and shall be coordinated with the Fresno Metropolitan Flood Control District.

1984 FRESNO GENERAL PLAN



LEGEND

RESIDENTIAL
- RURAL DENSITY
- LOW DENSITY
- MEDIUM-LOW DENSITY
- MEDIUM DENSITY
- MEDIUM-HIGH DENSITY
- HIGH DENSITY

COMMERCIAL
- OFFICE
- NEIGHBORHOOD
- COMMUNITY
- BUSINESS PARK
- GENERAL HEAVY STRIP
- REGIONAL
- ACTIVITY CENTERS (20 ACRES)
- △ DESIGNATED AS APPROPRIATE FOR REGIONAL COMMERCIAL

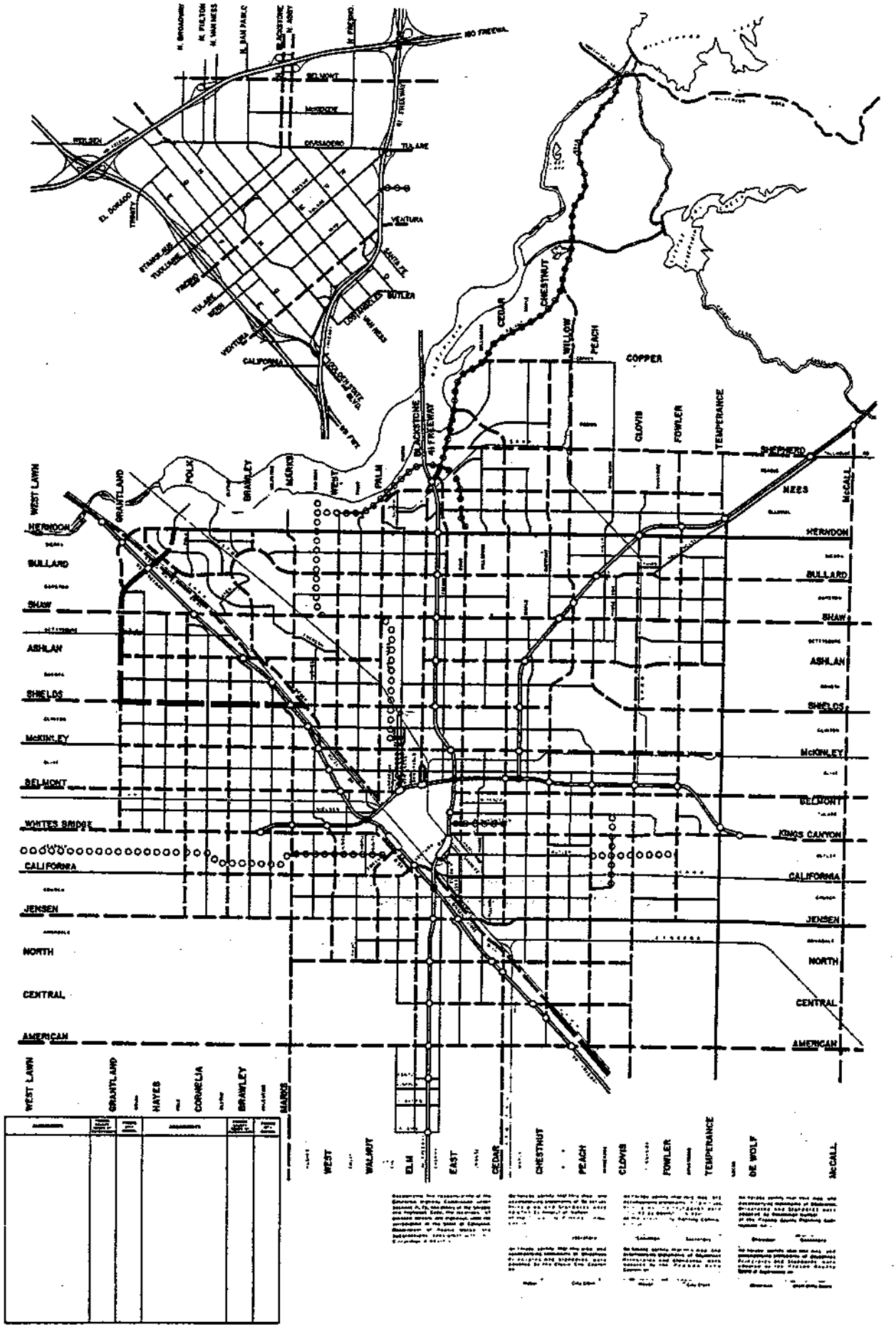
PUBLIC FACILITIES
- ELEMENTARY SCHOOL (PUBLIC & PAROCHIAL)
- FRESHMAN SCHOOL
- MIDDLE SCHOOL
- JUNIOR HIGH SCHOOL
- HIGH SCHOOL
- COLLEGE
- UNIVERSITY
- OTHER PUBLIC FACILITIES

INDUSTRIAL
- LIGHT INDUSTRIAL
- HEAVY INDUSTRIAL

OPEN SPACE
- AGRICULTURAL
- RECREATION / OPEN SPACE
- MULTI-USE OPEN SPACE

CIRCULATION
- FREEWAY
- EXPRESSWAY
- SUPER ARTERIAL
- ARTERIAL
- RAILROAD
- AIRPORT
- ★ REQUIRES FINANCIAL FEASIBILITY STUDY
- ☆ DEVELOPMENT ENTITLEMENTS GRANTED ONLY FOLLOWING RESOLUTION OF WATER QUALITY ISSUES COORDINATED BY THE PUBLIC WORKS DEPT.

**** FRESNO CITY SPHERE OF INFLUENCE BOUNDARY



FRESNO-CLOVIS METROPOLITAN AREA

1984 FRESNO GENERAL PLAN CIRCULATION ELEMENT

FREEWAY — EXPRESSWAY — SUPER ARTERIAL — SCENIC DRIVE — ARTERIAL — COLLECTOR

NORTH

SCALE IN MILES

NOVEMBER 1984

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BACKGROUND

INTRODUCTION

The Fresno metropolitan area is seen by those who live here as combining both the atmosphere of a small-town, agriculturally-based community and the advantages provided by the specialized amenities and opportunities of a larger city. Fresno has been experiencing moderate growth over the years, and thus been able to avoid the discontinuities and difficulties experienced by rapidly growing metropolitan areas to the north and south. There are indications throughout the State that the population of existing metropolitan areas—particularly the small to medium-sized city—will continue to expand for the foreseeable future. It is important that we plan for this growth in order to assure that the qualities which are attracting many people to the Fresno area are preserved and enhanced.

The preparation and adoption of a General Plan is required of local government by the California State Planning Law (State Government Code, Section 65300) which requires that the following elements be addressed: land use, circulation, housing, open space, conservation, safety, seismic safety, noise, and scenic highways. Local jurisdictions may also choose to deal with additional issues such as public facilities, energy, or historical preservation.

During 1982 and 1983, there were extensive meetings among local legislators and staff of the cities of Clovis and Fresno and the County of Fresno regarding issues related to land use planning, the provision of urban services, and annexation. As a result of these meetings, a Joint Resolution on Metropolitan Planning was adopted (see Appendix I) which provides direction for cooperative and complementary planning efforts. Much of the policy discussion within the 1984 Fresno General Plan either implies or implements those cooperative agreements.

This General Plan update refines and expands upon the 1974 General Plan. It does not present a series of land use alternative maps, as that Plan did. Instead, building upon the ongoing planning process, this Plan deals with specific issues in the community which are seen as in need of resolution. In addition, it provides direction for future growth of the metropolitan area.

While the land use map reflects the adopted plans of the City of Clovis in the northeast portion of the metropolitan area, *the narrative portion and policy recommendations in this document pertain only to the City of Fresno and to that land which falls within its Sphere of Influence*. All land use planning in the Clovis area falls under the jurisdiction of the City of Clovis. The obvious proximity and shared conditions of the two agencies reinforce the need for intergovernmental cooperation and coordination.

SUMMARY

This document builds upon a policy base provided by the 1974 General Plan. The planning program involved in updating the General Plan has four basic objectives, as follows:

1. Incorporation of policy and land use changes made through Fresno's community planning process.

2. Integration of higher density residential uses, where possible and appropriate, in recognition of the need to preserve productive agricultural land, provide affordable housing, and conserve energy resources.

3. Provide necessary comprehensive planning for the expansion of the urban area, including a comparative analysis of related service facility needs and costs.

4. Provide analysis and direction for various policy issues before the City Council.

The Plan must also meet State requirements to address the nine mandated elements in a manner which is legally adequate and internally consistent. In addition, the Plan attempts to: address the natural environment at a greater level of sophistication than has been attempted locally in one document; address land use recommendations to geographic areas with differing characteristics and problems; and deal with a variety of technical problems in need of solution.

The Plan deals both with concepts and recommended action steps. Many of the concepts require the development of ordinances, processes, or procedures in order to be complete. Throughout the document there has been a strong attempt to approach problem-solving in a creative, yet pragmatic, manner. There is increased awareness that a surge in population growth and related physical expansion requires creative and careful management of resources and services, and a sense of direction for the whole community.

NATURAL RESOURCES

The Plan covers required natural resource issues, such as conservation, open space, and seismic safety. In addition, expanded attention is given to policy regarding air quality, water resources, and noise. Further, this General Plan recognizes the crucial importance of the preservation of agricultural land to the future and economy of the region.

ESTABLISHED AREA

Given the foreseeable shortage in public sector funding, the General Plan discusses the importance of innovative financing and providing positive reinforcement of private sector reinvestment in the older areas built prior to the 1950's. Concepts for restoring vitality to older neighborhoods include the recycling of older buildings, the facilitation of mixed uses within larger structures, changes to existing home occupation standards, increased flexibility regarding add-on units, the use of existing vacant parcels, and rehabilitation of the existing housing stock.

NEWLY DEVELOPING AREAS

In the newer areas, and in undeveloped portions of the adopted Community Plan areas, there are differing recommendations. The development of higher density residential uses is encouraged in order to use costly land and services more efficiently and limit the escalation of housing costs. Some major recommendations are also made regarding changes in the City's neighborhood commercial policy and in land use approaches to high intensity areas such as the Herndon Avenue corridor. The Multi-Use Center Concept, first adopted in the 1974 FCMA General Plan, is more fully detailed in this Plan.

GROWTH AREAS

The 1984 General Plan analyzes three potential growth areas lying within the Urban Boundary Line adopted through the Joint Resolution on Metropolitan Planning. This analysis includes a comparative description of geographic area, existing use, population holding capacity, and anticipated facility needs and costs which go beyond the standard development fees. This latter analysis is done for three urban service systems: traffic circulation, sewers, and water.

The 1984 Plan projects population growth of approximately 200,000 persons in generally the next 20 years. The Fresno area, and this land use plan, have substantial room to accommodate this growth and more. Five of the existing community plans already have considerable areas of vacant land planned for residential use: Bullard, Edison, Fresno High/Roeding, Roosevelt, and Woodward Park. Beyond this, there is the possibility of expanding the area shown for eventual urbanization to the north, west or southeast. Substantive problems remain for all of these growth areas. This plan attempts to address the major implementation issues and costs as a part of the decision-making and policy development processes leading to eventual adoption. This initial work will then be available for initial studies on the required implementation projects.

TRANSPORTATION

Extensive growth within the FCMA, coupled with various physical barriers (i.e., railroad tracks, San Joaquin River, and California State University, Fresno) and delays in the completion of the proposed freeway system, have contributed to deficiencies in the traffic circulation of the area. Recognizing these deficiencies and in anticipation of further growth, the Plan proposes the following:

1. A cooperative effort at solving Fresno's major circulation problems related to the delayed freeway system to involve the transportation-related agencies and resulting in a series of studies for major corridors which will review alternate design solutions.

2. The consideration of light rail transit to meet the circulation needs of new areas of higher intensity land use in future years.

3. Major system improvements to offer long-term service to new growth areas as they are finally depicted in the adopted plan.

4. Continued attention to alternative transportation systems such as public transit and bikeways.

SPECIAL ISSUES AND ALTERNATIVE DESIGN CONCEPTS

In the next 20 years, the challenges and problems facing the FCMA will not only grow in number but in complexity. To meet these challenges, it is necessary to provide methods and alternatives that can both meet the basic needs of the citizens and still maximize the opportunities for homeownership and employment. Innovative solutions are needed to meet recurring needs for policy direction and to respond to changing conditions. The alternatives and issues discussed include the following:

1. A revision to the current policy which limits high-rise development to the Central Business District. The 1984 Plan recognizes both the viability and reality of such development. Moreover, the Plan provides guidelines relating to the placement of high-rise structures.

2. Alternatives to standard subdivision design are recognized as integral to providing "affordable housing". Factors supporting residential development at higher densities are explored, as are those elements of neighborhood quality which should be maintained. The necessity of improving existing standards and practices for usable open space in project design is stressed as an essential component of a successful transition for new communities.

3. Completion of a plan coordinating Central Area projects and strategies.

4. Expansion of the multi-use center concept first proposed in the 1974 General Plan.

5. Major changes in the City's street tree policy which recognize the importance of shade trees, both in maintaining a level of amenity and in reducing ambient air temperatures to conserve energy.

6. An implementation section which describes existing processes and procedures for development proposals in the City of Fresno. This section includes a new land use consistency matrix which will more accurately portray the evolving housing types.

BACKGROUND

CLIMATE

The region surrounding the City of Fresno has a Mediterranean-type climate of alternating wet and dry seasons. The area receives moderate precipitation and has a mild temperature range during the winter months, while the summers tend to be hot. Total annual precipitation averages 11.4 inches of which 90 percent falls between the months of November and April. The prevailing weather conditions of the area are strongly influenced by regional topography. A distinguishing characteristic of the City of Fresno is its near-central location in the San Joaquin Air Basin, which forms a long bowl or basin about 250 miles long and 120 miles wide. This basin extends from the crest of the Sierra Nevada to the crest of the Coast Range and includes the entire area of the San Joaquin watershed.

During the winter, moist and cool air moving inland from the Pacific low pressure system encounters the obstacle of the Coast Range where the air mass cools further and its moisture content condenses and precipitates. The moisture-depleted mass of air then descends into and crosses the valley with only occasional, light additional precipitation. The continental high pressure area that develops during the summer effectively prevents maritime air masses from moving into the Valley, thus preventing rainfall.

Sunny days are characteristic of Fresno, with a mean of 3,400 hours of sunshine per year. Sunlight is instrumental in the development of the late afternoon cross-valley breezes which are characteristic of the area. As the valley floor cools in the evening, colder air masses from the adjacent foothills and mountains move in until a temperature equilibrium is reached. This also contributes to the cooler night and morning temperatures in the valley in contrast to normal evening conditions. Although frosts may occur from late November to early February, frost is a hazard only on the very coldest of nights. The average minimum temperature during January (the coldest month) is 33 degrees F.—just above the freezing point. July (the warmest month) average maximum temperature is over 100 degrees F., with more than 100 days per year 90 degrees F. or higher.

Prevailing wind direction is from the northwest during the better part of the year, although southeasterly winds are more common from November to January. Average wind speeds are lowest in November, increasing gradually to a maximum in June.

GEOLOGY

The City of Fresno is located in the great Central Valley geomorphic province, which constitutes a structural downwarp or trough overlain by a nearly flat alluvial plain extending from Redding on the north to the Tehachapi Mountains on the south. The Valley is about 450 miles in length, and has an average width of 50 miles. The area is divided by most geologists into two distinct sub-basins, the Sacramento and San Joaquin Valleys. Fresno lies near the mid-point of the San Joaquin Valley, close to its eastern edge.

This area consists of alluvial terraces, fans and floodplains. The floor of the Valley consists of two, low to gently undulant, alluvial fans which emanate from the bordering Coast Range and Sierra Nevada. Fresno Slough forms a low northwest to southeast trough which separates the Valley floor into distinct western and eastern halves. The City of Fresno is located in the east half, which extends 35 miles from the slough east to the foothills of the Sierra Nevada, usually delineated by the Friant-Kern canal. The original basin underlying the Central Valley gradually filled with waterborne sediments which were largely derived by erosion of land areas located to the east. As a result, the alluvial fans on the eastside slope significantly into the Valley and are more gentle than those on the west, which derive from the lower and drier foothills of the Coast Range.

HYDROLOGY

Geologic formations containing groundwater are principally unconsolidated deposits that extend to depths of less than 100 feet to well over 3,500 feet. Impermeable strata of consolidated rock form the boundaries beneath and on the flanks of the productive groundwater reservoir. Groundwater occurs under both confined (artesian) and unconfined (water table) conditions. The degree of confinement varies widely due to the heterogeneity of the continental deposits. The groundwater is unconfined in the alluvial fan on the east side of the Valley. Recharge to the groundwater reservoir is by infiltration from the following sources: rainfall, streams, canals, ditches, excess irrigation water and by overflow entering the Valley from tributary stream canyons. This is facilitated by the use of ponding basins and water recharge facilities distributed throughout the metropolitan area.

SOILS

Soils reflect the recent geological history of the area. The Valley floor or alluvial plain consists of a long series of deposits eroded from the highlands of the Sierra and transported by stream action. In general, the younger or more recent alluvial fans still retain their original size and shape. Older fans were subject to extensive erosion prior to the more recent period of deposition, and retain little of their previous form. The San Joaquin and Kings Rivers have cut deeply into their fans and terraces, and have incised well-defined channels or secondary valleys.

The soils of the area have long been noted for their productivity. The combination of good to excellent soils, an abundant supply of good water, and a favorable climate make the area well suited to agriculture. Due to these circumstances, Fresno County is the leading county in the nation in terms of the dollar value of its production of field, seed, fruit and nut crops, as well as the value of its nursery, livestock, poultry and apiary products.

The U.S. Soil Conservation Service employs a land capability classification system which is useful for the analysis of the suitability of soils for a number of alternative uses. The capability classes range from I through VIII, which indicate progressively greater limitations or restrictions on their potential use.

The most productive agricultural soils are located on the eastside alluvium where the City of Fresno is situated. Most of the soils immediately around the City are in Classes I and II frequently considered "prime"—i.e., suited for all climatically-compatible, irrigated crops. Some areas around the City are affected by a clay hardpan just below the surface of the ground, and have been placed for this reason in Class III. However, these areas are frequently important for certain specialty crops such as figs and grapes, and reduction or removal of the hardpan is a familiar soil management technique. Other areas are affected by salts and alkali, which are proving to be costly and serious problems for the westside of the County. Proper irrigation to minimize leaching of salts and removal of contaminated drainage water are the primary methods available to deal with the situation as it is currently understood.

POPULATION CHARACTERISTICS

The Fresno-Clovis Metropolitan Area (F.C.M.A.) has experienced steady population growth since its first significant settlement a century ago. During the past two decades, the F.C.M.A. population has increased from 245,100 persons in 1960 to 358,800 in 1980, a 46 percent gain or average annual increase of 5,700 residents.

Population projections are usually made on the basis of trends in births, deaths, and net migration. The last County projection prepared by the State Department of Finance in 1981 assumes a continuation of past trends and estimates that Fresno County's population will reach 729,400 persons by the year 2000. Assuming that the F.C.M.A. will continue to capture 70 percent of the County population (as it had during the last three censuses, 1970 U.S. Census, 1974 Fresno County Special Census, 1980 U.S. Census), then the F.C.M.A. can expect 510,600 residents by the year 2000. This would represent a 41 percent population gain during the two decades from 1980 to 2000 or an average increase of 7,500 persons each year.

However, in its three prior forecasts made in 1971, 1974 and 1977, the State Department of Finance underestimated the 1980 County population by 11.80%, 7.08% and 3.15%, respectively. Assuming that the State's most recent County projection of 729,400 persons for the year 2000 represents an underprojection of 1.39% for each year of the projection period (1981-2000), then a higher projection of 950,800 persons results. The 1.39% rate is the greatest annual error the State has made in its three previous projections and represents the "greatest possible undercount."

During a series of General Plan working sessions in mid-1982, representatives from the Planning Departments of the City of Fresno, City of Clovis and the County of Fresno concurred that a realistic population forecast for the County is represented by the midpoint of the conservative 729,400-person projection of the State and the 950,800-person forecasted by assuming that the State underpredicted the County's future population as it had in its recent past projections.

The midpoint County projection is 840,100 persons by the year 2000. Assuming a 70% F.C.M.A. share yields a population projection of 588,100 persons for the F.C.M.A. in the year 2000. The General Plan has been designed to accommodate this population level and the accompanying employment gains.

The last two decades have witnessed notable changes in the characteristics of the F.C.M.A. residents. For example, in 1960, 38 percent of the population was under the age of 18 years. By 1970 and 1974, the

percentage fell to 35 percent and 31 percent, respectively. In 1980, only 28 percent of the F.C.M.A. population was less than 18 years of age. The reduced portion of younger persons can be attributed to the sharply declining birth rates since 1960, due to such economic and social factors as the increased cost of bearing and rearing children, the increased female participation in the work force, higher divorce rates, higher average marriage age, the increased use of birth control methods and longer life expectancy.

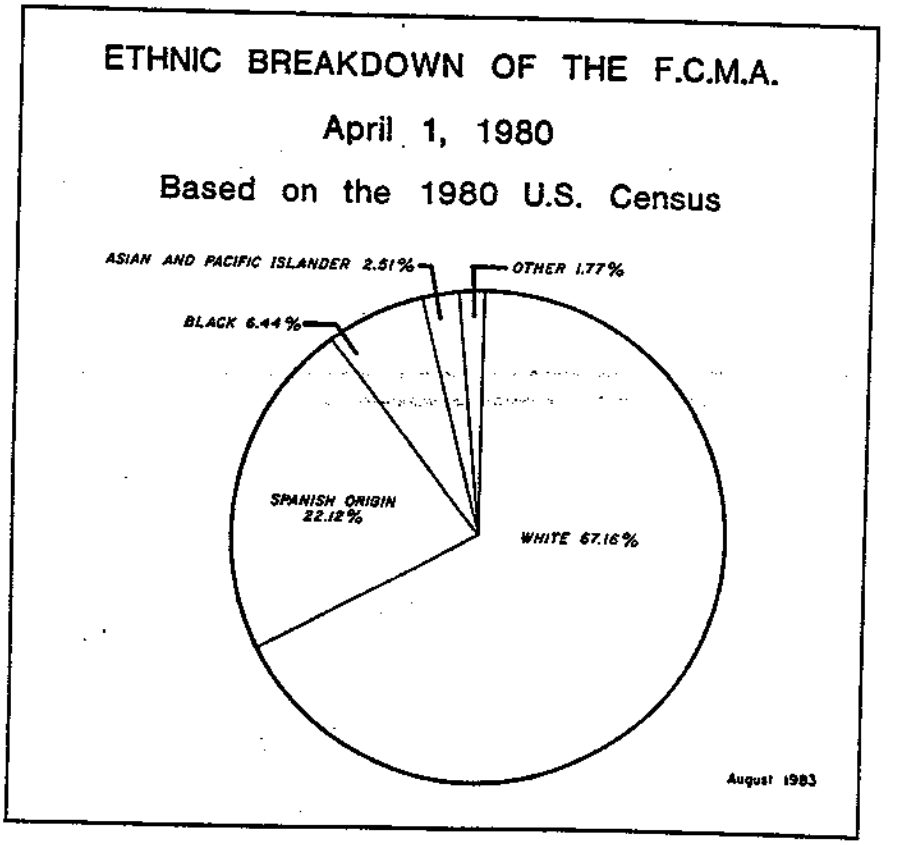
In contrast, the 18-29 year age group has captured a growing share of the total population since 1960. In that year, 15 percent of the residents were aged 18 to 29 years. By 1970 and 1974, this percentage had grown to 19 percent and then to 23 percent. In 1980, 24 percent of the F.C.M.A. population were aged 18-29 years. These increases were due to the fact that persons born during the postWorld War II "baby boom" had been entering this age group.

The next older group, those from 30 to 61 years of age, has experienced declines in its share of total population, comprising 37 percent of the population in 1960 and 35 percent in 1970 and 1980. The lower birth rate during the Depression Era and World War II was the major factor in this reduction. The age group 62 years and older has increased its share of the population from 10 percent in 1960 to 12 percent in 1974 and 13 percent in 1980 as a result of better health care and increased life expectancy.

It is expected that with a continuation of low birth rates and longer life spans, the percentage of persons in the older age group will increase, resulting in a rise in the median age.

The ethnic composition of the F.C.M.A. has changed dramatically since 1960. In that year, 80 percent of the population was termed "white other than Hispanic." By 1970, this percent had declined to 71 percent. In 1980, only 67 percent of the F.C.M.A. population fell into a category similar to the "white other than Hispanic" classification used in 1960 and 1970. (In 1980, the U.S. Census used different ethnic/race categories from those used for the two previous censuses. Therefore, for this analysis, 1980 classifications were reassembled to closely match the 1960 and 1970 groupings).

Figure 1

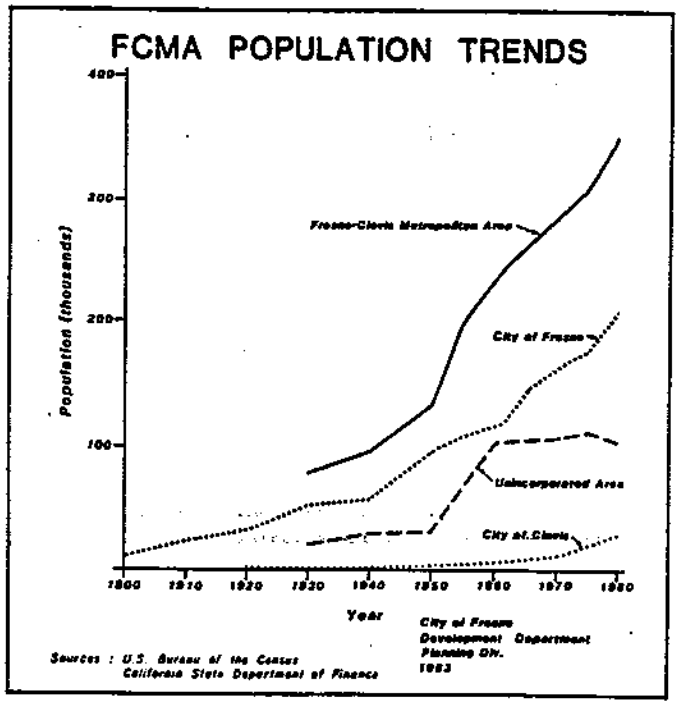


The Hispanic category experienced a marked increase in its share of the F.C.M.A. population. In 1960, the census recorded 12 percent of the population as Hispanic, but by 1970, 19 percent of the population were counted in this group. The 1980 U.S. Census, using a different definition, classified 22 percent of the population as Hispanic. The Black category, too, captured a growing share of total population, but at a slow pace. In 1960, six percent of the residents were Black. This percentage gradually rose to seven percent by 1980. The "other minority" category increased its share of the population from two percent in 1960 to four percent in 1970. By 1980, five percent of the F.C.M.A. population were included in a similar "other minority" category.

Although the 1980 Census data for Fresno County indicates only a small number of persons of Southeast Asian origins, local social service agencies report that the number of refugees in the local area have increased significantly since the Census was taken, due to secondary migration. The agricultural base of the Central Valley is particularly attractive to Hmong refugees from Cambodia.

Local refugee organizations and school administrators estimate that over 20,000 Southeast Asians now live in Fresno County with at least 90% living within the FCMA. Of these, about 14,000 are Hmong, 3,000 are Vietnamese, 4,000 Lao, and 500 are Cambodian. The average family is made up of 5 to 6 persons or more, and families currently fall into the low and moderate income group due to language barriers and their need to develop marketable skills. The notable success of the Southeast Asian students in Fresno area schools is anticipated to alleviate many of the existing conditions in time.

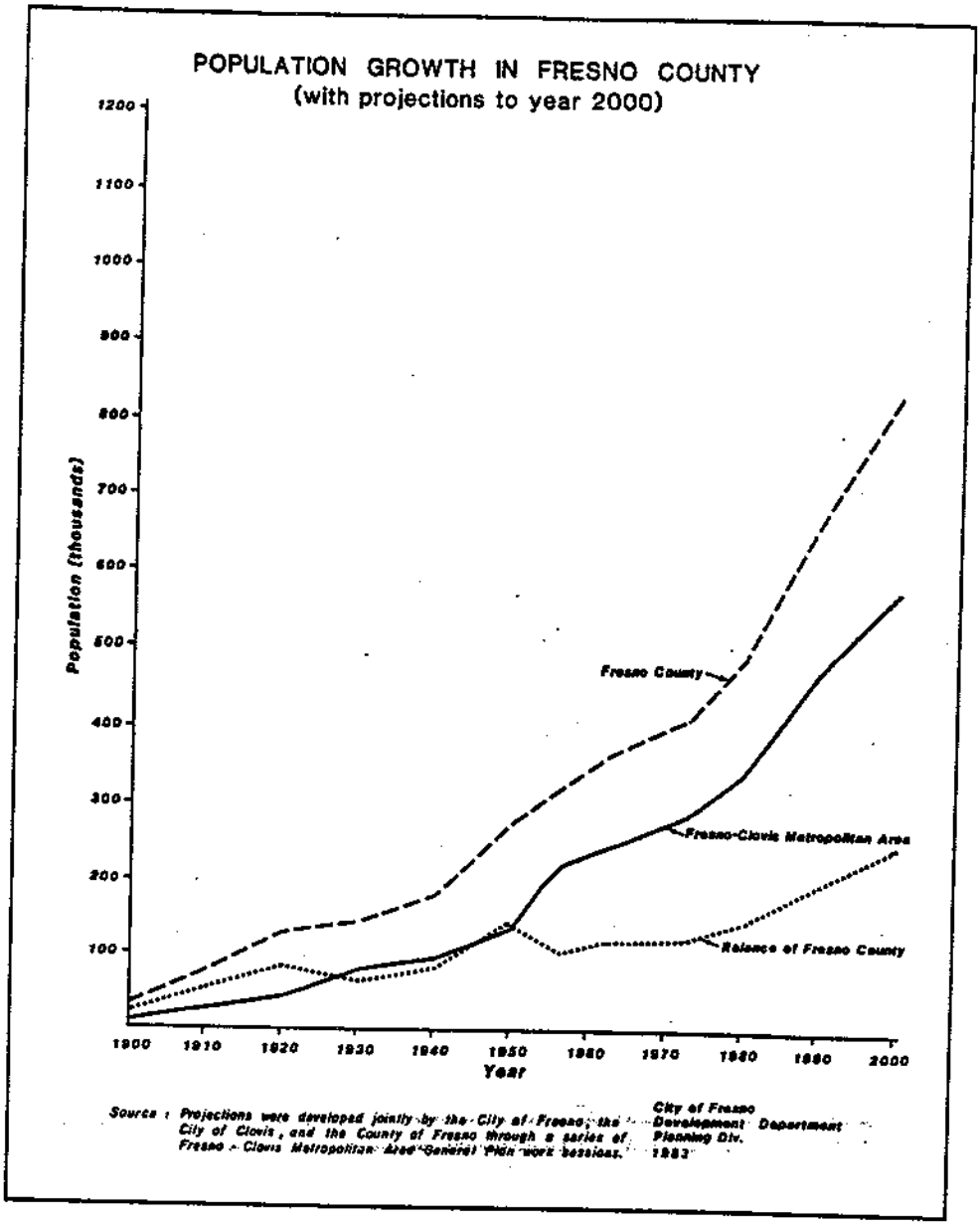
Figure 2



It is expected that the past trend in ethnic distribution will continue. The "white other than Hispanic" classification will reduce its share of the total F.C.M.A. population while the categories of Hispanic, Black and "other minority" will capture a growing portion.

The handicapped population growth rate within the City of Fresno and the County of Fresno has declined between 1970 and 1980. According to the 1970 U.S. Census, 10,416 City residents and 27,005 County residents aged 16 to 64 years were handicapped. This represented 6.3 percent of the total City population and 6.7 percent of the total County population, respectively. In 1980, 13,168 City residents and 29,494 County residents aged 16 to 64 years were handicapped, yielding decreased rates of 6.0 percent and 5.7 percent of all City and County residents, respectively.

Figure 3



According to data from the 1960, 1970 and 1980 U.S. Census, the mean annual family income in the F.C.M.A. rose from $14,700 in 1959, to $20,471 in 1969 and to $22,876 in 1979. (All income figures are in 1979 dollars to reflect the dollar value used in the 1980 U.S. Census). These incomes represent average annual income gains of 3.4% for the period 1959-1969 and 1.1% for the period 1969-1979. In the coming years, real income is not expected to increase as rapidly as in the past. In the next couple of decades, real income gains are projected to average less than one percent per year.

HISTORICAL SETTING

Prior to 1872, the site of present day Fresno, the lowest point between the San Joaquin and Kings Rivers, was known as the "Sinks of Dry Creek". Here, the waters of that and other creeks flowed out onto the desolate plain. In 1871-1872, the Central Pacific Railroad was building a line through the Valley. Leland Stanford and other officials from the Central Pacific were taken to A. Y. Easterby's Banner Farm where irrigation water from the Kings River had been brought to 2,000 acres of wheat. Impressed by what Stanford

said was the first green spot he had seen since Stockton, and by the commercial possibilities of the area, he gave orders to move the railroad station planned for "Sycamore" (the current Southern Pacific) and thus became responsible for the birth of Fresno and also had an immense impact upon its early development.

A subsidiary of Central Pacific plotted the original three sections of land, named the streets, and donated land for the courthouse. Streets within the original mile and a quarter townsite were oriented to the northwest-southeast direction of the railroad tracks.

While many of the earliest settlers were from the American South, the 1880's saw a rapid increase in population, both from the Eastern States and abroad. The Chinese, who were among the earliest arrivals, grew in numbers until, at one time, Fresno possessed the second largest Chinatown in California. This same decade also saw a rapid increase in Fresno's population of Armenians, Germans, Basques, Japanese, and other ethnic groups who established "colonies" in the southwest area.

Following the arrival of the Central Pacific Railroad and the successful application of irrigation, the San Joaquin Valley "desert" came to life. The resources of the Sierra made an important contribution to Fresno's economic prosperity. In addition to providing water and the resources for the early lumber industry, the Sierra's potential for generating and transmitting electric power to Fresno was realized by the 1890's.

When incorporated in 1885, Fresno was bounded by California, Angus, Divisadero and Tehama (Thorne) Avenues. By 1890, the new city contained nearly 11,000 people, and residential subdivisions (with north-south street orientations) were being developed to the east and north of the original townsite. As transportation improved with trolley lines (horse-drawn in 1888 and electric in 1902) and new streets, people began to move beyond the city limits.

The first important addition to the City was the Villa Homestead in 1880, lying between Blackstone, Divisadero, First and Belmont. While additions would be made to the south and west, most of the suburban growth was to the north: the Belmont Addition, the Forthcamp Addition, McKinley, and the Forkner-Giffen Tract (Old Fig Garden).

In the fifty years from 1872 to 1922, the Valley was transformed from dry plains to verdant fields of crops, orchards and vineyards. Fresno grew in these years to a city with a population between 45,000 to 50,000 in the center of the richest agricultural area of the world.

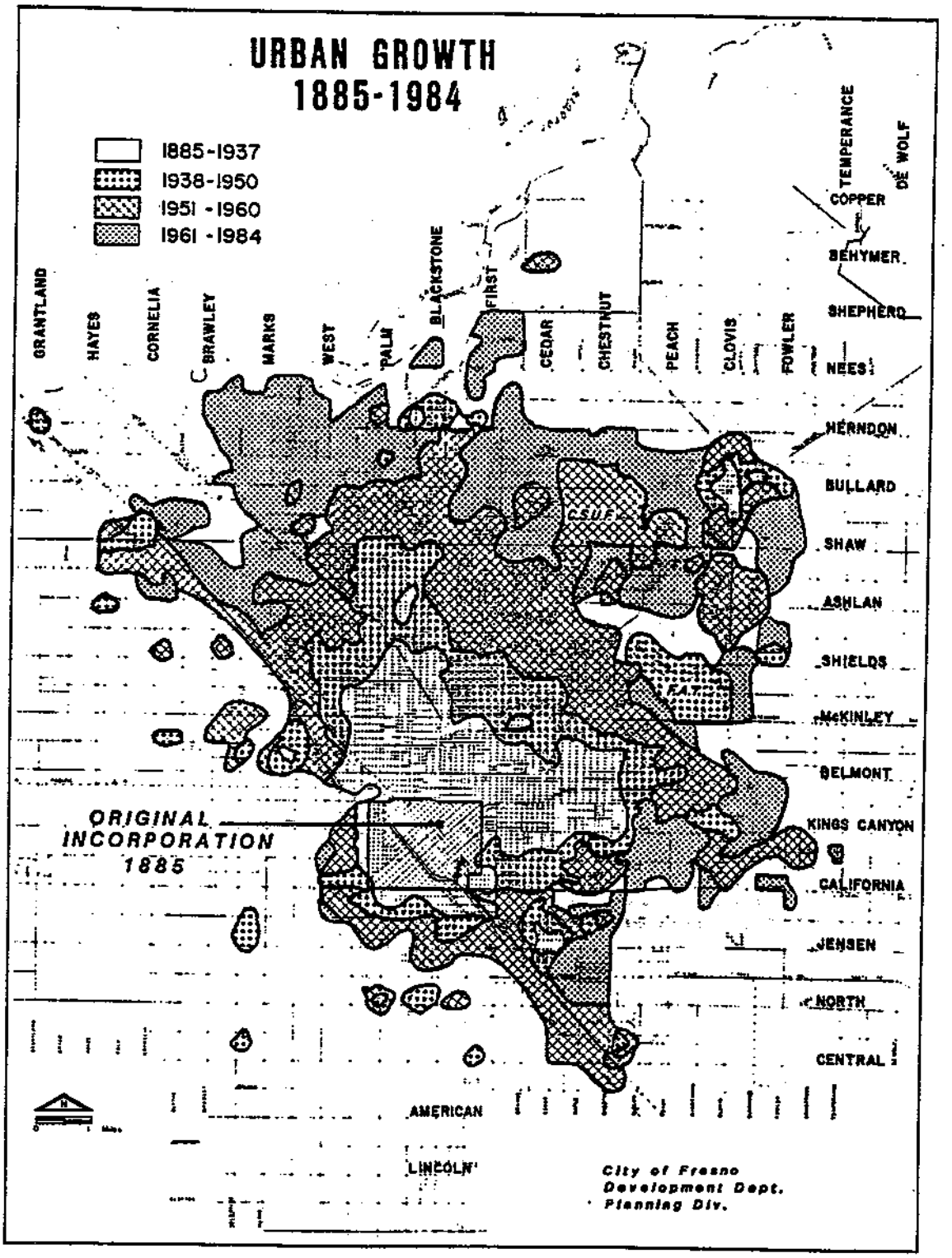
Fresno has become a regional center of agricultural service, commercial, and industrial activity. Agriculture and related activities were the basis of Fresno's economic growth. Due in part to its central location between Los Angeles and San Francisco, Fresno's position as a financial and merchandising center was established in its earliest days.

Fresno's growth was only marginally affected by the Depression due to its agricultural economic base. However, the effects of the Depression upon the farming sector did cause a rural to urban migration. From 1920 to 1930, the primary population growth and development activity occurred in the City of Fresno and its immediately surrounding urbanized area. Physical as well as economic growth increased in response to national economic conditions. The impact to the urbanized area was felt by additional growth in the construction of farm-related industries and the construction of new housing and public facilities in a "ring" of growth surrounding the City's Central Area.

The production of war materials and military spending during World War II stimulated massive growth within major urban centers on the West Coast; however, Fresno received little of the growth characteristic of the early 1940's.

Following World War II, Fresno's rate of growth accelerated. Many of those who migrated to California to work in war industries began to disperse to less populated portions of the state. Price increases in farm products and a growing demand for farm-supportive industries attracted many of those displaced from war industries to agriculture-related jobs in the San Joaquin Valley. The rapid shift from war consumption to domestic consumption generated new commercial and service employment opportunities. During this period, the physical form and pattern of the metropolitan area began to change, primarily as a result of widespread automobile ownership and increased mobility. A number of residential subdivisions developed in the north and northeast, effectively establishing the direction of "suburban sprawl" for the next two decades.

Figure 4

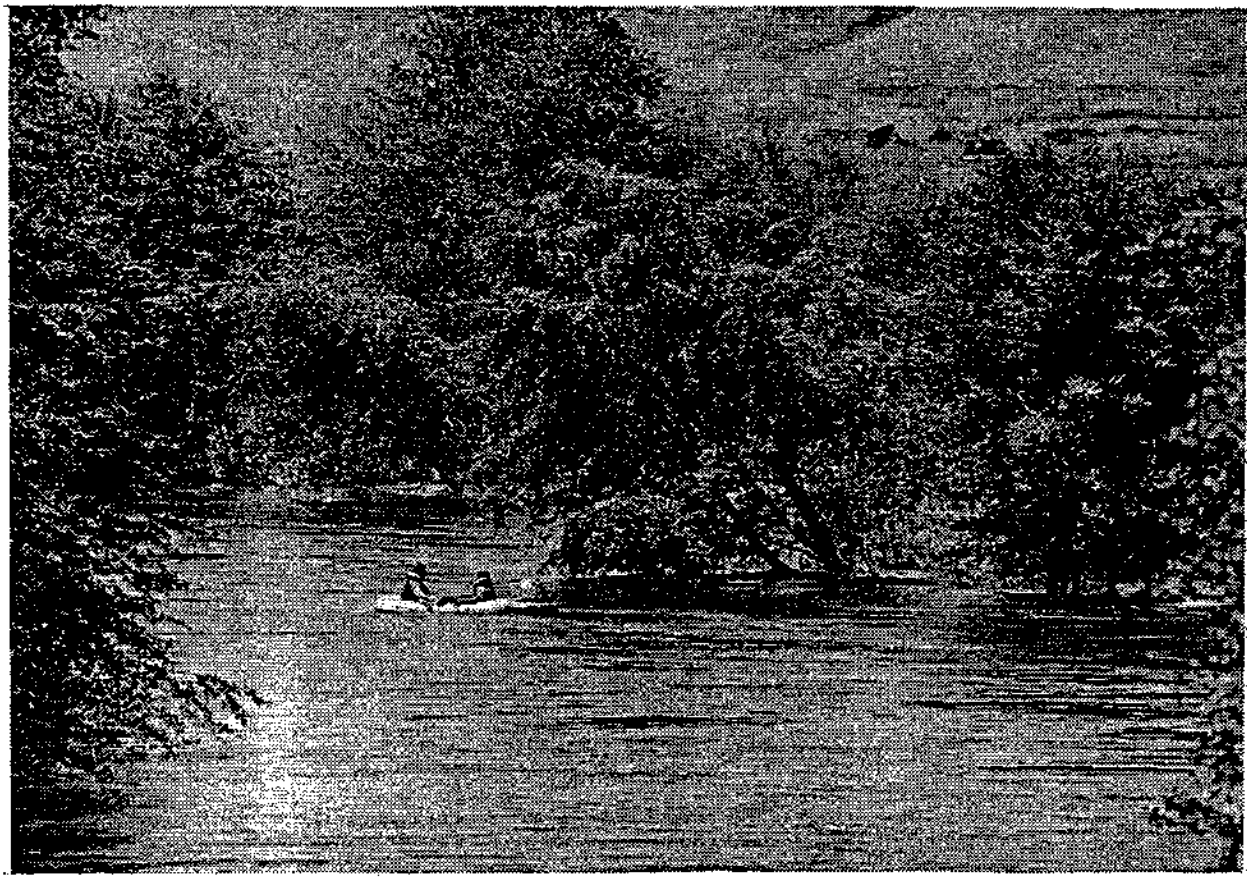

URBAN GROWTH
1885-1984
1885-1937
1938-1950
1951 - 1960
1961 - 1984
GRANTLAND
HAYES
CORNELIA
BRAWLEY
MARKS
WEST
PALM
BLACKSTONE
FIRST
CEDAR
CHESTNUT
PEACH
CLOVIS
FOWLER
TEMPERANCE
DE WOLF
COPPER
BEHYMER
SHEPHERD
NEES
HERNDON
BULLARD
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
KINGS CANYON
CALIFORNIA
JENSEN
NORTH
CENTRAL
AMERICAN
LINCOLN
CSUF
F.A.T.
ORIGINAL INCORPORATION 1885
City of Fresno
Development Dept.
Planning Div.

The period from 1920 to 1950 represents a major transition period in which the City grew from its agricutural origins toward a more balanced multi-function urban center. By 1950, the population of the City was approximately 92,000. The 1950's saw the continued spread of residential development to the north and east toward the new campus of California State University, Fresno at Shaw and Cedar Avenues. The 1950's also witnessed the first indications of a new phenomenon, the growth of major commercial and industrial developments outside of the Central Area. Business followed suburban markets. In the mid-1950's, Manchester Center, Fresno's first planned regional shopping center, was built at Blackstone and Shields Avenues.

By 1960, the populations of the City of Fresno and the Metropolitan area were 134,000 and 245,100, respectively. A number of subregional auto-oriented shopping centers were developed with further reinforcement of auto-oriented strip commercial services and offices locating on major arterials such as Blackstone and Shaw Avenues. The Central Area lost population during the 1960's, with most of it shifting to the north and east. The continued decentralization of industry led to increased vacancy and deterioration of nonresidential uses in these areas. Most of the housing in the Central and surrounding areas was 50 years old and the residential core of the City began to exhibit advanced deterioration.

Two factors began to restructure the Central Business District and Central Area—the construction of Freeway 99 and the urban renewal efforts undertaken by the City of Fresno. The renewal activities which generated massive public and private construction represent the major element of physical change in the Fresno Metropolitan area in the decade of the 1960's. By 1970, the urbanized area was approximately 89 square miles. The population of the metropolitan area was approximately 290,000 with approximately 166,000 people residing within the City of Fresno. This decade saw the construction of two major developments which reinforced the lower density suburban pattern: the Fashion Fair Regional Shopping Center, located at Shaw Avenue and First Street; and St. Agnes Hospital, located at Herndon and Millbrook Avenues.

CONSERVATION OF NATURAL RESOURCES



CONSERVATION OF NATURAL RESOURCES

AIR QUALITY

INTRODUCTION

Air pollution is potentially the most serious environmental problem facing the City of Fresno and the San Joaquin Valley. It poses a significant threat to human health and causes damage to vegetation, animals and property.

Air pollution is a regional problem which does not respect jurisdictional boundaries. Because of this, the City of Fresno recognizes that it is both a generator and receptor of a portion of the region's air pollution. Although considerations of air quality have been important concerns of the planning process in Fresno for some time, air quality issues have not previously been formally included as a component of the General Plan. Planning at the General Plan scale provides an opportunity to integrate land use and transportation strategies aimed at maintaining or improving air quality with other community objectives in deciding the type and location of future development.

Much of the background information for this section was extracted from the 1982 Fresno Clean Air Plan. Reference should be made to that document for information of a more detailed nature.

BACKGROUND

For many years there has been a concern by all levels of governments regarding air pollution. Both the State and Federal governments establish air quality standards. The Fresno County Air Pollution Control District (APCD) has the responsibility for monitoring and enforcing State and Federal stationary source standards in Fresno County. Additionally, the APCD, in cooperation with appropriate local and state agencies, is responsible for the preparation of an Air Quality Maintenance Plan (AQMP) and Non-attainment Area Plan (NAP). An Air Quality Maintenance Plan is required because Fresno County has been designated an area in which attainment or maintenance of one or more National Ambient Air Quality Standards (NAAQS) is not expected by 1985, either because of existing air quality or projected growth and development in the area. Fresno County has been designated a non-attainment area for ozone, carbon monoxide, and particulates. Because changes in law require additional transportation and technological control strategies in non-attainment areas, a Nonattainment Area Plan is also necessary. The NAP for Fresno County, referred to as the Fresno Clean Air Plan, was updated in 1982.

The primary purpose of the air quality standards, developed by both the Federal government and the State of California, is to protect the public from exposure to harmful levels of air pollution. In cases where state and national standards differ, the more stringent standard is to be used. Figure 5 summarizes the ambient air quality standards for California and the nation. In order for an area to be considered as having achieved the ambient air quality standard for any pollutant, it is necessary to demonstrate that the standard for that particular pollutant has not been exceeded more than one time during the preceding year.

Fresno County has been designated a non-attainment area for photochemical oxidant (ozone), particulate matter, and carbon monoxide (CO). The following is a summary discussion of each of these pollutants.

In Fresno County, the occurrence of ozone, or smog, is closely tied to warm, sunny days with light wind velocity and temperature inversions which limit the mixing depth of the air. These conditions occur in Fresno County on a regular basis from May to October and, most frequently, July through September. Hydrocarbons (HC) and oxides of nitrogen (NOx) are the major contributors to ozone formation. Although the standards for HC and NOx are not exceeded, these elements, in conjunction with the unique physical situation of Fresno, cause a significant ozone problem. Excessive levels of ozone are dangerous to health, harmful to plants, and destructive to rubber, vinyl, and fabrics. The negative effects of smog on the quality of life in California are well documented.

In the metropolitan area, the highest readings each year for ozone have been at least double the old .08 parts per million (ppm) Federal standard and well above the more recent .12 ppm level. In addition, the number of days exceeding the standard remains significant—55 in 1980. Concentrations of ozone have remained relatively steady and the smog problem is not improving despite additional control measures of recent years, including the California Motor Vehicle Control Program.

Figure 5

AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING TIME	CALIFORNIA STANDARDS[1] CONCENTRATION	NATIONAL STANDARDS[2] PRIMARY[3]	NATIONAL STANDARDS[2] SECONDARY[4]
Oxidant (Ozone)	1 hour	0.10 ppm (200 ug/m³)	160 ug/m³ (0.12 ppm)	Same as Primary Std
Carbon Monoxide	12 hour	10 ppm (11 mg/m³)	–	Same as Primary Standards
	8 hour	–	10 mg/m³ (9 ppm)	
	1 hour	40 ppm (46 mg/m³)	40 mg/m³ (35 ppm)	
Suspended Particulate Matter	Annual Geometric Mean	60 ug/m³	75 ug/m³	60 ug/m³
	24 hour	100 ug/m³	260 ug/m³	150 ug/m³

NOTES:

[1]California standards are values that are not to be equaled or exceeded.

[2]National standards, other than those based on annual averages or annual geometric means, are not to be exceeded more than once per year.

[3]National Primary Standards: The levels of air quality necessary, with an adequate margin of safety, to protect the public health. Each state must attain the primary standards no later than three years after that state's implementation plan is approved by the Environmental Protection Agency (EPA).

[4]National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. Each state must attain the secondary standards within a "reasonable time" after implementation plan is approved by the EPA.

Source: 1982 Clean Air Plan

Carbon monoxide is also a potentially significant problem. Although the one-hour standard is not presently exceeded in Fresno County, the national 8-hour standard of 9 ppm is exceeded, resulting in the County's designation as a non-attainment area for this pollutant. In particular, the monitored data indicates that between 1976 and 1978, CO showed a steady decline both in high readings and number of days exceeding the standard. An increase has again occurred, however, in 1979 and 1980.

Particulate emissions in Fresno County are mostly attributable to agricultural activities, including agricultural burning, discing, plowing, and land leveling. It is the fine particles in the air that are the major cause of the low atmospheric visibility typical of Fresno and the Valley. Additionally, the particles have major health effects and have been linked to high rates of lung cancer in polluted urban areas.

That portion of the NAP concerning particulates is being prepared by the State of California Air Resources Board (ARB). The extent of the ARB activity to this point has been to reexamine the standard which defines particulate matter based on size. Larger size particulate matter has been found to be less harmful to health

than smaller size particulates. Since particulate matter caused by agricultural operations is of a larger size, the possibility exists that if the ARB modifies their size standard, Fresno County could be removed as a non-attainment area for this pollutant.

In order to determine the amount of pollutants being emitted into the atmosphere, a 1979 base year emmission's inventory was prepared by the Air Pollution Control District. The hydrocarbon and oxides of nitrogen inventories are countywide while the carbon monoxide inventory covers only the Fresno Metropolitan Area. This is because CO is a traffic related urban problem. High CO levels have not been routinely detected in rural areas.

The inventory identifies by stationary, area, and mobile categories the level of emissions for HC, NOx, and CO. The stationary and area categories include emission sources which are fixed to the ground in some geographic location. Examples of stationary and area sources include industries, power plants, gas stations, farms, homes, and offices. In the everyday operation of these sources, machines are operated, materials processed and moved, and fuel consumed for heating and power. In each of these operations, pollutants are emitted into the air. The mobile category includes emissions of pollutants from transportation vehicles and other mobile vehicles and equipment, such as farm tractors, construction equipment, utility vehicles and powered gardening apparatus.

A total of 170.88 tons/day (t/d) of hydrocarbon emissions are shown in 1979 with pesticides (27.6 t/d) and petroleum production (27.48 t/d) being the major area and stationary sources. Mobile sources (62.80 t/d) account for about 37% of the total hydrocarbon emissions while stationary and area sources make up about 63%.

The NOx inventory shows a total of 89.76 t/d with about half from mobile sources and half from area and stationary sources. Mobile sources, however, account for 99% of the carbon monoxide inventory of 390.99 t/d.

Future emissions were estimated using population projections based on the 1980 Census and using California Air Resources Board (CARB) data based on state forecasts. These projected emissions are identified on Figure 6.

For hydrocarbons, emission projections show a slight decline until 1987 and then begin to increase again so that by 1995 they are nearly at 1979 levels again. NOx emissions are projected to show a steady increase from 89.76 t/d in 1979 to 95.9 t/d in 1995. Carbon monoxide emissions show a dramatic decline between 1979 and 1987 (mainly due to the existing motor vehicle control program) but begin a slow increase after 1987 because of the increasing number of estimated vehicles.

In order to determine the amount of hydrocarbon reduction necessary to attain the Federal standard, Fresno utilized a computerized air quality model called the Empirical Kinetic Modeling Approach (EKMA). The EKMA analysis revealed that a 69.8% reduction would be necessary to achieve attainment levels for HC. There is, however, a chemical relationship in the atmosphere between hydrocarbons and oxides of nitrogen that reduces the HC percentage needed if a given amount of NOx reduction is achieved. It is estimated that about 10% of the 91.65 t/d NOx for 1987 can be eliminated, which changes the required HC reduction to 67.5% in order to achieve attainment levels. For carbon monoxide, rollback analysis reveals that a 44.2% reduction is needed to achieve the attainment level.

The projected reductions for both HC and CO will not result in attainment of the standards by 1987. For HC, the shortfall is 45 t/d in 1987. By 1995, this shortfall is reduced to 24.28 t/d which is as near to hydrocarbon attainment as Fresno can project. The CO scenario is even more discouraging. A 130.8 t/d reduction was needed to attain by 1987. Only a 54.75 t/d reduction is anticipated, leaving a shortfall of 76.05 t/d. This shortfall grows to 81.45 t/d by 1995.

There are four component control strategies contained within the Fresno AQMP/NAP. These are the stationary and area source strategy, the mobile source strategy, the transportation strategy, and the land use strategy. Although each control strategy tends to cover a distinct area of possible controls, they are, nevertheless, parts of an interrelated whole.

The 1978 AQMP/NAP heavily emphasized stationary and area source controls as the primary means of achieving attainment for hydrocarbons. The 1982 AQMP/NAP, while placing more emphasis upon transportation control measures, has again resulted in more significant reductions being achieved through stationary and area controls.

Figure 6

	Emissions in Tons Per Day				
	1979	1983	1987	1991	1995
HC (Fresno County)					
Area	75.34	79.28	83.28	87.21	91.22
Stationary	32.74	32.11	31.48	30.85	30.23
Mobile	62.80	52.95	47.57	48.06	48.74
Total	170.88	164.34	162.33	166.12	170.19
NOx (Fresno County)					
Area	6.48	7.02	7.57	8.10	8.64
Stationary	35.84	37.53	39.23	40.94	42.64
Mobile	47.44	45.54	44.85	44.67	44.67
Total	89.76	90.09	91.65	93.71	95.95
CO (Fresno/Clovis Metro. Area)					
Area	1.39	1.48	1.58	1.67	1.76
Stationary	3.19	3.48	3.78	4.07	4.37
Mobile	386.41	357.41	343.61	345.00	346.39
Total	390.99	362.37	348.97	350.74	352.52

The majority of hydrocarbon reductions are achieved by control on stationary and area sources. It is estimated that by 1987 a 33.43 tons/day reduction can be achieved. Very little in the way of significant reductions is achieved for NOx and CO. These are more effectively dealt with by mobile and transportation controls.

The objective of the transportation control strategy is to attain a maximum reduction of transportation-source emissions through those control measures most reasonably available in Fresno County. These include (1) voluntary ride-sharing, (2) park-and-ride and fringe parking, (3) employer incentive program, (4) bicycle lanes and facilities, and (5) traffic flow improvements. The effectiveness of the transportation control strategy is very limited in comparison to other source controls. While other control measures directly affect pollutant emissions at the source, transportation control measures only indirectly affect emissions by altering activity patterns. Further, virtually all transportation control measures only apply, by design, to home-work trips, which represent only a fraction of the emissions inventory for this source.

The mobile source control strategy is most effective at reducing carbon monoxide, although some significant reductions can also be obtained for NOx and HC. These control measures are the responsibility of the state. A motor vehicle inspection program is by far the most effective of all the proposed mobile source controls. After extensive discussion, the County Board of Supervisors acted to implement such a program during the spring of 1984. The "smogcheck" program started up in the County effective October 1, 1984.

The Environmental Protection Agency and the California Air Resources Board have encouraged the inclusion of land use measures in NAP's because local governments are required to implement all reasonably available control measures in order to achieve the NAAQS, and land use measures are certainly reasonably available. These measures are a long-term factor in the control of air pollutants. It should be recognized that the long lead time required to implement land use changes and to observe improvement of air quality makes it necessary that these measures be pursued as early as possible in the planning process. In this regard, a recent project of the City of Fresno has been the development, in cooperation with the APCD, of four land use scenarios depicting various levels of urban growth and development which, in turn, will affect air quality. This study represents an effort by the City to incorporate air quality considerations into the City's planning process.

MAJOR FINDINGS/CONCLUSIONS

Major findings concerning air quality are as follows:

1. Fresno County is currently designated a non-attainment area for ozone, carbon monoxide, and particulates, although the County's status regarding particulates may change in the near future.

2. Air quality within the City of Fresno cannot be controlled solely at the local level. A substantial amount of air pollution within the City of Fresno comes from elsewhere.

3. Local, State, and Federal governments are all involved with air quality policies and programs. Consequently, coordination among the levels of government is an important component in planning for improved air quality.

4. Most of the relatively easy technical solutions for controlling air quality are being used. Further improvements will require controversial and often expensive measures.

5. There are often trade-offs involved in improving air quality on the one hand and economic and population growth on the other.

ENVIRONMENTAL IMPLICATIONS

Air pollution has the potential of being a very serious problem in the Fresno metropolitan area. Although essentially a regional problem, the metropolitan area is a generator of a portion of the air pollution. Currently, the metropolitan area has been designated as a Non-attainment Area for particulates, carbon monoxide and ozone.

As the City continues to expand, particularly to the west of Highway 99, and as people and industry continue to locate in the area, the amount of air pollution is likely to increase. Consequently, most of the objectives and policies concerning air quality address the need to lessen air pollution as a result of new development. In particular, it is important that land development occur in a manner that reduces traffic congestion through mixed land use strategies, encouragement of public transit, and the integration of compatible uses. Because a variety of public agencies are concerned about air quality, there is a need for compatibility of the plans and policies of these agencies.

OBJECTIVES

1. Attain and maintain state and federal air quality standards in cooperation with other agencies.

2. Achieve and maintain reasonable compatibility between the 1984 Fresno General Plan including subsequent amendments of such plan and the Air Quality Maintenance Plan for the County of Fresno and the regional area for which a unified air quality maintenance plan is essential.

3. Ensure internal consistency within the General Plan between the policies and programs to protect air quality and policies and programs of the other General Plan elements.

POLICIES/IMPLEMENTATION STRATEGIES

1. Where practicable, support and encourage regional, state and federal programs and actions for the improvement of air quality.

2. Where practicable, support and encourage the unification of existing air pollution control districts in the San Joaquin Valley Air Basin in order to achieve maximum use of existing laws and available technology for air quality maintenance.

3. Develop and incorporate air quality maintenance considerations in the preparation of community and specific plans and in the review of land use and development proposals.

4. Modify land use regulations and related processes to provide for the integration of compatible land uses.

5. Integrate compatible land uses, concentrate development along major streets and near major employment areas to reduce vehicle miles traveled.

6. Develop the means to obtain or use land for on-site bus turning and parking areas with attendant employee and passenger facilities.

7. Support and encourage the priority construction and improvement of highway projects in the Fresno area as set forth in the Fresno County Transportation Improvement Act.

8. Measures requiring additional study.

   a. Evaluate the development of an express bus corridor in the railroad spur right of way within West Gettysburg Avenue between State 99 Freeway and North Grantland Avenue.

   b. Evaluate the development of an express bus corridor with the Santa Fe railroad right of way when abandoned, between West Herndon Avenue and the Tulare Street.

c. Evaluate more extensive planting of trees in addition to the requirements of Article 3 of the Fresno Municipal Code to provide for the filtering of pollutants.

d. Evaluate the prohibition of drive-in service lanes in a manner that limits economic loss to the provider.

e. Evaluate the potential content and potential application of a "transportation ordinance" to provide for the comprehensive implementation of plans, policies, and measures for the reduction of air pollution from mobile sources.

f. Evaluate the feasibility for a "transportation corridor" that would enhance investment in the area generally between Blackstone Avenue and State 41 Freeway, extending from Divisadero northerly to Audubon Drive for the purpose of reducing vehicle miles traveled.

g. Evaluate the addition of a fourth lane to State 41 Freeway to serve as a high occupancy vehicle lane between O Street and Audubon Drive.

h. Evaluate the impacts of requiring the use of alternative type of cleaner burning fuels locally.

9. Currently implemented air quality maintenance policies and implementation strategy measures to be continued for broad scale control and reduction of air pollution.

a. TRAFFIC FLOW - On-going improvement of traffic signals to reduce vehicle emissions from excessive automobile engine idling (optimized signal timing, interconnected signals, traffic actuated signals, computer based controls, channel intersections, additional turn lanes). (Includes FETSIM, 1986-1987; funded for 1988)

b. TRANSIT - On-site (at major shopping centers, other locations) bus parking and loading lanes with passenger and driver facilities to reduce vehicle miles traveled, engine idling and improved traffic flow.

c. BICYCLE ALTERNATIVE - Bicycle lanes, bikeway design and planning with attendant safety and convenience facilities to reduce vehicle miles traveled.

d. 1984 FRESNO GENERAL PLAN, PLANNING POLICIES AND RELATED LAND USE REGULATIONS

(1) Contiguous Urban Expansion - To reduce vehicle miles traveled.

(2) Urban Infill - To reduce vehicle miles traveled.

(3) Mixed Land Use - Utilizes Local Planning and Procedures Ordinance to achieve mixed residential, commercial and office uses; reduces vehicle miles traveled.

(4) Density Transfer - Utilizes Local Planning and Procedures Ordinance to reallocate dwelling unit densities in selected areas; to reduce vehicle miles traveled.

e. GENERAL SERVICES/FLEET MANAGEMENT - To reduce vehicle emissions

(1) Biennial smog certification tests on light duty vehicles (up to one ton capacity) to ensure compliance with state mandated requirements.

(2) Operation and efficiency assessment of six methanol powered vehicles.

(3) Stringent preventive maintenance to ensure efficient engine operation (police vehicles every 3000 miles; solid waste disposal trucks every 30 days).

f. POLICE OPERATIONS - To reduce vehicle miles traveled

(1) Placement and use of police dressing stations within or near field personnel work areas.

(2) Use of existing community facilities as walk in crime prevention centers.

(3) Handling certain types of calls for police service by telephone.

(4) Area policing vehicle management program to increase efficiency in the use of vehicles.

(5) Reinstitution of walking police beats in some areas.

g. AIRPORT OPERATIONS - To improve and maintain air quality

(1) Weeds in air field areas are mowed (rather than disced) to reduce dust.

(2) Use of aircraft burn safety drill pit is now limited to on-airport safety agencies.

h. TREE PLANTING PRACTICES - To improve and maintain air quality

Implement Article 3, Fresno Municipal Code provides for planting and maintaining street trees at intervals of sixty feet in the parkway.

i. REFERRAL OF POTENTIAL STATIONARY SOURCES - To improve and maintain air quality

Development projects are referred to the FCAPCD staff for review to ensure control of potentially significant stationary sources of air pollution.

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WATER RESOURCES

INTRODUCTION

In accordance with the 1980 General Plan Guidelines which were adopted by the State Office of Planning and Research, the degree of specificity addressed by the Water Resources Section reflects only relevant hydrological conditions confronting the FCMA.

Water is an invaluable resource which must be good, acceptable quality with sufficient quantities to ensure the public well-being, environmental quality, and be able to meet the needs of the community.

The development of water resources in the San Joaquin Valley permitted the conversion of a semi-arid grassland to a productive agricultural region having the highest value of agricultural output in the nation.

The FCMA has developed from an "agribusiness" community to a metropolitan area creating a need for a cooperative atmosphere whereby various irrigation, municipal and county water interests coordinate and implement water management programs (i.e., water availability, distribution, groundwater recharge, urban drainage, water conservation, reclamation and land use programs).

The Fresno Stream Group, consisting of streams that lie between the San Joaquin and Kings Rivers, has drainage influence within the FCMA. Major streams include Little Dry, Big Dry, Dog, Redbank, Pup, and Fancher Creeks. These creeks are controlled against flood hazards through existing and planned detention basins. These streams are channeled throughout the urban area with irrigation canals forming a network of ditches and canals for both farm irrigation and water transportation through the FCMA. Reliance on irrigation canals for flood relief must be limited in recognition of the fact that canal channels narrow downstream whereas storm waters collect and expand as they travel.

The General Plan addresses the following water resources issues:

1. The maintenance of good water quality in sufficient quantities through a coordinated water management program.
2. The identification of services provided by water supplying agencies.
3. The environmental implications of water service programs (i.e., flood control, urban drainage, water conservation, and multiple uses of storm water retention/water recharge basins).

GEOLOGY

The City of Fresno is located in the Great Central Valley geomorphic province, extending from Redding on the north to the Tehachapi Mountains on the south. The area is divided by most geologists into two distinct sub-basins, the Sacramento and San Joaquin Valleys. Fresno lies near the midpoint of the San Joaquin Valley, close to its eastern edge. A more detailed description is contained in the *Background* section at the beginning of the document.

HYDROLOGY

Groundwater within the area is confined within a body of Alluvium (soil type) that is several hundred feet in depth in most of the area and tapers to very limited soils at the eastern foothill fringe. Agricultural, municipal and individual household wells all pump from this aquifer.

The aquifer (groundwater reservoir) beneath the area can be considered a "mini basin" of the much larger Tulare Lake Basin. The "mini basin" reference is due to the large amount of groundwater that is pumped in the area creating a centralized "cone of depression" which inhibits the southwesterly natural groundwater flow.

Surface water is delivered to the area through canals of the Fresno Irrigation District flowing from the San Joaquin and Kings Rivers. This water is considered to be "pure" containing a very low mineral content for river waters. The San Joaquin River and Kings River drain large watershed areas in the Sierra Nevada; however, water flows are restricted by a series of dams in the foothills and mountains (i.e., Friant Dam, Pine Flat Dam).

WATER MANAGEMENT

In 1981, the Cities of Fresno and Clovis, the County of Fresno, the Fresno Irrigation District (FID) and the Fresno Metropolitan Flood Control District entered into a cooperative agreement to manage the water resources in the Fresno/Clovis Metropolitan Area and the immediate vicinity. Through a technical advisory committee and the executive committee, the five agencies are developing a water resource management plan. Some grant funds have been made available through the State of California Water Resources Control Board for this purpose. During the interim period all five agencies are continuing to implement water management practices that have been successful for this area in the past.

WATER QUANTITY

Water supply is measured in acre feet per year (AF/Y). An acre foot is the amount of water needed to cover one acre to a depth of one foot and is equivalent to 325,900 gallons. As a result of the 1950's "Rank vs. Krug" court action, the City of Fresno has a contract for the ultimate purchase of 60,000 acre feet of Class I water (firm water supply) per year from the Federal Bureau of Reclamation.

The primary water supply within the area is from the groundwater reservoir, being a part of a large groundwater basin bounded by the San Joaquin and Kings Rivers, the Sierra Nevada Foothills and the Fresno Slough. Groundwater movement flows from the northeast to southwest. Currently, sufficient water exists to serve both the municipal and agricultural needs of the area. Water sources include: The Fresno Irrigation District's entitlement to Kings River water, which runs with the land within the District; the City of Fresno's entitlement for San Joaquin River water from the Bureau of Reclamation; and the agreement between the City of Fresno and the Fresno Irrigation District, whereby the City pays taxes to the District and controls a portion of the water for recharge for each two acre feet of treated wastewater pumped from beneath the City sewage treatment facility and exported to farmers within the FID service area.

WATER QUALITY

The current water quality of the groundwater reservoir within the area is good, with excellent potability. Total dissolved solids (TDS) and nitrates are below the maximum safe limit for drinking water of 45 parts per million (PPM), set by the Federal Environmental Protection Agency and the United States Public Health Services.

The Northeast Fresno Groundwater Study (prepared by Fresno County Public Works Department, July 13, 1976), which assessed the area east of Highway 41 and north of East Herndon Avenue, identified that 10% of the wells and 5% of the samples showed nitrate levels above the standard. Factors influencing nitrate levels were identified as being septic systems, agricultural and natural sources and permeable topsoil associated with Redbank and Fancher Creeks.

In the Eastern Areas an important problem facing the City has been the need to temporarily close three City wells. This resulted from the contamination of the underground water supply by a soil nematicide known as DBCP (Dibromochloropropane). The application of this chemical for control of nematodes was in progress from 1955 through August, 1977, at which time the registration for use in California was cancelled because of its identified potential as a carcinogen. Major problems are identified in the southeast portion of the metropolitan area. Although two of these wells have since returned to service because the minimum level of contamination is not being exceeded, Well No. 55, located east of Clovis Avenue on Shields Avenue, is still out-of-service. Contamination of the City's underground aquifer, the source of the City's domestic water supply, would have very negative impacts and is to be closely monitored and avoided.

Water quality west of Freeway 99 is generally very good. However, a high salt content has been found in water in a localized area north of Shields and west of Marks Avenues. The groundwater degradation developed from an ice and water softening plant at the Southern Pacific Railroad Yard. Both operations have ceased, but the underground water quality problems will exist for the foreseeable future.

The Fresno Metropolitan Flood Control District is currently conducting an urban runoff study as part of the Nationwide Urban Runoff Program (NURP). Fresno was selected as one of the project areas to address water quality effects of non-point sources in general, and urban runoff in particular. The studies evolved from P.L. 92-500, the Water Pollution Control Act Amendments of 1972, and the fact that 93 of the Section 208 Areawide Waste Management Plans being conducted across the nation identified the need to assess urban runoff. EPA therefore initiated NURP to supplement existing data.

The local study was completed in August, 1984. The results showed that soils in the recharge basins provide a "high degree of removal of storm run-off contaminants", thereby protecting groundwater quality. The most commonly occurring contaminants were lead (a component of gasoline, brake linings and rubber tires) and chlordane - used for termite control. Recommendations made by the consultants include removal of the upper layer of soil in ponding basins when indicated and monitoring of the water received at basins serving industrial land uses.

In 1979, the five local water management agencies completed an interim Best Management Plan for Water Quality, Fresno/Clovis Urban and Northeast Fresno County.

This Management Plan provided the following findings:

1. Generally, the chemical quality of groundwater is excellent. High contents of nitrates, hardness, chloride, and salinity are found in restricted areas. However, these levels are less than those maximum contamination levels established by the EPA drinking water standards.

2. High contents of nitrate, salinity and chloride were found only in shallow groundwater. The chemical quality of water in the aquifer improves with depth to a point, and then becomes degraded. Improved well construction techniques can mitigate these water quality problems.

3. Salinity and nitrate contents have increased in shallow wells near sources of pollution, i.e., unsewered areas with high density of septic tanks.

4. Groundwater quality monitoring is proposed for urban storm runoff, (The NURP Study) septic tanks, and lawn irrigation.

5. At the 1978 level of development, there was a long-term overdraft of approximately 5,000 acre feet per year. Approximately 40,000 acre feet per year of canal water left the area that could have been retained. A long-term surplus of about 7,000 acre feet per year existed within the area due to the intentional recharge of about 24,000 acre feet inflow comprising approximately one-half of the 1978 water input.

6. Development of the northwest and the west rural residential area will necessitate recharge in the northwest. Preliminary indications are that the soil conditions in the West and Northwest Areas are conducive to recharge.

7. Development of the west rural residential area now receiving full irrigation would result in a deficit of about 10,000 acre feet per year in the area. Although sufficient groundwater is available, water levels will decline in the area. The urban depression cone has shifted to the northwest due to successful recharge in the vicinity of Leaky Acres and the lack of recharge in the unincorporated area.

8. If urban development is expanded north of the existing urban area, well yields and recharge would not be adequate for all the area. Approximately 12,000 acre feet per year of canal water would need to be used directly or recharged in the area to obtain a water balance. This water could be diverted from a combination of the entitlements to Kings River and rights to Friant-Kern Canal water; however, there are legal limitations which prohibit the use of FID water outside the District.

The Plan emphasizes that it is not an end product for maintaining and enhancing water quality in the plan area. The organizational relationship and process that is to be developed from the "meet and confer" process must continue.

URBAN DRAINAGE

The bulk of the urban drainage for the FCMA is the service responsibility of the Fresno Metropolitan Flood Control District (FMFCD) which is a "Special Act" District, created by the electorate to provide fully coordinated and comprehensive storm water management services on a regional basis through a quasi-joint powers relationship. Ultimate policy coordination between the districts and the cities and county occurs through the inclusion of the Storm Drainage and Flood Control Master Plan prepared by the district as a specific element within the General Plan of each agency.

The Storm Drainage Master Plan identifies urban drainage boundaries, computes runoff flows based on planned land use, identifies facility site and location and establishes street grades necessary to accomplish drainage of the runoff from the point of origin to the nearest collector facility.

The inventory of facilities includes eighty (80) retention (ponding) recharge basins totaling 900 acres, approximately 200 miles of storm drainage pipelines, fifteen pumping stations and three storm water outfalls into the San Joaquin River.

Operation functions of the urban drainage system require periodic monitoring of the quality of storm runoff received by the system and the determination of any impact associated with the recharging or discharging of such runoff.

Through participation in a joint powers contract with the Fresno Irrigation District, the FMFCD maintains the Redbank Creek Dam and Reservoir and participates in the maintenance of the irrigation canals and natural streams which extend through the District. The canals and streams serve an integral function in the management and disposal of urban runoff.

FLOOD CONTROL

Flood control management is an important component of this General Plan. Government Code Section 56302(a) requires that "...the land use element identify areas covered by the plan which are subject to flooding and shall be reviewed annually with respect to such areas".

Flooding has been a continuing problem in the City of Fresno since settlement of the City began. Flooding in the City results from two sources: Watersheds to the north and east of the FCMA and urban runoff which is the result of urban development and the alteration of the earth's natural surfaces. The watersheds which affect the FCMA are small drainages on the western slopes of the Sierra Nevada foothills. These watersheds drain from the foothills onto the valley floor, then ultimately to the Fresno Slough and the San Joaquin and Kings Rivers. Creeks flow through natural channels in the foothills but when they reach the valley floor, these channels carry both irrigation water and storm runoff. The major dual-purpose channels which flow through the FCMA include the Fresno, Fancher Creek, Mill Ditch, Dry Creek, and Herndon Canals.

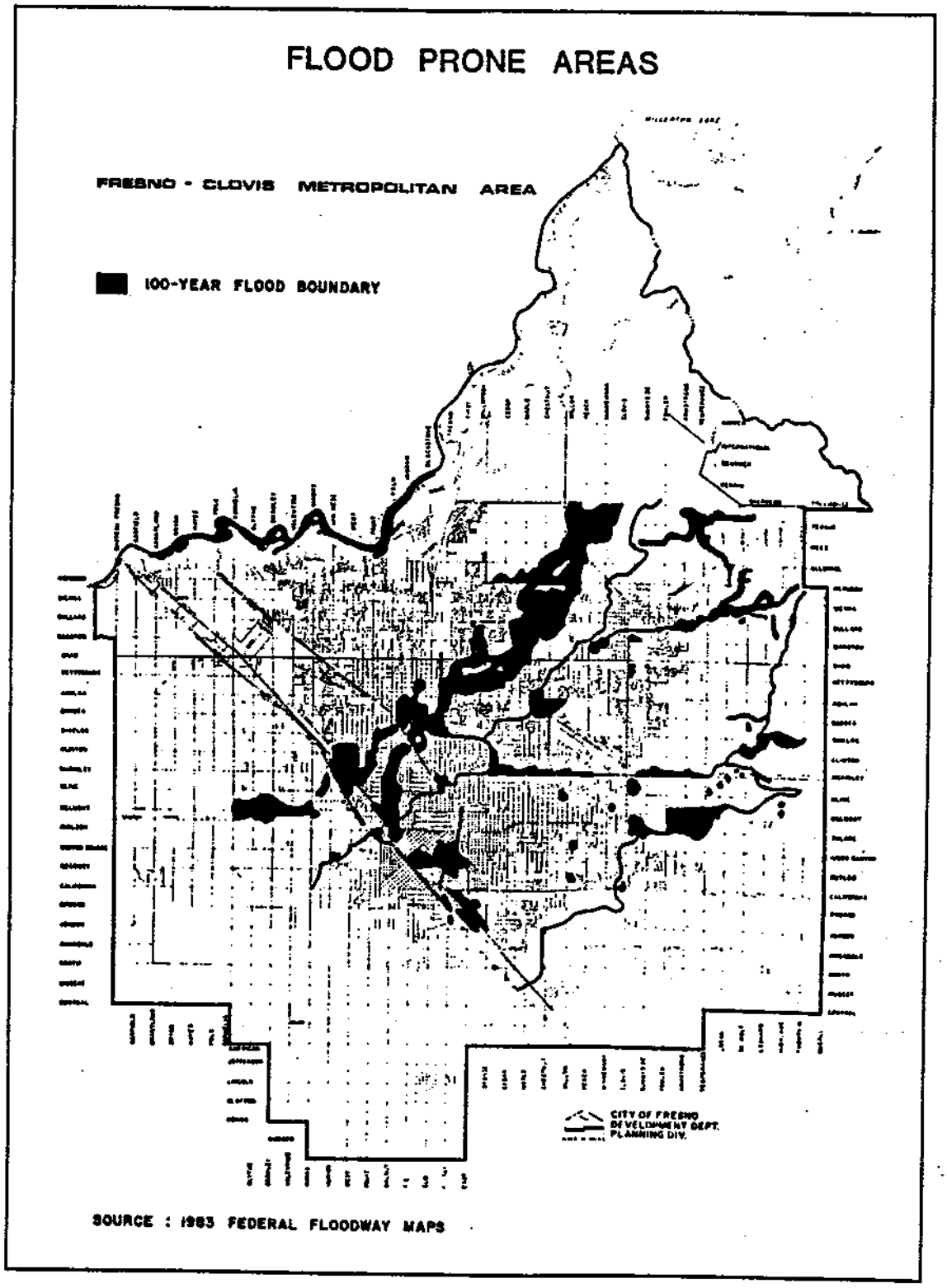
Effective flood control management may be achieved through two means. First, those areas prone to periodic flooding may be avoided in the planned development of communities. Through the designation of such areas by plans and effective controls which prohibit incompatible uses within them, protection of lives and property may be achieved. An example of this approach would be to retain, where feasible, flood plains in open space uses, such as agricultural, wildlife habitat, or recreational uses. A second approach is to seek structural solutions to flood problems. This would involve construction of dams and reservoirs, flood water diversion channels, drain lines and similar physical features. Such improvements require large outlays of public funds but are often necessary to provide flood protection to areas which are already developed or will be developed for urban uses. The effective managment of flooding problems within the FCMA will require the application of both approaches.

The District has established as the minimum level of flood protection, the one percent (100-year) event. This standard, which is also used by both state and federal agencies, if used to complete systems for the entire FCMA, would protect District land from flood flows for all events which, because of their severity and probability of occurrence, would have a one percent chance of occurring each year. All flood control activities of the District are related to this standard. Floodplain mapping has been based on the floodplain of the one percent event and the District and Corps of Engineers have established the one percent event as the minimum construction design standard for all structural features proposed in the flood control watershed. Floodplain management guidelines have also been adopted by the District.

Section 13-160.100 of the Municipal Code of the City of Fresno entitled, "Construction in Flood Prone Areas" requires the use of construction materials and utility equipment that are resistant to flood damage, and construction methods and practices that will minimize flood damage. A flood prone area is defined as an area subject to flooding by a 100-year flood in accordance with the latest map approved by the Director of the National Flood Insurance Agency.

Consistent with its flood control program, the District constructed a dam and reservoir on Redbank Creek at Shaw and Indianola in 1961. Also, the District is the designated local sponsor for a Corps of Engineer's flood control project on Redbank-Fancher Creeks. As such, the District would be responsible for land acquisition and operations and maintenance. In anticipation of this project, the District has achieved the open-space

Figure 7


FLOOD PRONE AREAS
FRESNO - CLOVIS METROPOLITAN AREA
100-YEAR FLOOD BOUNDARY
CITY OF FRESNO
DEVELOPMENT DEPT.
PLANNING DIV.
SOURCE : 1983 FEDERAL FLOODWAY MAPS

zoning of the proposed detention sites and has purchased about 80 acres of the required land cooperatively with the Cities of Fresno and Clovis and the County. However, construction of this project is not assured as it requires both Federal approval and the commitment of local funds.

Additionally, the District has recently proposed to amend the District's service area boundary to include an additional 176,551 acres. The area proposed for annexation is located in the north-central portion of the County and includes the watershed, generally identified as the Fresno County Stream Group, lying between the Kings and San Joaquin Rivers. Once adopted by the Board of Directors of the District, the City of Fresno shall recognize, and amend its plans if necessary, including this greatly expanded Flood Control District service area boundary.

With the exception of the existing Big Dry Creek Flood Control Project, northeast of Clovis, the District is also responsible for the operations and maintenance of all public and private flood control facilities determined to be in compliance with the objectives and intent of the flood control plan element. For the Big Dry Creek Flood Control Project, the funding of operations and maintenance is spread among the Water Purveyor Agencies, (i.e., the Cities of Fresno and Clovis, the County of Fresno, and the Fresno Irrigation District). The Fresno Irrigation District performs the actual on-site work.

The Fresno Metropolitan Flood Control District has proposed construction of several flood control facilities east of the Fresno-Clovis Metropolitan Area to provide increased flood protection to eastern Fresno, Clovis, and surrounding rural and agricultural lands. These facilities include a dam on Fancher Creek, enlargement of the existing Big Dry Creek Project, and construction of three detention basins, one each on Redbank Creek, Pup Creek, and Alluvial Drain.

WATER RECHARGE

Studies on groundwater needs for the area conclude that we can no longer consider our groundwater reservoir an inexhaustible resource. Our underground reservoir is being seriously depleted and is requiring effective management programs for the long-term preservation of our groundwater resources.

Groundwater recharge efforts currently involve the Fresno Metropolitan Flood Control District, the Fresno Irrigation District, 20 county waterworks districts and the Cities of Fresno and Clovis. Recharge contracts, providing dry season delivery of the surface water entitlements into FMFCD basins for recharge, encompass City facilities and 38 of the District's basins. Over 70,000 acre feet of surface water may ultimately be recharged annually, representing a significant percentage of the area's current annual groundwater pumping.

In 1982, about 74,100 acre feet of water were pumped from the underground by the City of Fresno. Approximately 27,300 acre feet were returned through planned and managed recharge activities by the City of Fresno.

Water monitoring by the City of Fresno Water Division indicates that in May 1983, the average depth for the standing water level was 88.5 feet for the area.

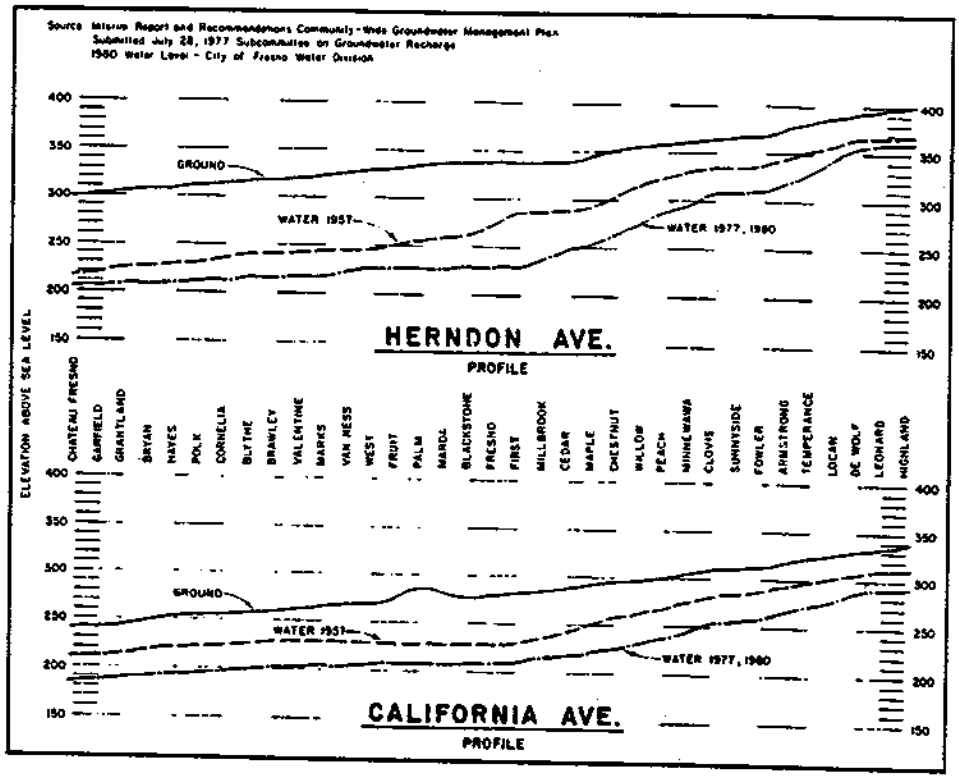
Recharge in the plan area is by incidental or intentional means. Incidental recharge occurs through surface water irrigation practices. The surface canals that carry irrigation water provide a large amount of water to the groundwater basin by way of water percolating through their earthen bottoms and sides. Intentional recharge occurs when surface water is purposefully ponded to permit infiltration into the ground.

Within the plan area, recharge sites covering approximately 315 acres received almost 22,000 acre feet of water from the canal system in 1982. Water is supplied for a normal period of four to six months during the Fresno Irrigation District's irrigation season. This water is part of the Fresno urban area water entitlement from the Kings River plus a portion of the City's ultimate 60,000 acre feet from the San Joaquin River Water Entitlement.

Fresno City's Leaky Acres is the largest existing intentional recharge facility receiving good quality canal water. Approximately 16,500 acre feet of water per year is spread at Leaky Acres.

The City has negotiated an agreement with the FMFCD for the use of flood control basins for intentional recharge within the northeast, northwest and southwest portions of the plan update area. It is anticipated these basins will recharge 11,500 acre feet per year when full utilization is achieved.

Figure 8



The largest source of wastewater recharge within the plan area is the Fresno-Clovis Wastewater Treatment Plant located in the southwest corner of the plan area. In 1978, approximately 40,000 acre feet of treated sewage water was used for irrigation and recharge. However, most of this groundwater is lost from the plan area by either groundwater flow to the southwest or by being pumped into the Fresno Irrigation District canal system for surface irrigation outside the plan area. The City obtains one half of this amount in the eastern portion of the City in a trade agreement with FID.

The City is also pursuing the possibility of private developers providing recharge facilities through the use of lakes and ponds as an integral part of their development.

DOMESTIC WATER SUPPLY

The area is completely dependent on underground water for its municipal supply. Water from the subsurface reservoir is obtained through deep well pumps owned and operated by the Cities of Fresno and Clovis, County or private water wells and companies. The energy used by these pumps is a function of three factors: the volume pumped; the depth of the water; and the efficiency of the pumps. The volume of water pumped is determined by demand. The level of pressure at which the water is pumped is set by flow requirements for fire protection. Public relations efforts on the part of the Fresno City Water Division have had success in reducing demand, or per capita water consumption. More needs to be accomplished in this area. Water pressure level has already been adjusted as much as possible for energy conservation purposes.

Further discussion is available in the "Water" portion of the "*Urban Services*" Section.

ENVIRONMENTAL IMPLICATIONS

One undesirable constituent in the groundwater is high nitrate content. Identifiable point sources include food processing plants, (i.e., wineries, raisin processing facilities), and wastewater treatment facilities. Groundwater, whether it is pumped for urban, rural, residential, or domestic farm uses, is all extracted from the same basin. Groundwater flow respects no political boundary. For instance, high nitrates or DBCP encountered east of the City in the unincorporated area can move through the groundwater to wells supplying urban users in a City subdivision.

In the eastern area DBCP contamination is a problem. DBCP is a potential carcinogen to humans. It can cause sterility in males and is a genetic toxin causing mutation of the reproductive genes. DBCP has been used in the east area and principally the southeast since about 1955. It is found generally at depths above 100 feet but has been found below 300 feet. It is very persistent and tends to remain in the soil for long periods of time estimated at a 52 year "half-life" in this area. It also shows the ability to withstand decomposition and to reach downward and travel laterally through the soils in the upper aquifers of the groundwater. It appears to be moving toward the urban area at a rate of 350 to 450 feet per year.

Chloride degradation to the groundwater, from an abandoned operation within the western plan area, has moved approximately one mile in twenty-five years, a rate of about 200 feet per year. While groundwater flow can be faster under certain geological and hydrological conditions, the relative rate remains slow. Therefore, groundwater degradation can be longlasting if not properly identified and mitigated.

Due to the permeable nature of the soils within the plan area, the groundwater aquifer is vulnerable to contamination. It is, therefore, important to identify sources of contamination and take measures to properly control liquid wastes deposited on and within the earth.

The development to residential uses may amplify the decline of the groundwater table due to the loss of normal replacement through agricultural incidental recharge.

Potential groundwater quantity problems exist in the Fresno-Clovis urban area. Adequate yields from future large capacity, public-supply wells will be a problem in some areas north of Herndon Avenue east of the San Joaquin River, and in the northern and eastern parts of Clovis. This is due to constraining subsurface geologic conditions where the Alluvium is thinner and/or finer-grained, which decreases groundwater basin capacity and recharge capabilities. If the urban area expands to the north, recharge will be a limiting factor which may necessitate the use of a surface water treatment plant.

There are presently vast amounts of good quality canal water available to the City of Fresno and other water purveyors in the urban area. The problem to date is the lack of adequate facilities to store and/or recharge this surface supply. Present water distribution systems in the area are constructed by using wells as the source of supply. As more urbanization occurs, it will be necessary that this canal water be used to prevent overdraft of the plan area's groundwater basin.

An action that will influence groundwater management is the designation of the region as a sole source aquifer by the U.S. Environmental Protection Agency (EPA). The Fresno area could become subject to increased Federal regulation to protect groundwater resources, as well as being the potential recipient of more Federal funding of water-related projects and studies.

OBJECTIVES

1. To protect water resources within the FCMA by providing sufficient quantities of good quality water and ensuring the continued development of multiple-water uses which promote valuable open space.

2. To protect the lives and property of residents of the City of Fresno from the hazards of periodic floods.

POLICIES/IMPLEMENTATION STRATEGIES

1. The City of Fresno shall continue to protect areas of natural groundwater recharge from land uses and disposal methods which would degrade water resources and encourage and support the actions of the California Central Valley Regional Water Quality Control Board, the State Health Department and the County of Fresno Health Department.

2. The City of Fresno shall support and promote the implementation of the Interim Best Management Plan (the 208 Plan) for water quality in the FCMA, to ensure the enhancement of the existing quality of the area's groundwater and to establish water quality standards designed to prevent degradation of existing water quality.

3. The City of Fresno shall coordinate construction with other public and private agencies, particularly with respect to streets, sewerage, water, gas, electric, and irrigation improvements, with flood control facilities to seek the greatest public benefit at the least public cost.

4. The City of Fresno shall coordinate the multiple use of flood control and drainage facilities with other public agencies and departments within the City of Fresno.

5. The City of Fresno shall preserve flood prone areas within the City of Fresno and its Sphere of Influence, particularly the San Joaquin Riverbottom, for uses which will not be affected by periodic floods.

6. The City of Fresno shall seek non-structural solutions to flood control and management unless such structural solutions are necessary for the protection of public health and welfare.

7. The City of Fresno shall continue to support and assist the implementation of the Fresno Metropolitan Flood Control District's Storm Drainage Master Plan.

8. The City of Fresno shall zone all undeveloped areas which are subject to natural flooding, such as the San Joaquin Riverbottom and the flood channels of Dry Creek, Redbank Creek, Fancher Creek, and others for open space.

9. The City of Fresno shall require developers of residential subdivisions to preserve those portions of development sites which may be subject to period flooding as permanent community open space as a condition of tentative or final tract map approval. The density of adjacent developable land may be increased to allow the same number of dwelling units as if the entire project were developed. In such instances, the open space area should be incorporated into the project design to provide amenity and passive open space to future residents and should be improved and maintained by the developer or through the use of such mechanisms as homeowners association fees or maintenance districts.

10. The City of Fresno shall encourage maintenance cost-sharing proposals to promote recreational open space with storm water runoff retention facilities to minimize system costs.

11. The City of Fresno shall actively pursue water conservation programs to result in optimum reduction in metropolitan area water usage.

12. The City of Fresno shall continue programs to collect and centrally treat sewage to enhance water quality and reclaim water resources.

13. The City of Fresno shall continue to monitor wells throughout the City and particularly to the east of Clovis Avenue for traces of DBCP in excess of safe levels.

14. The City of Fresno shall actively pursue and support groundwater recharge programs to effect replacement of water pumped from the underground, ensuring the maintenance of a stable, high quality underground reservoir.

15. The City of Fresno shall support continued research efforts to identify and mitigate cumulative adverse effects on groundwater quality and aquatic life from actions resulting from stormwater runoff discharge to the San Joaquin River and from intentional groundwater recharge efforts.

16. The minimum level of design flood protection for the foothill watershed should be the 100-year (1%) event. This standard, also used by state and federal agencies and the Fresno Metropolitan Flood Control District, would protect the City of Fresno from flood flows for all events up to that event which, because of its severity and probability of occurrence, would have a one percent chance of occurring each year.

17. As new information becomes available, maps which designate areas subject to flooding by a 100-year flood shall be amended.

AGRICULTURAL LAND

INTRODUCTION

To approach this discussion of agricultural land in a purely academic manner would be to ignore a very basic area of controversy among those concerned with the farm economy, conservation efforts, and national policy on related subjects. Participants in the discussion include farmers and their traditional organizations, open space and environmentalist groups, related technical specialists (i.e., soil conservationists, planners, agribusiness interests, farm advisors and agricultural commissioners, etc.), citizens and politicians. Much of the controversy over the past few years has focused on the results of the *National Agricultural Lands Study* published in 1981 and co-chaired by U.S.D.A. and the Council on Environmental Quality. Those interested in the issues are encouraged to read both the results of that study and one done in response by the Urban Land Institute, *The Agricultural Land Preservation Issue: Recommendations for Balancing Urban and Agricultural Land Needs*.

Central to the debate is the argument of preservationist groups, as quoted from page 2 of the U.L.I. study,

> "that conversion of present or potential agricultural land to non-agricultural purposes threatens to reduce the nation's capacity for production of food and fiber, at a time when export of these products contribute significantly to the nation's income . . . Other concerns about farmland are also voiced: that our heritage as a nation of independent farmers is in danger; that open spaces and rural environments which are necessary to our personal and civic well-being are dwindling rapidly; and that unique and valuable food crops which can be grown only in certain locations are being threatened with extinction."
>
> Basically, although all groups involved agree upon the importance of agriculture to world wide markets, they differ in their assessments of the threat posed to agriculture by the loss of land to urbanization, and in the degree to which they are willing to place their trust in improved productivity on the remaining land through technology. Farmers are likely to feel that the relatively low prices for food and fiber in America make it necessary for many of their number to sell off that land which has become more valuable for urban development. Citizen preservationists decry the farmer who wants to sell his land for his retirement "nest-egg" to so-called "speculators in over-alls" who are there to encourage the inevitability of conversion to urban uses. Both, taken separately, have convincing positions. Farmers cannot be expected to remain in an occupation which does not offer reasonable compensations. However, the long-term protection of agricultural resources is in the best interest of the entire world.

There are three other issues which are also of major import to conservation interests:

1. The continuing loss of topsoil on cropland due to erosion is estimated at more than 3 times the "normal" erosion rate.

2. The build-up of salts, or salinization due to inadequate leaching under arid conditions.

3. The loss of farmland to rural parcelization for "hobby farmers."

It is reasonable that the policies of local government in the Fresno area should struggle with just where we fit in this nationwide debate and with the impacts of our opinions on governmental actions. The area is one of the highest in productivity in the nation, due to a combination of soil quality, water availability and climate. It is also an area of continuing urban growth. City and County policies seem to be evolving in the direction of conservation of farmland through the use of large parcel zoning (20-140 acres), direction of growth onto less productive land, and encouragement of compact urban development.

Agriculture is the dominant factor in the economy of Fresno County, and represents a traditional activity that has contributed positively to the region's rural character and quality of life.

Since 1950, the County has consistently ranked first among the agricultural areas of the nation in value of production. In 1980, gross returns to local growers exceeded $2 billion for the first time. The $2,000,318,900 income represents an increase of $283,083,400 (16.5%). From 1970 to 1980, local agricultural income increased $1,527,612,900 (321%). The total value of agriculture to the local economy is substantially higher than these figures suggest, however, due to the multiplier effects of agriculture-dependent and agriculture-associated industries (such as food processing and shipping), and local purchases by growers and their employees of equipment, fuel, food and housing. Growth in agriculture is shown in Figure 9.

Figure 9

Growth of Fresno County Agriculture as Indicated by Gross Value of Agriculture Products Over a Span of Twenty-one Years

1960 - $	388,744,120	1971 - $	507,930,000
1961 -	385,091,740	1972 -	559,307,000
1962 -	413,572,210	1973 -	828,682,000
1963 -	423,206,000	1974 -	967,350,000
1964 -	443,088,000	1975 -	1,026,356,000
1965 -	438,253,000	1976 -	1,178,373,000
1966 -	452,926,000	1977 -	1,110,424,200
1967 -	438,753,000	1978 -	1,241,033,100
1968 -	462,659,000	1979 -	1,719,235,500
1969 -	458,014,000	1980 -	2,002,318,900
1970 -	474,706,000	1981 -	1,905,289,240
		1982 -	1,855,733,500

The diversity in type of crop under cultivation in Fresno County is as striking to the observer as is its total value. Forty-seven of the fifty most important crops produced statewide are grown commercially in the area. Over 75 crops cultivated in the area have cash values in excess of $1 million. In terms of their fiscal importance, two crops dominate locally: grapes ($478,217,000) and cotton ($443,066,000). Fresno's ten leading crops with regard to cash value are identified in Figure 10.

Fresno County may be divided into five distinct ecological zones on the basis of their prevailing types of agricultural production. To the east of the FCMA, the Sierra Nevada range is primarily utilized for forestry products. Next, the foothills of the Sierra represent important rangeland. Intensive agriculture occurs in the two broad zones that compose the east and west sides of the Valley floor. Finally, to the west, grazing and rangeland are once again dominant in the foothills of the Diablo or Coast Ranges.

The FCMA is located in the "eastside" which may be characterized as a mature agricultural area, with a well-defined pattern of farming activities. Most of the arable land is devoted to relatively stable crops, such as vineyards and orchards. The high cash value per unit of production of these crops, coupled with the relatively long-term, high capital commitment necessary to maintain production, contributes to this stability.

The "westside" area developed at a much slower pace than the "east side," due to the more limited water supply, inferior soils and distance from market. With importation of water as part of the California Water Project, and the loss of valuable farmland on the eastside due to increased urbanization, the westside area is currently characterized by relatively large farming operations requiring substantial investment for water and machinery. Crop production in the area is marked by significant annual and seasonal fluctuations in response to changing market conditions and/or water limitations. Production is devoted primarily to field crops with cotton, tomatoes, barley and melons dominating. In general, all suitable land within the area (and the County) is already under some form of cultivation. In the past few years there has been growing awareness of the apparently severe problems imposed by the build-up of salts and a naturally occurring substance—selenium—in the water which drains from certain westside areas. This contaminated water was found to cause deformities in the waterfowl which visit the Kesterson Reservoir in Merced County. Closing of the reservoir and clean up of the 1,280-acre site is planned by February, 1988. While continued irrigation to farmers in the Westland Water District is threatened, alternative methods of disposal of drainage waters are being sought.

BACKGROUND

Fresno County comprises less than 4% of the total land area of the state, yet contains nearly 11% of its prime agricultural land. Nearly 10% of total agricultural production in the County occurs within townships in or adjacent to the Fresno-Clovis Metropolitan Area. About 89,000 acres (49% of total area) of the land within the metropolitan area may be classed as prime land according to the criteria established by the State of California (Section 5120(c) of the Government Code), with the exception of those criteria which use the production of crops valued at $200 or more as a standard. As nearly any land in the metropolitan area might fall within such a criteria, it becomes less than useful in the process of decision making. In addition, the credibility of a constant monetary measure is diminished by changes in value due to inflation.

Figure 10

FRESNO COUNTY'S 10 LEADING CROPS

Crop	1984 Rank	1984 Dollar Value	1983 Rank	1982 Rank	1974 Rank
Cotton	1	356,563,000	1	2	1
Grapes	2	292,148,000	2	1	2
Cattle & Calves	3	142,045,000	3	3	3
Tomatoes	4	136,462,000	4	4	4
Milk	5	112,084,000	5	4	5
Turkeys*	6	77,616,000	*	12	11
Oranges	7	64,699,000	7	8	9
Alfalfa Hay	8	61,200,000	6	9	6
Cantaloupes	9	59,274,000	11	6	7
Nectarines	10	56,112,000	9	7	17

*Not reported separately in 1983.

The City and County of Fresno are experiencing rapid population growth, as has been discussed early in the Plan. This appears to be due in part to the overall pattern of migration away from larger and toward the smaller urban areas that has been characteristic of the past decade. The need to identify growth areas that are adequate to absorb the anticipated population increase of the next 20 years is generally recognized.

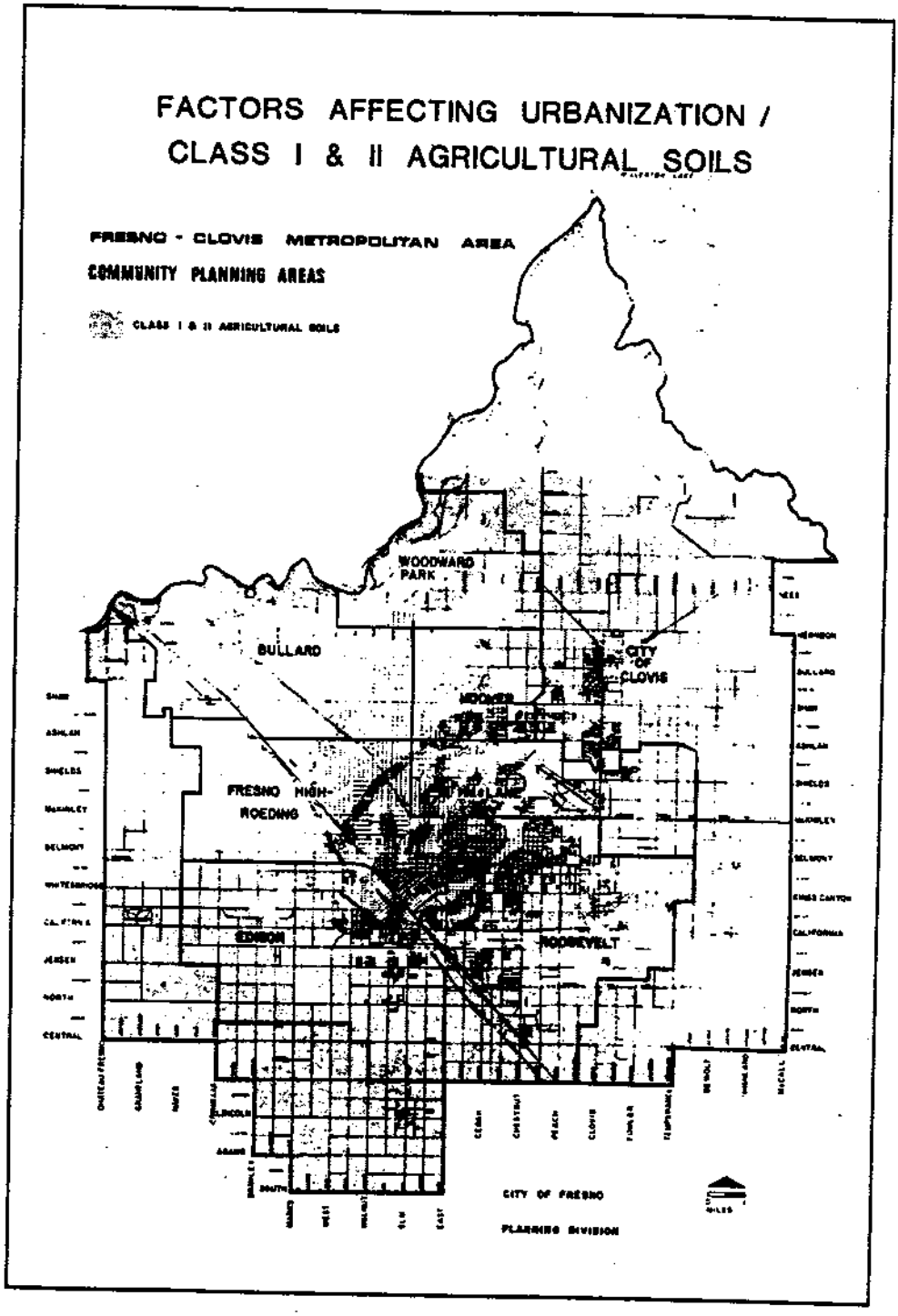
While agriculture is dependent in a general way on a growing population in order to maintain or expand its market, sprawling urbanization or unregulated urban expansion are among its most serious threats. The conversion of farmland to urban and industrial uses continues at a rapid rate. For example, it has been estimated that for every 1,000 new residents, California loses 142 acres of agricultural land. To compound problems, development frequently favors the best farmland, driving agricultural production into the more marginal areas further from their markets and distribution points, and where inferior soil, water and/or climatic (including air quality) conditions may hamper or preclude optimal production.

Sprawling residential subdivision and the parcelization process associated with low density rural residential development (e.g., 2, 5 or 10 acre lots) also remove valuable farmland from practical production. Land shown as rural residential uses in the County's General Plan generally is no longer available for intensive agricultural operations. In the past, both the City and the County allowed "leapfrog" development, or urban islands within existing agricutural areas. Since 1976, both the County's referral policy on the urban fringe and Fresno City's Urban Growth Management Process have worked to limit growth to that involving contiguous parcels. Growers adjacent to urban areas typically must curtail or limit their weed and pest control efforts and may face potentially significant problems of vandalism to crops, equipment and property.

A number of alternative means exist or have been proposed for evaluating the quality of agricultural lands, including comparisons of intrinsic fertility, general physical characteristics (e.g., topography), proximity to water, adaptability to a variety of crops, purchase price, rental rate, and biomass productivity. The most frequently used technical classification scheme is the Soil Conservation Service (SCS) (U.S.D.A.) land use capability system. This makes use of ten classes of soil types which are defined and ranked on the basis of the actual fertility of the soil, as determined by a number of physical factors (such as the availability of water, natural drainage rates, relative salinity).

Another technique that has received considerable attention for evaluating agricultural lands is the Storie Index, which expresses numerically the relative suitability of a soil type for intensive agriculture. The rating is based strictly on the inherent properties of the soil, and is calculated by evaluating such factors as depth of subsoil, drainage, salts, alkali, and relief. More recently, the SCS has developed a new definition of

Figure 11



important farmland for use in their national inventory of agriculture. This establishes four major types of farmland, which are described as follows:

Prime Farmland is land best suited for producing food, fiber and oilseed crops and also available for these uses (the land can be cropland, pastureland, rangeland, forestland, or other land but not urbanized land or water). It has the soil quality, growing season and moisture supply needed to produce sustained high yields

of crops economically when treated and managed (including water management) according to modern farming methods.

Farmland of Statewide Importance is land other than prime farmland that has a good combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses (the land could be cropland, pastureland, rangeland, forestland or other land, but not urbanized land or water).

Unique Farmlands is land other than prime and farmlands of statewide importance, that are presently used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, growing season and moisture supply needed to produce sustained high yields of a specific crop when treated and managed according to modern farming methods.

Farmland of Local Importance is land "of importance to the local agricultural economy." The only land so designated in the metropolitan area is within the Woodward Park Community and has historically been used for grain crops or allowed to lie fallow.

Examples of soils found in or adjacent to the FCMA that qualify as prime farmland according to this definition are Hanford coarse sandy, sandy and fine sandy loam, and Hesperia coarse sandy, sandy and fine sandy loams. Unique farmlands in the area are primarily devoted to fig production, although grapes (raisins) are important. The precise definitions used by the SCS in determining these classes are provided in the Appendix. Soil properties are only one of several criteria that have been employed in defining prime farmland. Also included are prevailing land use, frequency of flooding, availability of irrigation, depth of water table and susceptibility to erosion. The soil properties reflected in the SCS inventory are useful as a basis for comparison between different sites. However, actual productivity can be modified by a number of additional factors, such as topography, consistency (e.g., in soil thickness, fertility and water retention), "heaviness" (i.e., efficiency in retaining water), improvements, crop compatibility, parcel size and shape, and farming expertise.

Local government in the Fresno area should use every reasonable means to protect agricultural resources. The principal techniques that exist to serve this purpose are land use controls and preferential tax incentives, tied to the City's overall planning and development review process. The California State Office of Planning and Research has identified the following techniques for conserving agricultural lands: (1) ability to monitor agricultural land conversions; (2) recent land use, conservation or open space elements to the General Plan; (3) completed Spheres of Influence; (4) urban limit line or growth zones; (5) effective large-lot zoning; (6) participation in the Williamson Act; and (7) use of open space easements. Preservation of agriculture in the area will best be achieved by establishing an ultimate urban/rural boundary beyond which the City will not grow, coupled with the use of zoning controls to ensure the compatibility of adjacent land uses along the urban/farmland interface. It is recommended that the SCS definition of prime farmland be employed as the basis for establishing areas that are not suitable for urban expansion or development.

Establishment of an ultimate urban/rural boundary may be necessary in order to direct future growth away from areas of prime and productive farmland and to encourage managed urban growth instead of the "leapfrog" development typical of the 1960's. Existing City policy favors infilling, but some expansion must occur to meet the housing, service and industrial needs of the next 20 years, assuming projections of the population increase prove accurate. Since there are few effective means for controlling the actual rate of growth, it remains uncertain how soon some of these lands will be urbanized. A real problem exists with possible premature divestment in farming operations where future growth is anticipated but development may not occur for several years. Farmland may be purchased or held for its possible speculative gain, rather than continue in agricultural production. The City would like to encourage continued agricultural production until such time as it becomes necessary to develop land for other uses. In addition, it may be desirable to retain some of these properties in agriculture as there may be other constraints to urbanization such as within flood plains or airport approach areas.

Passage of the California Land Conservation Act (CLCA, also known as the Williamson Act) in 1965 made California one of the first states to utilize preferential use-value taxation. This Act, together with a constitutional amendment in 1966, set forth the conditions that tax assessment was to be based on capitalization of rental income rather than on market value. Originally concerned exclusively with the preservation of agricultural land, the Act has been subsequently expanded to include scenic highway corridors, important wildlife habitat areas, salt ponds, managed wetlands and submerged lands, and land with open space potential.

The CLCA provides enabling legislation which permits counties and cities to enter into contracts with landowners who wish to obtain preferential tax assessment based on use-value. Before an individual can enter into a contract, his land must meet certain agricultural or open space criteria and must be located in areas that are designated as agricultural preserves. The landowners must agree not to develop their land for at least 10 years (20 years in some areas), with automatic renewal of the contract each year. If the landowner should desire to terminate the contract, he must give the appropriate legislative body notice, and then wait out the remaining period of the contract (which will run for either nine or nineteen years from the time of first notice of non-renewal). During the first year following non-renewal, the assessed value of the property increases to 60% of what it would have been without the Act. Thereafter, it increases gradually until it reaches full value at the end of nine years. Violation of the contract will result in a penalty charged to the landowner of 12.5% of market value of the property, unless this is waived by local government.

Although passage of Proposition 13 has substantially changed the circumstances of assessed valuation and taxing of property, basing all property tax within the state on use-value, a number of advantages may still accrue to the landowner who enrolls in the CLCA program including the freezing of assessed value of land on the basis of its original use value, savings on capital investments, and limitation on pressures for conversion. All of these reasons indicate that there is still a role for CLCA to play in protecting existing agricultural operations from urban encroachment, although it is clearly not sufficient in itself to prevent lands on the urban fringe from undergoing development.

Public policies to influence the timing and spatial pattern of urban growth may be classified into four basic strategies: (1) land use control policies; (2) preferential taxation policies; (3) redefinition or reallocation of property rights; and (4) policies governing the provision of public services. The traditional police power policies (e.g., zoning, subdivision and sanitary controls) that provide the framework for current land use policy have not been especially successful in containing urban sprawl. This is largely due to the fact that those techniques intervene in the land acquisition and conversion process too late to affect the critical decision of the developer to purchase a specific parcel of land for eventual development. The expectations of gain on the part of the landowner and/or prospective developer have already been created, and sizeable investments may have already been made in the anticipation of development. The economic pressures for conversion in these cases are too strong for conventional land use control strategies to stop the inevitable. In many cases, existing subdivision or use restrictions are modified to permit development.

For the same reason, preferential taxation is not likely to have much effect on the rate of farmland conversion immediately adjacent to urban areas. In most cases, the potential profit which is anticipated by the farmers for developing their land on the urban fringe is too large, relative to the deferred tax and penalty law, to have any significant effect on conversion.

Many who prefer more incremental changes favor the regulation in the provision of public services as a major policy instrument for the determination of directions and rate of urban expansion. There are two ways in which public service policies can be used to complement land use control and preferential taxation to guide urban growth: (1) by directing the timing and location of public services, such as sewer, water and streets; and (2) by insuring that the economic consequences of growth be borne by those who will achieve any economic benefit.

ENVIRONMENTAL IMPLICATIONS

Preservation of agriculture has been identified as a positive social, economic and environmental goal. Agriculture is strongly associated with a number of social values and symbolic or aesthetic properties that together help foster the rural character of the area. In addition, agriculture is the mainstay of the local economy, and contributes substantially to national productivity and consumption.

The crucial point in the debate over whether to permit continuing conversion of prime farmland to other uses does not have to do with the matter of acreage per se, but rather addresses the question of the technological possibilities and constraints on the conversion of marginal lands to active farming (in order to compensate for lost prime lands). The benefits to be obtained from the development of prime land and its replacement through the conversion of marginal farm land may not be worth the risks that must be assumed. The destruction of prime farmland soils is almost entirely irrevocable, while the large-scale conversion to high-energy, high technology farming significantly decreases our society's options for the future and our ability to respond to growing natural resource shortages (or cost increases). It is not difficult to anticipate some of the problems that may be associated with this.

As a general rule, producing the same crop on Class III soils requires three or more times as much fertilizer and twice as much energy as an equivalent level of production on Class I or II soils. Marginal lands also require greater irrigation inputs than prime lands, which is important in several ways: it takes water resources away from their natural drainage areas; it consumes a great deal of energy for the construction, maintenance and distribution of water supply systems; and it creates run-off high in salts, pesticides and other agricultural wastes.

The widespread impacts of agricultural chemicals on the natural environment, groundwater and human health are just beginning to be understood. Within Fresno County, we are feeling the effects of both DBCP and salinization. Critical shortages of natural fossil fuels, especially natural gas, are foreseeable. Natural gas is the most important feedstock for the production of nitrogen fertilizer, which is roughly 60 percent of all fertilizer manufactured and used in the United States.

OBJECTIVE

1. While the County of Fresno retains the primary responsibility for agricultural land use policies and the protection and advancement of farming operations, the City of Fresno can be supportive of those efforts by being responsible in its growth and development policies and decisions.

POLICIES/IMPLEMENTATION STRATEGIES

1. Prime farmland shall be preserved for continued agricultural use to the fullest extent feasible consistent with the protection of the environment, public safety and well-being, and the planned, orderly and efficient development of the urban area.

2. The City of Fresno shall encourage project development proposals that result in in-filling of the existing urban area, including small parcels of farmland that have become surrounded by urban or industrial uses.

3. The City of Fresno shall plan for urban uses within the Urban Boundary Line to prevent further urban or industrial encroachment onto planned agricultural lands surrounding the present City. The boundaries for planned urban uses shall be drawn as straight as circumstances permit in order to eliminate "peninsular effects" (i.e., intrusions of farmland into urban areas, or vice versa).

4. The City of Fresno shall continue to recognize its agricultural preserve contracts (i.e., Williamson Act) and promote the enrollment of all prime farmland within its domain that remains outside of its anticipated urban growth area. The City should assist eligible landowners in becoming aware of the Act, preparing contracts, and securing tax benefits. Scenic or resource conservation easements should be explored as a suitable means for protecting prime farmland that is located adjacent to residential areas and where the property does not qualify for inclusion in the agricultural preserve program.

FLORA & FAUNA

INTRODUCTION/BACKGROUND

Within the FCMA, the San Joaquin Riverbottom and Bluffs constitute the only major delicate eco-system with aquatic and riparian habitats. The San Joaquin Bluffs and Riverbottom are located at the FCMA's northernmost urban development boundary extending approximately 10.8 miles from Woodward Park to Highway 99, with the San Joaquin River acting as the physical separation line between Fresno and Madera Counties.

The San Joaquin River was a migratory route for vast quantities of native fishes. However, upon the construction of Friant Dam, the natural spawning beds were destroyed, thereby diminishing the resident types of fishes. Agricultural and urban discharges are also affecting the fish population. Marshes along the floodplain of the San Joaquin River provide refuge and food for ducks, geese, and many shore birds.

Other areas serving as aquatic habitats include: small lakes within Woodward and Roeding Parks, irrigation canals, storm water runoff, ponding basin sites, and the water recharge site operated by the City, known as "Leaky Acres".

MAJOR FINDINGS/CONCLUSIONS

The San Joaquin Riverbottom's "riparian vegetation", consisting of woodland (oak, sycamore, willow, cottonwood) and undergrowth (rose, blackberry, wild grape), is rapidly disappearing. Although sand and gravel extraction sites are being restored, the natural environment cannot be totally re-created.

Rare and endangered plants found within the San Joaquin Riverbottom habitat include:

1. The grass, *Orcuttia Californica* var *Inaequalis*;

2. The owl's clover relative, *Orthocarpus Succulentus*.

Both are on the U.S. Office of Endangered Species List.

The San Joaquin River bluff area contained unusual geological formations called "mima mounds" (hogwallows). During the rainy seasons, vernal pools formed around the base of the mounds, sustaining wildflowers. These geological formations were considered a "very unique geologic feature" by the California Natural Areas Coordinating Council and by scientific researchers, i.e., geologists. However, due to a lack of preservation, the area with the highest concentration of "mima mounds" was leveled for residential development.

The existence of the mounds was addressed through the community plan's EIRs. Although their elimination was considered an adverse environmental effect, the effect was not considered substantial enough to justify prohibiting the urbanization of the area.

The natural state of the San Joaquin Bluffs and Riverbottom provides an important wildlife habitat of the variety of wildlife species native to the area.

The endangered species within the riverbottom area include the following:

1. Blunt-nosed Leopard Lizard

2. Western Spadefoot Toad

3. California Tiger Salamander

4. Fresno Kangaroo Rat

5. Giant Garter Snake

6. Yellow-billed Cuckoo.

Past plans have shown the area as the future site of the San Joaquin Reservoir. Due to funding constraints and State water policy priorities, this project is not likely to occur. In addition, designation as a water feature obscures the land use planning issues which must be addressed. Therefore, the Reservoir is no longer shown in this General Plan.

Previous community planning efforts have identified the Bluffs and Riverbottom area as "the most significant scenic feature within the FCMA" due to its natural aquatic and riparian habitats. However, existing riverbottom gravel excavation operations are altering and destroying the wildlife habitat, the quality of the aquatic environment (i.e., fishing) and the river's natural beauty.

The San Joaquin Bluffs Environs Specific Plan, which represents the latest adopted planning policies, promotes the preservation of the area's natural environment to insure the development of an urban atmosphere which complements the area's natural setting. The plan proposes development standards that will establish compatible relationships between types of land use, traffic circulation, non-motorized circulation and open space.

The protection for the southerly San Joaquin Bluff Area is accomplished through the adoption of the "BP" (Bluff Preservation) District, an overlying zoning district applying to an area 300 feet wide measured southerly from the toe of the Bluff (Bluff Influence Area). The District is intended to provide special land development standards which will preserve the integrity of the area's natural landscape and protect the

bluffs from erosion. This preservation effort will protect the health and general welfare of owners and users of properties within the River Bluff Influence Area, i.e., from geological safety hazards.

Along with promoting the preservation of the area's natural character, the plan proposes the enhancement of the area's scenic beauty through the development of open space network uses. Such recreational uses as greenways, bikeways, vista points, and passive open space are recommended for development as part of the implementation of the San Joaquin Area Recreational Trails.

At the time of this writing, the major obstacle to the implementation of the recreational trails is land acquisition. Ownership is currently uncertain, with determination of such contingent upon the completion and public release of a navigational study and boundary research by the State Lands Commission's staff. It is anticipated that much of the trail will be implemented as part of the Subdivision Map Act process. The completion of an implementation plan for the recreational trail will be programmed into staff efforts as a part of the related community plan updates.

As the FCMA experiences continuing pressures to urbanize northward toward the San Joaquin Bluffs and Riverbottom area, the trail's implementation is further endangered by the questionable ownership in the interim period. While gravel excavation operations outside the City of Fresno's jurisdiction are altering the area's eco-system, there are conditions placed by the County which require that the sand and gravel operations restore and replant the area following mining of the resources.

The City of Fresno must encourage the introduction and adoption of State legislation involving the San Joaquin River riparian water rights to assist in determining legal ownership, and in obtaining the necessary financing for the implementation of the recreational trails.

The Fresno Metropolitan Flood Control District (FMFCD) discharges urban stormwater from outfalls for three drainage zones (CO-1, DF, and DG) to the San Joaquin River (see Figure 12). The District plans to add six additional drainage outfalls to the River as the bluff area is urbanized. This system is preferred by the District as it is less costly than other alternatives and will avoid soil stability and erosion problems potentially related to the use of retention basins in the vicinity of the bluff.

The Final E.I.R. on the Discharge of Urban Storm Water to the San Joaquin River (SCH #81032654) identifies a number of potentially significant adverse effects associated with the discharge of urban stormwaters to the River. According to the E.I.R. "These impacts are related primarily to the quality of urban stormwater runoff to be carried in the new drainage systems and its effects on San Joaquin River fish and wildlife." Urban stormwater runoff may potentially increase the concentrations of heavy metals, ammonia, suspended solids, pesticides, coliform bacteria and oxygen-demanding substances in the River during and following stormwater discharges. The District is participating in water quality studies (see Water Resources) and will monitor the impacts of stormwater discharge on the San Joaquin River and take mitigation measures deemed necessary. However, the potential for significantly adverse effects cannot be predicted with accuracy and a cautious approach seems to be indicated. In particular, the discharge of stormwaters from urban commercial and industrial uses into the San Joaquin River should be avoided.

ENVIRONMENTAL IMPLICATIONS

Vegetation and wildlife are interdependent for their existence. Human actions constantly alter their balance in nature by disturbing habitat and food chains.

The San Joaquin Bluffs and Riverbottom's unique characteristics of wildlife, vegetation, and natural quality requires careful concern and sensitive consideration of development proposals. Additionally, there exist certain natural restraints to development such as potential geologic hazards and periodic flooding hazards in certain areas along the bluffs and within the river valley.

The vegetation eco-system serves as a wildlife habitat, prevents soil erosion, maintains air quality, controls runoff in the San Joaquin Bluffs watersheds and provides scenic beauty. Wildlife contributes to the area's diversified beauty and is an invaluable part of nature's eco-system. Without protection, wildlife habitat will become more fragile and vulnerable. Wildlife habitat must provide protective cover from predators, shading, and feeding areas. High quality food and clean water are also necessary to support sufficient numbers of species for reproduction and to maintain proper breeding sites.

Increased urban development of lands currently in their pristine state would endanger the FCMA's "flora" and "fauna" by depleting natural habitat and diminishing the quality of air and water.

Figure 12

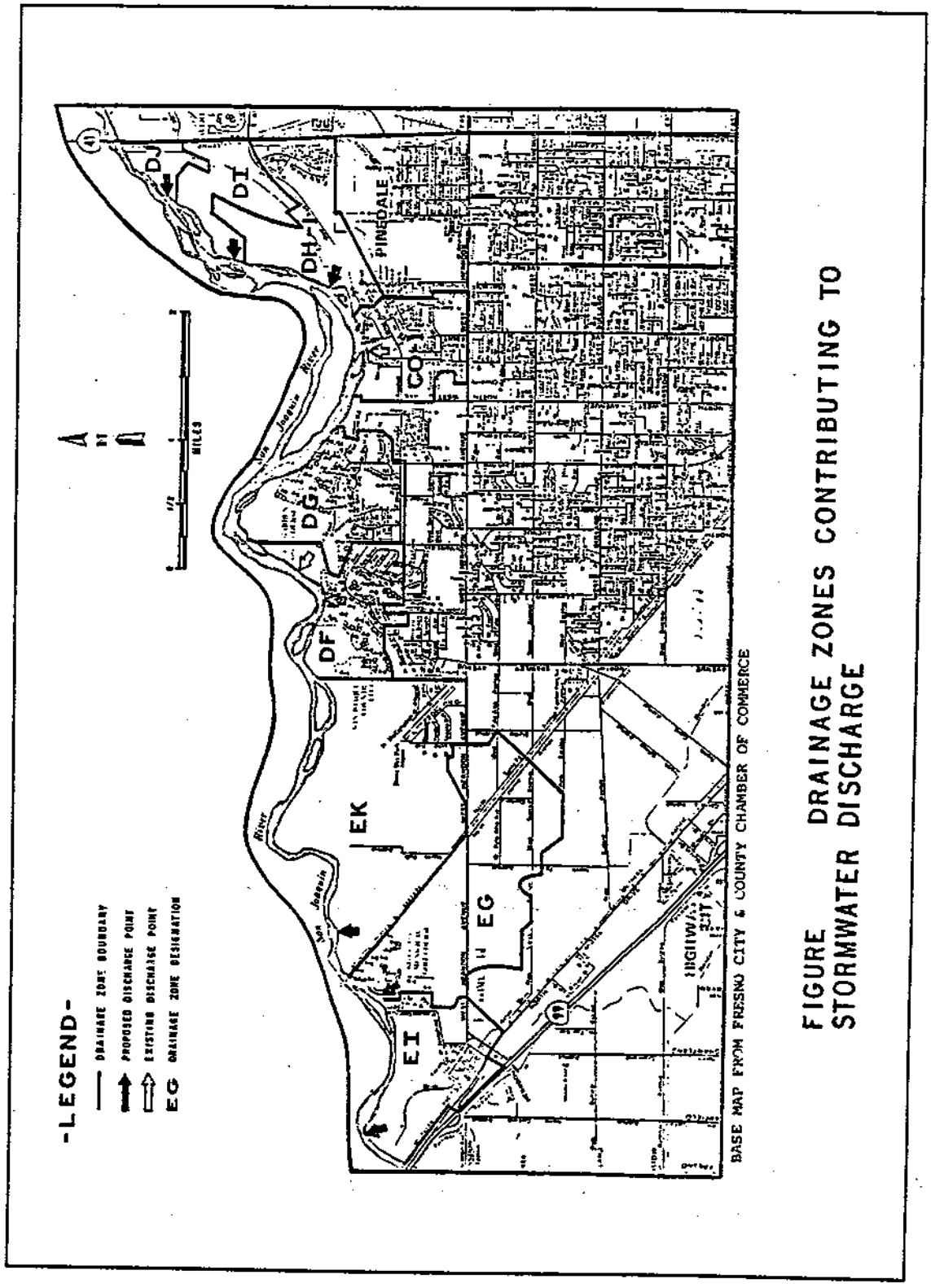
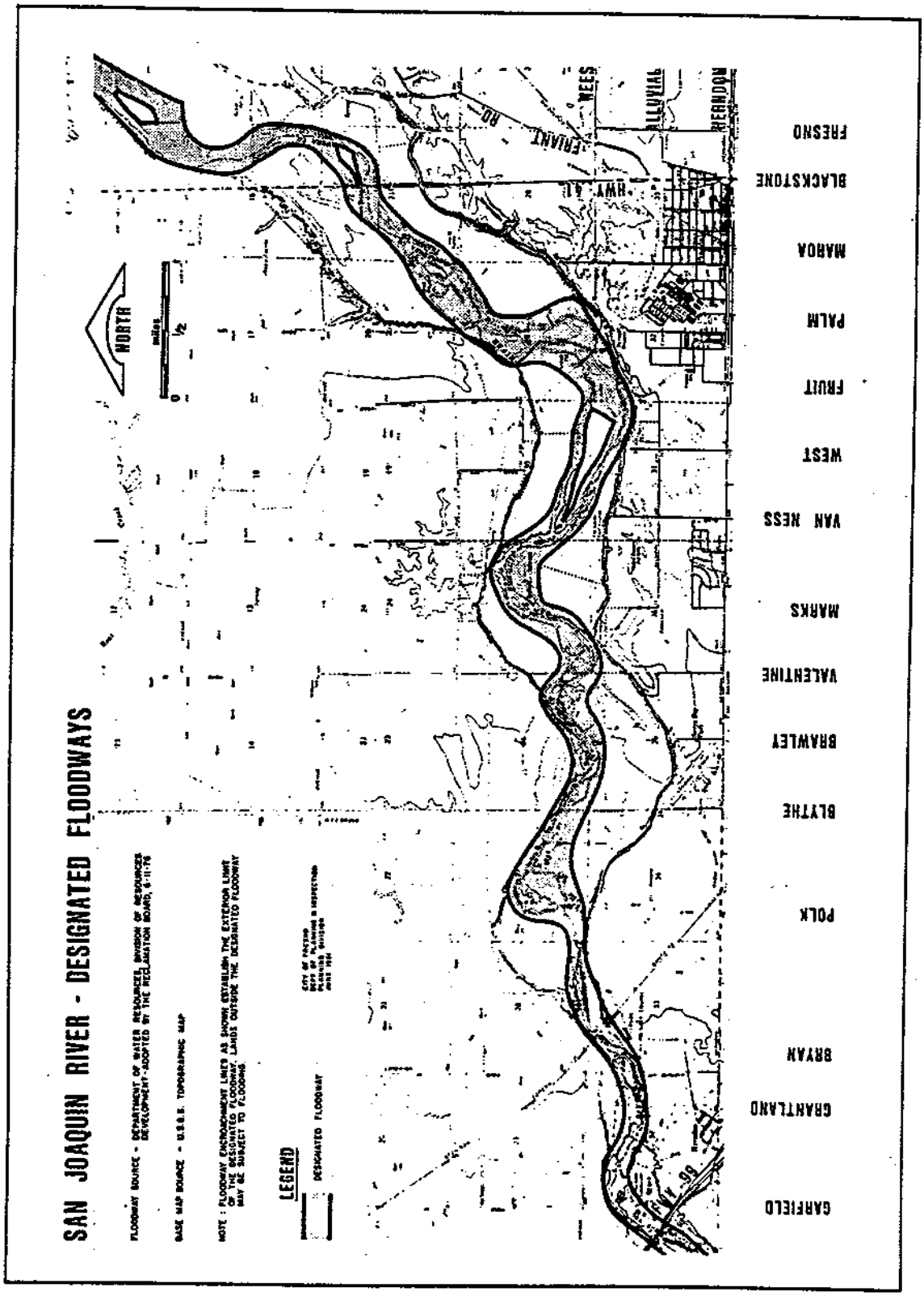


FIGURE DRAINAGE ZONES CONTRIBUTING TO STORMWATER DISCHARGE

Figure 13


SAN JOAQUIN RIVER - DESIGNATED FLOODWAYS
LEGEND
DESIGNATED FLOODWAY
NORTH
miles
0
1/2
GARFIELD
GRANTLAND
BRYAN
POLK
BLYTHE
BRAWLEY
VALENTINE
MARKS
VAN NESS
WEST
FRUIT
PALM
MAROA
BLACKSTONE
FRESNO
HWY 41
FRIANT RD
ALLUVIAL
HERNDON

The designation of the entire riverbottom for open space use under the "O" (Open Conservation) District serves to preclude urban development, preserving the area's riparian habitat, and retaining non-intensive uses such as agricultural and existing and future passive recreational activities.

The Open Space Designation would also be consistent with the State's Water Resources Program's intent to miminize potential loss of life and property due to floods through classifying portions of the riverbottom as a "Designated Floodway" and "flood-prone area" (see Figure 13).

Currently, utilization of the bluffs and riverbottom environs has been limited to private ownership (i.e., gravel excavation operations), a training facility for the Fresno County Peace Officers, a Boy Scout camp site, a municipal golf course and two private golf courses.

The future development of the recreational trail development and management plan will introduce alternative passive recreational uses which could attract regional participation from a wider socio-economic segment of the community. Development of the recreational trails to a completed operational state is contingent upon: resolution of land acquisition; State ownership determinations; and revived community interest. However, the development of the six designated vista points could occur as an interim measure that would encourage community enjoyment of the area's natural and scenic resources. The development of the vista points could occur as a phase of the recreational trails, or as an independent open space entity incorporated within the design of a planned unit development or a standard subdivision. In either case, the vista point sites must be secured through developed dedication or through conditions of a project approval requiring that the development of the vista points be part of the required "Open Space", and be accessible to the general public.

The consequences of not pursuing the development of the designated vista points would result in the denial of regional open space opportunities for all segments of the community.

Future urbanized development west of Freeway 99, to the north of the Woodward Park area, or to the southeast will affect wildlife consisting of doves, quails, snakes, lizards, rodents and rabbits. However, no endangered species inhabit these areas.

OBJECTIVES

1. To protect and enhance the San Joaquin Bluff's and Riverbottom's natural scenic and recreational resources through the preservation of open space areas.

2. To conserve lands important to the continued existence of plant and wildlife species by implementing policies which promote the conservation of the FCMA's remaining natural vegetative and wildlife resources.

POLICIES/IMPLEMENTATION STRATEGIES

1. It is the policy of the City of Fresno to support the objectives of the San Joaquin Bluffs Environs Specific Plan which promotes the area's scenic amenities and protects the area's natural environment, insuring the development of an urban atmosphere that is complementary to the area's natural setting.

2. It is the policy of the City of Fresno to continue to honor the designation of the entire riverbottom for open space use under the "O" (Open Conservation) Zone District, as adopted through the San Joaquin Bluffs Environs Specific Plan when considering land use decisions.

3. The City of Fresno shall initiate the rezoning of the riverbottom properties from the County AL-20 (Agricultural Limited-Twenty Acre parcels) Zone District to the "O" (Open Conservation) Zone District upon the annexation to the City of Fresno.

4. It is the policy of the City of Fresno to support Fresno County General Plan policies which promote the preservation and enhancement of Fresno County's river influence areas.

5. It is the policy of the City of Fresno to actively pursue the completion of the San Joaquin Bluffs Environs Specific Plan Recreational Trails and Implementation Plan as a high staff priority following City annexation of affected areas.

6. Recreation uses within the San Joaquin Riverbottom and Bluffs shall be limited to activities such as hiking, horseback riding, picnicking and camping that infringe minimally on natural vegetation and wildlife.

7. The City shall encourage property owners to maintain natural vegetation or to plant suitable vegetation along fencelines, drainage and irrigation ditches for the benefit of wildlife, particularly along the Bluffs.

8. The City shall use open space easements and appropriate zoning in areas identified as habitat for rare and endangered vegetation and wildlife species to promote preservation and restrict development in sensitive areas.

9. The City shall support Fresno County General Plan policies which monitor gravel excavation restoration operations through enforcement of approved conditional use permits.

10. The City of Fresno shall avoid projects that may adversely affect endangered wildlife and vegetative species. Projects shall be approved only when a determination is made that adequate mitigation measures are incorporated in the project's design.

11. The City of Fresno shall encourage and pursue the planning, coordination and development of public and/or commercial fisheries with private and public interests (i.e., City's Park and Recreation Department (FMFCD), using existing and planned ponding basin sites and the ponds created near gravel operations.

12. The City shall support State and Federal programs to acquire significant fish and wildlife habitat areas for permanent protection and/or public recreation use.

13. The City of Fresno shall encourage coordinated regional park planning and implementation efforts with the Fresno County and City of Fresno Parks and Recreation Departments.

14. The City shall encourage the Fresno Metropolitan Flood Control District to actively monitor the impacts of stormwater discharge into the San Joaquin River. Discharge of runoff from commercial or industrial land uses shall be avoided.

MINERAL RESOURCES

INTRODUCTION

This section is intended to provide appropriate policies for the utilization and preservation of identified mineral resources and deposits within the City of Fresno's Sphere of Influence and to impacts and land use conflicts resulting from surface mining operations in the Fresno Metropolitan Area Act (SMARA) established minimum standards for surface mining operations and required the State Geologist to classify urbanizing areas of the state as to mineral resource content and to identify mineral resource zones of regional or statewide significance. This Act also requires the City to establish appropriate mineral resource management policies and require reclamation plans as a condition for issuing mining permits. Because of the scarcity of gas and oil deposits and geothermal resources within Fresno's Sphere of Influence, this section addresses only sand and gravel resource availability.

BACKGROUND

The most significant mineral resources within the City's Sphere of Influence are sand and gravel, located principally along the banks and in the bed of the San Joaquin River, from Friant Dam to west of Skaggs Bridge. These deposits are of high quality, may be easily mined, and are close enough to the market to enable relatively low transportation costs.

The importance of rock, sand, and gravel aggregate to the building industry and public projects in the Fresno-Clovis Metropolitan Area cannot be overstated. Aggregate must be mined where suitable deposits are found, and to be most economical, they should be extracted and processed near the consumer. The deposits must be of sufficient quality to meet the specifications of various private and public construction projects and of sufficient quantity to justify the extraction plant investment. The San Joaquin Riverbottom has provided a reasonably cheap source of quality aggregate for many years. The fact that the extracting plants lie in proximity to urbanized areas has helped to keep transfer costs low, ultimately helping to reduce the cost of construction.

In 1969, the County of Fresno adopted a policy document titled General Plan for Conservation - Rock, Sand, and Gravel Excavation. This document provides considerable information and should continue to be useful to the extracting industry in formulating surface mining proposals.

Since 1974, the City of Fresno boundaries have been expanding steadily to the north toward the San Joaquin River where current sand and gravel operations are located. It can be anticipated that the City will continue to annex to the City's Sphere of Influence boundary which extends to the center of the San Joaquin River.

This will result in the City assuming more responsibility for the recognition and conservation of the natural resources of the area (i.e. sand and gravel deposits) by adopting a coherent policy plan directed at mitigating and minimizing the long-term adverse effects on the natural topography and environment. To this end, policies are incorporated into this plan to address issues such as land reclamation, resource protection from the encroachment of incompatible uses, and the mitigation of air, noise, and visual pollution.

The Fresno City Zoning Ordinance permits surface mining activities within the "O" Open Conservation District, subject to a Conditional Use Permit. Detailed requirements relevant to the initiation of surface mining activities are also contained within the Fresno City Zoning Ordinance.

The California Department of Conservation, Division of Mines and Geology (DMG) published Special Report 158 Mineral Land Classification Aggregate Materials in the Fresno Production-Consumption Region in July, 1986. This report presents the results of the classification of aggregate resources in the Fresno Production-Consumption (P-C) Region (the marketing area of active aggregate operations). This encircles an area with approximately a 20-mile radius around the City of Fresno. SMARA mandates a resource conservation process called "classification-designation" to provide information of future resource availability to the urban population centers which depend on it for future growth. Of particular interest are deposits of Portland cement concrete (PCC)-grade aggregate of regional significance used for building materials and needed to meet the area's projected future demands based on past development trends. Persons interested in more detail on the report are directed to the above document.

Lands within the Fresno P-C Region were classified according to the potential aggregate resource of the land. Areas that are proven or highly likely to contain regionally significant deposits of PCC-grade sand and gravel aggregate were classified Mineral Resource Zone 2 (MRZ-2) whether or not current uses preclude possible future mining. The boundaries were then modified to reflect current land uses that are incompatible with mining. Figure 13A depicts the various MRZ's in the San Joaquin Riverbottom area. The objective of this process is to ensure, through appropriate lead agency policies and procedures, that raw material is available when needed and does not become inaccessible as the result of a lack of information available while making land use decisions. The amount of low-cost, high-quality aggregate materials is diminishing as active aggregate producers deplete their deposits and land containing suitable sand and gravel resources is utilized for urban development. Figure 13B shows the current operators of mineral extraction.

FIGURE 13A
MINERAL RESOURCE ZONES

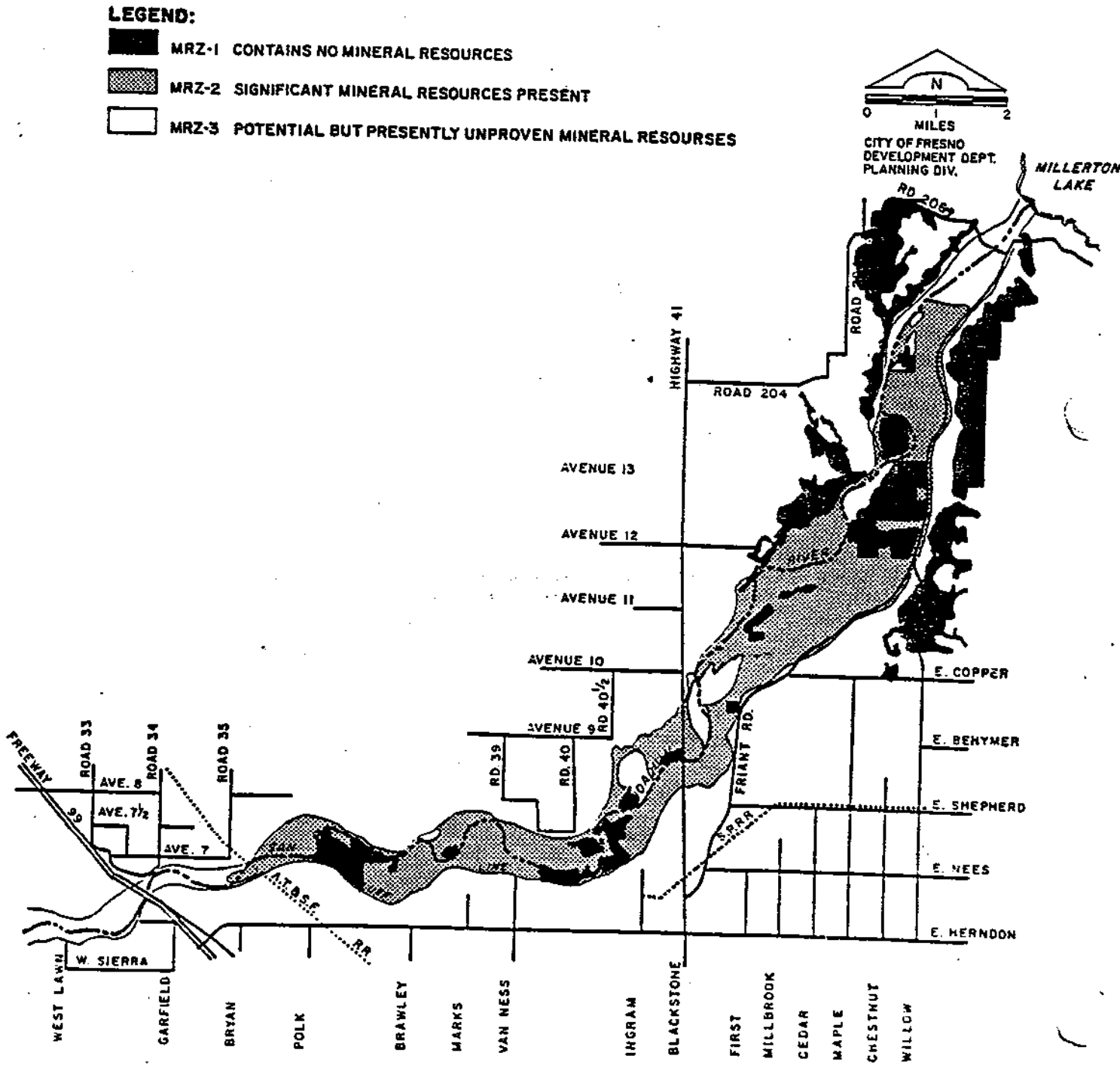
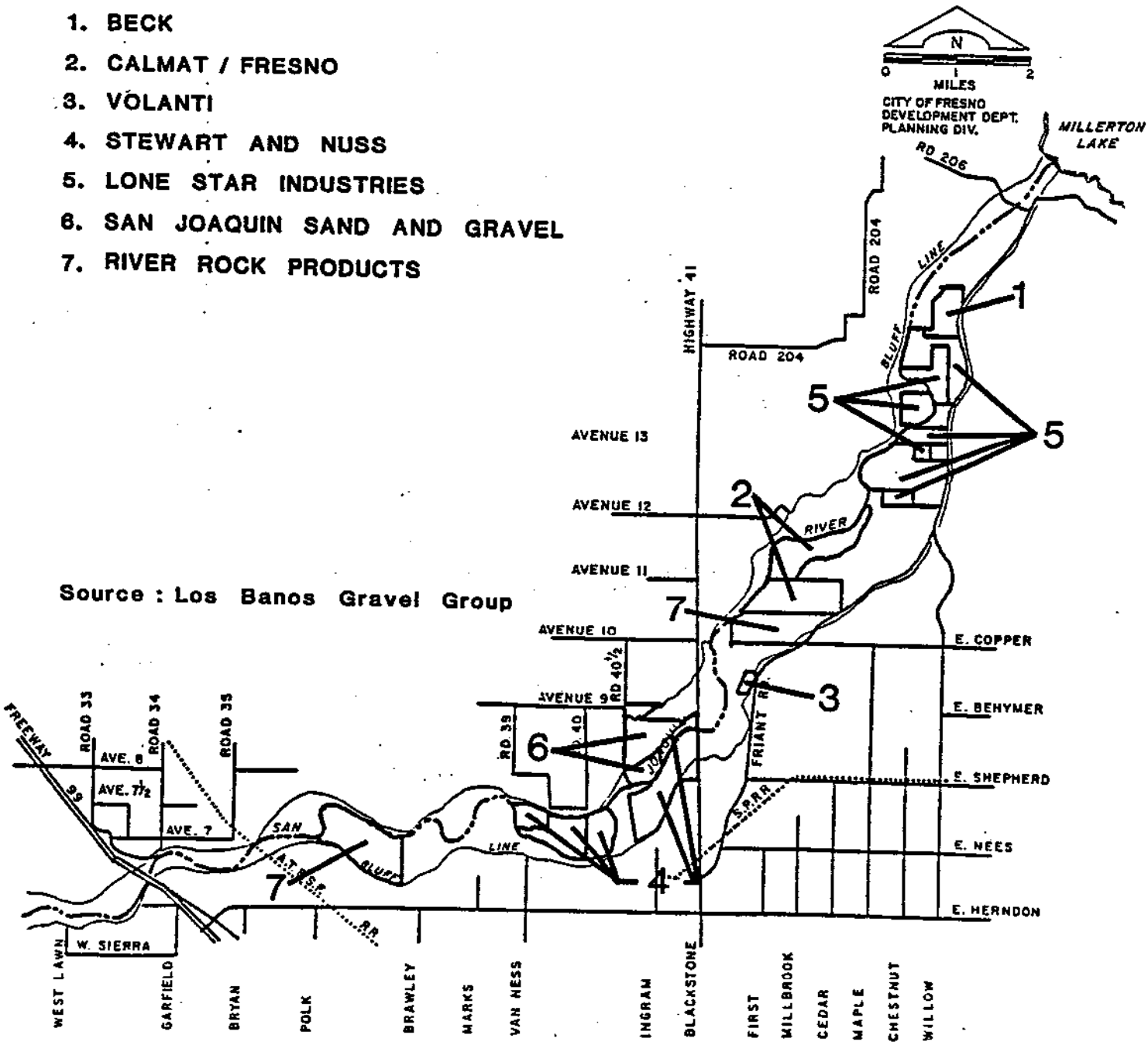


FIGURE 13B
EXISTING CONDITIONAL USE PERMITS FOR MINERAL EXTRACTION OPERATIONS

LEGEND

1. BECK
2. CALMAT / FRESNO
3. VOLANTI
4. STEWART AND NUSS
5. LONE STAR INDUSTRIES
6. SAN JOAQUIN SAND AND GRAVEL
7. RIVER ROCK PRODUCTS



Source : Los Banos Gravel Group

According to the above study, there is a strong correlation between the amount of aggregate produced and the population in a given production-consumption region. The average per-capita consumption rate in the Fresno P-C region was 7.0 tons of aggregate for the years 1960 to 1983. This is relatively high and reflects a relatively low overall population density and high rate of urban development. This will probably continue until urban maturity and then stabilize at a lower rate.

MAJOR FINDINGS/CONCLUSIONS

With changes in State law and programs since 1974, and because of the likelihood for increased City involvement with these operations, it is appropriate that the City's objectives and policies concerning sand and gravel operations reflect the need to identify and protect the available mineral resources located in this area. The City will, therefore, proceed with policies relative to mineral resource conservation through appropriate land use planning and the requirement of a reclamation plan before surface mining may proceed.

The preservation of mineral resources that remain potentially available for the anticipated demands of the next 50 years will have an impact on future generations who must depend on today's foresight and commitment to the conservation of mineral lands. The following conclusions are the result of forecasts made regarding the consumption of aggregate based on the following factors: (1) the projected average annual per-capita consumption rate of 7.0 tons and (2) the projected population through the year 2034 (1980 to 2020 - California Department of Finance and linearly projected through 2034 by the Division of Mines and Geology).

1. The consumption of aggregate resources through the year 2034 (50-year demand forecast) is predicted to be 268.4 million tons, of which approximately 50% or 134 million tons must be of PCC-quality.

2. Existing PCC reserves (deposits permitted for mining at the end of 1984) total 119 million tons and would be depleted by mid-2010 unless additional resources are permitted for mining or alternative resources are used. The 119 million tons of reserve do not reflect depletion of resources since December, 1984. Therefore, approximately 134 million tons of aggregate resources will be needed to supply the projected needs for the next 50 years. This does not include the predicted shortfall of at least 15 million tons of PCC-aggregate for this time period.

3. Of the 39 square miles identified as "significant mineral deposits present", 31 square miles have land uses that could allow mining. Almost 3.5 square miles are currently under mining permits.

4. The 31 square miles noted above may not all be available for mining and may have already been committed by local government to purposes other than aggregate mining (urban development, dedicated parklands, etc.). Therefore, the problem of meeting future aggregate needs could be greater than initially anticipated.

ENVIRONMENTAL IMPLICATIONS

There is a continuing need for surface mining. Primarily in the San Joaquin Riverbottom, and there are conflicts between these surface mining operations and other environmental concerns. These concerns include the desire to utilize the Riverbottom for recreation, watershed, wildlife range and forage, aquatic enjoyment and as a visual amenity for growing numbers of bluff-area residents. The following objectives and policies are intended to minimize these conflicts, recognizing the increasing responsibility of the City in this regard as these areas are annexed.

OBJECTIVES

1. To permit the profitable utilization of available mineral resources while protecting the natural environment and surrounding uses from the adverse effects of extraction operations, and to ensure the timely rehabilitation of mineral extraction sites.

2. To ensure future mineral resource availability needed to meet the Fresno Production-Consumption Region's anticipated demand.

3. To conserve properties which provide valuable natural mineral deposits for potential future use as identified by the Division of Mines and Geology (MRZ-2 and MRA-3 in Figure 13A).

POLICIES/IMPLEMENTATION STRATEGIES

1. The City of Fresno shall provide for the conservation of significant mineral resources by cooperating with the County of Fresno and the State in identifying and mapping areas containing these deposits.

2. The development of land uses that preclude mineral extraction shall not be permitted within the existing or potential surface mining areas as identified on Figure 13A and shall meet the requirements of SMARA, Fresno Municipal Code Section 12-322 and State Policy (California Administrative Code Section 3500 et.seq.).

3. The operation of a surface mine site within the City of Fresno shall be subject to a Conditional Use Permit. An application shall include the following:

a. An Operational Plan that includes a legal description of the property requested for mining, a description of the environmental setting of the site and surrounding areas and a detailed statement of operations together with a site plan.

b. A Reclamation Plan that includes: a description of the proposed or potential uses of the land after reclamation, a description of the manner in which reclamation will be accomplished together with a site plan showing the reclamation proposal, a definition of the type and source of refill material, if any, a time schedule, a description of the effect that site reclamation may have on the site's remaining unmined resources and surrounding lands, and an explanation of the impact of reclamation on public health and safety. The proposed Reclamation Plan shall be reviewed and approved by the Region IV Office of the State of California Department of Fish and Game to ensure the acceptability of the Reclamation Plan.

4. Evaluation of potential adverse environmental effects of surface mining operations will require compliance with all conditions specified below:

a. Disturbance of vegetation and overburden in advance of mining activities be minimized.

b. Sufficient topsoil be saved and utilized to achieve approved site rehabilitation.

c. Mining operations adjacent to any flowing stream be separated from the stream by closed dikes and by prohibiting mining operations within the stream.

d. All water utilized in the plant operation be disposed of behind a closed dike so that it will not cause impairment of water in any stream.

e. Extraction operations comply with U.S. Environmental Protection Agency, Reclamation Board, Army Corps. of Engineers, State Lands Commission, Regional Water Quality Control Board, State Fish and Game Department, State Mine and Geology Board and Air Resources Board regulations.

f. All reasonable and practical measures be taken to protect the habitat of fish and wildlife.

g. The operation comply with City's flood hazard policies and regulations.

h. Temporary stream or watershed diversion be restored.

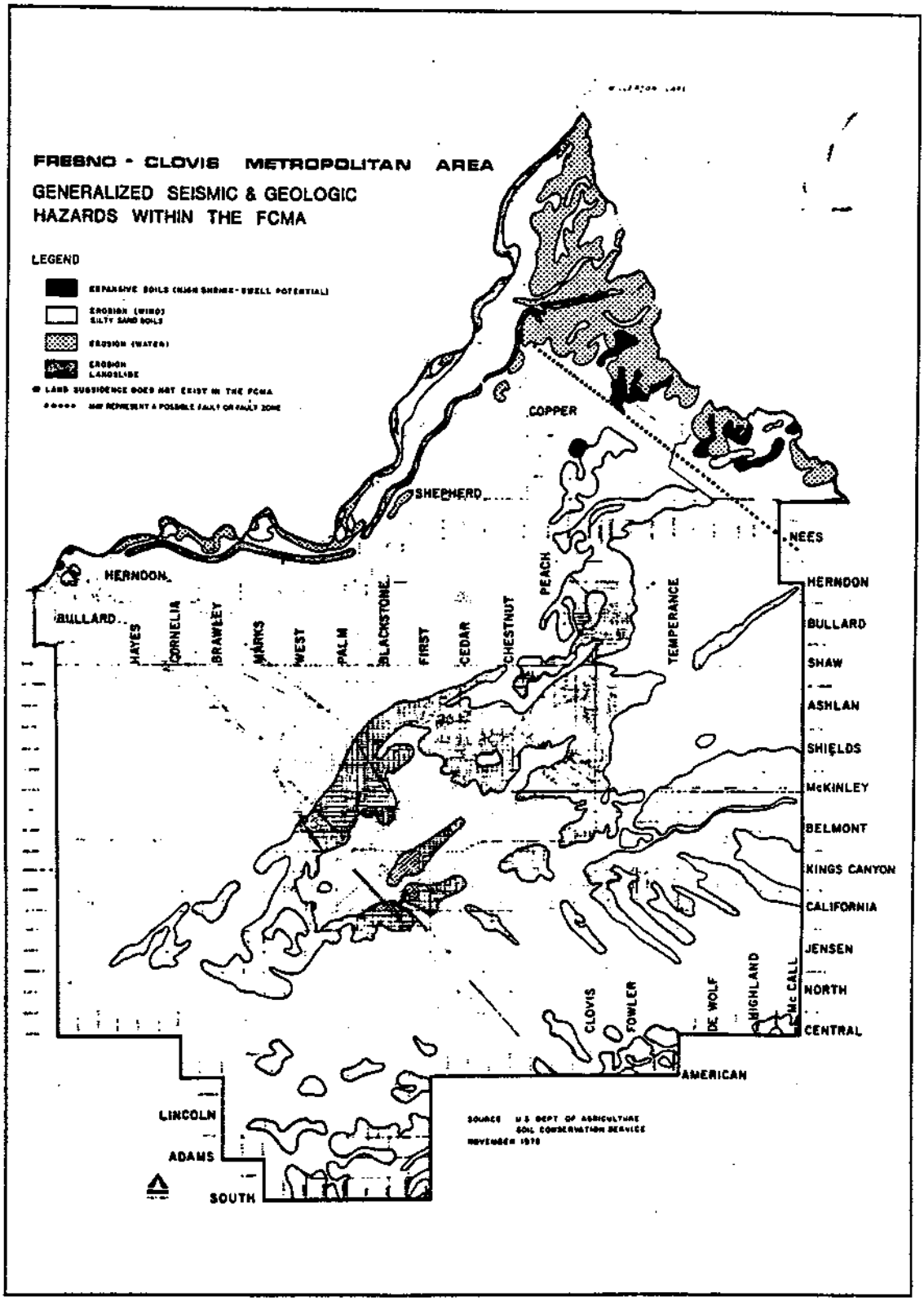
i. Permanent piles or dumps of mine waste rock and overburden be stabilized and that toxic materials be removed or protected to control leaching.

j. Grading and revegetation shall be designed to prevent excessive erosion and to convey surface runoff to natural drainage courses or interior basins designed for water storage.

5. Property within the existing City Limits designated MR-2 and MR-3, as shown on Exhibit 13A, shall be zoned "O" Open Conservation Zone District. Upon annexation of additional properties so designated, the City shall rezone those areas to the "O" Zone District.

6. A mining permit approved by another governmental agency will be honored by the City of Fresno upon annexation, provided the permit is in compliance with the SMARA and other applicable State law, and provided the mining operation is in compliance with the terms of the mining permit.

Figure 14


FRESNO - CLOVIS METROPOLITAN AREA
GENERALIZED SEISMIC & GEOLOGIC HAZARDS WITHIN THE FCMA
LEGEND
EROSION (WIND) SILTY SAND SOILS
EROSION (WATER)
EROSION LANDSLIDE
LAND SUBSIDENCE DOES NOT EXIST IN THE FCMA
MAY REPRESENT A POSSIBLE FAULT OR FAULT ZONE
COPPER
SHEPHERD
NEES
HERNDON
BULLARD
HAYES
CORNELIA
BRAWLEY
MARKS
WEST
PALM
BLACKSTONE
FIRST
CEDAR
CHESTNUT
PEACH
TEMPERANCE
HERNDON
BULLARD
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
KINGS CANYON
CALIFORNIA
JENSEN
NORTH
CENTRAL
Mc CALL
HIGHLAND
DE WOLF
FOWLER
CLOVIS
AMERICAN
LINCOLN
ADAMS
SOUTH
SOURCE U.S. DEPT. OF AGRICULTURE SOIL CONSERVATION SERVICE NOVEMBER 1970

SEISMIC SAFETY

INTRODUCTION

State Planning Law requires that every City and County General Plan shall include a Seismic Safety Element. The Element must identify and appraise seismic hazards such as susceptibility to surface ruptures from faulting, ground shaking, ground failure, landslides, mudslides and slope stability. Through the evaluation of potential seismic hazards, the Seismic Safety Element aims at reducing death, injuries, structural damage to property and economic and social dislocation resulting from earthquakes and other geologic hazards.

BACKGROUND

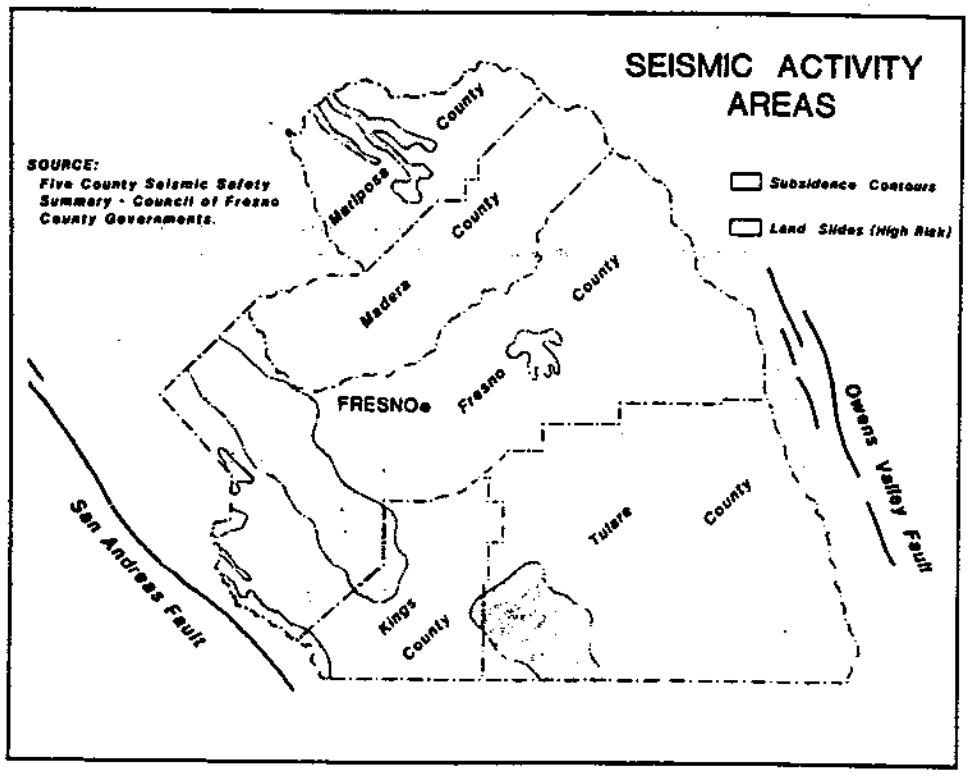
Seismic Safety for the Fresno-Clovis Metropolitan Area has been previously addressed through: *The Five County Seismic Safety Element* prepared in July, 1974, for the General Plans of Fresno, Kings, Madera, Mariposa and Tulare Counties; *Final Environmental Impact Report No. 10031*, for the FCMA General Plan May 14, 1974; *The 1974 Environmental Resources Management Element;* and *The 1976 Safety Element of the FCMA General Plan.*

Figure 14 identifies potential Seismic and Geologic hazards within a five-county area of the San Joaquin Valley. A more complete evaluation of these potential hazards is contained within the above referenced documents.

MAJOR FINDING/CONCLUSIONS

The previous research documented that there are no active faults within the FCMA. The soil composition of thick alluvial deposits underlying the urbanized area cushion potential seismic shock activity (ground shaking) resulting from the San Andreas Fault to the west and the Owens Valley Fault to the east. (See Figure 15). However, recent recurring seismic activity in the western part of Fresno County near Coalinga indicates how incomplete our understanding is of potential earthquake activity in the general area. As necessary, plans and policies of the City of Fresno must be amended to reflect new findings regarding seismic and geologic hazards.

Figure 15



Seismic research has identified two types of hazards: *Primary Natural Hazards*, which include ground shaking and surface rupturing; *Secondary Natural Hazards*, which include the interaction of ground shaking with existing ground instabilities, liquification, settlement and landslides.

The principal earthquake hazard affecting the FCMA is ground shaking and not surface rupture or ground failure. The potential of liquification, being the phenomenon of soil losing stability because of rapid mixture with groundwater during tremors, is eliminated due to the well-drained soil mantle of the area.

The Five-County Seismic Safety Element identified the FCMA as being within Seismic Zone VI. This zone is characterized by a relatively thin section of sedimentary rock overlying a granitic base. Amplification of shaking that would affect low to medium rise structures is relatively high, but the distance to either of the faults is sufficiently great so that the effects would be minimal.

Within the FCMA, the San Joaquin River Bluff is the area having the greatest potential for geologic hazards. Geologically, the bluffs are steep slopes with soil types that vary in location and depth.

Hardpan varying from a few inches to five feet thick, lies below the surface soil. Beneath the hardpan the soil is usually loose and variable with layers of consolidated alluvium, sandy loam in texture. The soil's composition along with the steep bluff face inclination produces highly erodible conditions. These conditions are intensified when lands on the Bluff's top are saturated with water, or when water is permitted to flow over the Bluff's face and edge.

ENVIRONMENTAL IMPLICATIONS

Intensive urbanization within the Bluffs Environs could potentially risk the lives and property of FCMA residents. Uncontrolled development producing urban drainage could result in excessive ground saturation, lowering the shearing strength of the soil components, and increasing the probability of massive land movement such as slumping, landslides and landslips. The danger of subsidence on the bluff's top is intensified when animal burrows, which are common in the bluff face, become saturated, causing the burrows to collapse.

The described geologic hazards could adversely affect public improvements. Land movements could rupture underground water and sewer lines, thereby resulting in the contamination of the groundwater reservoir.

OBJECTIVE

1. To insure the public's health, safety and welfare by recognizing potential geologically unstable conditions that could endanger the lives and property of FCMA residents.

POLICIES/IMPLEMENTATION STRATEGIES

1. The City of Fresno shall enforce the latest adopted Uniform Building Code and the dangerous building regulations (Municipal Code, Art. 12), to assure seismic protection for new and existing construction.

2. Development within 300 feet of the San Joaquin River Bluffs shall require compliance with the soils investigation and evaluation report guidelines of the San Joaquin River Bluffs Environs Specific Plan.

3. In areas having potential geological and soils hazards, development shall not have on-site drainage/disposal unless a soil analysis by a registered civil engineer or engineering geologist specializing in soil geology concludes that on-site drainage/disposal will not induce geologic hazards.

4. Development shall be prohibited in areas where analysis by a registered civil engineer or engineer-geologist determines that no corrective measures could feasibly mitigate potential geologic hazards.

SAFETY

INTRODUCTION

The Safety Element of the General Plan seeks to reduce deaths, injuries, damage to property, and economic and social dislocation resulting from fire, geologic hazards, and other public safety hazards. Traditionally, the Safety Element has focused primarily on fires in wildland areas adjacent to urban

development and on geologic hazards. However, the adopted State General Plan Guidelines indicate that other locally relevant safety issues should also be addressed. Consequently, the Safety Element of the City's General Plan addresses the issues of urban structural fires and hazardous materials. The issue of geologic hazards has been addressed in the Seismic Safety section of this Chapter.

FIRE PROTECTION

INTRODUCTION

The protection of a community from fires is discussed as one component of the Safety Element of the General Plan. The adopted State of California General Plan guidelines indicate that local General Plans ought to contain an assessment of the adequacy and reliability of fire protection services. This assessment is to contain an identification and evaluation of such items as water supply and distribution, response time, staff, and type of equipment.

BACKGROUND

The City of Fresno Fire Department offers a full range of fire prevention, fire suppression, and emergency medical care services within the City limits. Fire prevention has been provided, within the City, to all commercial, industrial, and various habitational establishments by a routine number of inspections each year, depending upon the occupancy type.

For a number of years, the Fire Department has had a vigorous program involving the installation of automatic fire sprinkler systems as a method of reducing the ongoing costs of fire protection to the community. Adoption of a municipal ordinance requiring the installation of automatic fire sprinkler systems in all new, large buildings, except dwellings and lodging houses, has substantially reduced the fire risk factor for the City of Fresno, thereby reducing the overall costs to the General Fund for fire protection services.

Currently, fire protection is provided from 14 fire stations located throughout the City. Further, other fire station sites have been purchased or planned to ensure that the established level of fire protection is maintained as growth of the City occurs. A list of City fire stations and their locations is provided as Figure No. 16. Their locations and the locations of future sites are provided on a map as Figure No. 17.

Figure 16

Existing City of Fresno Fire Station Generalized Locations

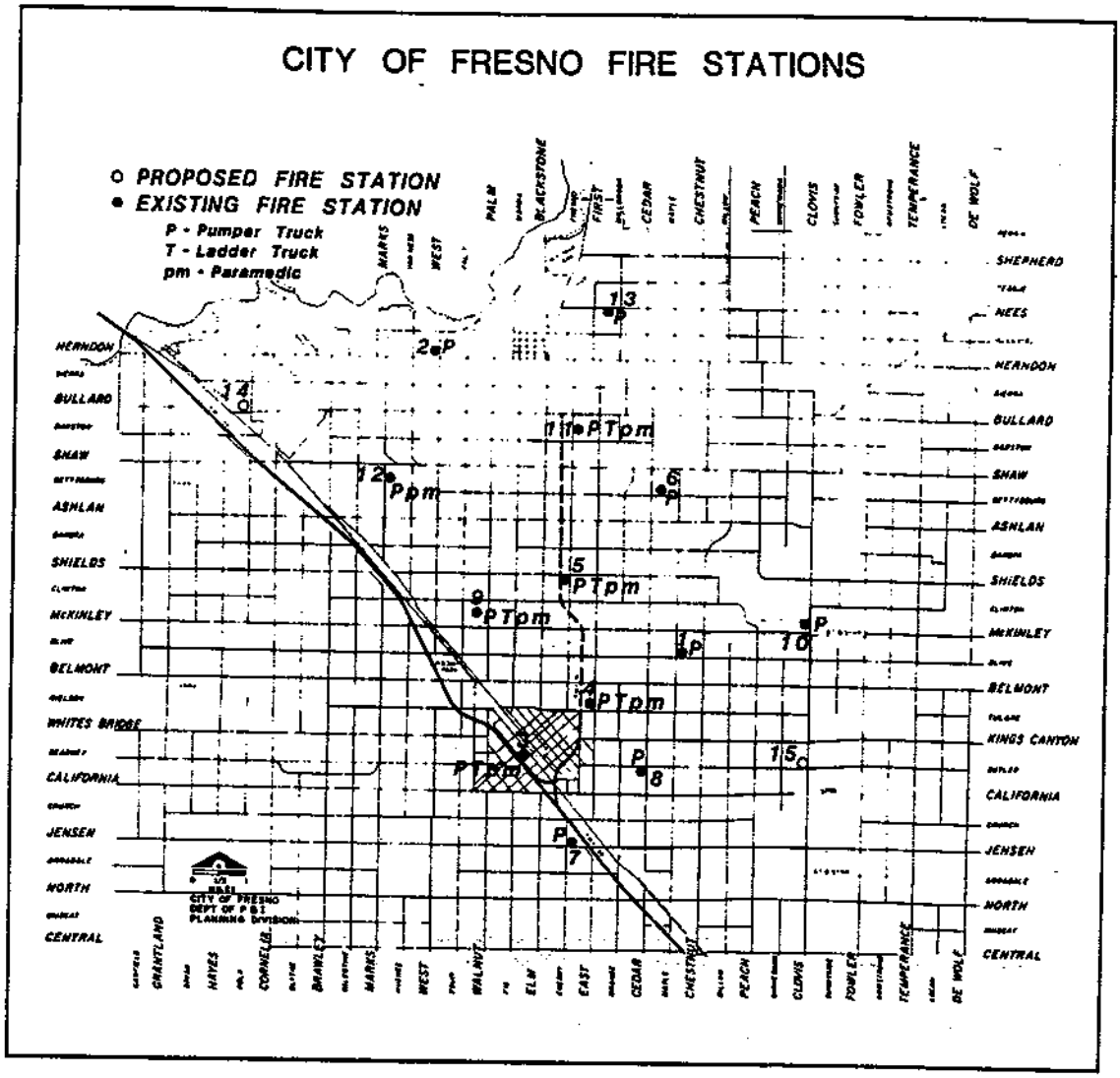
STATION NUMBER	LOCATION
1	Olive and Jackson Avenues
2	West and Herndon Avenues
*3	Fresno and "E" Streets
*4	Iowa Avenue and First Street
*5	Simpson Avenue and Fresno Street
6	Gettysburg and Rowell Avenues
7	Jensen and Cherry Avenues
8	Cedar and Butler Avenues
*9	Clinton and Vagedes Avenues
10	McKinley and Clovis Avenues
*11	Fresno and Wrenwood Avenues
*12	Acacia and Marks Avenues
13	Nees Avenue and Bond Street
16	Cornelia and Swift Avenues

*Paramedics located at these stations.

Under guidelines established by the Urban Growth Management (UGM) Policy, the permanent service area of fire stations, for urban development, has been set at a two-mile "running" distance. The "running" distance is calculated using each fire station as a reference point and existing or planned streets as the travel network. On an interim basis, until new stations can be constructed, equipped, and staffed, the

"running" distance from an existing fire station may be extended to three miles to allow the development of standard residential developments. "Running" distances from an existing fire station may be extended to four or five miles by applying severe density and building restrictions (i.e., building separation distances, roofing materials, and automatic fire sprinkler systems).

Figure 17



The City of Fresno currently has an instant aid agreement with the Mid Valley Fire Protection District, whereby the nearest fire station responds to an emergency regardless of the jurisdiction within which it is located. This agreement applies to both fire and emergency medical services. The City also has similar agreements with the City of Clovis and the North Central Fire Protection District, but both are limited to fire emergencies. The City of Fresno also has mutual aid agreements with surrounding fire jurisdictions that allow for multi-jurisdictional response for disaster situations or fires of great magnitude where the resources of any of the fire agencies are committed to an emergency and inadequate resources remain to protect that jurisdiction. These agreements, plus the City of Fresno's own resources, provide a high quality of fire suppression and emergency medical care services.

Master planning for fire protection, both short and long range, is an integral part of the City of Fresno Fire Department. In cooperation with the Development Department, analyzing information from a computerized fire station location program, general and specific plans, and applying criteria as adopted in the UGM process, the Fire Department recommends the adoption of fire station service areas for the growing fringe

of the City. After adoption by the City Council, developments occurring within established fire station service areas are assessed development fees to cover the capital costs for property acquisition, construction, and equipping of fire stations. This ensures the timely provision of fire protection services to the developing areas.

Further, a major step has been taken to ensure the orderly transfer of fire protection responsibilities and to avoid the duplication of services within the City's fringe area with the signing of an agreement with the Mid Valley Fire Protection District. This agreement says that when the Board of Directors of the Mid Valley Fire Protection District finds it is no longer economically feasible to maintain fire protection services from their Fire Station Nos. 7 and 8 due to annexations to the City of Fresno territory within those fire station service areas, the City of Fresno will provide such service from those or pre-planned locations. The Mid Valley Fire Protection District shall also contract with the City for the provision of full fire protection services for all of the unincorporated territory within each of the fire station's defined service areas.

The City of Fresno Fire Department operates with 14 fire engines (pumpers) and 5 aerial ladder trucks. In 1982, the Department responded to 5,587 fire emergencies and 12,407 medical aid emergencies for a total of 17,994 emergency responses. Emergency medical service is provided to all City residents currently by the Fire Department. This service does not, however, provide emergency transport. Emergency transport is currently provided by private carriers. Criteria for the delivery of emergency medical service is established by the County of Fresno through the medical community.

This criteria has, in the past, established an average of four-minute response time for basic life support (first responder) and response within ten minutes for advanced life support.

Recently, the County Board of Supervisors adopted a concept for a County-wide emergency medical services plan which calls for a single vendor to provide the service. It has been and continues to be the intent of the City of Fresno to ensure that a high quality of emergency medical care is provided to City residents, whether it is through a private vendor and/or the Fire Department, providing both advanced life support and emergency transport service.

This General Plan also addresses the issue of allowing high-rise buildings at designated nodes and corridors within the City. Although standards have not yet been developed, fire protection and suppression will be key concerns in the siting and construction of these high-rise buildings. Considerations of "running" distance, available firefighting equipment, and building standards will, however, be important.

ENVIRONMENTAL IMPLICATIONS

The City of Fresno currently enjoys a high level of fire protection and emergency medical services, and it is the intent of the City of Fresno to maintain this level through legislative and/or budgetary methods.

Currently, development standards are not expected to be lessened. The Urban Growth Management process of the City and other procedures will ensure that the City is able to maintain a high level of fire protection as new areas are annexed or developed. The adoption of instant aid agreements and agreements for the long range transfer of fire protection responsibilities with adjacent fire jurisdictions also ensures a high level of fire protection is maintained within the metropolitan area. If high-rise buildings are allowed within designated nodes and corridors, appropriate standards for fire prevention will be developed.

OBJECTIVES

1. To ensure that fire protection and emergency medical services are provided in an efficient and cost-effective manner.

2. To ensure that firefighting personnel and equipment are sufficient in number and adequately distributed throughout the City of Fresno.

3. To maintain a high level of fire protection for the City of Fresno.

POLICIES AND IMPLEMENTATION STRATEGIES

1. To the extent possible, encourage fire prevention through inspections of commercial and various residential establishments.

2. To the extent possible, encourage educational programs concerning fire prevention and fire safety.

3. Develop appropriate standards, as necessary, for fire protection and fire suppression within new high-rise buildings.

4. Pursue long-range transfer of fire protection service agreements with adjacent fire districts that, in concert with existing instant aid agreements, will lead to the eventual unification of fire protection services in the metropolitan area of Fresno.

5. In conjunction with the Development Department, adopted general and specific plans, and utilizing data from the fire station location program, achieve optimum siting of future fire stations.

6. Utilize the procedures and criteria contained within the Urban Growth Management Policy and the UGM Fire Station Ordinance to provide an equitable means through which the provisions of fire service can be addressed throughout the UGM area.

HAZARDOUS MATERIALS

INTRODUCTION

The amount of hazardous wastes being produced by industry, agriculture, government, hospitals, and laboratories has been increasing steadily. The U.S. Environmental Protection Agency (EPA) estimated that in 1980, at least 57 million metric tons of the nation's total wasteload could be classified as hazardous. The environmental damage that has resulted from the improper disposal of hazardous waste has been severe and well-publicized, making household words of "Love Canal" and "Valley of the Drums". The clear health and safety issues associated with hazardous wastes have resulted in the recently-adopted State of California General Plan Guidelines requiring that concerns about hazardous materials be made a part of a jurisdiction's General Plan.

BACKGROUND

According to Division 20, Chapter 6.5, "Hazardous Waste Control," Article 2, Section 25117 of the State Health and Safety Code, "hazardous waste" means a waste, or combination of wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may either:

(a) cause, or significantly contribute to an increase in mortality or an increase in serious irreversible, or incapacitating reversible illness.

(b) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

Within the State of California, the Department of Health has the major responsibility for hazardous materials. It is charged with the responsibility to prepare, adopt, and revise when appropriate, a listing of the wastes which are determined to be hazardous. Also, the Department must adopt, and revise when appropriate, minimum standards and regulations for the handling, processing, use, storage, disposal and recovery of resources from hazardous and extremely hazardous wastes to protect against hazards to the public health, domestic livestock, or wildlife. Other State agencies with expertise in and responsibilities for hazardous wastes include the Department of Food and Agriculture, California Highway Patrol, Fish and Game, Industrial Relations-Division of Industrial Safety, State Air Resources Board, State Water Resources Control Board, regional Water Quality Control Boards, State Fire Marshal, and the State Solid Waste Management.

Many of the wastes with hazardous characteristics are disposed of at solid waste disposal sites. Within Fresno County, there is a Class I disposal site located in the Big Blue Hills area north of Coalinga. The land was purchased from the Chevron Chemical Company in 1973, and the site comprises 31.76 acres. This site is open only twice a year, the last two weeks in April and the last two weeks in October, and accepts mainly agricultural pesticides and their containers. Within Kings County, there is a Class I site located in the Kettleman Hills area about four miles southwest of Kettleman City. This site is open year-round and accepts everything except radioactive and water-reactive wastes. There are no Class I sites located within the City of Fresno or its Sphere of Influence.

At this time, it is difficult to determine the types and quantities of hazardous waste materials produced in the City of Fresno. An initial survey was conducted as part of the Fresno County Solid Waste Management Plan, but it does not indicate the total types and quantities of hazardous materials produced in the County. More detailed information is needed and can be obtained from on-site inventories, analysis of permits issued by

the State Water Quality Control Board, and the monitoring of industrial waste at the City's wastewater treatment facilities. Nevertheless, preliminary indications are that significant quantities of hazardous liquid wastes and other Class I industrial wastes are produced in the City of Fresno.

It is clear that existing industry within the City will continue to expand and new industries will relocate here. Many of these industries will produce hazardous wastes which will require disposal at a Class I site. Additionally, there is a concern about the kinds of materials disposed of in now-abandoned industrial dump sites located generally northwest of the Pinedale community. A determination needs to be made as to whether or not hazardous materials have been disposed of at these sites.

Following is a current (1984) listing of Potential Hazardous Waste Properties (as prepared by the State). located within the City or within its Sphere of Influence.

1. American Warehouse Company, 2702 S. Maple Avenue

2. Refineries Services, Golden State Boulevard and North Avenue

3. FMC Corp., Agricultural Chemical Group, 2501 S. Sunland Avenue

4. Thompson-Hayward Chemical Co., 7183 E. McKinley

Two known abandoned hazardous waste sites are located within the City of Fresno; Commercial Electroplaters, 2940 S. Elm and the Church and Fruit junkyard, ranked 37 and 38 on the State's priority ranking of 93 hazardous waste sites in California. Money has been obligated for the top 28 ranked sites and it may be years before funds become available for clean-up of the Fresno sites. The owner of the site (the City, in the latter) is responsible for the preparation of an assessment plan and a closure plan.

The land within 2000 feet of each site may require a special permit from and be subject to certain restrictions by the State Department of Health Services for development of residential, school, hospital or child day care uses.

The transport of hazardous materials is governed by federal regulations developed by the Department of Transportation and enforced in California by the Highway Patrol and the Health Department. Within the City of Fresno, the Fire Department has the lead responsibility to manage accidents involving hazardous materials, with the assistnace and cooperation of the Fresno Police Department. The CHP has the lead responsibility along the State Highways. More detailed information regarding agency responsibilities in the event of an accident involving hazardous material is contained within the Hazardous Material Incident Response Plan, adopted by Fresno County October 26, 1982.

ENVIRONMENTAL IMPLICATIONS

There is a growing concern regarding hazardous materials, both nationally and locally, particularly regarding their amount, storage, and disposal. Although it is known that there are substantial amounts of hazardous materials generated locally, there is a need to obtain more information about the kinds and amounts.

With the expansion of industry envisioned and planned for by this General Plan, there will be an expansion of the amounts of hazardous wastes.

Some contamination of the underground aquifer, from which the City of Fresno draws its water, has occurred. This problem is viewed very seriously by the City and is receiving increasing attention by all levels of government. The Water Resources section of this Plan discusses this issue in greater detail. Policies and strategies which seek to reduce the adverse effects of hazardous wastes, listed at the end of this section, include those hazardous wastes which may pollute the underground aquifer.

On the other hand, opportunities have been identified for the recovery of resources from hazardous material. Such efforts would reduce the amount of hazardous materials needing to be disposed.

OBJECTIVE

1. To reduce and control the adverse effects of hazardous wastes so as to promote the public health and welfare of local residents and the productive capacity of industry.

POLICIES/IMPLEMENTATION STRATEGIES

1. To coordinate and cooperate with other local, state, and federal agencies with expertise on responsibility for all aspects of hazardous wastes.

2. To educate the public on the subject of hazardous wastes.

3. To aid in the identification and mapping of abandoned waste disposal sites, as necessary, and in the survey of the kinds, amounts, locations, etc. of hazardous wastes.

4. To insure that disaster planning for the City of Fresno includes policies appropriate to problems associated with hazardous wastes.

5. To study the health-related implications of high technology industry as it relates particularly to the storage and use of toxic chemicals and the disposal of toxic wastes.

6. To identify the potential hazards from landfills and/or toxic waste sites as a component of environmental review of projects.

7. To prohibit the discharge of toxic and hazardous wastes, as defined in the City of Fresno Municipal Code Section 9511, to the municipal sewer system, and to monitor this code section for compliance.

NOISE

INTRODUCTION

Noise has become a major consideration in the land use planning process. As the population of Fresno grows and densities increase, residents will find themselves living and working closer to one another. The City will increasingly be faced with a need to resolve actual and potential land use conflicts resulting from the close proximity of incompatible uses which can be detrimental to one party or the other due to noise.

Although important steps have been taken by federal and state agencies to reduce transportation noise at the source, overall levels are increasing due to increased levels of activity. Roadway, railroad and aircraft noise are serious problems in some areas of the community, and the potential for increased conflict is great as efforts are made to make full use of available land.

It is the intent of this Noise Element to mitigate noise conflicts where they presently exist and to minimize future noise conflicts by the adoption of policies and implementation measures designed to achieve land use compatibility for proposed development. This Noise Element has been prepared in accordance with Section 65302(g) of the California Government Code, which requires that Noise Elements of the General Plan be prepared by all cities and counties, and the "Guidelines for the Preparation and Content of Noise Elements of the General Plan", prepared by the Office of Noise Control. These Guidelines require cities and counties to identify sources of noise within the community, quantify existing noise levels, and suggest measures to mitigate identified noise problems.

In October, 1981, the City of Fresno entered into a Consulting Services Agreement with Brown-Buntin Associates, consultants in acoustics, to prepare a background document containing information required by State law and the Office of Noise Control guidelines. The Noise Element of the General Plan draws heavily on this background document. Reference should be made to that document for information of a more detailed nature.

BACKGROUND

Noise is often defined simply as unwanted sound, and thus is a subjective reaction to characteristics of a physical phenomenon. Researchers for many years have grappled with the problem of translating objective measurements of sound into directly correlatable measures of public reaction to noise. The descriptors of community noise in current use are the results of these efforts, and represent simplified, practical measurement tools to gauge community response. Before elaborating on these descriptors, it is useful to

first discuss some fundamental concepts of sound. A more detailed discussion can be found in the background document.

Sound is defined as any pressure variation in air that the human ear can detect. If the pressure variations occur frequently enough (at least 20 times per second), they can be heard and hence are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, now called Hertz (Hz) by international agreement.

The speed of sound in air is approximately 770 miles per hour, or 1,130 feet/second. Knowing the speed and frequency of a sound, one may calculate its wavelength, the physical distance in air from one compression of the atmosphere to the next. An understanding of wavelength is useful in evaluating the effectiveness of physical noise control devices such as mufflers or barriers, which depend upon either absorbing or blocking sound waves to reduce sound levels.

To measure sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold as a point of reference, defined as O dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range.

Use of the decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) are uniform throughout the scale, corresponding closely to human perception of relative loudness.

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, in the range of usual environmental noise levels, perception of loudness is relatively predictable, and can be approximated by weighting the frequency response of a sound level measurement device (called a sound level meter) by means of the standardized A-weighting network.

There is a strong correlation between A-weighted sound levels (expressed as dBA) and community response to noise. For this reason, the A-weighted sound level has become the standard tool of environmental noise assessment. In terms of community response, it is generally valid that a change in noise level of at least 5 dBA is required before any noticeable change in community response would be expected. A 10 dBA change in noise level is perceived as being subjectively a doubling in loudness, which would likely result in an adverse public reaction. Typical A-weighted sound levels generated by noise sources commonly found in the community are illustrated in Figure 18.

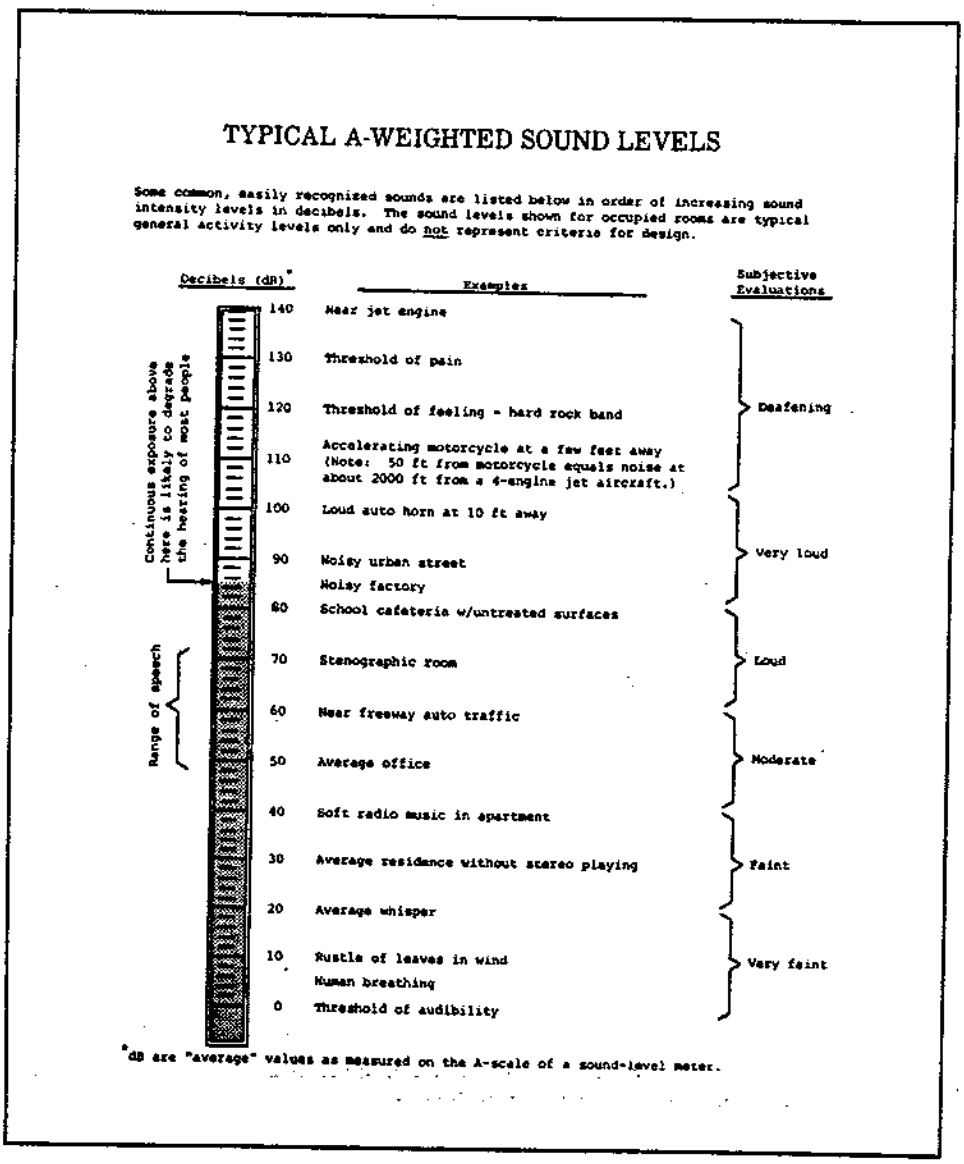
It is common to describe community noise in terms of the "ambient" noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (Leq), which is the sound level corresponding to a steady-state A-weighted sound level containing the same total energy as a time-varying signal over a given time period (usually one hour). The Leq is the foundation of the composite noise descriptors such as Ldn and CNEL, and shows very good correlation with community response to noise.

Two composite noise descriptors are in common use today: the Ldn and CNEL scales. The Ldn (day-night average level) is based upon the average hourly Leq over a 24-hour day, with a + 10 decibel weighting applied to nighttime (10 p.m. to 7 a.m.) Leq's. The nighttime penalty is based upon the assumption that people react to nighttime noise exposures as though they were subjectively twice as loud as daytime exposures. The CNEL (Community Noise Equivalent Level) is also based upon the average hourly Leq over a 24-hour day, except that an additional 5-decibel penalty is applied to evening (7:00 p.m. to 10:00 p.m.) hourly Leq's. The CNEL scale was developed for the California Airport Noise Regulations, and is applied specifically to airport noise assessment. The Ldn scale is a simplification of the CNEL concept, but the two will usually agree, for a given situation, within ± 1 dB. Like the Leq, these descriptors are also averages and tend to disguise variations in the noise environment. Furthermore, because they presume increased evening or nighttime sensitivity, they are best applied as criteria for land uses where nighttime noise exposures are critical to the acceptability of the noise environment, such as residential developments.

Effects of Noise on People

Noise in the community has often been cited as being a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from the interference with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination.

Figure 18



When community noise interferes with human activities or contributes to stress, public annoyance with the noise source increases, and the acceptability of the environment for people decreases. This decrease in acceptability and the threat to public well-being is the basis for land use planning policies directed towards the prevention of exposure to excessive community noise levels. Additional information describing the health-related impacts of excessive noise can be found in the background document. Table 19 indicates the effects of noise on people in residential areas.

Noise Sources

A combination of noise monitoring and analytical modeling was used to develop noise exposure information for major noise sources within the community for existing (1981) and projected (2001) conditions. In areas of the community where sensitive uses are located, existing noise levels were evaluated by noise monitoring at representative sites. The identification of major noise sources and noise sensitive areas was accomplished through meetings with city project staff and a Technical Advisory Committee, and by field studies conducted by Brown-Buntin Associates (BBA) in conjunction with city project staff. Although it was not possible to study all noise sources within the project area, concerted effort was made to select sources that

have significant implications for land use compatibility planning. Areas containing noise sensitive uses were selected for study based upon the location of existing uses and an effort to include all major areas of the community.

Figure 19

EFFECTS OF NOISE ON PEOPLE
(Residential Land Uses Only)

Effects[1] / Day-Night Average Sound Level in Decibels	Hearing Loss: Qualitative Description	Speech Interference: Indoor: % Sentence Intelligibility	Speech Interference: Outdoor: Distance in Meters for 95% Sentence Intelligibility	Annoyance[3]: % of Population Highly Annoyed[3]	Average Community Reaction[4]	General Community Attitude Towards Area
75 and above	May Begin to Occur	98%	0.5	37%	Very Severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will Not Likely Occur	99%	0.9	25%	Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will Not Occur	100%	1.5	15%	Significant	Noise is one of the important adverse aspects of the community environment.
60	Will Not Occur	100%	2.0	9%	Moderate to	Noise may be considered an adverse aspect of the community environment.
55 and below	Will Not Occur	100%	3.5	4%	Slight	Noise considered no more important than various other environmental factors.

1. "Speech Interference" data are drawn from the following tables in EPA's "Levels Document": Table 3, Fig. D-1, Fig. D-2, Fig. D-3. All other data from National Academy of Science 1977 report "Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise."

2. Depends on attitudes and other factors.

3. The percentages of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time.

4. Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

NOTE: Research implicates noise as a factor producing stress-related health effects such as heart disease, high-blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been quantified.

Noise exposure information has been presented in terms of Day-Night Average Level (Ldn) for all major noise sources with the exception of airports. Noise exposure information for airports within the study area has recently been developed through separate studies in terms of Community Noise Equivelent Level (CNEL), as required by the California Airport Noise Standards. The Ldn values that were developed are generalized values based on annual average data, and are not intended to be site specific where local topography, vegetation and intervening structures may significantly affect sound transmission and attenuation. Information concerning noise source activity for existing (1981) and projected (2001) conditions was generally obtained from source operators.

1. Roadways

The Federal Highway Administration (FHWA) Highway Traffic Noise Prediction Model was used to develop noise contours for state highways and major roadways. The model is based upon reference energy emission levels for automobiles, medium trucks and heavy trucks, with considerations for

vehicle volume, speed, roadway configuration, distance to receiver and the acoustical characteristics of the site. The model produces generalized noise contours which do not account for local shielding, topography, or the effects of "stop and go" traffic conditions. The background document contains tables which indicate the distances from roadway centerlines to Day-Night Average Level (Ldn) contour values of 60, 65 and 70 dB.

2. Railroads

Railroad line operations in the Fresno area are composed of freight and passenger operations by the Atchison, Topeka and Santa Fe Railway Company (AT & SF) and the Southern Pacific Transportation Company (S.P.R.R.).

Operational data obtained from the railroad companies are summarized in Figure 20. In Figure 20, future (2001) operational volumes for the S.P.R.R. were projected by the City of Fresno based on relative increases in traffic on the AT & SF.

Noise measurements were conducted in Fresno during November, 1981, to determine representative noise levels for each train type (freight and passenger), with and without the horn, at various speeds. Distance from the center of the track to Ldn contour values of 60, 65 and 70 dB were calculated by mathematically combining field-measured noise level data with annual average operational factors. The resulting generalized Ldn contours are summarized in the background document.

3. Airports

Noise exposure information in terms of Community Noise Equivalent Level (CNEL) has recently been developed through separate studies for the three airports located within the study area. The most recent projections of airport activity levels and the best available noise modeling technology were utilized in these studies, including the use of field-measured aircraft noise level data to validate the results of computer-based noise modeling. The CNEL contours from these studies for projected airport activity levels at Fresno Air Terminal, Fresno Chandler Downtown Airport and Sierra Sky Park have been incorporated into this Noise Element and can be found in the Appendix of the General Plan.

4. Stationary Noise Sources

Major stationary noise sources within the study area were identified by City staff in conjunction with Brown-Buntin Associates and a Technical Advisory Committee. Since it was not possible to study all stationary sources, 24 facilities were selected by City staff as being generally representative of the types of facilities located within the community. Also considered in the selection process was the potential for future development of noise-sensitive uses in the vicinity of existing noise sources.

Noise exposure information was developed from noise level measurements conducted by Brown-Buntin Associates at reference locations for each source and from operational data obtained by BBA from source operators. Since the scope of the study did not allow for a detailed analysis of noise levels from stationary sources, generalized noise impact areas outlined by the Ldn 60 dB contour were developed to describe the relative significance of source operations. Aerial photos showing the generalized Ldn 60 dB contour for identified stationary noise sources, along with operational characteristics of each source, are contained within the background document.

Community Noise Survey

A community noise survey was conducted by measuring noise levels in areas of the community where sensitive uses are located. Noise monitoring sites were selected by BBA in conjunction with city staff. An effort was made to distribute monitoring sites evenly throughout the community in order to evaluate existing background noise levels in the entire study area. Since the intent of the community noise survey was to measure background noise levels, care was taken to select monitoring sites that were removed from the direct influence of major noise sources wherever possible.

Measured noise level data from three measurement periods (rush hour, mid-day, late night or early morning) were used to calculate the estimated Ldn for each site. Although more definitive noise level data could have been collected by a sampling program which included measurements during different times of the week

Figure 20

RAILROAD OPERATIONAL DATA

	1981	2001
AT & SF		
# Freight Trains	18	27
# Passenger Trains	4	6
Day/Night Split (%)	70/30	70/30
Speed:		
Calwa-Palm	25 MPH	25 MPH
Palm-West	50 MPH	50 MPH
West-Herndon	70 MPH	70 MPH
# Locomotives/Freight Train	3	3
# Cars/Freight Train	68	68
Source: Chief Dispatcher's Office, AT&SF Railway, Fresno, California		
S.P.R.R.		
# Freight Trains	30	*45
# Passenger Trains	0	0
Day/Night Split (%)	60/40	60/40
Speed	35 MPH	35 MPH
# Locomotives/Freight Train	3-4	3-4
# Cars/Freight Train	100	100
* Year 2001 Projections from City of Fresno		
Source: Trainmaster's Office, S.P.R.R., Fresno, California		

and year, the reported values may be considered, for purposes of this Noise Element, as reliable indications of background noise levels within the community. The background document contains a summary of noise level measurements and estimated day-night average noise levels (Ldn) at sensitive receivers.

Land Use Compatibility Criteria

Different land uses have varying degrees of sensitivity to noise. For example, an industrial development is not usually as sensitive to noise as is a residential development. In addition, the type of noise and the time of its occurrence will have different effects depending upon the land use impacted. School sites are not necessarily affected by nighttime noise exposures, for example, but residential neighborhoods are. Similarly, a noise environment dominated by a relatively steady-state noise source such as a freeway may be of less concern for residential developments than would a noise environment punctuated by relatively few very noise events, such as jet aircraft overflights, even though the Day-Night Average Level (Ldn) may be equal in either case. Thus, different noise criteria should be applied to different land use categories. Table 21 lists the relative noise sensitivities of various land uses. Note that land uses may be considered either sensitive, moderately sensitive, or insensitive to noise impacts, and that each land use may be sensitive to different kinds of noise impacts.

Noise level standards are established to provide goals for land use planning which will ensure the compatibility of various land uses with respect to community noise. Such standards are used to judge the impact of the existing noise environment upon a proposed project, as well as the impact of project-generated noise upon neighboring properties. The principles served by the application of land use compatibility criteria with respect to environmental noise are: (I) incompatible land use should be separated, (2) the uses of a property should derive maximum benefit from the intended use of that property, and (3) public exposure to excessive noise should be minimized.

For the City of Fresno, a noise compatibility criterion of Ldn 60 dB is recommended for outdoor activity areas of noise sensitive uses. A criterion level of Ldn 45 dB is recommended for the interior of noise sensitive uses where applicable. In addition, it is recommended that maximum noise levels within sleeping quarters and schools be controlled so as to prevent sleep disturbance.

These criteria are based upon the effects of noise in terms of activity and speech interference, as well as sleep disturbance. The recommended outdoor activity area criterion is consistent with the results of the community noise survey, where it was found that existing noise levels in residential areas are typically Ldn 55-60 dB. The recommended interior noise level criterion is also consistent with the results of the community noise survey, assuming a typical outdoor/indoor noise reduction of about 15 dBA for residential building facades with open windows. Thus, satisfaction of the recommended exterior noise level criterion provides an acceptable interior noise level without requiring that windows remain closed.

Project review for determination of land use compatibility with respect to noise involves two steps: an initial screening to determine if a project is likely to cause or be adversely affected by noise and, if screening indicates that noise may be of concern, a more detailed examination of the noise environment to better define the problem and develop solutions.

The initial screening of a project should include a determination of the noise-sensitivity of the proposed use and a search of available noise contour information to determine if the project is located within a noise-impacted area. If the proposed use is noise- sensitive and is located within a noise-impacted area, a more detailed analysis of noise effects and mitigation measures should be required, and the necessary noise reduction features included in the project design.

Review of proposed projects should also include an assessment of whether the project itself is likely to cause the noise environment at neighboring properties to exceed acceptable limits for such land uses. If so, a detailed analysis of project noise effects and mitigation measures should be required, and the needed noise reduction features included in the project design.

When a detailed analysis of noise impacts upon or caused by a proposed project is required, it should be the responsibility of the project applicant. The analysis should be performed by a qualified acoustical consultant, and should include the following components:

A. Representative sound level measurements with sufficient sampling periods and locations to adequately describe local conditions.

B. Estimated noise levels in terms of exterior Ldn for existing and future (10-20 years hence) conditions with a comparison made to the adopted criterion levels of the Noise Element.

C. Recommendations for appropriate mitigation to achieve compliance with the adopted criterion levels of the Noise Element. Where the noise source is aircraft or railroad operations, the report should discuss the effects of maximum noise levels in sleeping rooms in terms of possible sleep disturbance.

D. The predicted resulting noise levels after the prescribed measures have been provided. If compliance with the Noise Element will not be achieved, a rationale for acceptance of the project should be provided.

Techniques for Noise Control

Any noise problem may be considered as being composed of three basic elements: the noise source, a transmission path, and a receiver. Local control of noise sources is practical only with respect to fixed sources (e.g., industrial facilities, outdoor activities, etc.), as control of vehicular sources is generally preempted by federal or state law. Control of fixed noise sources is usually best obtained by enforcement of a local noise control ordinance. The emphasis of noise control in land use planning is therefore placed upon acoustical treatment of the transmission path and the receiving structures.

The appropriate acoustical treatment for a given project should consider the nature of the noise source and the sensitivity of the receiver. The problem should be defined in terms of appropriate criteria (Ldn, Leq, or Lmax), the location of the sensitive receiver (inside or outside), and when the problem occurs (daytime or nighttime). Noise control techniques should then be selected to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetic standards and practical structural and economic limits. Basic noise control techniques are indicated as follows. The background document contains a more complete description of each technique.

1. **Use of Setbacks.** Noise exposure may be reduced by increasing the distance between the noise source and the receiving use.

Figure 21

NOISE SENSITIVITY OF VARIOUS LAND USES

SENSITIVITY	LAND USE	FACTORS IN SENSITIVITY*
Sensitive	Educational Facilities	CI, A
	Hospitals	S, CI
	Convalescent Homes	S, CI
	Outdoor Theaters	CO, CI
	Churches	CI
	Mobile Home Parks	S, CI, A
	Single-Family Dwellings	S, CO, CI, A
	Multi-Family Dwellings	S, CO, CI, A
Moderately Sensitive	Professional Research	CI
	Hotels and Motels	S, CI
	Commerical Uses	CI
	Professional Offices	CI
	Recreational Vehicle Parks	S, CI
Insensitive	Agriculture	
	Auto Parking	
	Raceways and Drag Strips	
	Warehousing	
	Industrial Uses	

*Code: S = Sleep Disturbance
CO = Communication Interference (Outdoors)
CI = Communication Interference (Indoors)
A = Activity Interference

Source: Brown-Buntin Associates

2. **Use of Barriers.** Barriers, such as walls, berms, or other buildings can reduce noise exposure when placed between the noise source and the receiver.

3. **Site Design.** Buildings can be placed on a project site to shield other structures or areas, to remove them from noise-impacted areas, and to prevent an increase in noise level caused by reflections.

4. **Unit Design.** An acceptable interior noise environment can be achieved by placing the noise-sensitive portions of a dwelling on the side of the unit farthest from the noise source.

5. **Building Design** . The shape of building facades, as well as the orientation of the building, can influence reflected noise levels affecting adjacent buildings.

6. **Noise Reduction by Building Facades.** When interior noise levels are of concern in a noisy environment, noise reduction may be obtained through acoustical design of building facades.

7. **Use of Vegetation.** Although vegetation is not a practical method of noise control unless large tracts of dense foliage are part of the existing landscape, it can be used to acoustically "soften" intervening ground between a noise source and receiver, increasing ground absorption of sound and thus increasing the attenuation of sound with distance.

8. **Sound Absorbing Materials.** Absorptive materials, such as fiberglass, foam, cloth, and acoustical tiles or panels, are used to reduce reflections or reverberation in closed spaces. Because such materials are easily damaged by sunlight and moisture, their application as an outdoor noise control tool is limited to special cases where the control of reflected noise is critical.

PROVISION OF URBAN SERVICES

MAJOR FINDINGS/CONCLUSIONS

Noise is expected to become an increasingly important issue within the Fresno Metropolitan Area because of increasing population and densities. Furthermore, it is increasingly recognized that exposure to excessive community noise levels can inhibit general well-being and contribute to undue stress and annoyance by interfering with human activities such as sleep, speech, recreation, and tasks demanding concentration or coordination. Land use planning policies directed towards the prevention of exposure to excessive community noise levels are based on the threat which noise poses to the public well-being.

A variety of noise control techniques are available to the City to provide an acceptable noise environment for the receiving property while remaining consistent with local aesthetics standards and practical structural and economic limits. These noise control techniques include use of setbacks and barriers, site design, unit and building design, acoustical design of building facade, and use of vegetation and sound absorbing materials.

ENVIRONMENTAL IMPLICATIONS

High noise levels and their frequency of occurrence are an important environmental issue in the City of Fresno. Residents adjacent to some segments of the major street system have complained of high noise levels. At the Fresno Air Terminal, noise levels are expected to increase only slightly over the next 20 years, but there are currently approximately 9,000 persons residing in areas exposed to a 65 or greater dB CNEL. To a lesser degree, there have been noise problems associated with the Santa Fe and Southern Pacific Railroads, but these problems are particularly difficult to resolve.

The potential for noise-related problems and complaints is expected to become greater as the City continues to grow and higher density development becomes more common. In recognition of this potential, the City, in cooperation with a consulting firm, has updated its Noise Element of the General Plan. This updated Noise Element contains several strategies to mitigate existing noise problems and prevent future ones from occurring.

OBJECTIVE

1. To enhance environmental quality by controlling and reducing the adverse effects of noise.

POLICIES/IMPLEMENTATION STRATEGIES

1. Areas of the city exposed to existing or projected exterior noise levels exceeding Ldn/CNEL 60 dB shall be designated as noise-impacted areas.

2. New development of residential or other noise sensitive uses shall not be permitted in noise impacted areas unless effective mitigation measures are incorporated into the project design to reduce noise levels in outdoor activity areas to Ldn 60 dB or less and interior noise levels to Ldn 45 dB or less in noise-sensitive rooms.

3. New development shall incorporate effective mitigation measures to minimize adverse noise impacts on surrounding noise-sensitive land uses.

4. The preparation and review of environmental impact studies for projects in or affecting the City of Fresno should include consideration of items 1, 2, and 3 (above).

5. The findings and recommendations of the Noise Element should be incorporated into the City's zoning policies and coordinated with the Land Use and Circulation Elements of the General Plan.

6. The City of Fresno shall enforce the state noise insulation standards (California Administrative Code, Title 25) and the Uniform Building Code, Chapter 35. City staff should be adequately informed and trained in the application of these regulations.

7. Detailed studies of source operations and noise levels should be conducted whenever potentially noise sensitive uses are proposed for areas near existing major stationary noise sources.

8. The City of Fresno shall work toward compliance with the provisions of the California Airport Noise Standards (California Administrative Code, Title 21) with reference to operations at Fresno Air Terminal and Fresno Chandler Downtown Airport. Regarding Sierra Sky Park, an effort should be made to work closely with the airport operator to ensure compatible land use in the rapidly

developing area around the facility.

9. The City of Fresno Noise Control Ordinance (City Code Section 8-301) shall be updated and revised to be consistent with the provisions of the updated Noise Element and of the Fresno County Noise Ordinance (Fresno County Ordinance Code, Chapter 8.40).

10. The City of Fresno Police Department should be encouraged to actively enforce the provisions of the California Vehicle Code regulating noise emissions from vehicular traffic, giving priority to noise sensitive areas (hospitals, schools and residential zones).

11. In recognition of the fact that noise effects are not respective of jurisdictional boundaries, the City of Fresno should coordinate its actions involving noise related issues, including noise ordinance enforcement, with those of Fresno County and the City of Clovis.

12. The City of Fresno shall encourage all city departments to consider whether adverse noise effects may result from city projects, and to incorporate noise control measures consistent with the provisions of the Noise Element into project design.

    City-operated vehicles and equipment should meet noise performance standards consistent with the best available noise control technology.

13. The City of Fresno shall periodically review and update the Noise Element to ensure that noise exposure information and implementation policies are consistent with changing conditions within the community. Noise level contours developed in the future for Fresno Air Terminal, Fresno Chandler Downtown Airport and Sierra Sky Park should be reviewed by city staff and incorporated into the Noise Element if significant changes are indicated.

PROVISION OF URBAN SERVICES

METROPOLITAN PLANNING

Planning for the Fresno area dates back as far as 1918, and includes comprehensive, long-range plans done in 1958, 1964, and 1974. The 1974 General Plan was the first to be done in a policy format and explored a range of nine different metropolitan land use concepts. The alternative land use map adopted was called the "Managed Growth Multiple Centers Concept" and set a new tone with its recognition of continuing growth away from "Downtown". The 1983 update of the General Plan continues that basic concept, in the recognition that the form of the urban pattern cannot be redrawn every time a new General Plan is drafted.

The City has two other levels of planning - community and specific plans. Following the adoption of the 1974 plan, it was decided that the Fresno Metropolitan Area (FMA) should be divided into community areas, roughly based on high-school service areas, and a finer detail of planning be done for these seven community plan areas. Those plans have been completed for the seven areas (Bullard, Fresno High/ Roeding, Edison, Roosevelt, McLane, Hoover, and Woodward Park). In some instances, this General Plan will amend the Community Plan maps. In addition, new boundaries will be drawn for a plan area west of Freeway 99, and north of the Edison Community. This will result in altered boundaries for the Bullard and Fresno-High Communities. The City also has numerous adopted specific plans which are listed in the Appendix. These plans will remain unchanged by the General Plan update process.

COORDINATION WITH LOCAL AGENCIES

In the 1950's and 60's, new growth in many of California's developing areas was haphazard, and local governments not only did not coordinate their planning and growth policies with each other, they often competed with or ignored each other. Because of this practice, the State established an agency in each County which was authorized to review and approve all boundary changes by governmental jurisdiction in the County For Fresno County, the Fresno Local Agency Formation Commission (LAFCO) is the State-authorized agency responsible for this function.

LAFCO has adopted Spheres of Influence for all cities within the County. A city's Sphere of Influence is the area in which municipal urban services can best be provided by said city. The sphere usually extends beyond existing city limits, and serves as a guideline to LAFCO when it reviews an annexation application by a city. As a result, Fresno's growth plans and policies are coordinated with all other local government agencies. An Urban Boundary Line has been agreed to by joint action of Fresno, Clovis and Fresno County. These agencies have requested that LAFCO amend the metropolitan Sphere of Influence Line to be coterminous with this boundary.

However, the City and the County of Fresno coordinate urban growth planning and growth at a much higher level than that required by State statutes. The City has been recognized by the County as having the primary responsibility for long-term land use planning for both the incorporated and unincorporated areas that are within the City's Sphere of Influence. Both staffs cooperate in the review of plans, annexation boundaries, and frequently participate in each others hearing processes. Once the City prepares and adopts a plan that includes an unincorporated area, the plan is then forwarded to the County for adoption in their format, which ultimately results in areas planned for eventual urbanization being zoned in an urban reserve category (AL-20). Thus, the City and County land use plans are generally consistent with each other.

In 1974, the County determined that future urban development in the metropolitan area should occur in existing cities. Thus, the County established policies which state that: (1) In the existing urbanized areas, the County will refer proposals to the City if it is within one-half mile of the City limits; (2) In the fringe areas, a holding zone is imposed until such time as the City can annex the area. While the referral policy was expanded in 1976, rescinded for a period of time, and then restored as part of the Joint Resolution on Metropolitan Planning, the basic policy now remains in effect. Because of this policy, much of the urban development, which in the early 1970's would have occurred in the unincorporated area, has occurred in the City.

ANNEXATION

As stated previously, the City has been recognized as the agency responsible for providing urban serices to urbanized (developed) areas. This has been supported by policies adopted by Fresno County and LAFCO.

In order to accomplish this, the City of Fresno is currently involved in a program to unify the urbanized areas to provide a more efficient level of service. This includes police and fire protection, water, sewer and waste disposal.

The City boundary is so fragmented and irregular that the users and jurisdictions both suffer. This jurisdictional fragmentation can result in the overlapping of special district operations, each providing a single public service and a duplication of staff.

Annexation brings these functions under one government for the administration of local public services. Although the ultimate goal is to annex all properties within the planned urban area, the City is also trying to alleviate or eliminate the existing erratic boundaries. Since the formation of the Urban Unification Program in 1972, 46 square miles have been annexed, including 50 unincorporated "islands".

The following policies have been adopted by the City Council and represent the philosophy and process followed in the City of Fresno's annexation program.

OBJECTIVE

1. It is the intent of the Council to unify the Metropolitan Area and to establish logical boundaries and service areas.

POLICIES/IMPLEMENTATION STRATEGIES

1. Objectives of the City's Annexation Program will be guided by LAFCO's determination of Urban Service Area and Sphere of Influence for the City of Fresno.

2. City annexations will be designed in a manner which gives careful consideration to the adequacy of existing and planned services in the area.

3. City annexations will be designed in a manner which will encourage the long-term establishment of logical boundaries and service areas.

4. The City of Fresno shall consult with the County of Fresno at a staff level when developing proposed annexation boundaries, and such boundaries shall be configured to create logical annexations.

5. When an annexation is based on a County referral, the City will confine its request to that area necessary to establish legally required contiguity, or as required by the Local Agency Formation Commission.

6. For all annexations, the City of Fresno shall provide to the property owners directly affected an appropriate program which describes the service delivery program and the existing land use plan, including any proposed changes filed with the City and publicly proposed for the neighborhood.

7. The City of Fresno shall emphasize the inhabited annexation process and shall work with established neighborhoods to encourage a negotiated unification of the existing urbanized area. Such a program shall stress the clarification and resolution of identified neighborhood concerns.

8. Inhabited annexations will be used to process requests for annexation from neighborhoods.

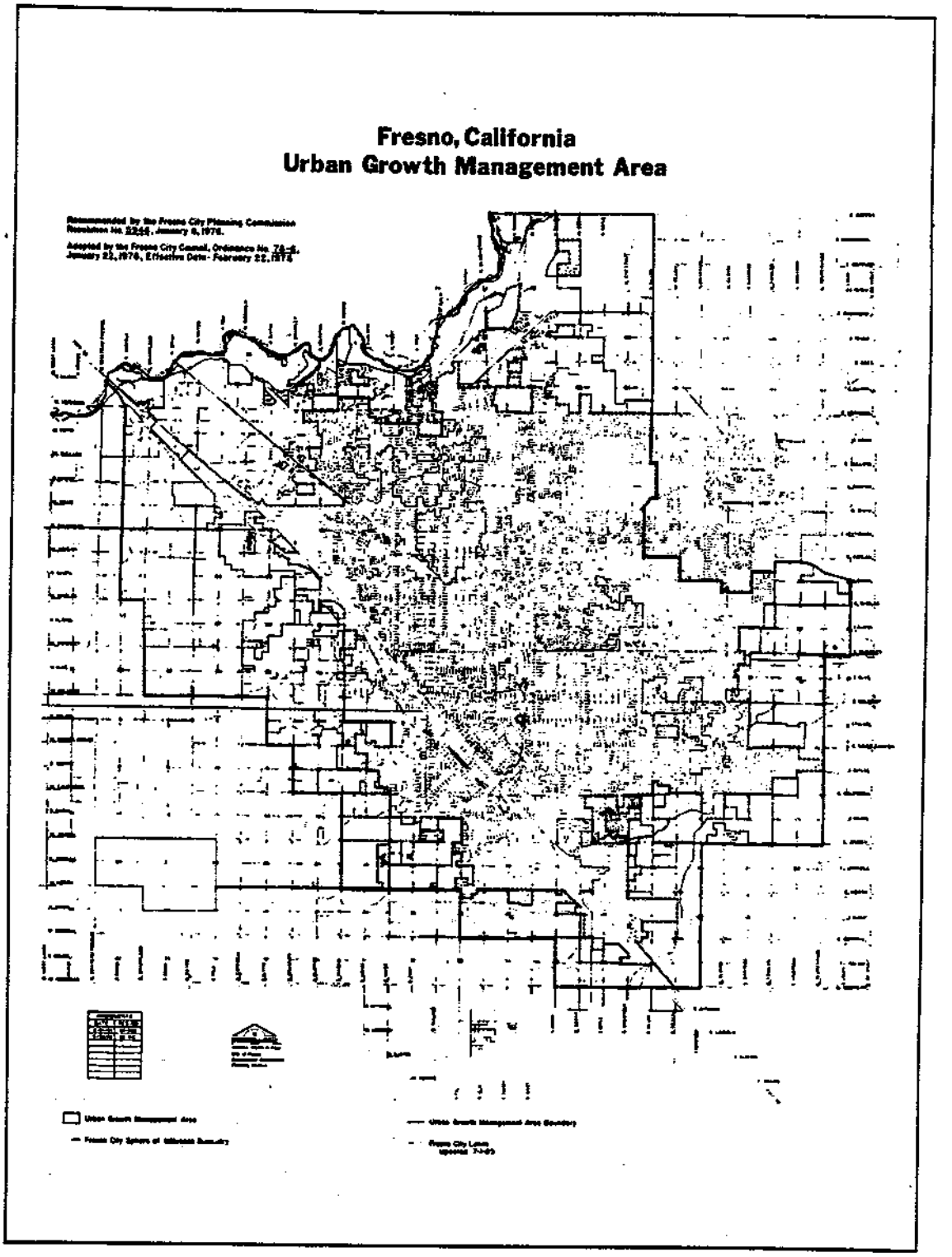
9. Inhabited annexations will be used, in a timely manner, by the City in an effort to consolidate areas which are surrounded or substantially surrounded.

10. Uninhabited annexations will be used to process requests for annexations from individual property owners as promptly as possible.

URBAN GROWTH MANAGEMENT

The City of Fresno adopted an Urban Growth Management process in 1976 to manage the location and timing of growth in the City's fringe areas. The objective of this process is to encourage urban development to occur in such a way that the expansion of urban service delivery systems can be accomplished in a fiscally sound manner, while still providing required City services on an equitable basis to all residents. The services that are part of the UGM process are: fire, police, parks and recreation, water, sewer and streets.

Figure 22



The UGM process builds upon existing City and County policies relating to the development of vacant land. Each project in the UGM (fringe) area is subject to a Service Delivery Review which identifies the method of delivering City services and the corresponding public construction and fee obligations of the development. Additionally, a cost revenue analysis is performed to determine if annual public revenues generated by each development after completion will match the annual cost of providing City services.

There are substantial problems involved in the financing of local governmental services throughout California in the 1980's. Fresno is no exception. Budgetary constraints emphasize the need for careful long-range planning to identify the impacts of land use decisions on urban service systems. The City is continuing to increase the efficiency of service delivery and is exploring new financing mechanisms for basic services such as streets, sewer and water extensions, and parks. It is recognized that expanded urban growth during a period of limited public funds will make it all the more necessary to pay careful attention to the planning and phasing of services.

WATER

The first community water system in Fresno was created in 1876. As a result of various ownerships and improvements, it was ultimately acquired by the California Corporation. Subsequently, in 1931, the City of Fresno assumed ownership and became the first public owner of a domestic water supply in the FCMA.

Currently, the City of Fresno's Water Division has major responsibility for providing water in the metropolitan area. Water is provided from deep wells located in a grid pattern throughout the City. According to the U.S. Geologic Survey, Fresno is the largest city in California to exclusively use an underground water basin as the sole source of domestic water supply.

Other sources of water in the incorporated and unincorporated areas include various special districts and private water companies. Under certain circumstances, the operations of these districts and/or companies may be integrated with the City following incorporation of the service area into the City.

All new developments within the City's water service area are required to connect to the City's system upon development. If the development is in the service area of a public district or a private water company, service may be provided by that entity if City standards for service are met.

The Public Works Department has been attempting to consolidate water service with other public and private water systems. When completed, there no longer will be duplication of facilities and the ability to manage our water resources will be enhanced.

The daily per capita water usage in the Fresno area is approximately 208 gallons per day (GPD). This is above both the State average of 155 GPD and the national average of 163 GPD. If water metering was implemented throughout the metropolitan area, an additional savings of 20% to 30% might be realized. However, it is City policy to exempt single-family homes from metering requirements.

SEWER

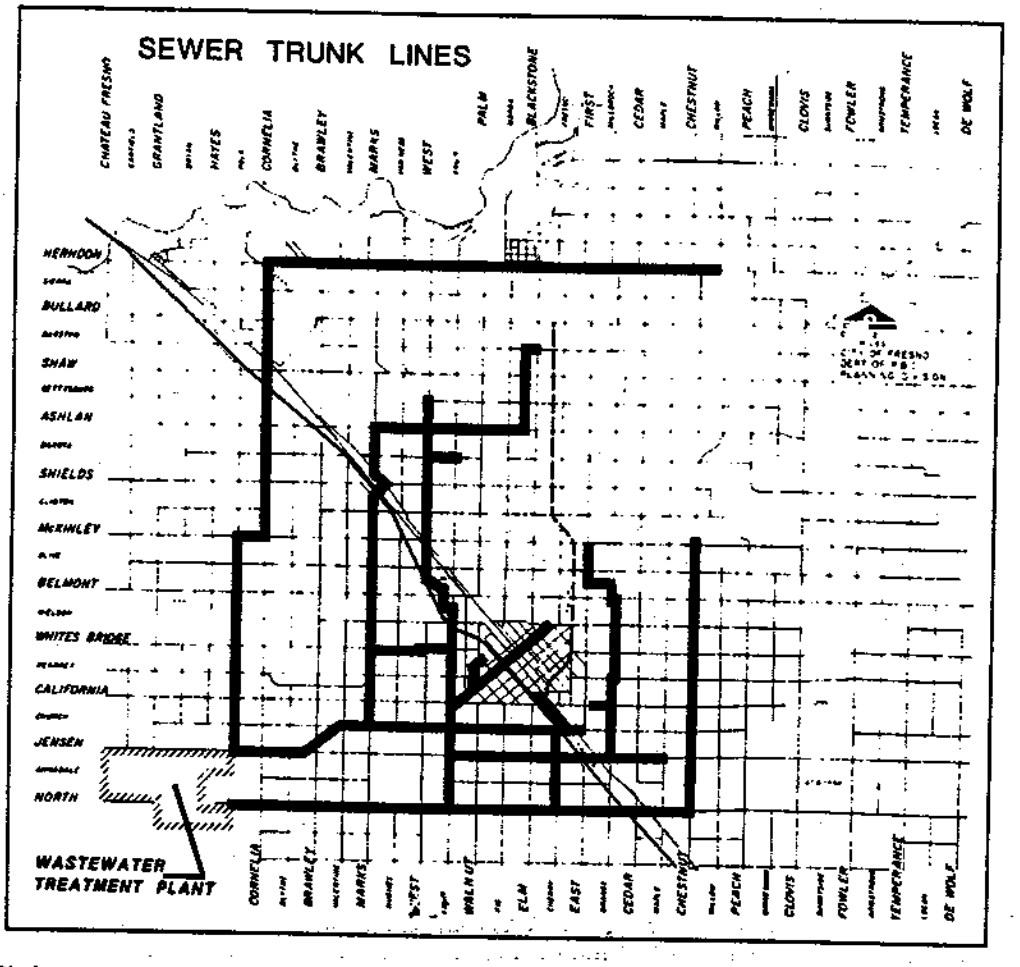
The City of Fresno serves most of the Fresno Metropolitan Area with sewage facilities. Sewer service to most County ares is provided in accordance with a Joint Powers Agreement reached between the City of Fresno and Fresno County in which the City was designated the chief sewering agent for the metropolitan area. Other sewer service districts are Pinedale Public Utility District, Pinedale County Water District, Fresno County Water District No. 1, the City of Clovis and the Malaga County Water District. All of the sewer service districts maintain their sewer lines and discharge the effluent into the City of Fresno mains except Malaga. The Malaga County Water District maintains a wastewater treatment plant.

Each community area is different with regard to its waste discharge characteristics. These characteristics are the result of many factors including the type and amount of industrial, commercial and residential development, as well as water use habits, extent of water metering, water cost, climate, sewer system condition, groundwater levels and storm drainage characteristics.

The metropolitan area is largely served by a gravity flow system. However, the existing sewer system cannot serve some areas such as generally east of Clovis Avenue. The use of on-site disposal may be permitted for some uses and properties which do not have a sewer available. However, the Fresno County Mandatory Sewering Ordinance provides that residential parcels over 37,000 square feet may be permitted to use on-site disposal. In other cases, on-site disposal may be permitted providing there is a community water system (rather than individual wells).

When the extension of a sewer line is requested or required to serve an existing or new development, it is the responsibility of the property owner or developer to bear the cost of the line extension. Reimbursement of fees paid by other properties subsequently using the line will be paid by the City to the person who originally bore the cost of the line extension. If a sewer line exists adjacent to developed property, generally the connection fee is paid by the owner who arranges to have the line connected by a private contractor.

Figure 23



The City's sewage treatment plant is a secondary treatment facility located on the south side of Jensen Avenue, west of Cornelia Avenue. The treatment capacity of the facility is 60 million gallons per day (MGD). Average daily flows during 1982 were 42.9 MGD, with seasonal high flow of approximately 58.8 MGD during the month of September (City of Fresno, 1983).

Expected sewage flows from residential areas are based on 115 gallons per person per day and using the Planning Department criteria for the average number of people per dwelling unit and the average number of dwelling units per acre for the various zone densities.

It is also extremely important to be aware that just allowing the previously planned areas to develop to the current average of 7.26 units per acre density will seriously overload the present sewer trunk system.

A little history must be reviewed at this point. Prior to 1983, sewer trunks were designed to an average medium density of 4.48 units per acre. In about January 1983, the Development Department raised average medium density limits to 7.26 units per acre based on current building trends. This action required redesign of many unconstructed sewer trunks with many existing trunks seriously overloaded, causing potential public health hazard problems.

The average density of 10 units per acre now anticipated by the Development Department in light of recently approved developments, seriously overloads most major sewer trunks at full buildout. The anticipated average densities are causing a complete redesign of the unconstructed trunks and the design of new trunks to relieve the existing main trunks that are anticipated to be overloaded.

It should also be mentioned that these anticipated densities will eventually cause major capital outlay to increase capacity in the treatment plant to handle the anticipated flows at full buildout.

Further discussion of future facility needs and estimated costs are contained in the Growth Areas section of the General Plan.

FLOOD CONTROL

The Fresno Metropolitan Flood Control District (FMFCD), established in 1956, has the primary responsibility for flood control planning and management. The planning efforts of the District have included the preparation of plan documents, both general and specific, identifying watershed boundaries, anticipated runoff flow rates and volumes, natural water courses and their capacities, flood prone areas and proposed structural and non-structural controls to control storm flows. To date, virtually all of the flood control planning functions for the combined flood watershed have been completed.

The District has a responsibility to review all land use proposals for flood control needs or impacts. This includes an evaluation of the proximity of development to floodplains, the need for the application of flood plain management requirements, the acceptability of proposed floodplain facility modifications (i.e., channel construction) and the evaluation of proposed disposal methods.

OPEN SPACE AND RECREATION

Government Code Section 65560 requires the preparation and adoption of a local Open Space Plan as an Element of a City General Plan. The plan is required to address many forms of open space, including open space for: outdoor recreation; areas of outstanding scenic, historic and cultural value; areas particularly suited for park and recreational purposes; areas which serve as links between major recreation and open space reservation, including utility easements, banks of rivers and streams, trails, and scenic highway corridors. The Open Space Element must include an inventory of privately and publicly-owned open space lands, goals and policies for preserving and managing open space lands and an "Action Plan" or program of specific measure which the legislative body intends to pursue in implementing its open space goals and policies (See Appendix). Currently, the City's recreation "Action Plan" consists of providing all residents with a balanced program of physical, social and cultural activities. These activities are implemented through the development of five-acre neighborhood parks one mile apart with recreation programs at half-mile intervals, using school sites. The City's Urban Growth Management process (UGM), through its UGM Parks Fee Ordinance, will further implement the "Action Plan" through the acquisition and development of park sites.

The City's recreation "Action Plan" will continue efforts in creating recreational opportunities. New approaches in offering recreational activities could include: using space over public and private development; renewing existing parks that no longer meet the needs of users, to include a major emphasis on adventure playgrounds, community gardens, water or energy conserving landscapes; par course fitness areas; joint use of facilities (i.e., ponding basins, school grounds); and the encouragement of residents to help design, develop and maintain neighborhood parks.

BACKGROUND

Recreation facilities and programs are provided by a variety of agencies, both public and private, in the City of Fresno. The City has provided numerous public parks and public grounds over the years as listed in Appendix 1. There are currently 30 developed (although not fully developed in all cases) neighborhood parks and smaller sized parks within the City totalling just over 198 acres. The City's two regional parks, Roeding and Woodward, total approximately 457 acres. Additionally, the City has provided public grounds, traffic island buffers, greenways, and miscellaneous sites totalling approximately 225.67 acres. The combined total is about 900 acres.

In addition, the City and the Fresno Metropolitan Flood Control District have cooperated for the past 20 years in the use of turfed ponding basins off-season for expanded recreational uses.

On the City's fringe, UGM Phase II Development Standards provide a balanced recreational program and

include construction of baseball fields, restrooms, tot lots, multi-purpose courts, softball diamonds, lighting, turf, landscaping and irrigation systems. The UGM's Phase III development standards include construction of a social hall. In addition to the public parks and grounds indicated above, there are also a variety of private and non-profit organizations which provide recreation services in the City. These private recreation facilities can be broken down into seven categories.

1. **Commercial Recreation.** These facilities include theatres, restaurants, swim and racquet clubs, bowling, golf, horseback riding, dancing, spectator sports, roller skating, ice skating, and billiard parlors. Commercial recreation contributes to the community in a variety of ways.

2. **Private Non-Profit Organizations.** These organizations would include the Boy Scouts, Girl Scouts, Campfire Girls, YMCA, YWCA, Boys Clubs of America, American Red Cross, Big Brothers/Big Sisters, Little League Baseball, Soccer, Babe Ruth and Pop Warnor Football. Although most of these organizations cater to children and youth , there is a trend to involve the entire family in the organization. The YMCA, YWCA, and Boys Clubs are the only private non-profit organizations within the City of Fresno that have facilities for recreational activity. Several of the above organizations do provide outdoor camping opportunities at sites outside of the City. All other organizations listed use private homes, schools, or City-owned parks and recreation areas to hold meetings and provide recreational activities.

3. **Institutional Recreation.** These facilities include hospitals, convalescent homes, and correctional facilities. In the City of Fresno some hospitals and convalescent homes provide extensive recreation programs for their patients.

4. **Industrial Recreation.** Currently, these programs are limited to annual employee picnics and the entrance of various teams in established City sports leagues. In other areas, however, industrial recreational programs are becoming a very important function in the work place. Many employees now and in the future will continue to expect recreation programs and facilities as part of their benefit package.

5. **Church.** There are currently over 200 churches in the City of Fresno. Where there are areas in the City deficient in physical facilities and programs, churches can be contacted for possible cooperative programming. This would depend, of course, on the facilities in the church and the availability of the facilities. Furthermore, some churches may restrict participation in recreation activities to members only.

6. **Schools.** The Fresno Unified School District and the City of Fresno have a cooperative agreement whereby joint and reciprocal use of school facilities is encouraged. Similar cooperative arrangements exist between the Clovis Unified School District and the Clovis Memorial District (a recreational district), serving residents of the Woodward Park community and a portion of the Bullard community which falls within that school district. Such a program is highly desirable in that costly duplication of common recreational facilities can be kept to a minimum while maximizing the potential use benefits of existing facilities. While school recreational facilities are an obvious asset to municipal programs, they must be considered as a supplement rather than a substitute for local park facilities. This is true for two major reasons. First, schools are planned and constructed to meet the educational needs of certain age groups and, in many cases, are not suited to the recreational needs of all ages in the neighborhood. Secondly, because of year-round school at some sites, and regular school and summer school at other sites, the hours available for recreation use are limited.

7. **County, State, and Federal Outdoor Recreation Sites.** In addition to the existing facilities and programs within the City of Fresno and its sphere of influence, there are County, State and Federal agencies that provide significant outdoor recreation sites for the citizens of Fresno within fairly close proximity, most notably Yosemite and Sequoia National Parks. These sites, their distance from Fresno, and a brief description of their facilities are listed in the Appendix.

An awareness of the variety of recreational services and facilities, other than those provided by the City of Fresno, is essential. Local government cannot and will not be able to do the whole job. It is important, for example, that the private sector be encouraged to provide high-quality recreational services.

The private sector alternatives which could be explored and would provide community-wide benefits are:

I. **Pocket Parks**: These spaces would provide opportunities similar to those available in a playground

area. It could include a mix of recreational equipment for small children as well as sufficient open space for informal recreation by older children and adults. These spaces could be provided as either part of the municipal park system, given compensating maintenance district provisions, or as an amenity provided by the developer. These sites would be small (less than one acre) and would be designed to meet the needs of a very localized neighborhood. It would be imperative that if such space was provided by a developer that it either be centrally located within the development or that similar opportunities be placed within close proximity to all residents. (See Figures 24 and 25)

2. **Linear Open Space:** Recent planned unit developments are providing linear open space, consisting of landscaped buffers and easements of various widths. However, while these buffers (and sometimes walls) insulate individual developments and encourage a sense of security, they do not allow a cohesive open space system involving the surrounding developments. Attention must be directed to the overall integration of open space with adjacent developments.

3. **Mixed Land Use:** A mixed land use concept integrating open space with a residential development would provide for the integration of a large scale open space facility (a golf course or lake, for example) with a residential development.

Funding

Primary funding sources for the City's urban parks and recreation programs consist of the State bond grant program and park development fees collected through the UGM process. The two federal programs, being the Urban Parks and Recreation Recovery Act and the Land and Water Conservation Fund, are proposed to be eliminated by the federal government. However, park coalitions in Washington, D.C. are currently lobbying to continue their existence.

Standards

Traditional methods and techniques of urban recreation planning have focused on the application of space and facility standards to a population or planning area. Although these standards are commonly called "guidelines", they often become absolutes, regardless of significant differences in the population, density, lifestyle, and economic base of a neighborhood or community. For example, to assume an affluent suburban and a poverty-level inner-city neighborhood have the same service needs or access to a regional park is unrealistic. Likewise, to assume the same standards for populations living at different residential densities is irrational and perpetuates imbalances. Nevertheless, conventional standards have played a positive role in that they have provided a justification for existing recreation facilities and programs in most cities and have kept an adequate level of recreation opportunities in Fresno despite changing conditions.

Realistic and effective standards have the following characteristics:

1. They should reflect the needs of people in the area being served. If they do not, public support for the recreation plan could be undermined.

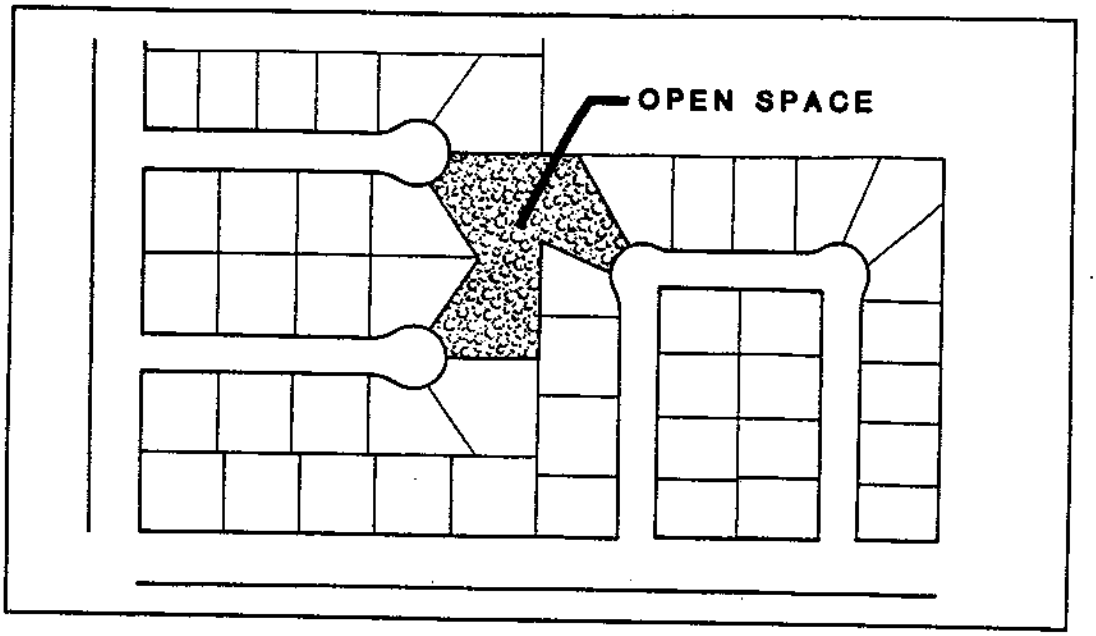
2. They should be attainable in the planning period with existing or projected funds. Standards which are politically or economically unrealistic will be difficult to implement.

3. They should be simple to apply or revise. Standards that are either too utopian or too arbitrary will be difficult to apply to the variety of populations and planning units.

4. They should relate to the people and the times. To assume a timeless set of standards is to deny the rapidly changing nature of cities, lifestyles, and the economy.

If standards are developed in accordance with the above characteristics, they can be a guide for estimating: (1) the amount of land and facilities required to serve general and specific populations, (2) the number of people a recreation area or facility can be designed to serve, and (3) the adequacy of an area or facility to accommodate potential users in a service area.

Figure 24



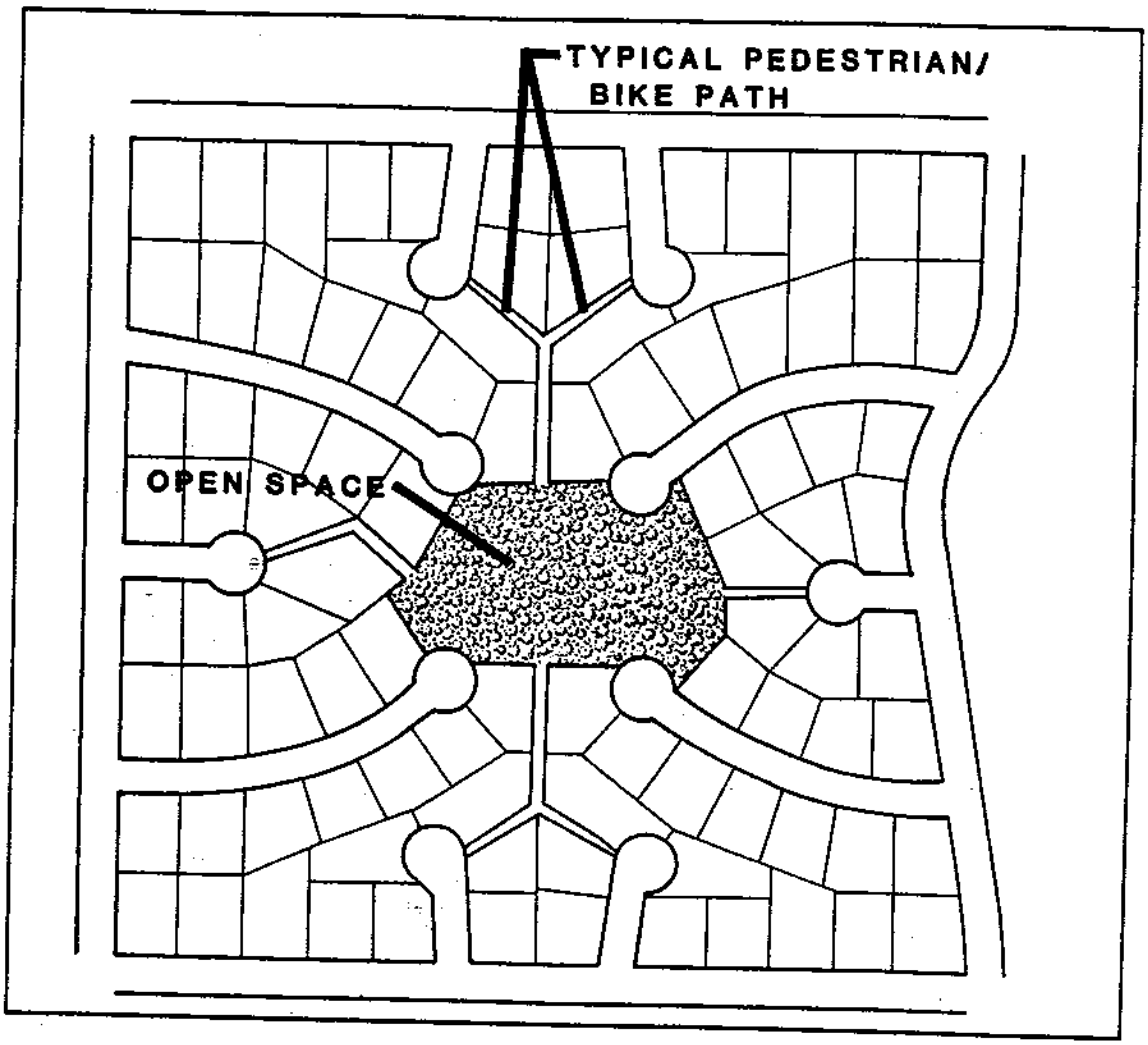
While these standards have provided adequate guidelines in the past, changes that appear to be taking place within the City over the past years have created a need for the study of alternative approaches. Current housing and economic trends (i.e., higher interest rates, increasing emphasis on lower paying service jobs, higher development costs) are leading to changes in housing construction which will have a substantial affect on the living environment and on urban open space. As a greater proportion of the population is housed in apartments, zero lot line, or planned unit developments, the need for re-structuring the manner in which outdoor space is provided will become more apparent.

These changes in residential development style will have an impact on the way in which residents can meet their open space needs and should have an effect both on the way in which public park space needs are calculated and on the design of common open space within higher density residential developments.

Currently, the City's Parks and Recreation standards are based on a geographically defined service area and minimum park size criteria. An unpublished Development Department study of publicly provided recreational open space indicates that the current neighborhood park, using a one-mile geographical standard, serves a neighborhood of roughly 7,000 population. This information is only functional in the determination of overall standards, as we recognize that actual usage for organized sports (i.e., softball and soccer leagues) is based on a metropolitan-wide organization and causes participants to travel from a wide area to specific parks. Ratios computed by staff indicate that a metropolitan ratio of open space to population is 1.8 acres/1000 population, using neighborhood and regional park acreage combined. When this is compared to recommended standards of 2.5 acres/1000 population, set in the past by the National Parks and Recreation Association and included by the State in the Quimby Act, Fresno appears to be deficient in open space. Staff has surveyed other California cities (Irvine, Merced, Sacramento, Stockton, Riverside, etc.) and found standards ranging from 2.4 acres/1000 to 5 acres/1000. However, Fresno's prevalent pattern of low residential densities may have substituted a higher than usual amount of private open space, allowing individuals at nearly all income levels to find outdoor space for recreational time alone or with friends and family.

As housing densities increase on the fringe of the metropolitan area, it would be desirable to increase the size or frequency of neighborhood parks in order to continue an adequate ratio of open space for active recreation. Since that would require an increase in UGM park fees and in operation and maintenance costs, thus adding to the cost of housing and of local government, it would be a difficult standard to improve at this time. However, it is a community issue worth raising in advance, if, in fact, the increase in housing densities persists. Setting a standard of 2.5 acres/1000 population for neighborhood parks would insure the development of sufficient park space in areas designated for higher densities.

Figure 25



Within future higher density development, the design of common open space areas can do much to maintain or improve the quality of the neighborhood environment. Recent staff analyses of conventional R-I subdivisions indicate that approximately 35% of the lot (or 2500 square feet) is useable open space, excluding side and front yard areas. While it is recognized that the single-family homeowner may be purchasing a different lifestyle and level of amenity, there is reason to insure an improved standard for all residents of the community.

Many communities have adopted the approach of requiring a certain percentage of open space within a development. This percentage may maintain certain dimensions, and may vary, depending on the accompanying density. These percentages range from 15 percent to as much as 35 percent (and are exclusive of building setbacks, paving and private patios).

Fresno's zoning ordinance allows lot coverage up to 50% of a site (including all structures with roofs). It is recommended that half of the remaining open space (or 25% of the total site) be designed so as to be "usable"—that is, *easily accessible to the units served, clustered so as to provide adequate space for passive open space usage* (i.e., children's unstructured play, adult conversations, walking, sitting, etc.), *and that it be landscaped in such a manner that it is conducive to use.*

It is essential that developers be given adequate incentives to implement the above if the City wishes to maintain any semblance of open space and recreational quality in newer areas.

Furthermore, the development of new open space concepts and standards must be sensitive to such factors as the social, economic, and demographic characteristics of people within the different areas of the community, the quantity and quality of existing facilities and resources, new trends in recreation, and the expressed needs and desires of the citizens.

OBJECTIVES

1. To provide a variety of meaningful and balanced recreation programs and facilities to meet the needs of the total City of Fresno.

2. To act as a catalyst and organizer causing needed actions to occur from all segments of the community to better serve the recreational needs of the entire community.

3. To insure that all people have access to programs and facilities regardless of age, sex, income, cultural background, housing environment, or handicap.

4. To insure that public recreation is coordinated with other community recreation opportunities to avoid duplication and encourage innovation. This would include the integration of local and regional plans.

5. To insure that public recreation be integrated with other public services such as education, health, and transportation.

6. To insure that recreation facilities be adaptable to future requirements.

7. To insure that land be acquired prior to urban development and dedicated to park and recreation uses.

8. To insure that park and recreational facilities make the most efficient use of land, be designed and managed to provide for convenience, health, safety, and pleasure of the intended users, and represent positive examples of design and energy conservation.

9. To insure that planning for parks and recreation be a continuous process, requiring constant review and evaluation of the recommendations and projects.

POLICIES/IMPLEMENTATION STRATEGIES

1. Where feasible and warranted, the City of Fresno should encourage the renewal of existing public and private spaces, such as dump sites, parking lots, obsolete industrial buildings, surplus schools, etc., for parks and recreation purposes.

2. The City shall continue to investigate methods of integrating public and private open spaces in new development.

3. The City shall investigate and utilize, where appropriate, state and federal assistance to provide parks and recreation facilities.

4. The City of Fresno shall pursue the development and adoption of an acreage-per-1,000-people open space standard which approximates 2.5 acres of park land for every 1,000 persons residing within the City and will insure the development of sufficient park land or private usable open space in areas designated for higher densities.

5. The City shall incorporate a requirement into the zoning ordinance that not less than 25% of the net site area shall constitute usable open space for the project residents.

6. The City will insure that the Parks and Development Departments coordinate review and approval of all development entitlements (i.e., Site Plans and Conditional Use Permits) and subdivisions in order to implement new open space standards.

7. The City shall continue to require the provision of adequate park and recreation space and facilities through mandatory dedication of improved land or development fees, or both, as a condition of subdivision approval or issuance of building permits.

8. The City shall investigate and carry out methods and programs which involve private and non-profit organizations in the supply of needed recreation services and facilities.

9. Public agencies, such as the Cities of Fresno and Clovis, the County of Fresno, school districts, and the Fresno Metropolitan Flood Control District should coordinate programs of planning, acquisition, and development of facilities to seek the greatest public benefit from multiple use at the least public costs.

10. The City of Fresno shall insure that public access to the San Joaquin River is provided.

11. To insure that City parks have visual open space value as well as recreational value, all new parks should front on public streets on as many sides as possible and not be surrounded by privately-owned property.

ENERGY CONSERVATION

INTRODUCTION

This section of the General Plan is a summary of the Energy Study prepared through a grant from the California Energy Commission by a team of consultants (see footnote) and available at the Development Department.[1] The Energy Study was prepared as an issue document, to identify problems associated with contemporary patterns of energy supply and consumption, to encourage discussion of alternatives, and to propose policies for improving present trends or practices of energy use. The Study emphasizes planning options available to local government for reducing energy consumption. For a more detailed description of energy use in the FCMA, and suggested available methods for decreasing energy consumption through conservation of non-renewable energy resource, the reader is referred to the Energy Study document.

The City of Fresno, in common with the United States in general, is overcommitted to the use of limited, non-renewable sources of energy. Of the 56 trillion BTUs (British Thermal Units) of energy consumed within the FCMA in 1978, 81% came from natural gas and petroleum. The remaining 19% was comprised of geothermal, hydroelectric and nuclear energy. Overall, there has been an increasing reliance on the non-renewable and least-abundant resources (natural gas and petroleum), rather than the desired shift to exploitation of the more-abundant (coal) or renewable (solar) sources. Energy consumption in the United States continues to increase, despite the fact that supplies are decreasing, prices are escalating, and there are growing fears that further increase in dependence on foreign sources of energy fosters vulnerability to international politics.

The "energy crisis" brought on by growing consumer demand and dependence on non-renewable sources of energy, underscores the dilemma posed by contemporary public attitudes and governmental policies regarding energy. This has led to the recent mandate (CEQA requirements) by the State of California that analysis of energy supply and consumption be included in evaluating the impacts of new developments.

There are three primary approaches to solving the dilemma posed to society by long term energy needs: (1) reduce overall levels of consumption; (2) search for alternative sources of supply; and (3) increase efficiency of use. While some prospect exists for reduction in use, this is the most difficult area for legislation by local government to effect any significant change, since it so directly reflects private choice and freedom. In contrast, considerable potential exists for further investigation of alternative sources of supply. Increasing reliance on alternative sources of energy are at best part of a long-term program of energy development. For immediate or short-term gain, the greatest potential lies in efforts directed at conservation of energy - i.e. increasing the efficiency of energy use.

BACKGROUND

The primary commercial source of energy to the FCMA is the Pacific Gas and Electric Company (P.G.&E.), which supplies all electricity and natural gas. In 1978, the FCMA consumed 560,000 therms of energy. Of this 47.4.% came from petroleum, 33.5% from natural gas, and 15.5% from hydroelectric power, geothermal, and nuclear sources. These figures reflect the preeminence of the transportation sector in terms of total energy consumed. Transportation used 35.5% of all energy consumed in 1978. The next largest sector

[1] *Energy and the FCMA, A Local Government Plan for Energy Management in the Community*, Bruce O'Neal, Land Use Associates; Michael Licciardello and Associates; Mark Northcross, Center for Public Energy Planning. Sept. 1980, 115 pp.

is residential, which consumed 34.2% of total energy supplies. The commercial sector accounted for 21.1% of the FCMA's energy consumption. Industrial energy consumption, often a significant factor elsewhere, is a minor consumer in the FCMA. This data suggests that the transportation and residential sectors constitute the greatest potential for city-directed energy conservation programs.

Hydroelectric power is the largest single source of electricity (40%). However, because the P.G.&.E. system is interconnected and linked to other western state utilities, FCMA electricity consumers are as dependent on P.G.&E.'s petroleum fired power plant at Moss Landing as well as the hydroelectric facilities located in the nearby Sierra Nevada. P.G.&E.'s steam and thermal generating plants provide half the power distributed by the company. These steam plants are primarily fueled by oil, secondarily by natural gas. Between 1970 and 1978, natural gas supplies declined 26%. As a result of this shortfall, oil has become increasingly important to the region's energy supplies.

Energy consumed during 1978 cost over $225 million, or nearly $700 per person a year. Of this, $105 million, or $300 per person a year, went for gasoline or other petroleum products for transportation, $54 million, or $160 per person a year, was paid for electricity and natural gas for residential purposes. The total cost of energy represents a 146% increase over 1970. The rate of increase in all energy costs has imposed an appreciable burden on the family income. Greater shares of household income must be allocated to basic energy needs than previously.

Significant reductions in disposable personal income will result from the continuing rising cost of energy. There is no reason to expect stabilization or decreases in the rate of increase for energy costs within the next decade unless serious effort is devoted to energy conservation programs and/or the broadscale development of alternative sources of energy.

CONSERVATION IN CITY OPERATIONS

While not a major consumer of energy within the FCMA, the City of Fresno seeks to provide a positive role model by increasing efficiency and reducing absolute consumption. Budget constraints and the continuing need for municipal services make City energy costs particularly visible.

Therefore, the City of Fresno is engaged in efforts to increase energy conservation in the realm in which it has the most direct authority - its own operations. The beneifts to be obtained by municipal energy conservation efforts are greatest in the following direct service functions.

Street Lighting Conversion

Fresno has approximately 22,000 streetlights, of which 16,500 are owned and maintained for the City by P.G.&E., and 5,500 are owned and maintained by the City. The lights owned and maintained by P.G.&E. have been converted to high pressure sodium lights. With the conversion, energy use for streetlighting decreased from 22 million kilowatt-hours (kwh) to approximately 9 million kwh.

Domestic Water Supply

The FCMA is completely dependent on underground water for its municipal supply. Water from the subsurface reservoir is obtained through deep well pumps owned and operated by the City, County or private water districts. The energy used by these pumps is a function of three factors: the volume pumped; the depth of the water; and the efficiency of the pumps. The volume of water pumped is determined by demand and the level of pressure at which the water is pumped, which is set by flow requirements for fire protection. Efforts on the part of the Fresno City Water Division have had some success in reducing demand, although more needs to be done.

The expansion of recharge facilities and efforts might stabilize existing levels, and thus reduce future energy needs for pumping. Pumping efficiency varies in accordance with daily and seasonal fluctuations in water system pressure and flow rates, and with the condition of the machinery (age or degree of wear). As a rule, pumps should be replaced when their efficiency declines below acceptable standards, typically interpreted at about 65% or less.

Waste Water Treatment

The City of Fresno is the chief sewering agent for the FCMA. The waste water treatment facility on Jensen Avenue provides secondary and primary treatment (for all areas other than Malaga) with an energy expenditure of about 30 million kwh per year. This level of service in inflexible and thus not subject to change for the purposes of conservation. Currently, methane gas produced as a by-product of waste treatment is simply burned off. The City has evaluated the feasibility of on-site power generation using the methane and has constructed a system which is now operational and which will supply a sizable portion of the electrical energy requirement. At the present time, water reclaimed in the secondary treatment process is used for local agricultural irrigation which would otherwise have to be supplied by additional pumping from underground resevoir.

Fleet Management

Approximately 1 million gallons of gasoline, diesel fuel and propane are consumed annually by the City's fleet of 940 pieces of motorized rolling stock. The Fire Department vehicles also consume close to 50,000 gallons. The City is currently attempting to lower energy expenditures through conversion of existing vehicles to other cheaper types of fuel, training of staff in fuel-conserving driving practices, and downsizing vehicles where feasible.

City Buildings and Associated Facilities

Prior to 1978, municipal buildings consumed about 20 million kwh and 450,000 therms per year. Reduction of consumption resulted in the use of 14 million kwh and 300,000 therms per year. The City has explored a number of conservation measures, ranging from altered working conditions for City employees (e.g., setting the thermostat at 70-72 for the winter and 76-78 for the summer, advising employees to dress appropriately for the season), energy audits of building efficiency, reduction of lighting or conversion of lower wattage lights, limitations in the use of fans, and design standards.

CONSERVATION IN NEW DEVELOPMENT

Commercial and residential structures consume inordinate amounts of local energy supplies for the purposes of space heating, cooling and lighting. The principal objective of energy conservation efforts directed toward new development is the maximum feasible use of passive or natural heating, cooling and lighting. This may be achieved by encouraging the incorporation of solar access. The Solar Rights Act, passed by the California Legislature in 1978, gives communities considerable latitude in planning and regulating solar access. As enabling legislation, communities must enact the law through local ordinance. Section 8 of the statute requires all subdivisions to provide for passive heating and cooling of residential structures.

Examples of passive cooling opportunities include the design of lots to allow the proper orientation of a structure to take advantage of prevailing breezes or available shade. Passive heating opportunities include the design of lots to allow structures to be aligned in an east-west direction of southern exposure. This will involve legislative issues related to structural and performance standards, as well as considerations of structural orientation, street orientation, street design, landscaping and shading, and other strategies.

Structure Orientation

To enhance energy conservation, buildings should be oriented to maximize southerly exposure of roofs and walls. The best building orientation is with its axis in an east-west direction. By minimizing east-west exposure to the summer sun, energy use for heating and cooling can be reduced. In the winter, a large southern overhang will not impede the low-angled sun from heating the southern exposure of the building.

The ideal of the east-west orientation may not be possible with all types of structures. Multi-family residential uses and commercial structures have different solar access requirements and therefore different orientation concerns. In general, problems arise due to the common wall nature of these uses and the possibilities for multi-level construction. These factors make the provision of adequate solar access to each unit particularly difficult. Innovative structural design can often provide solar access to a majority of units independent of structure orientation.

Street Design

Streets are the framework for lot and building layout and can directly affect solar access. In addition, the width and type of surface materials used can affect the degree of heat absorption of subsequent radiation to surrounding structures. Narrower street widths would reduce energy investment in construction and maintenance of roadways, plus reducing the adverse effects of large street widths on ambient air temperatures. On unshaded streets, the surface temperature of asphalt on a 100 degree day can easily reach 140 degrees. This will result in a 10-degree difference in ambient air temperature and a 50% increase in the energy consumed for air conditioning of adjacent residences. Streets also radiate heat during the evening hours when air temperatures at street level during the summer months may discourage pedestrian and bicycle traffic.

Landscaping

Vegetation around residential units can modify climatic conditions and reduce the effect of the sun's rays. A deciduous tree can control the sun's effect during the summer by shading roofs, streets and other structures. Properly selected and placed shade trees can produce a cooling effect of 24 to 40 degrees in attic temperatures during a warm day - equivalent to several room size air conditioners. Shade trees also create a light breeze as they draw hot air up through their branches, thus promoting good air circulation around buildings. Trees should be chosen that have a short mature height (30 feet) and broad crowns (for summer shade and shorter shadows in winter). Location of the plant should not interfere with solar collectors or other desirable passive solar features of the building. Seasonal growth and leaf characteristics must also be considered.

Parking Lot Shading

Shading offstreet parking lots can substantially reduce the maximum temperatures in the vicinity of parking lots. Lower air temperatures in parking lots will lower the thermal stress on people and make it more enjoyable to walk and cycle in the area. It will also reduce auto air conditioning use, since autos stay cooler while parked. The efficiency of the autos may be increased as well.

In addition, alternative surfacing materials should be considered which reduce heat load in parking lots such as turf block, brick, portland cement, cobbles and gravel.

Zoning Ordinance

The City of Fresno zoning ordinance contains provisions which may constrain or limit the use of solar energy systems or, by omission, not favor their use. One desirable solution would be to standarize local definitions according to those contained within the State of California Solar Rights Act. The use of solar energy systems may or may not be permitted under existing local zoning provisions. To avoid any issue or potential conflict, the use of solar energy systems should be permitted within all zones, whether as a part of a structure or incidental to one or more structures.

Solar energy systems can potentially present a problem if, because of design restrictions, rooftop collectors extend above the maximum height limitation of the zone district. This is not perceived to be a significant problem in single family districts as the maximum allowed height of 25 to 35 feet is seldom requested. Problems arise in multi-family and commercial districts. To mitigate these potential difficulties, solar collectors could be made exempt from the height restrictions, or the restrictions could be applied only for bulkier structures and not those with little bulk (such as TV antennae). The zoning exception would be granted when it can be demonstrated that the bulkier apartment structure does not interfere with solar access.

Reducing frontage requirements for lots on east/west streets can be used to improve solar access, provided the lots are large enough. If lot size remains constant, a reduction in frontage means that lots will be narrower and deeper on a north to south axis. This in turn means that there is a greater distance between buildings from north to south, and so better solar access.

Street Orientation

The subdivision ordinance does not establish standards for street orientation. However, it is accepted practice to require that streets line up with existing streets outside the development site. This practice sometimes results in the sacrificing of proper orientation. Modification to the ordinance requiring proper street orientation would have value for new development. With redevelopment areas, other techniques such as clustering or modified setbacks may be more workable.

Drainage

While the majority of the areas' storm drainage can best be handled by a metropolitan-wide system of drainage pipes and ponding basins, there are several advantages from the point of view of energy conservation with on-site drainage programs. These primarily concern the savings involved in reduced construction and maintenance costs of drainage facilities or storm runoff, but also the increased opportunities for water recharge, open space amenities and incorporation of other energy conserving devices in the development.

Solar Access

The emphasis of solar energy is to maximize accessibility while minimizing the use of non-renewable resources. These systems have different solar access requirements, so a number of important decisions must be made regarding the regulation of solar access within the community. Passive systems, which do not require the use of machinery to operate, emphasize the more efficient relationship between collecting surfaces, potential energy storage and insulation. Active systems involve collecting and then distributing energy (either via water or air) with a pump or blower. Alternative system designs may be favored, hindered or even prohibited by existing community regulations concerning the provision or protection of access. Thus, if local ordinances provide only for rooftop access, then passive systems may well be at a disadvantage. Based strictly on their optimal solar collector location, four alternative designs may be identified: (1) rooftop; (2) south wall; (3) south lot; and (4) detached collector. Each of these has distinct requirements with regard to regulatory incentives and constraints.

Performance Zoning

Several California communities had considered performance standard approaches based on conditions, covenants and restrictions (CC&R). Under such an approach, the developer submits to the City a CC&R that complies with community regulations for solar access before a permit is issued.

The performance standard sets a maximum level of shading that the development of a new lot can cause. The regulations must be applied on a case-by-case basis since the CC & R's would govern a variety of solar access factors, including potential solar collector location, adjacent building height, shading by landscaping and structures, and potentially, the placement and maintenance of street trees. The analysis would occur at the tentative tract or site plan review stage and would establish the basic conditions to be included in the restrictions.

Solar Easements

The Solar Rights Act allows the establishment of easements for the protection of solar access, defining "solar easement" as the "right of receiving sunlight across real property".Further, "In establishing such easements consideration must also be given to feasibility, contour, configuration of the parcel to be divided, and cost, and that such easements shall not result in reducing allowable densities or the percentage of lot which may be occupied by a building or structure under applicable planning and zoning in force at the time such tentative map is filed". The cost of requiring and recording a solar easement can be subsidized by the provisions of California tax credit legislation. The Solar Rights Act allows the cost of solar easements to be considered in calculating tax credits, making the easement part of the total solar energy system eligible for tax incentives.

Planned Unit Developments

Development standards are relaxed within a Planned Unit Development (PUD), and thus a variety of innovative approaches to lot layout, development design, and solar energy use can be tried. Modifying a PUD ordinance to assure solar access protection can follow three alternative approaches: (1) the base map and plot plan could contain solar access information concerning the amount of shading that can be expected for structures within the development; (2) the incorporation of solar access concerns into the findings that the Planning Commission must make regarding compliance of the project with stated community goals and plans; and, (3) the design criteria for the development can be modified to protect solar access.

Regulating Trees and Landscaping

There are two basic issues with regard to trees: the adverse impact of shading on solar collectors, and the positive role of tree shading on ambient air temperatures (previously discussed). The California Solar Rights Act (1978) regulates the amount of permissable shading that can occur with existing solar collectors and supports the planting of trees for shade, to moderate temperatures, and to provide economic and aesthetic benefits. Street tree ordinances typically establish criteria for the planting, location, selection and removal of trees. These could be modified to address solar access and shading requirements.

Environmental Impact Reports

Although the California Environmental Quality Act requires that project energy use be reviewed as a part of the environmental process, such review is often minimal and limited to an analysis of the project's likely impact on total community energy use. The environmental assessment and EIR, when required, should focus on site specific energy implications including structure orientation, possible shading by a taller use, separation between structures, alternative transportation modes and other energy related issues. Emphasis should be on reducing project energy use to the greatest feasible extent.

State Building Standards

The goal of Title 24 of the California Administrative Code is to develop building standards which will require new structures to achieve the maximum possible energy savings while remaining cost-effective when compared to buildings built prior to the current building standards (1975). Marginal cost, which reflects the costs of the additional energy supply avoided due to the standards, will be used to determine cost effectiveness.

For residential and commercial uses, the project will result in both performance and prescriptive standards. The performance standards will be maximum allowable annual energy budgets in BTU/square foot for different building types in different climate zones. The prescriptive standards will identify combinations of conservation and solar measures that will satisfy the performance budgets. The major energy savings measures being investigated in the project are building envelope efficiency improvements, passive solar space heating systems, active solar water heating systems, heating and cooling system size limitations, and lighting efficiency improvements.

Commercial Energy Standards have been in effect since 1978. Revised standards are currently being developed for adoption within the next year.

LAND USE AND TRANSPORTATION

Land use and transportation are two highly interrelated aspects of the city environment. The urban form directly imposes a specific circulation structure on the municipal area. By increasing residential densities and reducing the vehicle miles traveled (VMT) per person, efficiency can be enhanced throughout the metropolitan area. The fact is that the FCMA is a comparably low-density community with about 3,200 persons per square mile. To change the density for the purpose of achieving efficiency in transportation requires a long term effort at redesigning the community and implementing appropriate land use policies to achieve greater energy conservation.

Public Transit

In fiscal year 1982, Fresno Transit carried over 25,000 weekday passengers daily. The expanded use of public transit over using private autos offers the greatest potential for the conservation of petroleum energy. Nearly three times the number of "seat-miles" will be obtained by using transit buses over private automobiles for an equal amount of petroleum. This energy differential between the two means of transportation becomes even more dramatic where the number of occupants per automobile decreases.

The use of public transit will increase as residential densities increase, and as commercial and employment centers become more concentrated.

Fresno Transit has developed a five-year plan to achieve maximum efficiency in providing service through more effective use of resources. The plan is annually updated to reflect changing conditions, and to attract more "choice" riders to the system.

Ride Sharing

The FCMA initiated a ridesharing program in 1980. CalTrans serves as lead agency with the active participation of the County of Fresno and the Cities of Fresno and Clovis. During its inital year of operation, the program focused on the establishment of a computerized, ridesharing matching program. Car pools are being encouraged for regular trips that involve travel of more than 25 miles.

Cycling

Fresno's moderate climate and comparatively flat terrain offer an excellent potential for expanded bicycle usage. The FMCA Bikeways Plan was adopted in 1975, implementation occurs annually, using Local Transportation Funds (SB 325) for bicycle and pedestrian facilities. Community support of the program has been limited. Bicycles present the potential to service as an alternative transportation strategy during periods of fuel supply shortfall and allow an alternative to the reliance on automobiles as an on-going measure in air quality maintenance.

RETROFIT

The energy required to heat and cool existing buildings is a significant percentage of the overall consumption of energy within the City of Fresno. A number of methods are available to improve conditions of existing structures and to decrease their energy demand, all of which fall under the general label of "retrofit". Among the more common techniques for increasing building efficiency are: insulation of ceilings, heating-ventilating-air condition (HVAC) ducts, and hot water heaters; weather stripping and caulking; night-setback thermostats; spark igniter pilot lights; low flow shower heads; window treatment to provide shade and furnace efficiency modifications.

The City Council adopted an Energy Conservation Retrofit Ordinance that went into effect July 1, 1981. A one-year review period was allowed to determine the effectiveness of voluntary compliance. However, this ordinance was later repealed in 1983 as a result of implementation problems involving fees, enforcement and inspections.

Retrofit Program Activity

There are four current activities available to property owners and renters promoting the upgrading of existing buildings:

1. Information on the savings potential - heavy advertising by the local insulation contractors, and by P.G.&E., along with free building audits by the utility.

2. No interest loans for residential insulation retrofit by P.G.&E. - up to $1,000. The payback period is determined on a case-by-case basis.

3. Loans and grants to low and moderate income families for weatherization.

4. Tax credit - Federal and state income tax credits are available for energy conservation activities (i.e. insulation, weatherstripping, etc.).

Alternative Energy Sources

Since heating water is a thermal process, there are two realistic alternatives to simply spending new fossil-fueled energy for this use: solar energy and waste heat recovery. The technology supporting both alternatives is well-established, and the potential exists to offset at least half of the fossil-fuel generated energy currently being used for this purpose.

Solar Energy

Both the State and PUC have active programs aimed at reducing energy consumption for water heating. The major activities are:

1. State residential standards under Title 24 requires solar domestic hot water systems in new or remodeled residential construction if natural gas is not being used, unless solar is more expensive than the proposed alternative. Modification of these standards is now in process and the position will probably be made stronger relative to the role of solar. The regulations also set minimum standards for efficiency of commercial and industrial service hot water heaters.

Bioconversion

Bioconversion uses organic waste products, such as brush and wood chips as direct combustion fuel or to produce low-energy natural gas, liquid fuels and other industrial chemicals. While many bioconversion applications are still demonstration projects, these have shown considerable success and offer promise for long-term conservation and recycling of natural resources.

Biomass

Biomass is found in great quantities in the form of agriculture (crop and feedlot residues) and timber residues. For the most part it is widely dispersed and requires smaller power plants. It is most appropriate in providing for power supply needs in local applications, but may provide energy which can be sold to the utilities in the future. The potential for biomass conversion should be particularly favorable in rural Fresno County, given the intensive agricultural nature of this area.

Municipal Solid Waste

The use of municipal solid waste as an energy source is relatively expensive. If substantial progress is made in recycling efforts, such costs can be reduced. Like biomass, the environmental impact of burning refuse-derived fuel is not appreciably different from that of conventional fossil fuels. In addition, the siting of a municipal solid waste processing plant can be controversial due to traffic and air pollution problems.

However, the City has purchased approximately 240 acres adjacent to the County Landfill site for use after the permit for the current landfill expires July, 1985. The possibilities of opening a waste-to-energy plant continue to be explored as a long-term solution for the metropolitan area.

As a potential remedy to this situation, the City of Fresno has developed the Metropolitan Area Recycling Service (MARS), a voluntary curbside collection service for source-separated newspaper, cans, and glass. In addition to this residential service, there is a commercial service for collecting high grade office paper and corrugated cardboard.

Co-Generation

Co-Generation combines electric power generation with process heat or steam production. A National Science Foundation study estimates that by 1985 industry could economically justify producing about a third of its electrical power needs and one-half of its process steam through co-generation. A host of regulatory, institutional, and economic barriers now exist which present obstacles to the full utilization of co-generation opportunities. These include multiple and uncertain government permit requirements (particularly air quality requirements), fear of regulation by the California Public Utilities Commission, uncertainty of power supply, and the price paid by the utility companies for excess power generated on-site.

ENVIRONMENTAL IMPLICATIONS

Few issues today are as significant to our future as those concerning our supply and consumption of energy. The level of demand for energy has not only economic consequences for the individual and the local economy, but includes environmental issues ranging from air pollution caused by continued automobile dependency or alternative fuels to those consequences of the expansion of nuclear power as a future energy source. The Energy Element places a local emphasis on conservation in order to limit demand and reduce adverse environmental consequences of rising energy demands. The conclusions reached by the consultant study are as follows:

1. The FCMA consumed 56 trillion BTUs of energy in 1978 by burning 18 billion cubic feet of natural gas, 178 million gallons of oil, mostly for gasoline, and the rest (19%) contributed by nuclear, hydroelectric power, and geothermal sources.

2. Residential consumption accounts for 50% of all electricity and natural gas use, at a 1978 cost of about $90 million. Commercial consumption accounts for 20% of all electricity and natural gas consumption, at a 1978 cost of about $60 million. All the money virtually leaves the local economy.

3. Local programs to influence these consumption levels can reduce electricity and natural gas consumption by almost 25%, and expenditures for energy by $25 million.

4. New buildings, both residential and commercial, can be far more efficient than they are now. A goal has been adopted to reduce consumption levels below current Title 24 guidelines by 80% before

1990, through a combination of mandates (solar access, building orientation, shading) and incentives (narrower streets, higher density, mixed land uses) that will provide additional conservation and compensating construction cost savings.

5. Since existing building stock is increasing about 3% per year, real reductions in community consumption must consider modifying existing buildings. Simple retrofit programs at time of sale will increase building efficiency by 20-30% and reduce FCMA consumption of electricity and natural gas by 7-10%.

6. Heating water for residential and commercial uses accounts for 21% of all FCMA electricity and natural gas use, at an annual cost of $21 million at 1980 rates. Programs that encourage the use of solar energy to replace gas heaters on pools, spas, hot tubs, and domestic hot water in all new construction could reduce consumption by 14% and cost by $2 million annually. If the requirement includes existing units, the annual savings becomes 30% and $8 million.

OBJECTIVE

1. To provide leadership in implementing energy policy, to implement conservation actions directly within City government, and to encourage conservation actions by the private sector.

POLICIES/IMPLEMENTATION STRATEGIES

1. The City shall continue its leadership role in conservation programs within its own buildings and operations and publicize the results and benefits of the programs to the community.

2. The implementation of the energy management plan will benefit from centralization within the City and from coordination between local agencies.

3. All municipal buildings shall conform to the state energy standrads for non-residential buildings as defined by Title 24.

OBJECTIVE

1. To encourage new development through the appropriate building and site design to conserve energy in construction and long-term operation as well as providing adequate solar access for the operation of solar energy systems.

POLICIES/IMPLEMENTATION STRATEGIES

1. The City encourages methods of maximizing solar access and minimizing the use of non-renewable resources within the parameters of the municipal code.

2. Implement the provisions of Title 24, which will increase energy conservation. Informing staff and developers of the guidelines will expedite its effectiveness and the subsequent monitoring of effects.

3. Within new commercial or office development, implement any future changes to the State energy standards related to development standards, as they are adopted.

4. To the extent possible, increase the flexibility for good solar design through such methods as minor deviation, variance, rear yard encroachment and planned unit development.

5. As part of the development review process, the developer shall describe the energy conservation features that are incorporated in the subdivision design.

6. In regard to the Solar Rights and Solar Shade Acts of 1978, the City shall observe provisions in State law regarding solar access and continue to study whether further local legislation is necessary.

7. At the interface of commercial or industrial and residential or multi-family with single family residential, height restrictions and/or setbacks should be used at the common boundary to insure solar access to the less intense residential use.

8. The City should/shall review its codes to ensure that there are no obstacles to solar energy systems.

9. The City shall be responsive to the energy conservation needs with emphasis on a tree planting

program to include larger deciduous trees with the proper orientation not to interfere with solar access.

OBJECTIVE

1. To encourage energy efficient development which decreases the need for travel and enhances access to transit.

POLICIES/IMPLEMENTATION STRAGEGIES

1. Energy conservation shall be a critical element in assessing land use decisions. Patterns of land use shall be required which decrease fuel consumption for transportation and which reduce energy requirements for heating, cooling and lighting.

2. New development should be compact within the constraints of service capability to conserve the land resources and prevent premature conversion of agricultural land.

3. Higher densities should be encouraged along major transportation routes and adjacent to planned community centers to maximize opportunities for transit use and minimize trip distances.

4. The compatible integration of mixed land uses within neighborhoods shall be encouraged to include residential, commercial, office and light manufacturing where appropriate. Such land use mixing should occur in new development through the planned unit development process as well as within the existing structures where practicable.

5. Employment opportunities within the home shall be expanded through amendments to the municipal code allowing greater floor use area, increased employment limits, and special provisions for the handicapped.

6. The City shall take a lead role in demonstrating measures for promoting alternative transportation modes, especially for the daily commuting. Potential measures include preferential parking for ride-share, reduced fares for transit passes, a pool of city-owned bicycles for shorter trips, park and ride/express bus service, and the feasibility of satellite bus transfer terminals.

7. An active capital improvement program for the development of the metropolitan bikeways system shall be instituted in an effort to encourage bicycle use as an alternative transportation mode.

OBJECTIVE

1. All residential and commercial buildings in the City shall be made as energy efficient as is realistic, consistent with the costs of conservation actions and the price of energy.

POLICY/IMPLEMENTATION STRATEGY

1. The City shall encourage retrofit efforts through the use of the P.G.&E. loan programs (i.e. Zero-Interest Loan Program (ZIP), P.G.&E. audit program.

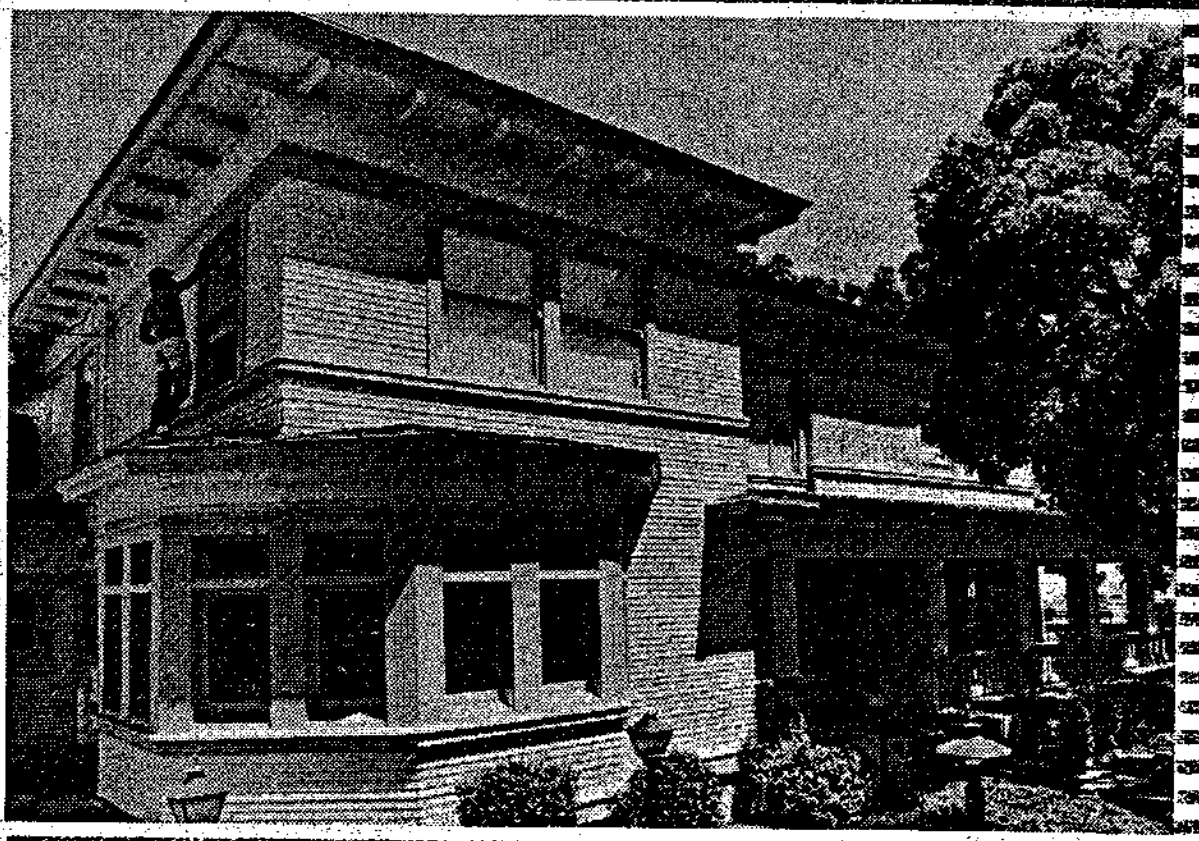
OBJECTIVE

1. To reduce the consumption of non-renewable resources by encouraging or requiring the application of renewable and alternative energy sources.

POLICY/IMPLEMENTATION STRATEGY

1. The City shall remove administrative obstacles to the installation and use of renewable resources such as solar, energy from biomass, and waste heat systems.

LANDUSE/ ESTABLISHED AREAS



LAND USE/ESTABLISHED AREAS

INTRODUCTION

This section of the General Plan focuses on those residential areas within the City which were built prior to the 1950's. The purpose of this section is to describe the existing residential areas of the City both at the metropolitan and community levels. This description identifies key problems confronting various residential areas and specifies existing conditions by community plan area. Community strategies are presented providing methods of addressing key problems facing residential areas.

BULLARD COMMUNITY PLAN/SUMMARY RESIDENTIAL LAND USE

The Bullard Community planning area is bounded by Ashlan Avenue on the south, Grantland and Fine Avenues on the west, the San Joaquin River on the north, and Blackstone Avenue on the east. The total planning area is about twenty-six square miles. Agriculture uses (mainly fig orchards) predominate, occupying one-third of the Community area. Urban residential development, supporting commerical, industrial, and related service uses occupy the eastern half of the community. Rapidly developing residential areas extend as far west as Cornelia and as far north as the San Joaquin River Bluffs. A planned change in plan boundaries will limit the Bullard Community Plan to the Southern Pacific Railroad Alignment to the West in future years.

The Bullard Community is the most extensively developed low-density housing area in metropolitan Fresno. The housing is predominately owner-occupied and of exceptionally high quality. A majority of the housing units is less than fifteen years old and less than seven percent of the Community's housing stock is classified as substandard.

The Community's historical nucleus of high-quality residential development is in the area south of Shaw Avenue in proximity to Van Ness Boulevard. This area of moderately low density residential development, known as Old Fig Garden, extends south of the community planning area to Dakota Avenue and has long been known as a neighborhood of special character, with dense landscaping and narrow shaded streets.

High quality residential development has focused around Van Ness Boulevard. South of Shaw Avenue, the medium-low densities of Old Fig Garden predominate, whereas in the Van Ness Extension area north of Shaw Avenue, a broad low-density corridor extends to the San Joaquin River.These low density areas contain some of Fresno's finest housing. Transition to medium density residential forms a distinct pattern in the existing development east to Blackstone Avenue and west to the Santa Fe Railroad tracks.

The Figarden loop is a planned high intensity corridor in the vicinity of the existing intersection of Bullard and Brawley, which defines a multiple use center which will be the focal point of future development in the area. Potential changes in the location of the Santa Fe railroad mainline will be dealt with in the plan update.

EDISON COMMUNITY/SUMMARY RESIDENTIAL LAND USE

The Edison Community is characterized by a compact urban pattern with small scale commercial activity scattered throughout the residnetial areas. In early Fresno, practices of discrimination were used regarding sale of housing to such groups as Germans, Orientals, Armenians and other ethnic groups. This resulted in the area becoming a community for these immigrants. In more recent years, the most dominant group in the community is Black; however, there are some neighborhoods which reflect a strong Hispanic and Oriental population.

Urbanization in the community covers approximately seven square miles. Local commercial activity is widely scattered throughout the community. Although this dispersed pattern of local commercial activity may be somewhat more convenient to some residents, many of the residential neighborhoods suffer from the profusion of small scale, marginal commercial activities, often found to be in poor condition.

Living close to industrial activity is a major fact of life in the Edison Community. There are approximately 305 acres of light industrial and commercial manufacturing activities dispersed within the planning area. The most offensive type of this activity is the frequently observed "junk yard" usually found either along the strip

commercial development of Highways 41 and 180 or in the agricultural areas to the southwest of the community. This occurrence extends the circle of blighted entrances to the community and blocks residential development of the vacant land to the southwest.

Relatively little private development has occurred in the community in recent years; however, through redevelopment and federally subsidized building activities there have been dramatic improvements in the local housing quality. In 1968, the Redevelopment Agency analyzed housing and economic conditions in the Edison Community in preparation for their activities in the General Neighborhood Renewal Area. The study determined that 68 percent of the housing stock was substandard; 21 percent was found to be appropriate for rehabilitation and 47 percent required demolition.

Since the renewal activities, beginning in 1968, the housing conditions in the Edison Community have substantially changed due to demolition of substandard housing and redevelopment. Ninety-two percent of the demolished housing units were single-family and 56 percent of the new construction was multi-family units. Much of the newly constructed housing resulted from federally subsidized programs directed toward low to moderate income groups.

Unfortunately, private or unassisted investment in the Community's housing market declined during the period of intense public activity. The decline of private mortgage money and the reduction of single-family units resulted in the displacement of middle-income groups to other housing outside of the Edison Community.

Although the Edison Community has experienced substantial improvement in the structural quality of housing, the reduction of single-family units, the increasing number of low and moderate income housing concentrations and the declining private investment necessary to accommodate middle-income groups has created segregation of housing types and income groups with attendant social problems.

Many of the federal government's experimental approaches to housing in the 1960's were first applied to the Edison Community. Though significant achievements were made, serious problems emerged which redirected federal and local housing policy. The direction of local housing policy now emphasizes the maintenance and rehabilitation of existing single-family neighborhoods.

The Edison Community Plan includes some major shifts in residential land use and housing policies from those formerly in effect. The overall residential density designation is medium. The plan calls for medium-high residential densities (where the City has made a strong commitment to multiple-family development) and to provide support for the community center concept. The lowest urban densities in the planning area are proximate to Kearney Boulevard. The intent is to preserve the character of existing single-family residential neighborhoods. While redevelopment activities may be necessary to improve the physical conditions of the community, the Plan emphasizes that the focus of such activities should be directed toward the rehabilitation and replacement of single-family housing in areas that are single-family residential in character.

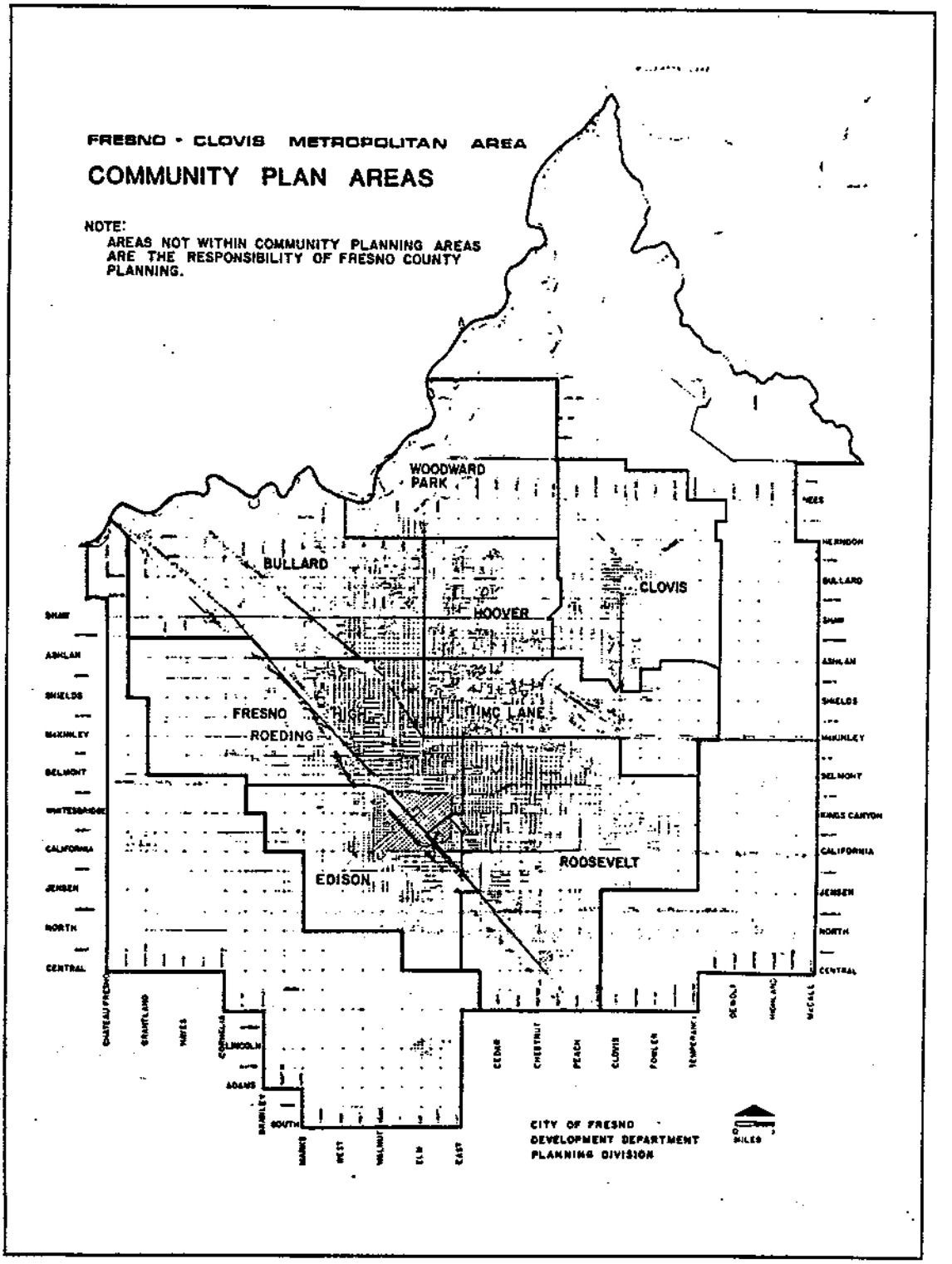
FRESNO HIGH/ROEDING COMMUNITY PLAN/ SUMMARY RESIDENTIAL LAND USE

The Fresno High/Roeding Community incorporates areas both east and west of Freeway 99 and generally between Ashlan Avenue and the Southern Pacific Spurline. It is anticipated that those areas west of the Freeway will be deleted from the Fresno High/Roeding Plan when a new community plan is developed for that area.

The area east of Freeway 99 has been incorporated into the City of Fresno as it developed, with the exception of Old Fig Garden which remains unincorporated. Much of the development occurred between 1920 and 1950, with residential neighborhoods developing from south to north, except the Old Fig Garden area bounded by Shaw, Shields, Maroa and Palm Avenues. All of this residential development occurred on compact residential lots no larger than, and often smaller than, 6,000 square feet.

The major concentrations of multi-family housing in the Community are found south of Belmont Avenue around the downtown area and in the vicinities of the Fresno City College (the first junior college in the State of California), and the Tower District, one of the City's earliest suburban shopping centers. Multi-family housing in these areas provides new housing as older single-family homes are gradually phased out due to their deteriorated condition. The other urbanized areas of the Community exhibit a pattern of scattered multi-family units, usually located adjacent to major streets. In the areas west of the Freeway, only a few

Figure 26


FRESNO - CLOVIS METROPOLITAN AREA
COMMUNITY PLAN AREAS
NOTE:
AREAS NOT WITHIN COMMUNITY PLANNING AREAS ARE THE RESPONSIBILITY OF FRESNO COUNTY PLANNING.
WOODWARD PARK
BULLARD
HOOVER
CLOVIS
FRESNO
HIGH
TIMC LANE
ROEDING
EDISON
ROOSEVELT
CITY OF FRESNO
DEVELOPMENT DEPARTMENT
PLANNING DIVISION
MILES

higher-density developments exist, most of which are mobile home parks. Older motels along Motel Drive also provide some permanent housing. Historic homes can be found along the Fulton/Van Ness Couplet and within the Central Area. The proposed right-of-way for Freeway 180 has not yet been developed and creates problems of instability within the Community.

In 1974, 17 percent of the housing stock within the Plan area needed minor rehabilitation, 22 percent needed major rehabilitation, and 4 percent was of demolition quality.

HOOVER COMMUNITY PLAN/SUMMARY RESIDENTIAL LAND USE

The Hoover Community was in agricultural use - predominantly orchards - until after World War II, when subdivision development began. In 1950, California State University moved from the present location of Fresno City College to the northeast corner of Shaw and Cedar Avenues. This attracted further urbanization of the adjacent areas in northeast Fresno.

Single-family subdivisions and clusters of multiple-family developments occupy the planning area. Much of the residential development north of Shaw Avenue has been built at higher densities than were originally intended. In 1980, 61 percent of all housing units were single-family and 39 percent multi-family. These higher densities have created conditions which strain public facilities and the circulation system in the area, a consideration for future plans. In the area south of Shaw and east of Cedar Avenue, there is a portion of the Community which has developed at lower densities as a result of the noise problems generated by the Fresno Air Terminal. A specific plan (Fresno Air Terminal Environs Area Specific Plan) has been developed to direct future development near the terminal.

A review of the existing land use map reveals that the major concentration of multi-family housing in the Community is found in the vicinity of the University and the Shaw Avenue commercial corridor. Multi-family units in these areas are meeting certain community needs for student housing as well as providing new housing on sites which have a limited potential for single-family development. The other urbanized areas of the Community exhibit a scattered pattern of multi-family units, usually located adjacent to major streets and commercial developments.

The housing conditions within the plan area are well above the City averages because the age of the housing stock is closely related with housing quality; and because by the year 1950, housing codes had been strengthened to upgrade the overall quality of newly constructed units. Because the City has targeted Housing Rehabilitation funds for areas generally south of McKinley Avenue, this area must be rehabilitated solely through the private efforts of its residents.

The generally prosperous Hoover area is affected by the tremendous amount of commercial and institutional growth which has occurred within its boundaries. The impact of increased densities and highly intensified urban uses will have to be dealt with in future years. Competition for the multiple family housing stock located around the University will be high as there is increasing competition between young working singles, families, and students for the available rental units as apartment units are converted to condominiums in an attempt to meet the needs of the first time home buyer. Some of these problems are expected to be mitigated by the City's Condominium Conversion Ordinance, which restricts the number of converted units to not exceed the existing proportion of rental stock to total housing stock within a community planning area. By 1995, in response to the increased demand, 49 percent of all housing units within the plan area are expected to be of the multiple-family type, as the remaining vacant land is developed at higher densities.

Unless the development of multi-family units is handled carefully with adequate concern for the interrelationships with lower density areas, neighborhoods will be disrupted much as they have been disrupted in older areas. Vacant lands need special attention along the freeway corridors, behind the development along Fresno Street north of Shaw Avenue. Special building construction, siting arrangement, landscaping, or other improvements may be necessary to resolve the numerous noise, accessibility, and safety problems associated with such locations. In addition, sewering and traffic carrying capacity limitations may slow down infill development on the remaining vacant land. By passed parcels in the Hoover area can be provided with urban services and become more valuable. As land costs rise, the likelihood of development into higher intensity uses will increase.

MCLANE COMMUNITY PLAN/SUMMARY RESIDENTIAL LAND USE

The existing development in the McLane Community reflects land use policies dating back to 1958, which envisioned the western portion of the planning area as a single family community with a major airport/industrial complex along Clovis Avenue and an agricultural area to the east. The area west of the airport is developed with the typical, post-World War II suburban pattern. Other development in the Community includes the Blackstone commercial strip, intermittent commercial, professional and multi-family residential development along Shields Avenue, and a scattered pattern of apartment complexes and commercial development along the remaining major streets and at major intersections. The area to the east of the Airport is mostly devoted to agricultural activities with an industrial corridor developing along Clovis Avenue, a subdivision northwest of Shields and Fowler Avenues, and a scattered pattern of rural density residential development.

In terms of the Community's population, the recent decrease in the growth rate is expected to continue due to a generally decreasing number of persons per household and the absorption of the majority of lands available for residential development. The number of multi-family units in the planning area has been steadily growing to an increasingly significant portion of the Community's housing stock. This is due in part to the scarcity of vacant land, especially those appropriate in size and location for single family subdivisions. Numerous concentrations of multi-family housing have been built along most of the major streets in the western half of the planning area.

The most commonly used indicators of neighborhood stability reveal that this community as a whole is above the City-wide average. The character of its neighborhoods is well established and can be expected to remain stable, on the whole, during the planning period. Most of the Community's housing units are standard or capable of being preserved with only a modest rehabilitation effort. However, those portions of the Community established prior to 1960 may require careful attention to detect and remedy the familiar problems of aging neighborhoods.

Three major residential land use issues confront the McLane Community: multi-family development, residential infill, and the policies regarding the area east of Clovis Avenue. In regard to multi-family development, the increased trend for this type of construction may have a significant impact on the Community's neighborhoods in that much vacant land remains along the edges of established neighborhoods. Unless such development is handled carefully with concern for the interrelationship with lower density areas, neighborhoods will be disrupted.

With regard to residential infill, the extensive use of apartment construction to infill vacant land or to complete the development of existing neighborhoods has been met with growing opposition. Adopted policy encourages the development of by passed parcels of land in existing urbanized areas as a means to accommodate growth and manage the expansion of the urban area. However, infill policy stresses that such developments should be designed to be compatible with the existing residential neighborhood in which they are built.

Last, a major Community issue is the concern for the implications of development east of Clovis Avenue. Urban residential development has, for the most part, failed to spread east of Clovis Avenue. There are substantial advantages to inhibiting further residential development in this area which include: protecting valuable agricultural lands, protecting the metropolitan area's groundwater through recharge, minimizing conflict with noise and safety problems related to the Airport, minimizing potential conflict with proposed industrial development in the area, and minimizing the need for extension of urban services. More recently, we have also become aware of persistent water quality problems which are discussed under the Water Resources section of the plan. In addressing these points, the Community Plan policy encourages no further development east of Clovis Avenue. The General Plan reinforces that policy decision.

ROOSEVELT COMMUNITY PLAN/SUMMARY RESIDENTIAL LAND USE

The Roosevelt Community provides a highly diverse range of residential neighborhoods. The Community includes some of the oldest sections of the City. In the older northwestern areas of the Community, residential densities are much higher and the existing single family homes are on smaller, more conventional lots. There are strong sentiments encouraging the protection of the existing historical resources in the Community's older, stable residential areas. This phenomenon is especially strong in the Huntington Boulevard and Arlington Heights neighborhoods. In strong contrast, the eastern portions of the Community are dominated by large lot, low-density residential development. The residents in the Sunnyside neighborhoods have expressed a strong desire that this area maintain the informal, rural living environment which presently characterizes the area. The City has adopted a Residential Modifying Zone overlay with the

purpose of facilitating the preservation of the qualities of the Sunnyside and Old Fig Garden areas. Major concentrations of multi-family development are located around the intersection of Kings Canyon Road and Clovis Avenue, and around the IRS/Fairgrounds area. Chestnut Avenue is the dividing line between pre- and post- World War II housing and the factors related to housing value and quality vary significantly from the older to the newer part of the Community.

The older neighborhoods west of Chestnut Avenue have been declining in neighborhood stability. Within this area five census tracts were identiified where more than 50% of the homes were in the rehabilitation or demolition categories. The major concentrations of housing classified as demolition quality were found in unincorporated areas and adjacent to industrial areas. The City is continuing to upgrade these areas through the redevelopment process.

THE WOODWARD PARK COMMUNITY PLAN/SUMMARY RESIDENTIAL LAND USE

The Woodward Park community is in the path of the pattern of northern urban expansion. As of 1982, within the total 13.5 square miles planned for development, only 4,900 units existed. This included new development and remnants of the old. Pinedale, initially developed as a mill town in the 1920's, has been annexed to the City. Substandard housing conditions are being remedied through the City's Housing and Community Development Program.

At least three mobile home parks are located within the Community, predating the subdivision growth of the 1970's. Approximately 500 housing units are essentially of the rural-residential type and are located on parcels of five or less acres in size. Notable concentrations of this rural use exist within the eastern, northeeastern and central portions of the planning areas.

Several high-value residential subdivisions are also visable. The Bluffs subdivision, located northwest of Pinedale, was approved by Fresno County in 1954. The Fort Washington subdivision was approved by the County in 1956.

In addition to the high value units, more moderate tract homes have also been built in the Woodward Park Community, a prominent example being a subdivision near Nees and Blackstone Avenues and homes near First and Herndon.

The Woodward Park Community Plan has encouraged quality cluster design. Medium-high and medium density residential development is proposed proximate to the centers of public and commercial activities, with medium-low, and rural density development generally radiating outward to the San Joaquin River Bluffs and designated agricultural areas. The development of a major regional commercial center and the extension of Freeway 41 through the planning area are anticipated within five years.

By the year 2000, the Woodward Park Community is expected to contain 28,700 housing units. At least 47 percent of those units are expected to be multi-family.

RESIDENTIAL

INTRODUCTION

There is a need to revitalize many of the City's older residential neighborhoods. The most efficient method of stabilizing transitional areas is through the use of incentives to encourage private redevelopment. Public investment through the provision of public services and capital improvement projects has been the traditional way of encouraging such private reinvestment in Fresno. Other ways of encouraging reinvestment include providing below-market financing, streamlining the development process, and developing City policies which encourage reinvestment in the older parts of the City.

The following community strategies have been developed to specifically address residential areas within each community which are in transition. Changing family patterns can dramatically affect older residential areas. Recycling older housing offers a great potential to meet these changes. Such recycling helps in maintaining housing quality and can interface with existing City programs which monitor housing quality and new programs for conserving energy.

There is a need for innovative approaches to meet housing needs. Development of cooperative housing through limited equity housing co-ops, recycling older houses, and the use of modular housing are all approaches which can help in revitalizing neighborhoods. Many of the older neighborhoods lack neighborhood commercial services. The concept of mixing residential and commercial uses in older buildings can

provide an innovative way of addressing the problem. The City is also fortunate in having a number of small bypassed lots. These lots can provide sites for new housing, neighborhood uses, and commercial services. However, neighborhood-sensitive design and creativity will essential to making successful changes.

Finally, the need to redesign older residential streets to minimize through traffic is discussed. A number of ways to redesign residential streets to redirect non-neighborhood traffic are presented.

CHANGING FAMILY PATTERNS

Changes in family patterns can have a significant effect on the demand for various types of housing. For example, overall household size for the City has shrunk from a little over 3.0 people per household in 1960, to 2.6 people per household in 1980. Once housing is built, it becomes relatively inflexible in meeting changing needs.

The Housing Element points out that the need for larger houses will diminish in the future because of the decrease in family size. Households of various types have special housing needs unique to their circumstances; and yet they may find only a limited supply of housing that is both affordable and meets their particular circumstances.

Single parents may require low maintenance housing which is near to child-related services such as nursery schools. Multiple family housing zoned and developed for family uses may meet their needs. Single parent households made up 7.9% of all City households in 1970, and 9.9% of all households in 1980.

Families headed by women, women living alone, and the elderly may prefer housing located where services, extra security, and protection are available. In 1970, female headed families were 11.1% of all City households, females living alone were 15.8% of all City households and households headed by persons over age 65 were 20% of all City households.

Maintaining Housing Quality

A continuing problem for all mature cities is the age and quality of housing. According to the 1980 U.S. Census, 25% of Fresno's housing stock was built before 1950. Considerable public resources have gone into monitoring and improving housing conditions through the City's urban renewal process and housing programs. The City has also addressed the problems associated with housing quality through the housing code enforcement program, and more recent energy conservation efforts.

Many of the older residential areas in the City contain housing which is over 50 years old. Some of this housing has deteriorated to the point where the City has instituted redevelopment plans. Other residential areas have been identified as transitional neighborhoods where the condition of housing recommends the use of rehabilitation and neighborhood improvement programs. The City has established a program which monitors the housing quality in these areas.

The Development Department's Housing Standards Section works closely with other agencies to provide essential services for the improvement of housing within the City. Since its inception in 1966, the Housing Standards Section has been successful in bringing an annual average of 500 substandard structures into compliance with the health and safety requirements of the Fresno Municipal Code, for a total of approximately 20,000 dwellings.

Improving the quality of existing housing through energy retrofitting devices is a relatively new concept. The supply and consumption of energy is perhaps one of the most significant issues confronting us today. The necessity to reduce residential energy consumption has resulted in policies and programs to encourage the most efficient use of energy in existing structures through modifications or retrofit. The Energy Element is discussed in greater detail in the Provision of Urban Services Section of this Plan.

NEIGHBORHOOD REINVESTMENT

Continued reinvestment in older neighborhoods is crucial if they are to remain stable. Neighborhood reinvestment occurs when the public and private sectors develop confidence in the future of a declining neighborhood and begin to provide the essential services and credit which enable it to be maintained or developed once again as an attractive neighborhood. For neighborhoods to remain stable there must be reinvestment on the part of its residents through maintaining their homes and supporting neighborhood businesses. Lacks in a constant flow of mortgage money for single and multiple family dwellings, as well as rehabilitation loans, will have significant detrimental effects on the housing stock. The decline of institu-

tional activities and deterioration of local businesses in older neighborhoods has also been historically linked to difficulties in obtaining financing for improvements.

Public investment through public services and capitol improvement projects is crucial in keeping the confidence level of the private sector high. In the past decade, Fresno has invested substantial sums in improvement districts (for curbs, gutters, storm drainage, and street re-paving) and housing rehabilitation programs through the use of the Community Development Block Grant (CDBG), Revenue-Sharing, C.I.P. Monies, and Assessment of Property Owners. Such programs will be significantly curtailed through federally-proposed reductions in funding for urban programs. It is essential to the health of the entire metropolitan area that the City continue to research ways of financing maintenance and improvement of its older residential neighborhoods. Whatever the reason for a lack of public and private investment, the effects can be disastrous. Demand for housing will diminish when mortgages can no longer be secured. Existing homeowners who are unable to sell their homes will be less willing to provide needed maintenance. Multi-family buildings constructed prior to World War II are particularly vulnerable to the effects of restricted private investment. Apartments require constant maintenance and renovation if they are to attract renters. When credit is lacking, maintenance will be deferred and the possibility of selling the property for a reasonable profit becomes less likely. Poorly maintained apartments in these neighborhoods can have a negative effect on the rest of the housing stock.

In separate publications, the City's Housing and Historic Elements go into great detail on federal, state, and local programs which can help to generate financial support to transitional neighborhoods.

Recycling Older Buildings

The City has a significant number of large older buildings which, in many cases, are presently under-utilized. These buildings could be recycled to meet many of the housing and neighborhood needs identified earlier. Older buildings can be converted to provide a variety of housing alternatives, including co-ops, condominiums, studio apartment add-ons and other, more intense, multi-family uses. The possibility of developing mixed land uses in older buildings can also help in meeting neighborhood needs and revitalizing certain residential areas. Mixing residential and low-intensity commercial uses could provide a solution to people who desire home occupations which do not meet the City's code requirements.

The least expensive way to provide housing opportunities and revitalize older neighborhoods is to take advantage of these existing structures. There are, however, many obstacles in refurbishing older buildings for more intensive residential uses. For example, obtaining financing for construction and mortgages can be very difficult. The City's Housing and Historic Elements provide financing strategies which may be of help in this area. Often City building and zoning codes all but prohibit conversion of older buildings to more intense uses. In recognition of this problem, many cities have developed waiver programs for building codes. In addition, rather than applying the latest building codes, cities may apply earlier codes which are more lenient but still maintain public safety requirements in the rehabilitation of older houses. Initiation of such programs can make the rehabilitation of older buildings economically feasible.

Cooperative Housing

One innovative idea for providing housing opportunities is called the Limited Equity Housing Cooperative (LEHC). This concept has achieved some popularity in rental-scarce metropolitan areas. Unlike a condominium project, where each unit is individually-owned and carries a separate mortgage, members of the LEHC own a share in a corporation that owns and operates the building. Each member has exclusive rights to use an apartment in the co-op building.

Under the implementing laws forming LEHC (33007.5 Health and Safety Code), participants who sell their share are entitled to the following: (1) the return of their initial down payment; (2) the value of any improvements that were made; and (3) an amount not to exceed 10 percent of the unit's annual market value income during the occupancy of their unit. By specifically limiting the amount of appreciation to 10%, the benefits of speculation are limited and the goal of providing affordable housing is continued.

A cooperative program can be a particularly effective way to rehabilitate a deteriorating neighborhood. The community could acquire the deteriorating housing with financing from revenue bonds, general revenues, Marks-Foran, tax increment funds, and the like. A decision could also be made to either rehabilitate the housing itself or sell the units to a cooperative for rehabilitation. By retaining the land, deferring land payments, and issuing index loans, the community can bring the cost of the housing within the reach of low and moderate-income residents. CDBG loans may be used to subsidize the interest on the rehabilitation loans, or to provide direct rehabilitation grants to cooperatives. Section 8 housing assistance payments may be used to help low-income cooperative members.

The City's Housing Element recommends that the City Development Department shall examine the potential of cooperative housing for increasing the supply of affordable housing within the FCMA.

Mixed Land Uses In Older Buildings

The recycling of older buildings for mixed land uses, is another potential strategy for revitalizing older neighborhoods. An older building can be refurbished to mix both residential and commercial land uses in one structure. A mixture of these uses would help in providing needed commercial services in close proximity to neighborhood residents.

The type of residential and commercial uses allowed within the neighborhood setting would need to be carefully evaluated. Appropriate commerical uses might include expansion of various types of home occupations and neighborhood oriented services. More intense commercial uses, such as offices, boutiques, or bookstores might also be included on the periphery of neighborhoods where adequate traffic circulation was available. Residential uses located in the same building might include living quarters for owners and employees. Such an arrangement would minimize tenant complaints, improve neighborhood security through adding to the number of neighbors who are "home" during the work day house (using the Police Department's "Neighborhood Watch" concept), and improve maintenance.

Standards should be developed stating the preferred ration between commercial and residential uses. These standards should be flexible in order to encourage innovative recycling of buildings. In cities which have recently allowed mixed uses in a single building there has been a stronger market demand for commercial uses. By encouraging a strong functional relationship between the two land uses and providing standards which limit the amount of commercial use, the problem of over-commercialization may be avoided.

The types of uses allowed in a recycled building must not only be compatible with each other but must blend into the neighborhood. To be successful, this concept must also be economically attractive to developers. The whole purpose of this concept is that of revitalizing older neighborhoods through private reinvestment. Neighborhood residents whose occupation meets some commercial neighborhood need would be ideal. The development of a small scale mixed-use zone district would facilitate the types of private reinvestment in older neighborhoods which have occasionally been stymied by traditional zoning ordinances in the past. Such an ordinance would likely be accompanied by a Conditional Use Permit (CUP) requirement which would allow conditions tailored to the structure, the proposed mix of uses, to the nature of traffic generated, and the surrounding neighborhood.

Accompanying the development of a small-scale mixed use district ordinance should be a moderate liberalization of the City's home occupation standards. Encouraging the integration of reasonable home occupations into the neighborhood would further the City goals of trip reduction, encouragement of small business opportunities, and neighborhood security. Similar successful ordinances in other cities include two features not allowed in Fresno: allowing a small sign for purposes of identification and provisions for the employment of one unrelated person (i.e., secretary or apprentice).

In addition, existing ordinances should be reviewed for provisions which inhibit artists and craftspersons from working within their homes (i.e., limitations on sales, use of kilns, use of unrelated assistants).

Potential Uses of Vacant Land in the Built Environment

Vacant lands within the City's older developed areas provide a great potential for revitalizing existing residential neighborhoods. In contrast to many older cities where few if any vacant parcels exist, the City of Fresno has a number of small vacant lots which can be developed and serviced. Bypassed lots provide an opportunity to add desired uses which range from low-cost housing (modular units and multi-family dwellings) to neighborhood amenities, and include some potentials for small scale commercial services for older neighborhoods.

Recent changes in state and federal laws and the increased quality of modular homes have addressed many of the criticisms raised against modular housing. More stringent fire and building codes have markedly improved the quality of housing being produced by the modular home industry. State taxing codes have recently been amended which allow mobile homes to be taxed as real property rather than as motor vehicles. The most important change in state law, however, is Assembly Bill 1960 (Rains) which became effective as of July 1, 1981. This new law precludes a city or county from prohibiting newer mobile homes (built since 1974) from being installed on permanent foundations on individual lots zoned for single family residences. Modular homes will be required to meet the same development standards as conventional

single-family residential dwellings and must be compatible with the residential development in the area.

NEIGHBORHOOD STREETS

Residential streets provide a very important social function for neighborhood residents. They are the first place outside the home that children, parents, and the elderly interact with their community. Residential streets should be reasonably safe for older children to ride their bikes, to meet their playmates and for adults to interact with their neighbors. Therefore, it is important that local traffic be controlled in a manner which encourages slower speeds and allows both vehicular and pedestrian access for neighborhood residents, neighborhood-oriented services, and occasional access for emergency vehicles.

The newer residential neighborhoods within the City generally provide a residential street pattern which varies from the traditional grid pattern. Streets are designed specifically to minimize through-traffic by incorporating such features as loops, curvilinear streets and cul-de-sacs, which discourage through-traffic and support neighborhood integrity.

The majority of problems associated with residential streets relate to neighborhoods which were built prior to 1945. This pattern makes neighborhood streets attractive "shortcuts" when major streets become congested. The continuity of these grid streets frequently result in the inappropriate use of them for longer trips unrelated to neighborhood destinations.

Quarter-mile streets, such as Princeton, Thorne, or San Pablo Avenues, are just a few examples of streets which have become vulnerable to the intrusive impacts of traffic.

Efforts toward traffic control are customarily initiated through the installation of temporary devices such as barricades so that the effects of the design solution on traffic behavior patterns can be monitored before more costly permanent structures are put in place. Frequently, the help of neighborhood residents is solicited by the Traffic Engineering staff in monitoring changes in traffic patterns.

ENVIRONMENTAL IMPLICATIONS

The majority of the environmental implications associated with the built environment will relate to future utilization of vacant bypassed parcels and to any re-development of housing in older neighborhoods.

The most significant impacts will be from the implementation of goals and policies of the General Plan which directly affect vacant bypassed parcels of less than one acre. According to the Vacant Land and Agricultural Land Survey done in 1977, there were 3,921 acres of vacant land less than one acre in size. The trend has been to develop these "infill" areas with multiple family units. This practice would yield approximately 10 units per acre and a household size of 2. With an assumed 80% build-out, this would result in a projected holding capacity of 39,210 units and house 78,420 people.

The implementation of General Plan objectives and policies related to redevelopment of housing in older neighborhoods is considered an issue having secondary significant impacts.

Based on the focus of the availability and potential use of vacant parcels and on redevelopment activities, no significant impacts related to the natural environment have been identified. Positive impacts are seen for the areas of energy, transportation, housing, employment and similar areas which gain from a more compact city and utilization of existing city infrastructure.

The local street patterns may be marginally affected in certain areas, and city sewer and water lines, which in some cases are over 50 years old, may have to be replaced.

In summary, the positive impacts of providing needed housing in the established areas far outweigh the marginal negative impacts which are presently identifiable.

OBJECTIVE

1. It is a primary objective of the City to develop a comprehensive Planning Strategy to revitalize older residential neighborhoods by encouraging private redevelopment.

POLICIES/IMPLEMENTATION STRATEGIES

1. Within target neighborhoods: (1) Rehabilitate housing; (2) Replace housing that cannot be rehabilitated; and (3) Provide financing tools for infill development as provided by the General Plan.

2. Develop resources and incentives directed toward target areas to focus private efforts in these areas to include but not be limited to allowing a greater flexibility of building requirements in these areas.

OBJECTIVE

1. Continue to support private redevelopment efforts of older neighborhoods through public programs and services.

POLICIES/IMPLEMENTATION STRATEGIES

1. Continue to develop and provide public services and capital improvement projects for older neighborhoods as funding is available.

2. Continue to develop new ways of financing maintenance and improvements projects for older neighborhoods as funding is available.

3. Strengthen and expand the housing code enforcement program to support the stabilizing effort of older neighborhoods.

4. Design a streamlined review process for private redevelopment of older neighborhoods.

OBJECTIVE

1. It is an objective of the City to encourage the recycling of older buildings to meet the City's changing housing needs.

POLICIES/IMPLEMENTATION STRATEGIES

1. Investigate the possibility of developing a Housing Development Corporation as a means of implementing the Limited Equity Housing Cooperative concept, as well as other innovative ideas.

2. Revise the Zoning Ordinance to support the conversion of older single family residences to more intense residential uses through flexible parking, open space and lot coverage standards.

3. Investigate the possibility of allowing studio add-ons in older single family neighborhoods.

OBJECTIVE

1. It is an objective of the City to recycle older buildings to mix both residential and commercial land uses in one structure.

POLICIES/IMPLEMENTATION STRATEGIES

1. Develop a neighborhood mixed use zoning district which provides flexible development standards that allow tailoring of conditions to the existing structure.

2. Liberalize the City's home occupation ordinance to support the mixed use zoning district and allow small signs for purposes of identification along with provisions for employment of one unrelated person.

OBJECTIVE

1. It is an objective of the City to revitalize residential neighborhoods by encouraging the development of bypassed lots.

POLICIES/IMPLEMENTATION STRATEGIES

1. Support the City ordinance relating to designating R-1 and Mobile Home Districts as areas which are suitable for the placement of certified mobile homes that are compatible with residential development in the area.

2. Develop appropriate standards for uses on bypassed lots in existing neighborhoods including small-scale commercial uses, home occupations, and mixed land uses.

3. Encourage an effort to reduce building requirements for the purpose of incentives for building developments suitable for infill development.

OBJECTIVE

1. It is an objective of the City to redesign older residential streets to redirect non-neighborhood traffic when redirection is supported by neighborhood residents.

POLICY/IMPLEMENTATION STRATEGY

1. Provide assistance in traffic planning to neighborhood residents who wish to eliminate traffic impacts through the use of assessment districts or other methods which spread the costs among those receiving the benefits.

COMMERCIAL

INTRODUCTION

The primary purpose of commercial activities is to provide goods and services which serve the neighborhood, community and regional market areas. Commercial businesses also provide employment for the residents of the Fresno-Clovis Metropolitan Area (FCMA) and generate significant tax revenues for local government. However, commercial activities in the established portion of the City have experienced a general decline resulting from the northern expansion of the City with the attendant location of more intensive commercial centers. In addition, residents of the established City generally represent a less affluent segment of the population, further diminishing the real or perceived market for local area commercial activities. The manner in which these activities can be revitalized constitutes a primary focus of the General Plan.

BACKGROUND

Commercial businesses initially located at the center of the developed City (in what is now the Central Business District). General trade stores as well as the first and only high-rise office buildings in the FCMA first occupied this area.

The first shopping center (now Farmer's Market) was constructed in 1948 at Divisadero and Tulare Streets. As the City began expanding to the north, groups of commercial establishments formed what is known as the Tower District. In addition, small stores and other businesses began to locate along the major streets (particularly Blackstone, Belmont, and Olive Avenues) in a pattern which is now known as heavy strip commercial development.

Fresno's first General Plan and Zoning Oridnance were not developed until the mid 1950's; therefore, planning efforts in the established City have had to focus upon enhancing existing patterns. Many scattered commercial sites of various descriptions will continue to exist; however, through coordination between the public and private sectors, measures can be devised which will strenghten the manner in which these sites service local commercial needs and complement the neighborhood environment.

In the established City, there are approximately 450 acres of undeveloped land planned for various commercial uses, as follows:

Neighborhood Commercial Centers

In earlier years, daily shopping needs were provided by small "mom-and-pop" markets generally located within the residential neighborhood. As transportation access increased, the shopping service area did likewise, allowing greater distances between stores. In later years, commercial establishments began aggregating into shopping centers outside residential neighborhoods. These centers increased shopping opportunities at one location but eroded the market for small stores, resulting in their general decline or

Figure 27

	Acreage
Neighborhood	65
Community	35
Regional	20
General/Heavy Strip	250
Office	80
	450

The limited amount of vacant land available for commercial usage seems to indicate the need for a new approach to planning for commercial development.

closure. Major changes are necessary in the locational criteria for neighborhood commercial uses to create/develop incentives for the private sector. Such incentives could potentially include allowing smaller parcel sizes, locating on nonmajor streets, mixing with noncommercial uses, and reducing parking requirements.

Community Commercial

Community commercial centers have not been extensively developed in the established area, due to the limited amount of appropriately-zoned vacant land and diminished interest of potential investors in the area. Those centers which have located in this area generally tend to be smaller in size than centers to the north, and offer daily shopping items with a supermarket as the major anchor of the center. However, they are located at such infrequent intervals that they do not adequately serve the local population.

If there is an improvement in the availability of neighborhood commercial services, the role of community commerical services may not be as important in this area, and therefore, the existing centers may be sufficient to serve the area.

Regional Commercial

The Central Business District (CBD) provided the first regional commercial center in the FCMA. The CBD continued to be the only location for services at this level until 1955, with the development of Manchester Center, on the northern fringe of the City. The development of the Fulton Mall, designed by Victor Gruen and Associates and constructed in 1964, as the first shopping mall in the United States, did renew interest in the CBD as a major commercial center. However, with the construction of a second regional center (Fashion Fair in 1970) outside the established area, the decline of the CBD as a retail center was firmly established. A substantial amount of both federal and local monies have been expended in on-going efforts to revitalize the area; however, these efforts have largely failed to re-establish the competitive advantage of commercial services in the CBD. The completion of construction on Freeway 41, with increased access to the Central Area may increase the attractiveness of shopping services here.

The City Council has indicated its willingness to consider the expansion of an existing community commercial center (Eastgate) at the southeast corner of Kings Canyon Road and Chestnut Avenue to a regional level center, using adjacent acreage and including redesign of the existing buildings. This would provide shopping opportunities for southeast Fresno now available only in the Central Area or to the north. Other regional designations on the Plan Map indicate specific uses allowed during the Community planning process.

Several major chain stores have moved away from the downtown area, and the ability to draw other major stores is not promising. There is substantial agreement that short-term economic development efforts should be directed toward office, residential and convention market-related projects, which will eventually reinforce the retail market. While there will continue to be interest in expanding and updating Mall-related development, such activities may await the completion of such projects as Civic Square, the Huntington Park residential area, proposed office projects, and the Convention Center Plaza across from the Convention Center.

General Heavy Strip Commercial

General heavy strip commercial development is the result of the increased use of the automobile, and is generally oriented to a metropolitan-wide market along major street corridors.

Heavy strip commercial uses in the established area are generally located along Blackstone/Abby, Ventura/Kings Canyon, Belmont, and Olive Avenues. Many of these establishments were built prior to zoning control and, therefore, display non-conforming site development (insufficient off-street parking, outdated signs, substandard setbacks, outdoor storage). The proliferation of advertising billboards and minimal landscaping increase the overall negative appearance of these commercial strips. In addition, the massive volumes of traffic (particularly Blackstone Avenue) substantially increase the noise levels. These effects are generally poor in any area; but with abutting residential areas (largely back-up) these effects become particularly adverse, reducing the attractiveness of the residential environment.

Heavy commercial uses are also in evidence in South Fresno along Elm Avenue; however, the uses are developed in such a scattered manner, with poor interior and exterior maintenance, and offering such marginal services that the local residents do not sufficiently benefit from the proximity of the uses. The overall appearance of Elm Avenue is substantially degraded. New commercial development is not anticipated; therefore, any efforts to upgrade the area will have to be made by the business owners.

The most attractive features of heavy strip development are the low land/tenant costs (much lower than shopping centers), existing utility/public services, and exposure to traffic. Vacant land along these strips is generally unavailable. However, the high turnover of many small businesses along here yields substantial locational opportunities, particularly attractive to beginning entrepreneurs.

Office Commercial

The Central Area, particularly the Central Business District (CBD), has traditionally captured a substantial portion of the office development throughout the FCMA. Offices here encompass a wide variety of businesses, predominantly financial institutions, government offices, title insurance companies, legal services, medical offices (generally centered around the Fresno Community Hospital area), and architectural and engineering firms. Nearly all of the high-rise structures in the City are located in the CBD, containing a large percentage of the local area office space, and a majority of the vacant office space. High rise construction in downtown areas has universally been a reaction to higher land values. However, in the past ten years, office development in northern areas of the city (particularly Shaw Avenue and the Airport area) carries such high tenant costs that location in existing Central Area offices has been increasingly attractive.

Another reaction to the high cost of office space has been the conversion of older residences to office buildings in the Central Area and along Van Ness and Fulton Avenues. This activity effectively assists in preserving the historical character of the area, while providing the developer with less expensive, unique office space, excellent location, and in some cases, tax incentives (resulting from the preservation of designated historical structures).

Other areas of the established city contain office development, but these units are generally so scattered that they do not benefit from the advantages of location within concentrations, and do not assist in forming a characteristic pattern for the area.

A major issue in the Central Area is the supply and quality of off-street parking. There is a serious deficiency of spaces in the Civic Center area. Much of the supply in the downtown "superblock" is interim surface parking, which occurs on sites scheduled for eventual private development. This interim parking must be replaced by structured parking to meet the needs of both existing business and new development. The existing assessment district for maintenance purposes for superblock parking has proved inadequate and a replacement district is being considered. It is necessary that better means be found for capital, operations and maintenance purposes. The objective is an adequate supply of attractive, accessible parking, with competitive costs to the using public. On a long-term basis, an equitable, self-sufficient financial base should not be reliant upon general fund subsidy. This will require mutual support and cooperation of the businesses and affected governmental agencies.

ENVIRONMENTAL IMPLICATIONS

The development of commercial services in the established area has occurred in such close proximity to residential uses that it is difficult to approach the area at this time to attempt to mitigate any adverse effects which have evolved over time. Noise, lighting, and heavy traffic are frequently imposed by commercial sites upon abutting properties. Planning efforts, therefore, are primarily addressed at preventing further impacts through the recognition of existing conditions.

A commonly recurring public concern about commercial properties, particularly in the established area, is the visual conflict between differing uses. Strip commercial establishments engage in advertising practices which substantially reduce the attractiveness of the general area. Heavy traffic "queuing up" on strip commercial arteries not only diminishes the aesthetic appeal of the area, but impacts the local air quality problems, as well. The improvement of the local circulation system (street improvements, completion of Freeway 41) should partially alleviate this problem.

OBJECTIVE

1. To increase the availability of daily shopping opportunities to the local resident population.

POLICY/IMPLEMENTATION STRATEGY

1. Amend the current zoning ordinance to provide greater locational abilities for small scale neighborhood commercial centers. This could be achieved through expanding the flexibility of the C-I zone district, or creation of a small-scale neighborhood commercial zone which could be used in place of zones currently used for convenience markets. Such an ordinance should specify locational criteria, and should include performance standards directed at achieving optimum compatibility with the surrounding environment.

OBJECTIVE

1. Permit the compatible integration of commercial and non-commercial uses in order to encourage revitalization and vacant land infill within the established area of the City.

POLICIES/IMPLEMENTATION STRATEGIES

1. Develop a zone district which encourages the appropriate mixing of commercial and non-commercial uses, either within a single structure or as a large development, with such a policy providing both implementation and appropriate mitigation measures for development. In addition, a manual explaining the use of the district should be completed for the use of staff and interested citizens.

2. Amend the Zoning Ordinance to include performance standards for newly developed commercial uses which abut a residential area, to minimize any possible adverse effects resulting from commercial operations.

OBJECTIVE

1. Encourage the upgrading of existing heavy strip commercial uses, and prevent the occurrence of existing problems in future strip commercial development.

POLICY/IMPLEMENTATION STRATEGY

1. Formulate a specific plan concerning the topic of strip development. A plan of this scope should develop alternate solutions to typical issues such as signs, outdoor storage, parking, access and congestion, while not limiting its application to a single geographic area.

OBJECTIVE

1. Improve the general appearance and availability of commercial uses in the Edison and Roosevelt Communities.

POLICIES/IMPLEMENTATION STRATEGIES

1. Utilize existing City property maintenance ordinances and County Public Health Ordinances to require the upgrading and continued maintenance of the structural and site appearance of commercial businesses along Elm Avenue and Kings Canyon Road.

2. Create development incentives for construction of a community shopping center within the Edison Community as shown in the Edison Community Plan.

OBJECTIVE

1. Increase the availability of medical and professional services to the Edison Community.

POLICY/IMPLEMENTATION STRATEGY

1. Designate sites and pursue Council-initiated rezoning to allow the development of or conversion to office commercial uses along Fresno Street, southwest of the Central Business District, to provide a focus for local area services.

OBJECTIVE

1. Reinforce the functions and economic vitality of the Central Area by its definition as a prime location for retail, professional and administrative office, entertainment, cultural, and governmental activities.

POLICIES/IMPLEMENTATION STRATEGIES

1. Encourage residential uses within the Central Area to stimulate market demand for its commercial activities.

2. Pursue an effective, financially stable parking program to meet the needs of business and government agencies in the Central Area.

INDUSTRIAL

INTRODUCTION

Industrial employment contitutes a major proportion of the economic base of communities. It includes the production of goods and services which are primarily marketed elsewhere, thus bringing revenue into the community. This circulates in the local economy and increases jobs serving only local markets — a concept referred to as the "multiplier effect."

The recruitment of industries which might provide jobs for the local labor force and balance seasonal employment fluctuations is an important function of local government. The provision of adequate industrial sites at locations which are compatible with other land uses, and assurance that industrial development is consistent with broad environmental goals, is the major objective of this section of the General Plan.

BACKGROUND

Industrial development typically occurs adjacent to major transportation corridors. Within the Fresno-Clovis Metropolitan Area, industries initially located around the southern and southeastern perimeter of what is now the Central Business District, for access to the Southern Pacific Railroad line. Subsequently, industrial concentrations continued along the Southern Pacific and Santa Fe rail lines (and later Freeway 99), with heavy industries (primarily manufacturing) locating generally southeast of Elm and Jensen Avenues.

Currently, there are approximately 4,500 acres of developed industrial land and 3,600 acres of vacant, proposed industrial land in the established area, predominantly contained within six major concentrations: Blackstone/McKinley Avenues, Maple/Olive Avenues, Nielsen/Belmont Avenues, Freeway 99/Southern Pacific Railroad Corridor (two areas), and the Central Area. The Nielsen/Belmont area has the highest percentage of undeveloped industrial land of the six area concentrations. Within the established area, industrial development concentrations occurred primarily due to transportation access rather than through local planning efforts. As such, many industrial uses are located abutting non-industrial uses in a highly incompatible manner, resulting in traffic, noise, odors, vibration, and smoke. However, with the exception of a few areas, the options for new development of any land use in the established portion of the City are

limited. Rather than gradually phasing out all instances of abutting industrial and non-industrial uses, new methods of incorporating different (start-und)non-conflicting(end-und) land uses in a complimentary manner should be developed. Many portions of the established City, particularly the Central Area, provide excellent opportunities for creative, mixed-use design through the re-use of existing, large structures (i.e., warehouses, former residences, and multi-tenant commercial buildings).

ENVIRONMENTAL IMPLICATIONS

The primary concern with urban area industrial sites is the conflict between abutting industrial and non-industrial sites. Most of the sites within the established area were developed prior to zoning ordinance requirements, so there was little or no regard for containing site design or operations to reduce an infringement upon abutting sites. Trucks are often found using residential streets for access to industrial sites. Building setbacks and insulation are usually insufficient to reduce noise and vibration to a degree which would not affect adjacent properties (sometimes even those several blocks away). Further, site landscaping is poor at best, and little or no effort is made to maintain an aesthetic quality to the site. In areas of heavy industry, (particularly wineries), substantial odors are emitted, which affect properties during various hours for several miles. The fact that these older residential areas have generally acclimated to these conditions does not render them palatable. Individually, existing state and local health regulations serve to minimize some of the more tangible particulate impacts (emissions, odors, hazardous wastes); cumulatively, however, the adverse effects remain at generally minimal to marginal levels.

On a larger scale, many heavy industrial plants continue to emit pollutants which do affect the local area environment/ecosystem (air, soils, groundwater). Several programs have been developed through coordinated intergovernmental efforts (as discussed elsewhere in this document) to address and, hopefully, curb their impact.

OBJECTIVE

1. To promote planned industrial development that reduces land use conflict with neighboring activities.

POLICY/IMPLEMENTATION STRATEGY

1. Establish performance standards to minimize any adverse impacts of industrial activities in areas where industrial development is integrated with non-industrial uses. This could include architectural transitions between uses or permitting only compatible light industrial uses.

OBJECTIVE

1. To maximize the desirability, flexibility, and functional efficiency of industrial sites.

POLICIES/IMPLEMENTATION STRATEGIES

1. Gradually phase out incompatible uses from areas planned for heavy industrial activity.

2. Develop an ordinance to provide an acceptable interface between land uses, provide the greatest flexibility in development to the private sector, encourage land infill, structural rehabilitation, and neighborhood revitalization in the established area of the FCMA.

OBJECTIVE

1. Prevent the further decline of industrial sites within the Central Area in order to promote the economic viability of the Area.

POLICIES/IMPLEMENTATION STRATEGIES

1. Initiate action designed at phasing out scattered and/or deteriorated industrial uses which are outside areas of established industrial concentrations, when the existing tenants vacate the sites.

2. Continue the current redevelopment and renewal activities in the Central Area (removal of substandard buildings, reduced area devoted to streets and alleys, and assembly of smaller parcels) to continue the regeneration of the area.

3. Develop a strategy to better utilize rail-accessible industrial sites for industries which need such capability.

HISTORIC PRESERVATION

INTRODUCTION

Fresno recognizes that the spirit and future direction of the community are founded upon and reflected in its historic past. Our historic and cultural foundations should be preserved as living parts of our community to provide the public with a sense of continuity and a genuine opportunity to appreciate and enjoy our heritage. The key to an effective preservation effort lies in adequate long-range planning. Enabling legislation recognizes preservation as a planning issue and places it within the comprehensive planning framework. In this manner, the development and coodination of a program for historical and cultural conservation can be undertaken within the overall development objectives and programs of the community.

In exploring the benefits of preservation planning, the historic lessons and aesthetic enjoyment offered by a particular structure or area are not the only incentives to public or private efforts. The reuse of the built environment has evolved from a desirable to a necessary approach in community revitalization. Adequate and comprehensive planning can enable us to retain the physical evidence of the community's historic development in its proper context and in such a way that this evidence will play an economically viable role in contemporary life.

Historic and cultural conservation may be defined as a program to identify, evaluate, protect and interpret the important physical features of the community. Preservation attempts to protect the integrity of the physical remains of historic development patterns, groups of structures, residential neighborhoods and commercial districts. These resources may be independent structures as well as interrelated sites or districts.

Terms such as "historic and cultural conservation" and the more traditional "historic preservation" are used to identify public and private accomplishments within the community to maintain and enhance the value of its heritage.

BACKGROUND

The City of Fresno's preservation efforts reflect, in large measure, the initiative and participation of the community. Public interest in the preservation of our historic resources prompted the City Council to direct the development of a historic plan in April of 1975. Recognizing the importance of citizen involvement, the Council appointed a Historic Preservation Committee which met over a year's period to advise upon plan development. During this same period, a well-attended public workshop was held to further solicit community opinion.

Public and private efforts culminated in the adoption of the Historic Preservation Element to the FCMA General Plan in March of 1977. Being a permissive General Plan Element and one of relatively new interest, the document functions to encourage and give policy direction to broadly based community preservation activity. The Element narrates local history and devotes substantial attention to preservation philosophy, and to the cultural, social, and economic benefits to be derived by the community through preservation planning. In providing a common means of communication, numerous terms inherent to the subject are defined.

The Element made a declaration of public policy in support of preservation and inaugurated a comprehensive planning approach to achieve it.

HISTORIC PRESERVATION COMMISSION

The momentum of the Element was enormously advanced by Council's appointment of a seven-member Historic Preservation Commission in September, 1977. The Commission's various duties include the responsibility to:

1. Conduct a comprehensive survey effort and maintain a current historic resources inventory;

2. Define and recommend the designation of historic structures;

3. Establish criteria for and recommend the designation of historic districts;

4. Determine rules for administering these districts;

5. Regulate changes which impact the integrity of designated historic sites and districts;

6. Act in an advisory capacity to the Council in connection with all matters relating to historic preservation;

7. Develop additional measures or perform other functions as may be necessary in effecting preservation policies.

HISTORIC SURVEY

The Commission considered the most important and immediate task to be a survey of resources. Under the auspices of the State Office of Historic Preservation, a city-wide survey was conducted by a consultant which identified and described sites, structures and areas significant in local history, architecture and culture. The survey produced a comprehensive gathering of data on potentially significant resources through fieldwork and research. The resulting inventory represented a selective list of structures and areas chosen from the survey on the basis of professional evaluation against set criteria. To serve the best planning and education purpose, the inventory provided well-researched descriptions of each of the sites and areas.

Of the many thousands of structures surveyed, 177 were selected as having significance and worthy of efforts for their protection. Of this number, 40 were recommended for the National Register of Historic Places—the nation's official list of properties important in America's history, architecture and culture. Fresno currently has fifteen properties privileged with this distinction.

There are 161 properties designated to the Local Official Register of Historic Preservation indicated on Figures 28 and 29.

The survey also identified five areas which contain a sufficient concentration or continuity of resources to warrant designation as an historic district. Of the 177 individual properties, 87 were located within the proposed districts.

The primary purpose of the inventory was to provide documented information which could be used to develop an historic preservation plan and program. The inventory also provides information for state and federal agencies which may be planning projects in the City of Fresno. Such information may be used to determine whether a project may affect a local historic resource. The inventory is also a reliable source of information for city staff to consult when public or private projects are proposed. The availability of this information assures that the impact of a proposed project upon historic resources will not be overlooked. The inventory results are available to the public and represent an often used resource for community education and information.

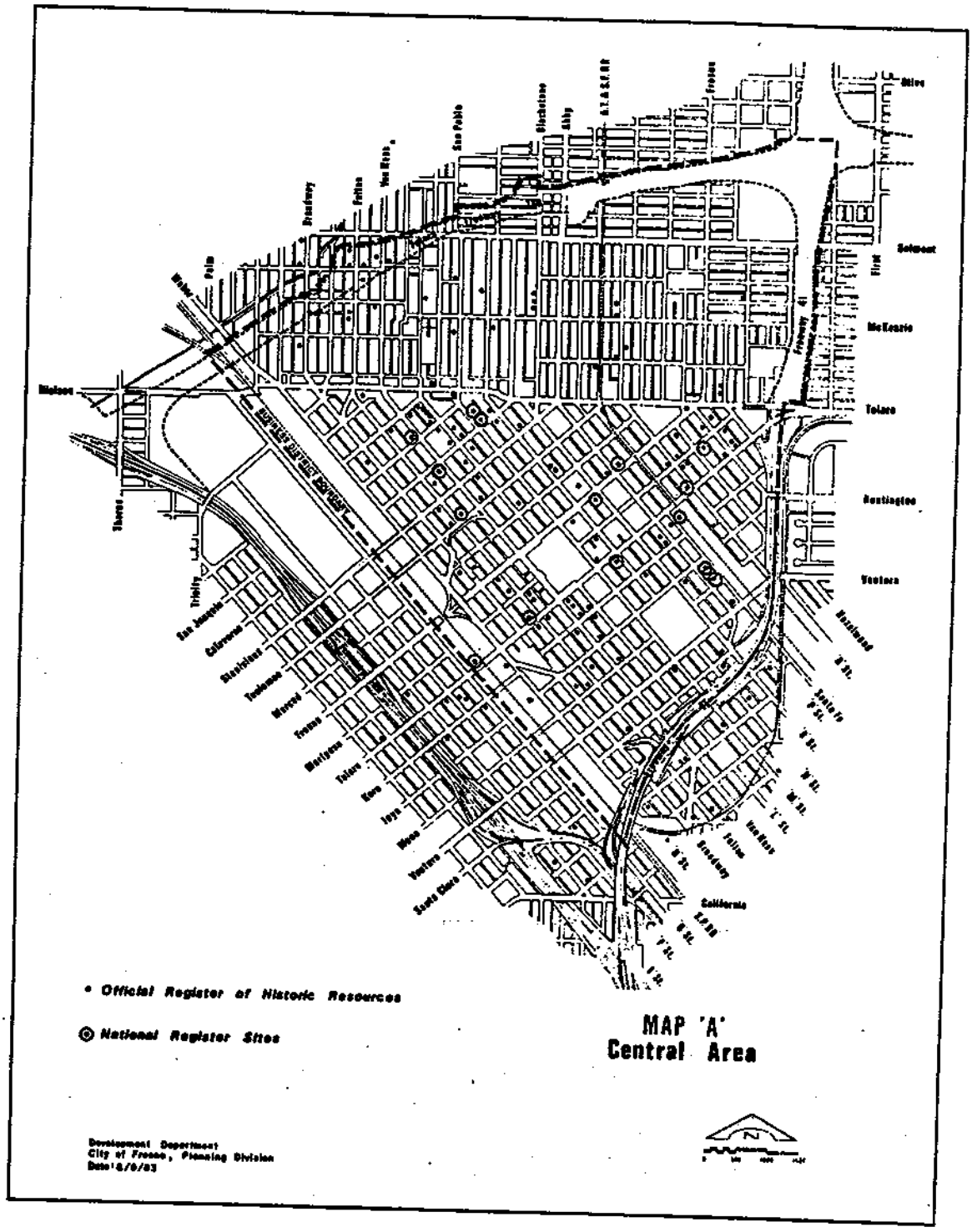
PRESERVATION ORDINANCE

The inventory was an essential but intermediate step toward the ultimate objective of protecting resources. This objective was advanced by the Council's adoption of the Preservation of Historic Structures Ordinance in 1979, which serves as the prime implementation device for preservation policy. Council empowered the Historic Preservation Commission with certain administrative, advisory and regulatory prerogatives. In general terms, the purpose of the ordinance is to protect, enhance and perpetuate the use of structures and districts which have historic value. It establishes operational definitions, a set of review criteria, and a well-defined nomination and public hearing process to consider properties proposed for official designation. Those properties designated to the LOCAL OFFICIAL REGISTER OF HISTORIC RESOURCES are protected through design and demolition controls.

An important feature of the ordinance encourages the Fire Marshall and Building Official to liberally construe and apply all pertinent codes. This feature recognizes that codes can be an impediment to the adaptive reuse of older buildings and responds by encouraging the flexible use and interpretation of codes where possible.

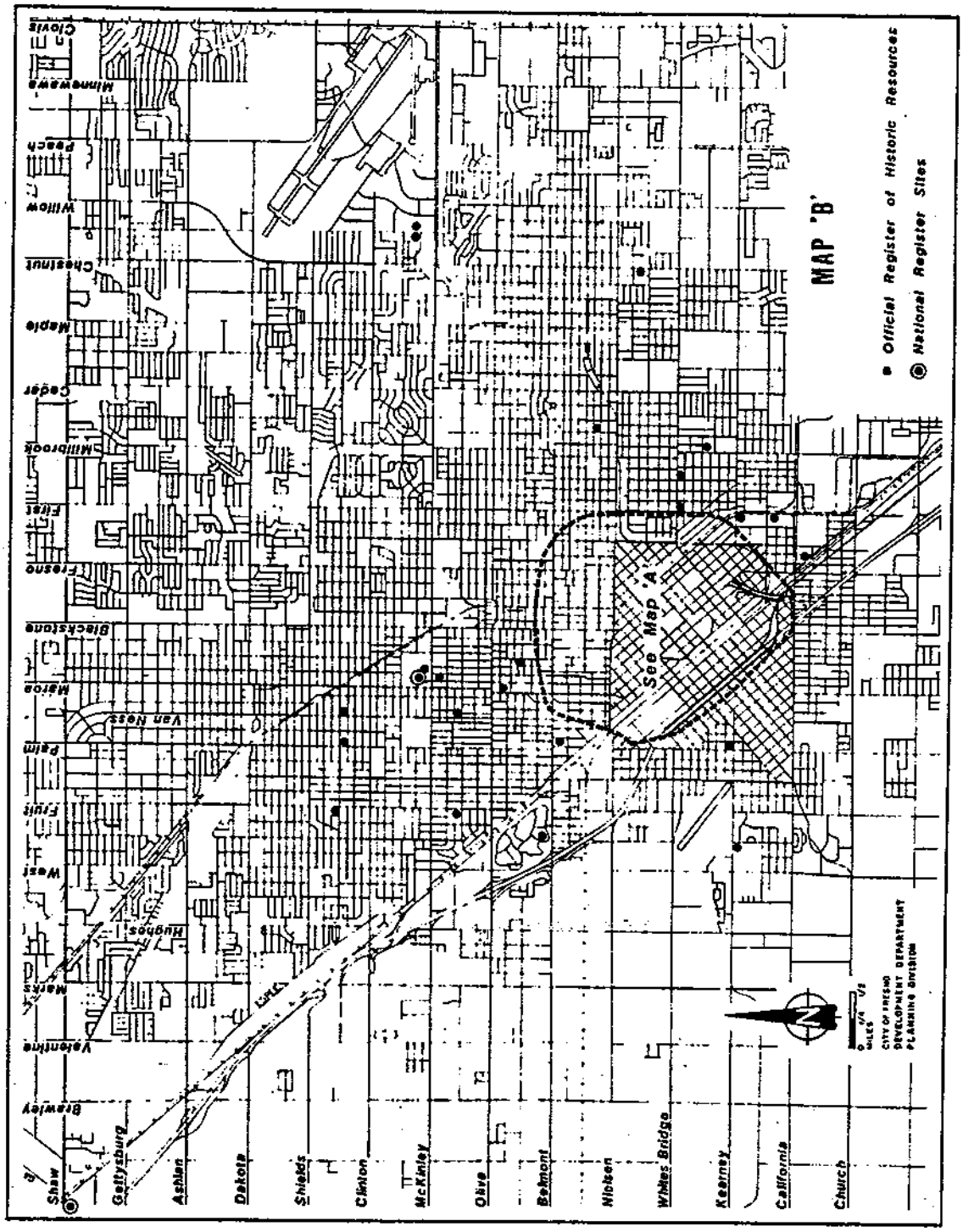
In June of 1981, fiscal conditions necessitated the elimination of funding for the historic preservation program and Commission. With the major program tasks having been accomplished, a self-sustaining approach was successfully developed. The Preservation Ordinance was amended in October of 1981, designating the Fresno City Planning Commission as responsible for administering the Ordinance. Other major features of the Ordinance regarding the designation of historic sites and the review of permits related to historic properties remained intact.

Figure 28



Olive
Solmont
First
McKenzie
Tulare
Huntington
Ventura
Hazelwood
Santa Fe
Van Ness
Fulton
Broadway
California
Fresno
Kern
Joyce
Mono
Ventura
Santa Clara
Tulare
Merced
Stanislaus
Calaveras
San Joaquin
Trinity
Thorne
Nielsen
Weber
Palm
Broadway
Fulton
Van Ness
San Pablo
Blackstone
Abby
Freeway 41
• Official Register of Historic Resources
◎ National Register Sites
MAP 'A'
Central Area
Development Department
City of Fresno, Planning Division

Figure 29


MAP 'B'
Official Register of Historic Resources
National Register Sites
See Map 'A'
Shaw
Gettysburg
Ashlan
Dakota
Shields
Clinton
McKinley
Olive
Belmont
Nielsen
Whites Bridge
Kearney
California
Church
Brawley
Valentine
Marks
Hughes
West
Fruit
Palm
Van Ness
Maple
Blackstone
Fresno
Filler
Millbrook
Cedar
Maple
Chestnut
Willow
Peach
Minnewawa
Clovis
CITY OF FRESNO
DEVELOPMENT DEPARTMENT
PLANNING DIVISION

HISTORIC STRUCTURES AND DISTRICTS PLAN

In line with the directives of the Element and Ordinance, a Historic Districts and Structures Plan was developed from grant funds made available by the State Office of Historic Preservation. The completion of the plan was coincidental with local budget conditions which precluded funding for plan implementation. In July of 1981, the City Council accepted the plan as having been completed with no action to implement the plan's recommendation. The Plan, prepared by a consultant, evaluates and refines the historic areas identified by the earlier survey based upon factors of architectural, historic and cultural characteristics; design elements; visual features; environmental relationships; land use and zoning; circulation and socio-economic characteristics; and other plan policies affecting the subject areas.

COMPLEMENTARY IMPLEMENTATION STRATEGIES

One of the primary roles of the City has been that of coordination of public policies and programs to reduce areas of conflict and increase compatibility of purpose. Various city departments carry out programs which affect historic resources. Most notably, the Departments of Development, Public Works, and Parks and Recreation all administer ordinances and programs which affect historic resources. A growing familiarity with adopted policy and the coordinating efforts of staffs has resulted in the inclusion of preservation issues in the planning process, emerging policies and adjustment to earlier existing policies where possible and appropriate.

The National Historic Preservation Act of 1966 established a funding program for historic preservation administered by the California State Office of Historic Preservation. Successful application by the City of Fresno provided grant awards which funded the historic survey, and the Historic Districts Plan. This funding source has also been available for the restoration, rehabilitation or acquisition of National Register sites. The restoration of several privately held sites in Fresno has been financially assisted by grants from this program.

The Department of Housing and Urban Development has made policy and funding commitments to historic preservation through its Community Development Block Grant Program (CDBG). Giving new relevance to "preservation", the program recognizes it as a sensitive and practical means to achieve community revitalization. The primary program objectives of providing a suitable living environment for low and moderate income families are well-served by the preservation of neighborhoods and historic resources. The restoration of such resources improves the urban image, triggers the revival of neighborhoods and business districts and returns underused or abandoned resources to service. The local CDBG program funds have assisted in the rehabilitation of the Fresno Metropolitan Museum (Fresno Bee Building), the YWCA Residence Hall and the maintenance of other publicly held historic sites. Further, following competitive application, fifteen local "Register" properties have been selected for rehabilitation funding assistance made available by the CDBG Program.

The Federal Tax Reform Act of 1976 and the Revenue Act of 1978 provided important tax incentives which contributed to the rehabilitation of several local commercial buildings of historic importance.

The Economic Recovery Act of 1981 has significantly revised the historic preservation tax incentives first authorized by Congress in the Tax Reform Act of 1976. The new provisions should provide major impetus to encourage capital investment in historic buildings and to spur revitalization in historic neighborhoods.

The new law establishes a three-tier investment tax credit (ITC) for qualified rehabilitation of older buildings. Except for "certified historic structures", no credit may be taken for residential buildings or for buildings less than 30 years old. Under the new Accelerated Cost Recovery System (ACRS) added by the Act, the present system of depreciation over a building's useful life is replaced by a system permitting recovery of capital costs using straight-line or accelerated methods over predetermined recovery periods. This provides a clear incentive for qualified rehabilitation.

Tax exempt bonds provide another valuable alternative for financial strategies. Under the provisions of the Marks Historical Rehabilitation Act of 1976, the City of Fresno has authorized the issuance and sale of tax-exempt bonds for the purpose of financing two historic rehabilitation projects. The act itself is designed as a financing strategy to provide long-term, low-interest rehabilitation loans for historic properties. At the heart of this strategy is the availability of long-term tax exempt commercial mortgage revenue bonds. The successful use of this strategy is dependent upon numerous factors including the conditions of the bond market and the feasibility of the project in light of prevailing interest rates. Though, as implied, the process is lengthy and complex, the success is well worth the effort.

In sum, numerous incentives for preservation exist ranging from legal structures, code flexibility, financing techniques and property tax relief to direct federal assistance. Within the present fiscal climate, both local and federal governments are too concerned about eroding tax bases and resources to offer many of these provisions on an expanding basis. However, careful scrutiny can yield many opportunities tailored to meet both fiscal constraints and community objectives.

ENVIRONMENTAL IMPLICATIONS

Under the California Environmental Quality Act (CEQA) guidelines, an assessment called a "Feasibility and Planning Study" may be made for a project. Such an assessment includes a brief description of the planning document under consideration, a determination of findings, and a study discussing and documenting the reasons to support those findings.

The Historic Preservation Element was assessed as required by the CEQA review process and by the City's Environmental Quality Ordinance. The assessment determined that the project (Element) is a feasibility and planning study and, therefore, did not require an environmental impact report.

The historic preservation program activities resulting from the Element (and described under the Background Section) have not met the definition of "project" under the provisions of CEQA and, therefore, no assessment has been necessary. Any negative impacts to the environment as may be perceived or as they could exist have not been significant enough to involve detailed consideration.

The preservation of historic resources is commonly regarded and accepted to have these positive impacts upon the social, economic and physical environment:

1. Revalues and revitalizes older areas.
2. Increases neighborhoods' interest in upkeep and collective sense of the neighborhoods' worth.
3. Positive input about the nature and history of older areas draws residents into the larger life of the community.
4. By its inherent emphasis on citizen participation, individuals have a constructive role to play in the community's present and future.
5. By stressing the positive aspects of older areas, preservation can be an agent of human renewal.
6. Preservation communicates the lessons of history so that present and future generations may learn from the past and may be in a better position to judge our contemporary values and progress.
7. Preservation of irreplaceable resources contributes to the variety and vitality of the environment thereby enriching daily living experiences.
8. In a period of diminishing resources, expensive building materials, and rising construction and energy costs, recycling of older structures has gained credibility as a cost-effective alternative.
9. Preservation of older buildings may augment employment opportunities due to its labor intensive character.
10. Property values, retail sales, and commercial rents may increase due to compatible design controls, and prestige and distinction afforded by preservation activities.

OBJECTIVES

1. Historic Preservation Element

To safeguard our heritage by preserving those elements that reflect our cultural, social, economic and architectural heritage so that community residents will have a foundation upon which to measure and direct physical change.

To foster community pride through identification and aesthetic improvement of historic sites and districts.

To promote the use of historic and cultural sites and districts for the education and recreation of residents.

To provide alternate housing by the integration of old and new structures in existing neighborhoods.

To attract tourists and citizens to distinctive areas.

2. **Preservation of Historic Structures Ordinance**

The purpose of this ordinance is to promote:

The protection, enhancement, perpetuation and use of structures that represent past eras, events, and persons important in history, or which provide significant examples of architectural styles of the past or are landmarks in the history of architecture, or which are unique and irreplaceable assets to the City and its neighborhoods, or which provide for this, and future generations, examples of the physical surroundings in which past generations lived.

The promotion and encouragement of continued private ownership and utilization of such structures so the objectives listed above can be attained under this policy.

The establishment of a basis for coordinating the goal of the preservation of historic structures and districts with the need to set standards for and implement other elements of the City's plans, policies, and programs.

POLICIES/IMPLEMENATION STRATEGIES

1. Continue to effect a comprehensive preservation program as set forth by the Historic Preservation Element and Preservation of Historic Structures Ordinance.

2. Complement conservation goals through other community plans and programs.

3. Continue to observe interdepartmental review procedures to insure that preservation policies are respected in all community decision-making.

4. Develop complementary programs, both public and private, to promote the preservation of cultural resources.

5. Continue to examine public policy and practice to determine its relationship to preservation goals and, where existing policy conflicts, work to effect appropriate changes:

   Building, fire, health and housing codes shall be amended, where possible, to preservation objectives.

   Capital improvement programs and basic services shall be examined for compatibility with preservation goals.

   Tax assessment adjustments and tax inducements for the restoration and maintenance of historic properties shall be explored and used where appropriate.

   Programs aimed at neighborhood improvement including code enforcement and redevelopment shall complement the preservation of cultural resources.

   Development incentive and zoning bonus programs shall be explored as methods to encourage the preservation of resources.

6. Develop methods to encourage private reinvestment.

7. Examine various financing strategies and public funding opportunities for use in the preservation and rehabilitation of historic properties.

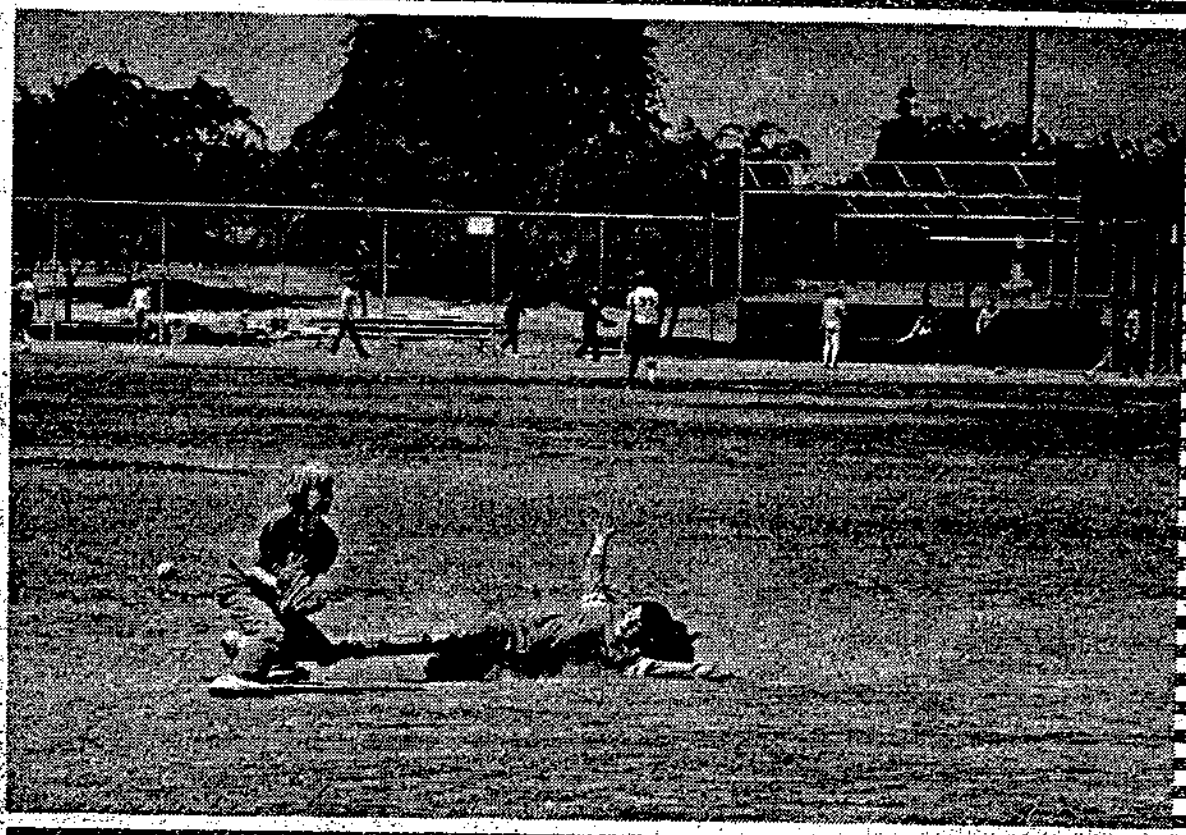
8. Facilitate the community's awareness of cultural resources and participation in related programs.

9. Encourage the preservation and rehabilitation of historic resources as a design theme in urban areas.

10. Encourage the County of Fresno to adopt uniform and complementary resolutions expressing support for historic preservation.

11. Assist the private sector in the development of mechanisms intended for the acquisition and rehabilitation of historic resources.

LAND USE/ DEVELOPING COMMUNITIES



LAND USE/DEVELOPING COMMUNITIES

RESIDENTIAL

INTRODUCTION

This section of the General Plan focuses on the remaining vacant land in those community plan areas already designated for urban development. Thus, it deals primarily with the urban fringe area and with the remaining bypassed parcels in those parts of Fresno built since the 1950's. Under discussion, for the most part, are the fringe areas of the northwest (Bullard Community), north (Woodward Park Community) and southeast (Roosevelt Community), with some applicability to the southwest (Edison Community). Under the 1974 General Plan Multiple Centers Concept, land use reflected higher densities in the City's core and decreased toward the fringe area to medium-low or low density subdivisions with lot sizes ranging from 12,500 to 20,000 square feet.

BACKGROUND

Since the adoption of the community plans in the mid-to-late 1970's, several nationwide trends have become apparent in the Fresno area:

1. Land costs for residential subdivision property have grown to ten times the costs of the early 1970's.

2. Energy costs have grown (and will continue to grow) to a point where they are a serious budgetary concern for most homeowners.

3. Transportation energy costs are beginning to become a factor in locational decisions regarding homes and employment.

4. Population and lifestyle changes are beginning to affect the size of lots and variety of housing types available as the numbers of single, single-parent, employed couples, and "empty-nester" households increase.

5. Housing prices and interest rates have escalated to the point that less than one-fourth of the population can qualify for a loan on an average priced home.

6. It has become increasingly urgent that urban expansion onto productive agricultural land be limited, through either ultimate growth limitations and/or through housing the urban population in a more compact manner.

The significant increases in the cost of housing and the cost of financing experienced during the last several years underscore the need for changes in the provision of housing, and the likelihood that higher density housing types will become more common in the future. It must be stressed that, while the directions have been evident for a few years in construction trends toward condominiums, planned unit developments, and more recently the "patio home" concept, such a policy represents a major change for the Fresno area. It is anticipated that there may be resistance at the project level from homeowners in adjacent traditional subdivisions until this is perceived as a stable new style of living for the Fresno area.

Of extreme importance to the success of higher density residential neighborhoods is the successful integration of useable and visible open space and the provision of adequate landscaping to soften the visual impacts of more compactly placed structures. The need for improved open space standards is seen to be of such significance that it is treated as a special issue for particular design solution later in this document. It is recognized that both passive and active recreational opportunities built into the living environment will become even more essential as public financing of park sites is limited and travel to distant recreational sites becomes increasingly expensive.

The ability to achieve improved open space treatment is at least partially dependent on a greater acceptance of clustered housing design or of two-story residential development by the community. While single-family homes can be built with two stories at any appropriately zoned site, there is frequently strong resistance from adjacent neighbors to the use of two stories in planned unit developments. The ability to

achieve improved open space design with the reduced lot coverage available to a multi-story project is self-evident. In addition, the energy savings achievable within a two-story residence further reinforce the desirability of moving to a policy which encourages developers to incorporate two-story housing into their projects.

MAJOR FINDINGS/CONCLUSIONS

These factors have led to the conclusion that the General Plan Update should increase the density of residential areas shown for future development. This is done in the recognition that major societal and economic changes must be addressed in the plan in order to aid in meeting a variety of housing supply problems. The General Plan can assist in the necessary transition in a variety of ways, as listed:

1. Increasing the densities shown on the map in the remaining undeveloped areas of the adopted community plans;

2. Encouraging the implementation of Title 24, Energy Conservation in New Building Construction, and the consideration of energy impacts during subdivision review;

3. Incorporating a new zoning consistency matrix for the use of staff, Planning Commission and the Council in project analysis;

4. Encouraging the use of innovative design through the use of such varieties of housing types as planned unit developments, zero lot line development, manufactured housing, and mixed densities;

5. Requiring the inclusion of useable common open space in developments where private open space is substantially reduced from the historic pattern, as described in the Open Space and Recreation section of the Plan;

6. Encouraging the development of two-story residential structures and/or clustered housing design as a way of improving open space design and achieving energy efficiencies.

ENVIRONMENTAL IMPLICATIONS

The development of housing at higher densities is responsive to several environmental concerns: air quality (through reduced travel and public transit efficiencies), energy conservation, water conservation, land conservation, and more efficient use of urban service systems. However, there is a significant need to guide such development in order to maintain the quality of life through improved housing design, open space design and the general level of amenity through attention to landscaping and community needs. Both staff expertise and policy commitment will be necessary in order to maintain the qualities which have given Fresno the reputation of providing a pleasant living environment.

OBJECTIVE

1. To facilitate the construction of varied and affordable housing through the provision of higher densities, and the use of a variety of development techniques.

POLICIES/IMPLEMENTATION STRATEGIES

1. Designate substantial new areas of medium and medium-high residential land uses in the existing community plan areas, most particularly in the Bullard, Woodward Park, and Roosevelt Communities.

2. Adopt the new Plan Consistency Matrix, included in the Development Consistency section of this Plan.

3. Consider proposed revisions to the Planned Unit Development ordinance which will facilitate the construction of higher density residential development while maintaining a pleasant living environment.

OBJECTIVE

1. To aid in the conservation of resources - land, energy, and materials - through the development of more compact and efficient residential areas.

POLICIES/IMPLEMENTATION STRATEGIES

1. Protect prime agricultural land through the conscious direction of urban growth at higher densities onto non-prime land.

2. Implement Title 24, Energy Conservation in New Building Construction, and evaluate energy impacts during subdivision review.

3. Encourage the successful integration of two-story residential projects into the community in order to increase the availability of open space and achieve energy efficiencies.

OBJECTIVE

1. To aid in the creation of an urban community which retains a high level of functionalism and amenity through attention to the provision of useable and attractive open space areas and necessary daily services close at hand.

POLICIES/IMPLEMENTATION STRATEGIES

1. Adopt the policies for urban open space treatments as found in the Open Space and Recreation and Implementation sections.

2. Continue to provide necessary public and commercial services in proximity to residential neighborhoods in a complementary manner through the use of comprehensive planning, and the application of conditions and standards.

COMMERCIAL

INTRODUCTION

Commercial development in the northern portion of the City has a substantially different character than that of its counterpart in the established area. With the exception of heavy strip commercial uses along Blackstone Avenue, the majority of retail commercial establishments are located in "centers". In addition, 70 percent of those commercial centers were established after 1960, with the majority of construction activity occurring from 1975 through 1979. The development of commercial activities in this portion of the City has drawn a focus to this area for the provision of metropolitan-wide commercial services. This focus has led to the erosion of commercial activity in the established area, while simultaneously creating problems of congestion resulting from excessive patronage of the newer area.

With the substantial amount of existing commercial uses in the area, there is yet a significant amount of vacant land designated for commercial development, as follows:

	Vacant Acreage
Neighborhood	108
Community	51
Regional	74
General/Heavy Strip	216
Office	224
TOTAL	673

The amount of vacant, planned commercial acreage reflects residential growth projections and the ability of the area to support additional commercial activities (based upon the overall higher income level of the area). While this amount may appear excessive, in light of existing commercial development, it reflects an on-going planning effort to maintain development controls while attempting to accommodate private market pressures.

NEIGHBORHOOD AND COMMUNITY COMMERCIAL

It is appropriate to combine the discussion on these land uses, as developed in the newer community, due to the manner in which their functions have experienced transition.

Traditionally, neighborhood shopping centers comprised a site area of from 5 to 10 acres, containing 4 to 15 establishments providing daily shopping items, with a supermarket or a drug store as the principal tenant. The community commercial center comprised approximately 10 to 20 acres, with 10 to 20 stores. It was generally developed around a junior department store or variety store, and typically offered convenience goods, personal services, general merchandise, and specialty items. Neighborhood centers have a general trade area radius of one-half mile. As centers in the new city have evolved, however, tenancy is determined by the available occupant rather than by planned center function. As such, small centers have emerged providing apparel or specialty stores, and larger centers exist which offer a supermarket, a drug store, and other convenience items. In addition, several centers at the community service level will be located surrounding one intersection, resulting in a large concentration of a variety of services (e.g, Cedar-Shields, Shaw-Fresno, Shaw-West, Palm-Bullard).

These shopping center concentrations dilute the service area radius planning theory; however, this level of service competition does coincide with the marketing theory that a concentration of a variety of competing services amplifies their ability to attract patrons. In the past, local planning efforts have attempted to curb the construction of centers on multiple corners of an intersection. However, staff has re-evaluated the single-corner commercial policy which provided the basis for many recommendations in several Community Plans. Existing market trends, the limited amount of available land, and the resulting land costs must also be considered along with population/service area ratios. It is recommended, therefore, that the neighborhood commercial sites currently designated in the Community Plans or proposed in future Community Plan Updates be regarded as defining an approximate 10 acre site which is a maximum available at that intersection, to be developed in part or in whole on any available corner of that intersection.

Another commerical phenomenon of recent years is the emergence of the convenience market, offering daily necessities for "quick-stop" shopping. These markets have proliferated throughout the metropolitan area; however, the difference between their location in the established and in the newer areas is that in the established area they are built in scattered, individual sites, whereas in the newer city they are generally developed as part of a small center. The development of these markets has partially alleviated service problems created by the dissolution of the traditional neighborhood center; still, some areas (Old Fig Garden, Woodward Park) remain deficient in the availability of local, daily shopping opportunities.

REGIONAL COMMERCIAL

A regional shopping center is typically defined as a large cluster of commercial establishments catering to a service radius of approximately 5-1/2 miles. The center is generally located on a site of 50 acres or more, with at least three major department stores as the principal tenants.

The northern end of the FCMA contains the most modern, economically viable major shopping centers of the FCMA: Fashion Fair and Manchester Center. In addition, there are approximately 200 acres proposed for regional shopping, located at the southeast corner of Shaw and Clovis Avenues and along Blackstone Avenue between Alluvial Avenue and the Southern Pacific Railroad. Development of these centers is expected to result in a minor decrease in patronage of the existing centers; however, since the proposed centers are located around the perimeter of the metropolitan area and substantial market demand has been generated in recent years, the adverse effects upon existing centers are not expected to be substantial.

GENERAL/HEAVY STRIP COMMERCIAL

General strip commercial uses in the newer areas are predominantly located along Blackstone Avenue, continuing the strip development from Divisadero Avenue in the established area. This portion of Blackstone Avenue contains a large number of hotel-motel establishments, restaurants, car wash operations, auto sales, movie theatres, furniture stores, and many other varied uses.

Commercial strips generally represent the most undesirable type of commercial development, due to the overall haphazard manner of design (because of individual ownership), excessive advertising signs, and heavy traffic. Local planning policy in recent years has been to discourage strip commercial development in favor of commercial centers; however, some uses typical of strip development have been historically viewed as inappropriate for location in concentrations elsewhere (car washes, hotel-motel, auto sales).

The Blackstone strip is densely developed as it exists. There is, however, a substantial amount of vacant land designated for commercial uses of the east side of Blackstone, along Freeway 41. In addition, large parcels appropriate for heavy commercial uses are located along Highway 99, predominately between Shields and Belmont Avenues.

OFFICE COMMERCIAL

In the past ten years, office commercial development has comprised a significant percentage of the total commercial construction in this portion of the FCMA. Shaw Avenue and Fresno Street display a substantial amount of office strip activity. In addition, large office complexes are scattered along Shaw Avenue and First Street, around St. Agnes Hospital, and paricularly around the Fresno Air Terminal (often as planned office development). Office complexes are well suited to the needs of a large company for a single site accommodating all the various operations, as well as providing the small, single or branch office with proximity to other interrelated firms to facilitate daily interaction. The construction of these complexes is typically accompanied by exceptional site design, adequate (if not abundant) landscaping, buffering from adjacent uses, and recently, provisions for energy conservation.

Office development remains a strong candidate for increasing the economic base of the City. A substantial amount of vacant land yet awaits office construction. However, a significant amount of land within the more urbanized area has been bypassed for office construction, due to the insufficient attractiveness of the site (smaller parcel size, surrounding uses, access). There is still potential for these parcels to be consumed by single-tenant office development, as had frequently occurred along Shaw Avenue and First Street.

Recently, recognition of the sky-rocketing land costs for office development, as well as strong pressures from the private sector, have induced the Council to pursue the development of a policy which would expand the potential for construction of high-rise buildings within the City. A further discussion of the City's potential high-rise policy is contained within the "Special Issues" section.

ENVIRONMENTAL IMPLICATIONS

Commercial development in the northern area of the City is generally provided in a manner which largely reduces the conflicts between differing, abutting uses. However, regional centers in this area have typically occurred (and continue to be proposed) within established or emerging commercial concentrations. The excessive commercialization at these locations has resulted in an amplification of the general adverse effects resulting from commercial uses: traffic, noise, excessive lot coverage, and intrusions into the abutting residential environment(s). Existing problems are longstanding and difficult to redress. However, these conditions should provide examples of potential concerns to address in future development. In addition, it is possible that the construction of additional, full-line shopping centers will result in a reduction of the crosstown shopping travel which currently occurs.

The introduction of multi-story construction will create a substantial visual disruption in an area which maintains a somewhat suburban atmosphere. Existing development of all types has a predominately low physical profile; while highrise structures will provide strong visual landmarks, their overall effect upon adjacent residential areas will require considerable adjustment. Potential concerns regarding shadowing of adjacent properties, as well as impacts upon fire protection, sewer and water services will have to be addressed in the development of the proposed policy.

OBJECTIVE

1. Guide the development of commercial facilities in a manner which is supportive to the provision of needed services to the community.

POLICIES/IMPLEMENTATION STRATEGIES

1. Those neighborhood commercial sites currently shown in the adopted Community Plans or proposed in future Community Plan updates shall be regarded as defining an approximate 10 acre site which is a maximum available for retail commercial uses at that intersection, to be developed in part or in whole on any available corner of that intersection.

2. Develop a zone district which encourages the appropriate mixing of commercial and non-commercial uses, either within a single structure or as a unified development, with such a policy providing both implementation and appropriate mitigation measures for development. In addition, a manual explaining the use of the district should be completed for the use of staff and interested citizens.

OBJECTIVE

1. Encourage commercial land uses to be developed and maintained in a manner which is complementary and compatible with other land uses and enhances the appearance of the surrounding environment.

POLICIES/IMPLEMENTATION STRATEGIES

1. It is recommended that a specific plan be formulated concerning the topic of strip commercial development. A plan of this scope should develop alternate solutions to typical issues such as signs, storage, parking, landscaping, access and congestion, while not limiting its applicability to a single geographic area.

2. Improve shopping center design standards in order to preserve the integrity of adjoining residential environs. Design criteria and performance standards required should be related to architectural design, trade area, and locational siting.

OBJECTIVE

1. Ensure the provision of adequate commercial shopping opportunities to all segments of the community.

POLICY/IMPLEMENTATION STRATEGY

1. Identify sites in the Woodward Park and Bullard Community Plan areas, west of Freeway 99, and elsewhere as necessary areas which are appropriate for neighborhood and/or community shopping centers, ensuring minimal or no overlap with existing centers' service areas.

INDUSTRIAL

BACKGROUND

There are approximately 650 acres of industrially developed land in the northern portion of the FCMA. Industrial uses in this area are generally new industrial/business parks and warehousing (including mini-storage), located along Clovis Avenue, adjacent to the Airport, and north of Herndon Avenue (northeast of the Southern Pacific Railroad tracks); and older, heavier manufacturing uses located at Highway City along Highway 99, and west and north of the Pinedale Townsite. In addition, a rock, sand, and gravel-mining operation is located in the San Joaquin Riverbottom.

Industrial land use is generally located away from residential areas, to minimize potential environmental problems. With the exception of the Highway City area (developed prior to annexation), industrial development in this area is largely segregated from conflicting residential uses. Where industrial/residential interface occurs, resulting problems are handled by development standards, mitigating potential impacts.

Highway City contains many older residential and commercial uses, with larger manufacturing companies and small fabrication and packaging firms interspersed. The lack of proper interface betwen these uses has resulted in a diminished residential environment, reducing the overall attractiveness of locating new residences there. Existing land use conflicts should be addressed by encouraging the installation of walls and landscaping for industrial sites abutting residential uses, and uses which create more substantial adverse effects due to location should be phased out as they change tenancy.

The 1984 General Plan recommends a change in designation of approximately 350 acres in the northwestern area to light industrial uses. Urban services studies indicate an adequate ability to serve the area. The required amount of land to be used for industrial purposes depends upon the anticipated level of employment within the industrial sectors of the economy. Although rapid industrial growth has occurred in the northern area over the past few years, industrial development in this area has generally been far exceeded by land resources committed to future industrial growth. However, recent population studies have indicated a strong potential for substantial local industrial growth (resulting from diminishing land availability in other major metropolitan areas of the State) by the year 2000. New industrial development is expected to occur in a manner which will be consistent with the overall General Plan goals for industrial development, and will embody creative development techniques (e.g., mixtures of industrial and non-industrial development) to allow for greater variety in harmony with Fresno's urban setting.

ENVIRONMENTAL IMPLICATIONS

The development of industrial uses within planned concentrations has aided substantially in reducing the conflicts between industrial and non-industrial uses. Industrial/business parks occur in close proximity to residential neighborhoods with minimal or no adverse effects. However, the majority of these developments contain mostly office or warehousing uses. Heavier or more intense operations impose greater impacts.

The heavy industrial concentration located within the Highway City area was developed without the requirements which are currently imposed upon industrial uses. Therefore, conflicts between differing uses are in evidence, and reduce the viability of portions of Highway City as an attractive and desirable residential environment. In order to change this trend, stringent efforts need to be implemented to check the area including site maintenance, landscaping and wall installation, removal of dilapidated structures, and improving the potential for locating both new industrial and residential uses in the area.

The conversion of substantial amounts of residentially-designated land to a light industrial classification will in itself merely change the nature of the urbanization which was projected to occur. In fact, light industrial uses generally create less of a demand upon the urban services than residential uses: public facility needs are lower; traffic volumes are lighter (although truck operations create greater noise than cars). However, there are potential industrial operations which could impinge upon the natural environment: covering the soil with impermeable materials, improper storage or accidental spillage of chemicals, and the introduction of emissions into the relatively clean ambient air. The application of flexible, yet comprehensive development standards will provide the greatest potential for reducing future adverse environmental effects.

OBJECTIVE

1. To promote planned industrial development to facilitate the economic provision of local services.

POLICIES/IMPLEMENTATION STRATEGIES

1. Make public facilities available to planned industrial sites in accordance with the citywide set of capital improvement priorities.

2. Provide public services and utilities for the expansion of industrial activities only in those areas which have been shown to be desirable in community plans and policies.

OBJECTIVE

1. To maximize the desirability, flexibility and functional efficiency of planned industrial sites.

POLICIES/IMPLEMENTATION STRATEGIES

1. Provide access to a range of transportation modes through the development of plans and incentives, ensuring that local, regional, and national connections are readily available to industrial sites.

2. Ensure access to the full range of urban services for future industrial development projects by coordinating proposed plans with the Capital Improvement Program or Urban Growth Management process.

3. Plan industrial land use clusters with reference to their common needs and compatibility in order to maximize the operational efficiency of similar activities.

4. Encourage the removal of incompatible uses from areas planned for heavy industrial activity.

5. Conduct a study to determine the adequacy of industrial off-street parking requirements for industrial operations and patronage.

OBJECTIVE

1. To promote planned industrial development so as to reduce land use conflict with neighboring activities.

POLICIES/IMPLEMENTATION STRATEGIES

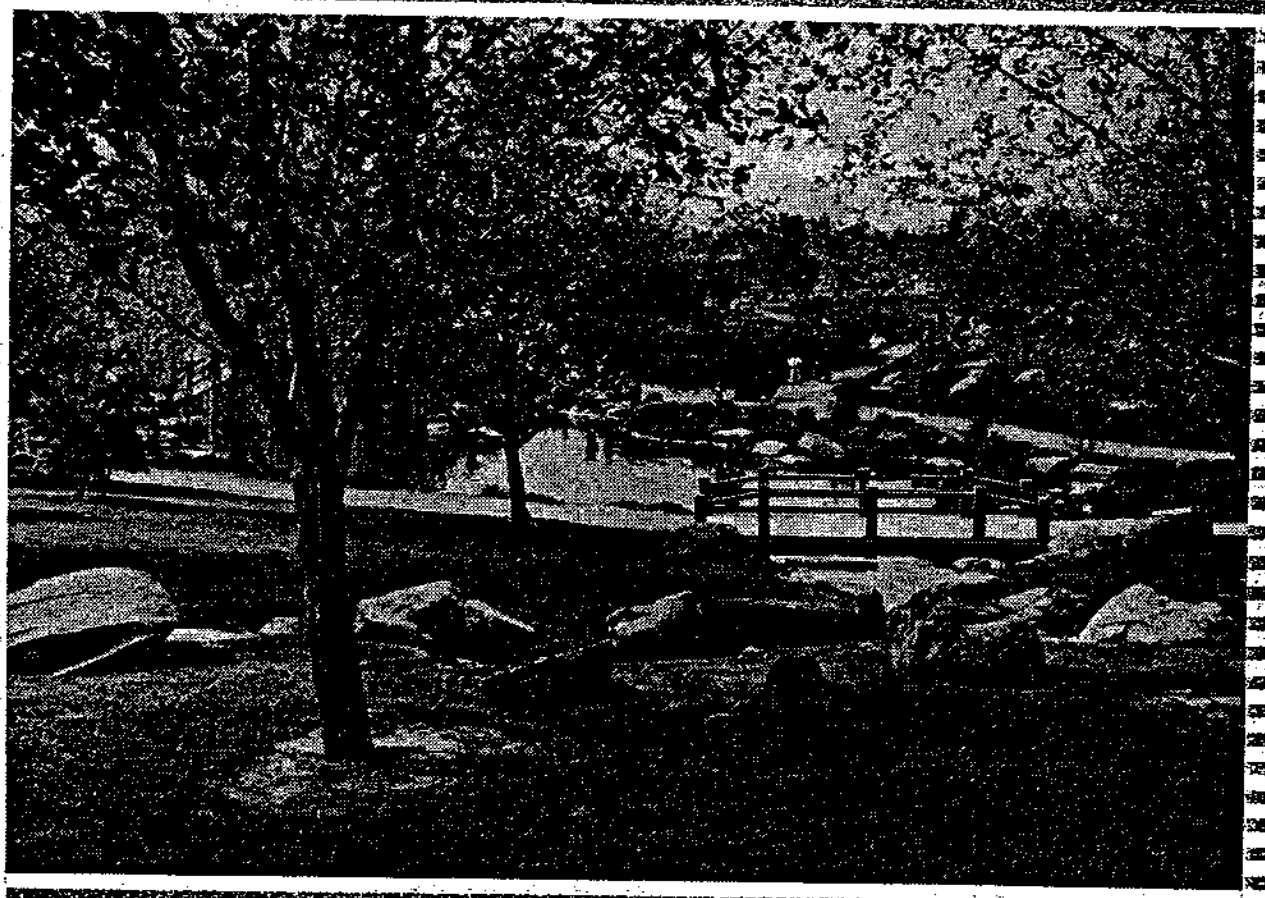
1. Establish performance standards to minimize any adverse impacts of industrial sites on adjoining land uses in the areas of the community where industrial land is integrated into non-industrial neighborhoods.

2. Plan industrial land in close proximity to residential areas for the least intense categories of industrial activity.

3. Where new residential development is proposed adjoining a developed industrial district, require that an architectural transition be provided by the subdivider-developer for the benefit of the future residents.

4. Use Council-initiated action to phase out existing scattered industrial uses within areas planned for incompatible uses.

NEW GROWTH AREAS



NEW GROWTH AREAS

Perhaps the most significant issue to be addressed in long-range planning for a metropolitan area such as Fresno is that of urban growth. Update of the General Plan was first initiated in 1981. At that time, the primary area for new growth opportunities - that is, beyond the remaining vacant areas of existing community plans - was shown to the west of Freeway 99. Considerable community discussion ensued. A series of meetings were held between the Councils of the Cities of Fresno and Clovis and Fresno County over a period of 18 months. Major topics of discussion included growth, annexation, appropriate roles in land use planning, provision of services, and the realities of existing intergovernmental arrangements. Out of these discussions and intensive staff and legislative negotiations came an Urban Boundary Line (Appendix 1) and a Joint Resolution on Metropolitan Planning (Appendix 1). That new boundary line resulted in the potential for additional growth areas to the north and southeast, as well as growth in a reduced area to the west.

As reviewed in detail in the Background section on Population, the General Plan is based on a projected population of 588,100. Given the existing 1983 metropolitan population, room must be found for housing, employment and service needs of approximately 200,000 additional people roughly by the year 2005. It is hoped that planning for this growth will result in a maintenance of environmental quality and greater efficiency in the provision of urban services.

Not all of the vacant areas within the Urban Boundary for Fresno are shown as appropriate for future urbanization, as was agreed to in Item No. 3 of the Joint Resolution which states, "The Cities of Fresno and Clovis have the responsibility for comprehensive planning within their planned urban boundaries; and, as part of their planning process, may choose to designate some areas within their Urban Boundary as appropriate for interim agriculture, rural density, or permanent open space."

To the southwest, considerable agricultural land was included within the negotiated Urban Boundary Line. As the adopted Edison Community Plan already shows more than 1,200 acres available for residential growth, and as growth pressures are slight, that new area was shown for continuing agricultural uses rather than for new urbanization. This does not foreclose future options, but does not encourage disinvestment in farming operations through prematurely declaring an area for future urbanization.

To the east, north of Belmont Avenue, a continuation of existing rural and agricultural uses is shown for approximately 3,900 acres.

This is a continuation of policy adopted in the McLane and Roosevelt Community Plans in recognition of long-term flood plain protection, watershed protection, air approach areas for F.A.T., the productivity of the soils, and the cost/effectiveness of urban services for the remaining lands. Developing knowledge of water quality problems in the area seems to reinforce the prudence of those policy decisions made in the late 1970's.

Three areas remain, offering substantial opportunities for absorption of population growth even beyond the most expansive projections of future possibilities. There is no need to fear that limitations on land supply will create artificial shortages and drive up costs. While that may be a real concern for some hemmed-in California communities, it has no base of reality in Fresno, unless one is an advocate of no plan limitations at all.

GROWTH AREA ANALYSIS

The remaining three potential areas for growth will be analyzed in an effort to give comparable information to aid in decision-making. The focus will be on the ability of each area to absorb future population, on service considerations, and on costs of growth. In this latter item, the costs considered are those which are considered *extraordinary*, or beyond the Urban Growth Management (UGM) fees which are a "given" in any new growth area and average approximately $10,000 per acre. UGM fees cover such regular costs of urban development as street extensions, water mains, street lights, sewer lines, water wells, park fees, and fire stations. The costs discussed here are those *additional to UGM fees* because of needs peculiar to each growth area under discussion.

It should be noted that the analysis has used assumptions as to population "holding capacities" - a conceptual tool planners use to determine the amount of population which *could* be housed in a given area using planned densities and assuming *every* parcel is developed to its maximum extent. Obviously, while this is a useful conceptual tool, it is also artificial, as ultimate build-out of an area never occurs. However, it functions in the determination of ultimate service needs and provides the data for a "worst case" environmental impact analysis.

The General Plan Update involves some rather complicated calculations regarding available sewer main capacities in existing sewer mains plus new mains to provide additional capacity for the projected implementation of the new General Plan. In an attempt to simplify these calculations, the "building block" approach has been used. This approach involves the sizing of sewer mains for areas immediately upstream of the treatment plant, then adding to this cost an incremental amount for each adjacent area upstream as it develops - in order to estimate a total cost for a complete build-out at the densities proposed in the General Plan Update.

It must be stated here that these costs are based on the full build-out at the proposed densities and that any increase in these proposed densities allowed by the Council will overload even the proposed sewer mains.

WEST GROWTH AREA

Approximately 8,050 acres are shown for new growth to the west and northwest of Freeway 99 (See Figure 30). This includes land currently included in the Bullard and Fresno High-Roeding Community Plans, as well as much of one of Fresno County's planned rural residential areas (Figure 31). Using planned densities adjusted for a significant amount of land already occupied by homesites, the holding capacity of the area is approximately 220,000 people.

As indicated, much of the area to the west, while planned from 1964 until 1976 for eventual urbanization at densities comparable to that of the rest of the metropolitan area, was allowed to develop in parcels of 1 to 5 acres. Soils are primarily classed as of Statewide Importance or Unique Farmlands (Classes III & IV). There are no "prime" soils in the area. Since 1976, when more explicit policies and standards were enacted by the County, densities of one unit per two acres have been the minimum allowed, using private water wells and individual septic systems. The County's rural residential policies were meant to administer a phenomenon of the "ranchette" or "hobby farm" which allows a life in the country, usually for those employed in a nearby city. More than 25,000 acres were so designated by the County, approximately 8,050 acres in the area to the west of Fresno. Cities traditionally oppose such land use policies for reasons related to environmental issues as well as those of economic inefficiencies.

This General Plan proposes a continuation and expansion of recent trends to infill the area at urban densities for the following reasons:

1. The area can already be considered as lost to long-term agricultural production.
2. The area is proximate to Freeway 99 and has easy access to the metropolitan area.
3. It is closest to the waste water treatment plant, resulting in considerably lower sewer service costs.
4. There is an absence of environmental problems such as flooding and airport noise; and water quality problems are minimal and can be managed without additional costs of any significance.

SERVICE CONSIDERATIONS AND COSTS

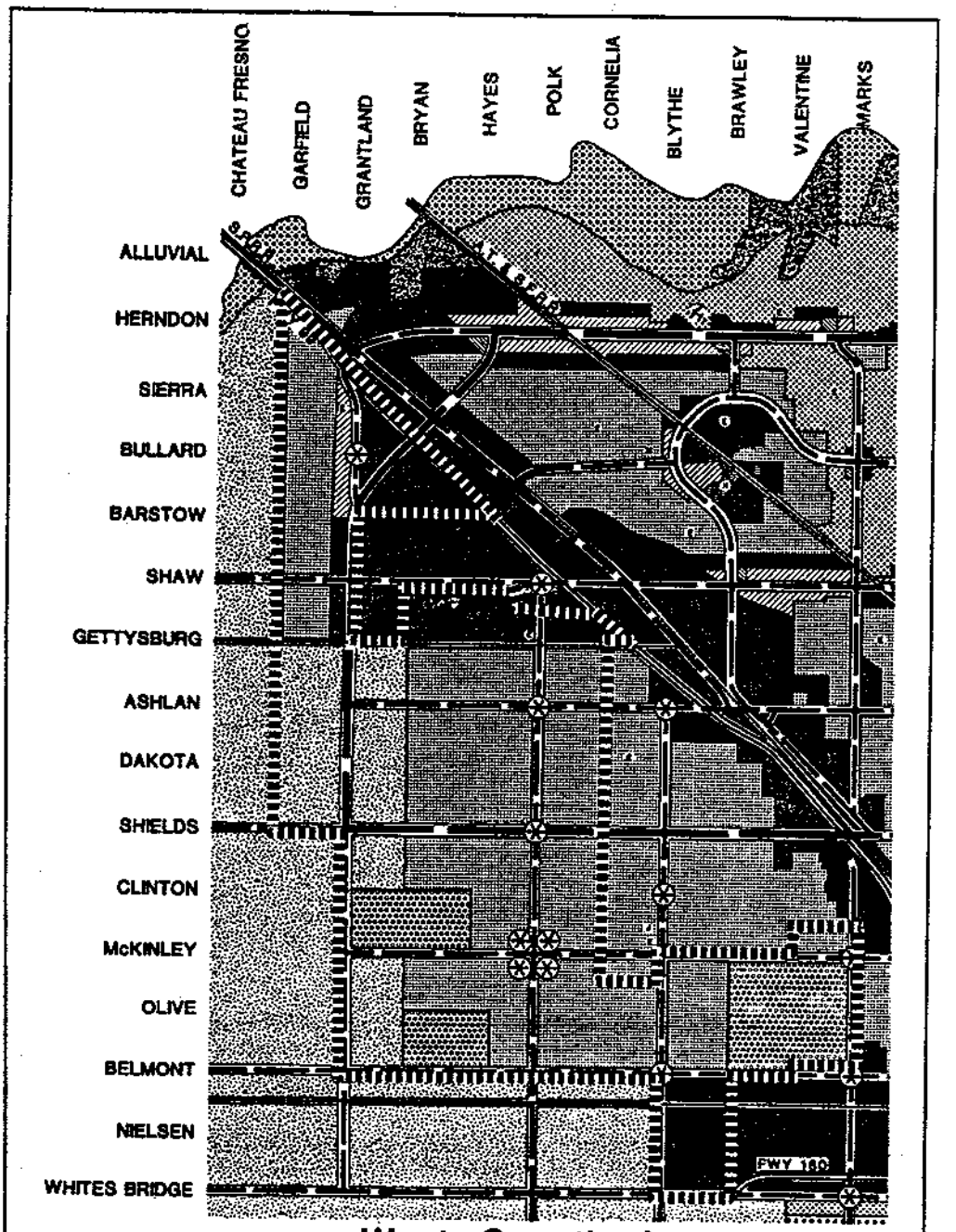
Service studies done by the Public Works Department for traffic circulation and sewer and water systems include the information which follows:

TRAFFIC

Development of the proposed growth area to the west will require improvements to nearly all existing crossings of Freeway 99, plus the construction of the Herndon/Grantland connector (with an interchange with the freeway) and a Shields Avenue overcrossing at the railroad and the freeway to accommodate east/west commuter traffic flows. At full buildout these improved existing crossings will still be overloaded.

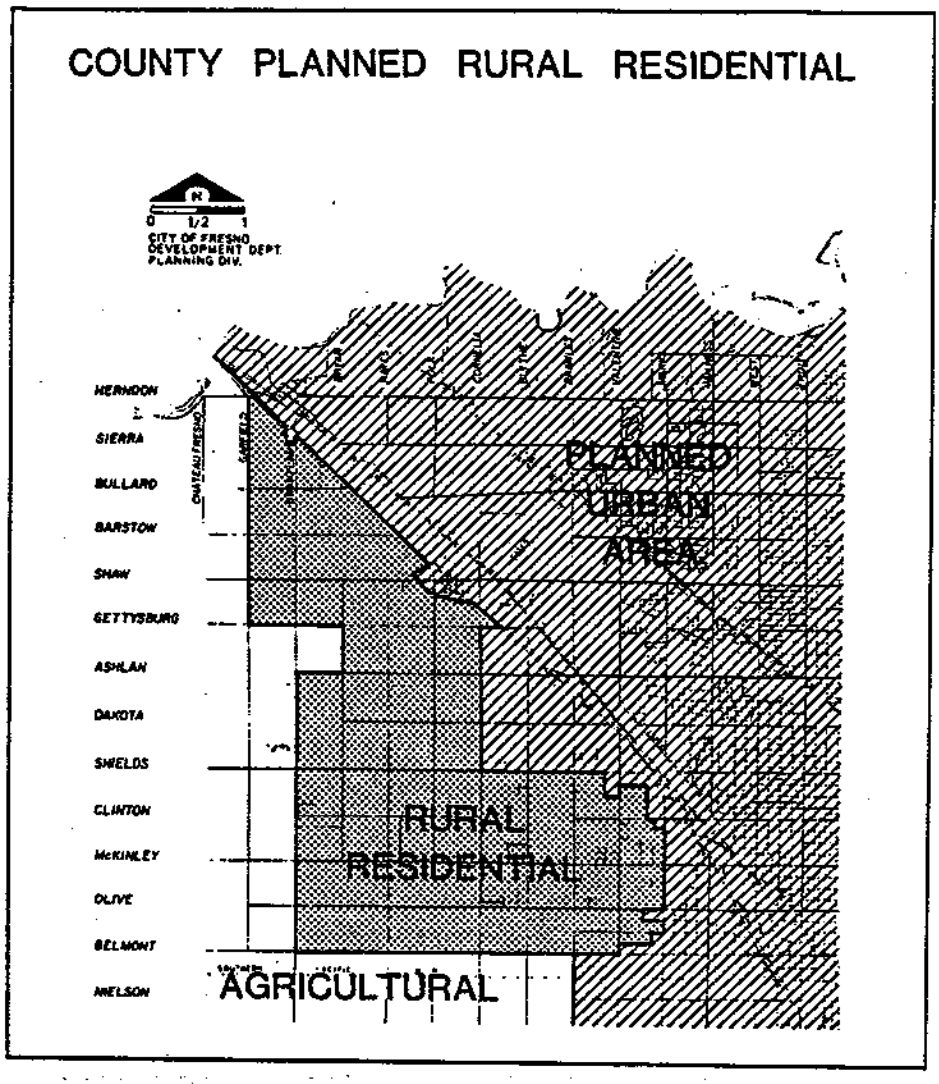
Existing Freeway 99 expanded to six lanes will become overloaded as commuter traffic flows southeasterly toward business centers in the downtown area.The infeasibility of further improvements to the existing

Figure 30



West Growth Area

Figure 31



crossings or the widening of Freeway 99 beyond six lanes to accommodate these projected overloads dictates the development of an alternate method of handling this east/west commuter traffic flow.

The suggested method to handle this flow is the development of the 180 Freeway corridor with connections to the major north/south streets. This method would alleviate traffic congestion on individual crossings of Freeway 99 as well as on the Freeway itself. With the major north/south streets tied directly to the 180 Freeway, commuters traveling to the central and southern business districts could travel southerly on the north/south major streets and easterly on the 180 corridor directly into the business districts.

Construction of the 180 Freeway improves traffic circulation in all areas west of 99 by providing a second major connection over Freeway 99 from the west, the other being the Grantland/Herndon connector.

The circulation problems in the area west of Freeway 99 could be minimized by:

1. substantially reducing the size and/or density of development; or

2. providing for an integrated mixture of land uses which would make this area much more self-contained, thereby reducing the percentage of vehicular trips required to leave the area.

As an example, if the property on both sides of Grantland were zoned for office, commercial and manufacturing uses, a large percentage of the trips generated by the residential development in this area would flow westerly in the morning and easterly in the evening and would not have to cross or travel on Freeway 99.

In addition, future community planning efforts for this area should concentrate not only on providing employment and shopping opportunities *within* the community, but should also create higher density corridors which will lend themselves to the efficient use of public transportation systems in future years.

Figure 32

TRAFFIC FACILITIES AND COSTS - WEST
(8050 Ac.)

Grantland	$6.96 M
Shaw	-0-
Ashlan Bridge Widening	.96 M
Shields Viaduct	6.90 M
Clinton Widening	2.62 M
McKinley Widening @ 99	.50 M
Olive (4 lanes, 2 turn)	.75 M
Belmont (4 lanes, 2 turn)	.75 M
180 Freeway (Freeway 99 to Marks/Expressway Marks to Grantland	34.00 M
	$53.4 M

Cost Per Acre = $6,600

SEWER

Development to the west lies primarily in the area to be served by a future sewer trunkline located in the Grantland Avenue alignment west of Freeway 99. A portion of the area is also included in the southerly and westerly portions of the Cornelia Avenue trunkline service area.

The existing Cornelia trunkline now carries the entire flow of the Herndon trunkline to the north. Even with relief of the existing Herndon trunkline and flows to the proposed Grantland trunkline, the existing Cornelia line is not capable of carrying the sewage flows generated in the Cornelia service area at full build-out of presently planned land uses. Therefore, all calculations assume that all present and future flows in the Herndon Avenue trunkline will be relieved to the Grantland line (See Figure 33).

EXTRAORDINARY COSTS

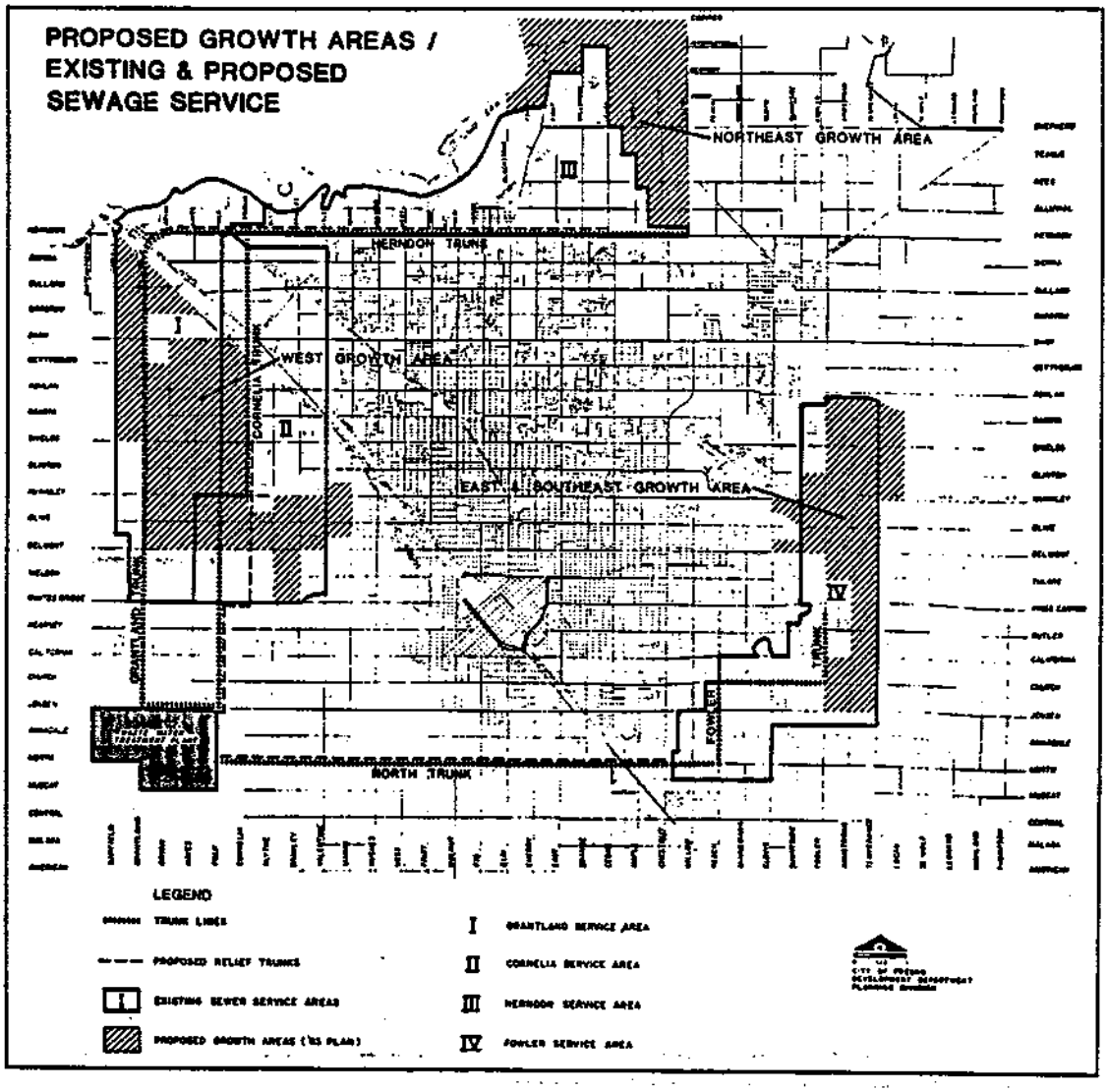
The estimated cost of serving the Grantland service area at the proposed increased densities is $8 million. Added to that estimate is the cost of $3 million to expand the Grantland Avenue trunkline and $3 million to the cost of the Cornelia Avenue trunkline to handle the flows coming from existing densities in the Herndon Avenue service area. Therefore, the cost for sewer service to the west with no changes in development patterns to the north or northeast is estimated at a total of $11 million. The extraordinary cost per acre for sewer facility development is $1,700 per acre.

WATER SERVICE

Supply

Water production and recharge west of Freeway 99 is expected to be very good. Standard City transmission grid mains should adequately supply the public demand in all but a few areas. Groundwater levels in the area are approximately 100 feet below the surface. Even with the expected good underground water transmissibility, the water table can be expected to drop due to pumping and the urban area water table depression can be expected to grow to the northwest and west.

Figure 33



Quality

The quality of the water west of Freeway 99 is expected to be very good with the exception of some isolated areas and the region encompassed by the salt plume caused by an ice plant and a water-softening plant formerly located at the S.P. rail yard. Water service can be provided through a system of integrated water mains with wells located outside of the immediately affected area.

Recharge

A net loss of underground water as a result of development need not have an irreversible impact and can be mitigated by recharge facilities properly planned by the City, the Fresno Irrigation District and the Fresno Metropolitan Flood Control District. The ability to recharge the underground water table in this area through flood control ponds and recharge basins, such as Leaky Acres, is expected to be excellent. Generally, most of the area can be expected to have hardpan layers in the upper ten feet. When the hardpan is removed as a part of the recharge facility development, it is expected that recharge can be done at a rate of several times that of the existing Leaky Acres. Therefore, less land overall will be needed for the recharge efforts. Ponding basins selected in advance of urban expansion would allow sufficient areas to be set aside for recharge. Recharge of water in this area would ensure that both agricutural uses to the west and domestic requirements to the east can be met. Removal of clay layers in the soils at selected sites within existing ditch

systems will also allow additional percolation.

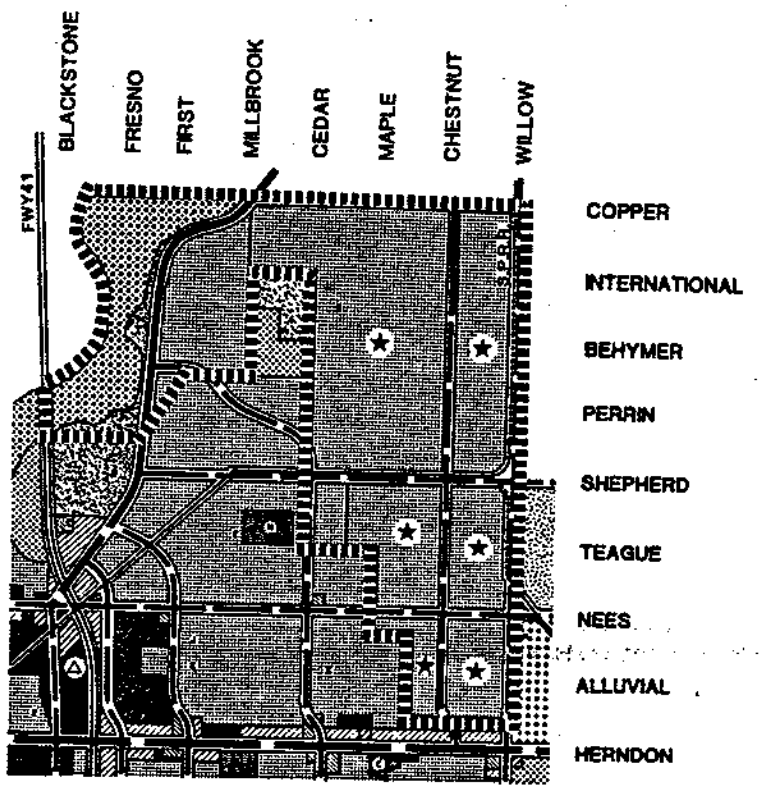
EXTRAORDINARY COSTS

No extraordinary costs for water service are expected in this area.

NORTH GROWTH AREA

Approximately 3,630 acres are shown as a potential new growth area to the north of the existing planned urban uses in the Woodward Park Community, bordered by the San Joaquin River on the west, Copper Avenue to the north, and Willow Avenue on the east (Figure 34). The 1984 General Plan shows the area as appropriate at some date in the future for medium density residential uses, with a holding capacity of approximately 109,000 population.

Figure 34



North Growth Area

The area is currently in agricultural uses with scattered rural homesites. Most of it remains in larger parcels, and soils are either Prime (Class I and II) or of Statewide Importance (Classes III & IV). Pressures for future urbanization have surfaced over the past few years, but have been limited due to the plentiful vacant land to the south, the state of the economy, and current limits on serviceability.

On the 1984 Fresno General Plan map this area is starred (*) as appropriate for urbanization *only* following

the completion of a financial feasibility study for the entire area done by a consortium of interested property owners, developers, and the building industry. This requirement is made due to a judgment that extraordinary costs for north/south traffic movement, sewer capacity, and low water yield problems go beyond the normal mechanisms devised to finance the costs of urbanization. More detail on those service problems and their anticipated costs follow.

It is noted that the way of presenting information differs from one service system to another. This is particularly evident in this section in the discussion on sewers, as service to the north of the Woodward Park Community depends on capacity increases through new facility development along Herndon Avenue in the Bullard Community and along the Grantland Avenue and Cornelia Avenue trunklines.

TRAFFIC

There are a number of traffic deficiencies in the northeast study area. The prime problems show up at the intersections of major streets with Herndon Avenue. The study supports the development of Herndon Avenue as a six-lane facility, and the inclusion of at least six lanes on Freeway 41 to a point north of Herndon Avenue. A sixlane freeway would result in a shift to the freeway of some of the traffic assigned to Blackstone, Fresno Street and First Street. The overload shown for Cedar Avenue and Willow Avenue will cause Chestnut Avenue to function as an arterial south of Herndon Avenue (Chestnut, south of Herndon, is currently classified as a collector). The lack of east-west Herndon Avenue capacity causes Shepherd and Nees to overload. It appears that Nees Avenue should be widened to six lanes to mitigate this problem.

An alternate, and superior solution to the above suggestion of upgrading Chestnut Avenue to an arterial between Herndon and Shaw would be to develop the 168 Freeway corridor. The growth area studies north of Herndon show about 5,000 additional trips anticipated to be diverted to Freeway 168 south of Shaw Avenue, producing an estimated volume of 36,000. This increases the need for Freeway 168 through the northeast part of the FCMA. If this corridor were developed from Tollhouse Road to the 180 corridor, it would significantly reduce the traffic volumes on and crossing Herndon Avenue within both cities. It would also significantly improve metropolitan surface street flow (both north-south and east-west) in the areas east of First Street and north of Belmont.

Figure 35

TRAFFIC FACILITIES AND COSTS - NORTH
(3,630 Ac.)

(Best & Worst Cases)	
168 Freeway to Herndon	$95.5 M
6 Lanes Herndon to Shepherd	$65.0 M
2 Lanes Added on Friant (Audubon to Copper)	5.5 M
Freeway 41, Bullard to River	1.1 M
	24.0 M
	$95.5 M

Cost Per Acre = $26,400

SEWER

Increased Densities North of Herndon Avenue in Bullard and Woodward Park

In order to offer service to the area north and east of the existing planned urban area in the Woodward Park community, trunkline capacity along the Herndon Avenue line and the Grantland line will have to be expanded. The 1984 General Plan also shows increased densities in approximately 4,630 acres of vacant land north of Herndon Avenue in the Bullard and Woodward Park Community Plan areas which will require expanded service capacity in the Herndon and Grantland lines. This additional capacity cost is estimated at $4 million for the new main and $5 million for the incremental cost in the Grantland trunkline. Therefore, the cost to provide sanitary sewer service from the north area through the Grantland service area under full build-out of the proposed densities is estimated at $20 million.

This development cost per acre is estimated to be $1,300.

Northern Growth Area (Woodward Park)

If full build-out in the northeast area bounded by Cedar, Willow, Herndon and Copper were allowed to occur to the proposed densities, additional capacity will be required in the Herndon and the Grantland trunklines. This additional capacity is estimated to cost $8 million. This is in addition to the $9 million required in the north and the $11 million required in the west. Therefore, the cost to provide sanitary sewer service at full build-out for the proposed densities in the northeast, the north and the west, is estimated at $28 million. The development cost of the new area to the northeast of the Woodward Park Community is estimated to be $2,200 per acre.

WATER SUPPLY

The area planned for inclusion consists of some 3,630 acres of medium density development. Available test results indicate it is an area of low water yield and poor water recharge capability. Therefore, the development of groundwater to serve this area would result in the lowering of water levels beneath the area and a change in the direction of groundwater movement.

Historically, groundwater moved from this area to the northwest and discharged into the San Joaquin River. In 1980, the direction of groundwater flow was found to be southwest toward the northwest part of the urban area. Groundwater beneath the area moves into what is known as the urban depression cone, where water levels have been lowered due to pumping of numerous community wells.

Depth to water ranges from about 100 to 110 feet. Water levels in this area are among the deepest in the Fresno-Clovis urban area. However, this depth to water is common near the San Joaquin River north of Fresno. The alluvial terrace comprising the plan area is about 75 feet above the floodplain. Water levels in wells along the floodplain are apparently slightly below the channel of the San Joaquin River near Woodward Park. Thus, seepage of streamflow in the San Joaquin River may recharge groundwater in this area. However, recharge to groundwater now comes primarily from the east. The three primary sources of recharge are: (1) excess canal water applied to irrigated lands; (2) canal seepage; and (3) percolation of streamflow from Dry Creek.

WATER QUALITY

Maps prepared by the County of Fresno indicate that the electrical conductivity of well water near Park Fort Washington was less than 250 micro-ohms per centimeter at 25 C in 1978. Nitrate contents in this area were consistently less than 15 mg/l in 1978. Total hardness contents as calcium carbonate were usually less than 100 mg/l in this area in 1978. This groundwater is, thus, of superior quality compared to much of the rest of the Fresno area.

GROUNDWATER RECHARGE

The Fresno Urban Area - Northeast Water Quality Management Study (1979), indicates that if full urban development of the area generally north of Herndon Avenue were to occur, an estimated 12,000 acre feet per year of surface water would need to be used directly or recharged in order to maintain a hydrological balance in the area. A source of surface water for the recharge is Fresno's San Joaquin River water entitlement available through the Enterprise Canal flowing through the area.

EXTRAORDINARY COSTS

Due to the expected low water yield problems associated with development to the northeast, some extraordinary costs of development have been estimated. These are presented as a best case-worst case solution.

The best case solution would be the development of community wells with an intentional recharge requirement equal to 75% of the water demand. The extraordinary cost for this solution is equal to $3,300 per acre above the normal development cost in the west or northwest areas in 1983 dollars.

The worst case solution would be the addition of a surface treatment plant. Wells and recharge facilities would still be needed to supply the public water demand when the plant is down for maintenance or repair or the surface supply to the plant is not available.

The extraordinary costs associated with this worst case are estimated at $6,700 per acre above the normal development cost in the west or northwest. These figures are 1983 dollars. These costs are strictly construction costs and do not consider the operations and maintenance differences.

SOUTHEAST GROWTH AREA

To the southeast of the metropolitan area in the Roosevelt Community, approximately 1,180 acres is shown as a potential growth area. As exhibited on Figure 36, this area lies south of the Tulare Avenue alignment and east of Fowler Avenue. The holding capacity of the area is calculated at an ultimate population of 30,654.

On the Preliminary General Plan map, this growth area plus some land shown as planned urban in the Roosevelt Community Plan, but as yet undeveloped, is shown with a white star (*) to indicate a requirement for resolution of water quality issues prior to the issuance of any development entitlements. The Public Works Department is conducting studies regarding the presence and impacts of DBCP, nitrates and other contaminants in the water to the east of Clovis Avenue (See Figures 37 and 38). Further information is available in the discussion of water service which will follow, and in the Water Resource section.

Most of the area under discussion is under agricultural production and approximately 60% of the land area is in Prime Soils, (Class I & II) but there is also substantial land rated as of Statewide significance and Unique Farmlands (Class III & IV). Particular soils in the area, while productive for vineyards and fruit trees, have also historically had problems with nematode infestation. This resulted in the use of a nematacide, DBCP (dibromochloropropane) in the period of 1955 through 1977, when its use was halted by order of the State of California due to indications that it is carcinogenic. There are now extensive areas to the east and southeast where tests by the State Depatment of Health and Fresno County Environmental Health show readings which exceed the 1 PPB (part per billion) allowable level set by the Environmental Protection Agency and the State of California. The same sandy soil types which may prove more susceptible to nematodes also are more likely to leach the excess nitrates from farming operations, and some of the area wells also have nitrate levels in excess of maximum standards.

TRAFFIC

The street pattern shown for the Southeast Study Area appears to be adequate to provide the desired traffic service, if the 180 Freeway corridor is developed with a roadway capacity of at least 25,000 ADT. In any case, an overload is projected on Clovis Avenue. This can be mitigated somewhat by striping three lanes within the existing paved section of Clovis Avenue.

The extension of capacity in the Freeway 180 corridor is critical to the Southeast Area Circulation because the normal one-half mile major street grid pattern which has served the City well in handling traffic in other parts of the community does not exist in the southeast portion of the community. Therefore, other means are needed to deal with the projected traffic demand.

The streets in the southeast area were planned assuming Freeway 180 would be installed, and service would be critically deficient if such a facility is not installed in the 180 right-of-way. Examples of the discontinuous grid situation can be seen by examining the area's proposed major street system. Normally, three major streets would exist between Chestnut and Clovis Avenues: Willow, Peach and Minnewawa. Only Peach Avenue will exist once the circulation system is fully built. This means that Chestnut, Peach, and Clovis Avenue will carry heavier than normal traffic loads. However, as there is a somewhat smaller new area to be developed and it is located to the east of Clovis Avenue, the anticipated traffic demand may be reasonably served by the north/south system. Conversely, however, the east/west major streets will not be able to adequately handle the projected demand should a facility in the 180 corridor not be developed. This results from the fact that the three major halfmile streets between Kings Canyon and Jensen (Butler, California and Church) will either not exist or be unable to carry sufficient traffic between Chestnut and Clovis Avenue.

Butler Avenue will exist as a collector street between Chestnut and Peach but will be only a two-lane scenic route between Peach and Clovis Avenue. A traffic diverter exists at Peach and Butler that will not allow a through easterly movement on Butler. The street design east of Peach and the diverter were intended to lessen traffic impacts on the established Sunnyside Area between Peach and Clovis Avenue.

Normally, California Avenue would be the one-mile arterial street. California Avenue, however, will not exist east of Cedar Avenue; therefore, traffic normally in this corridor will be distributed to other east/west routes. Church Avenue will be a collector between Cedar and Peach but will not exist east of Peach Avenue.

The traffic service area for the east/west major streets in the southeast area is significantly different in character from those of the north/south streets. The east/west movement serves through traffic from the industrial area and central business district to Clovis Avenue and points to the south and east, including

Figure 36

Southeast Growth Area

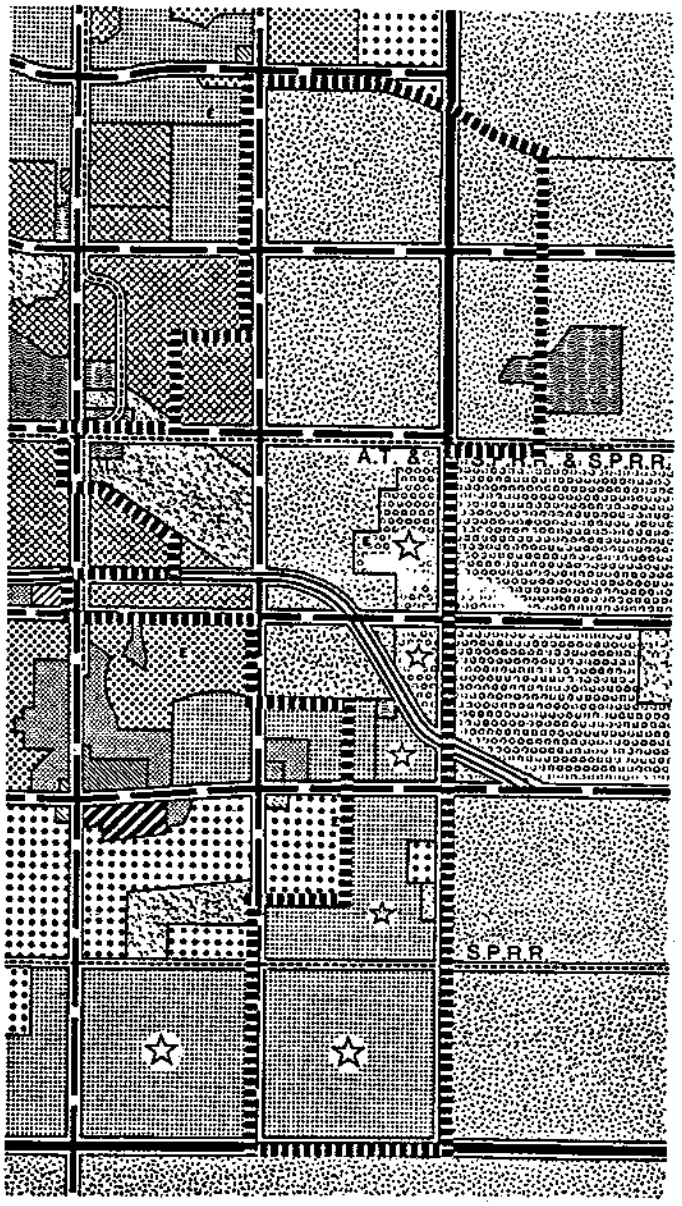
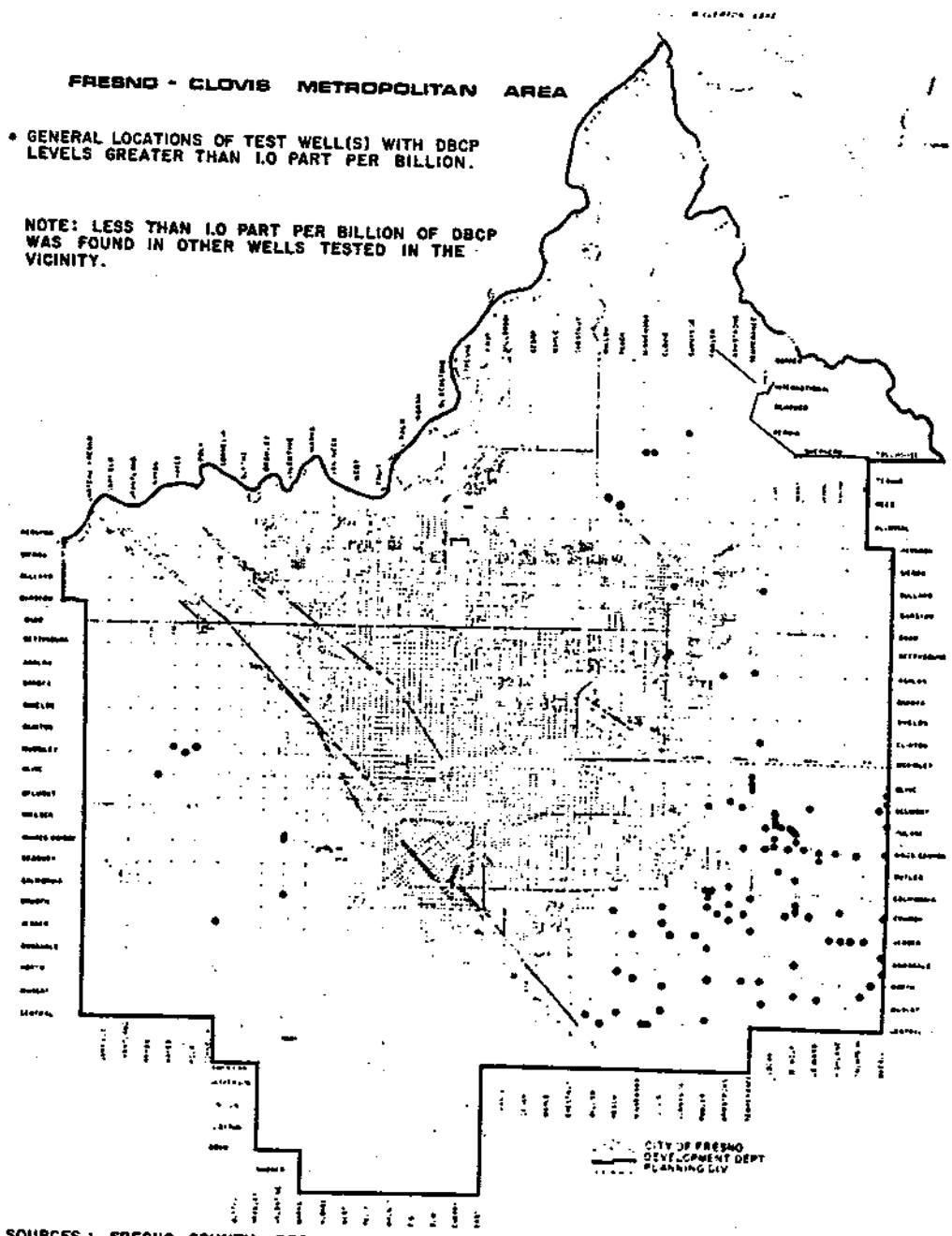


Figure 37

DBCP CONTENT IN WELL WATER



SOURCES: FRESNO COUNTY, DEPARTMENT OF HEALTH & STATE OF CALIFORNIA, HEALTH SERVICES DEPARTMENT.

Figure 38

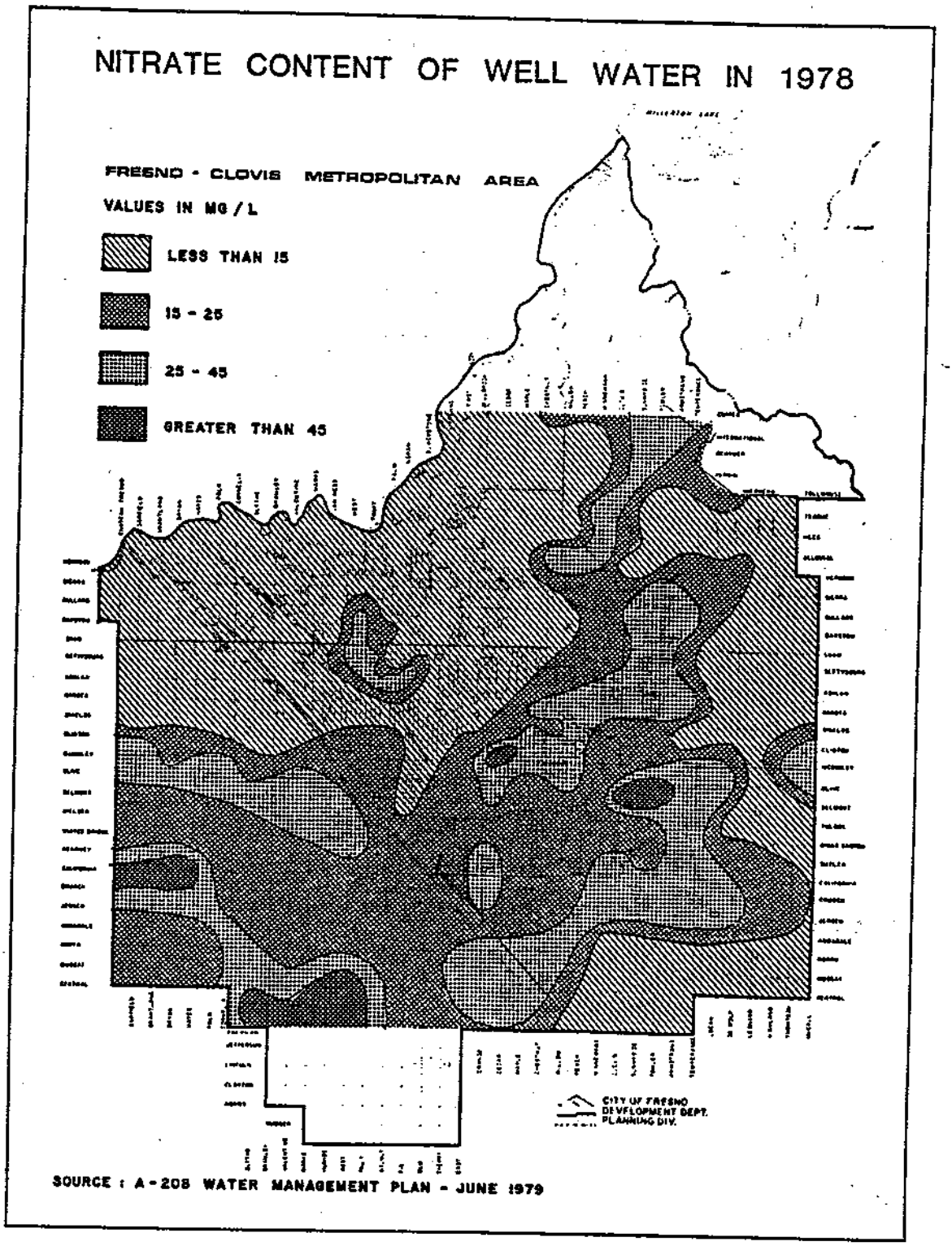

NITRATE CONTENT OF WELL WATER IN 1978
FRESNO - CLOVIS METROPOLITAN AREA
VALUES IN MG / L
LESS THAN 15
15 - 25
25 - 45
GREATER THAN 45
CITY OF FRESNO
DEVELOPMENT DEPT.
PLANNING DIV.
SOURCE : A-208 WATER MANAGEMENT PLAN - JUNE 1979

Figure 39

TRAFFIC FACILITIES AND COSTS - SOUTHEAST (1180 Ac.)	
(Best Case)	
6 Lane Super Arterial (Chestnut to Temperance)	$11.1 M
Cost Per Acre = $9,400	
(Worst Case)	
Freeway 180 (Route 41 to Kings Canyon)	$50 M
Cost Per Acre = $42,400	

Freeway 99. Conversely, commuter and truck traffic is trying to move to the central business district from the east. There is an existing large rural-residential area and a planned urban residential area between Tulare and Jensen, east of Clovis Avenue. This area would normally generate substantial traffic to east/west streets on a normal halfmile grid, however, the normal grid system is discontinuous. Therefore, if a traffic facility is not built in the 180 corridor, the results will be a tremendous traffic overload on streets such as Tulare, Kings Canyon, and Butler. If a 180 facility is built, the planned major streets will be able to function properly.

SEWER

Development in this area would be served by the proposed Fowler trunk line connecting to the existing North Avenue trunk line. Additional relief for the North Avenue trunk will be necessary, as the existing line will be unable to handle expected flows generated from its existing service area at full build-out of the anticipated densities. The cost to provide relief to the existing North Avenue sewer trunk line for development to the south of North Avenue is estimated at $4 million.

The cost to oversize the North Avenue trunk line to accommodate the existing areas expected to develop to the east and southeast is estimated at $1 million, the cost to build the Fowler line to connecting Chestnut to serve the existing planned development at anticipated densities is estimated at $5 million.

The cost to upgrade the proposed North Avenue and Fowler trunks and extend the Fowler line north to serve the area proposed for growth in the new General Plan at the anticipated densities is estimated at $5 million. Therefore, the cost of providing sanitary sewer service to the east and southeast areas at full build-out of proposed densities in the combined areas is estimated at $15 million. The cost of developing the previously planned areas to anticipated densities in the southeast is estimated to be $1,500 per acre. The cost of developing the new growth areas to anticipated densities is estimated at $4,200 per acre. The cost of developing the industrial service area south of the North Avenue trunk is estimated to be $450 per acre.

WATER

As discussed previously, the historic agricultural use of this area, combined with particular geologic and hydrologic conditions, results in unique water service problems. Information available from wells previously drilled in the area indicate poor well yields and the possibility of water quality problems generally east of Clovis Avenue. Water from the area flows westerly underground into the pumping cone of depression under Fresno.

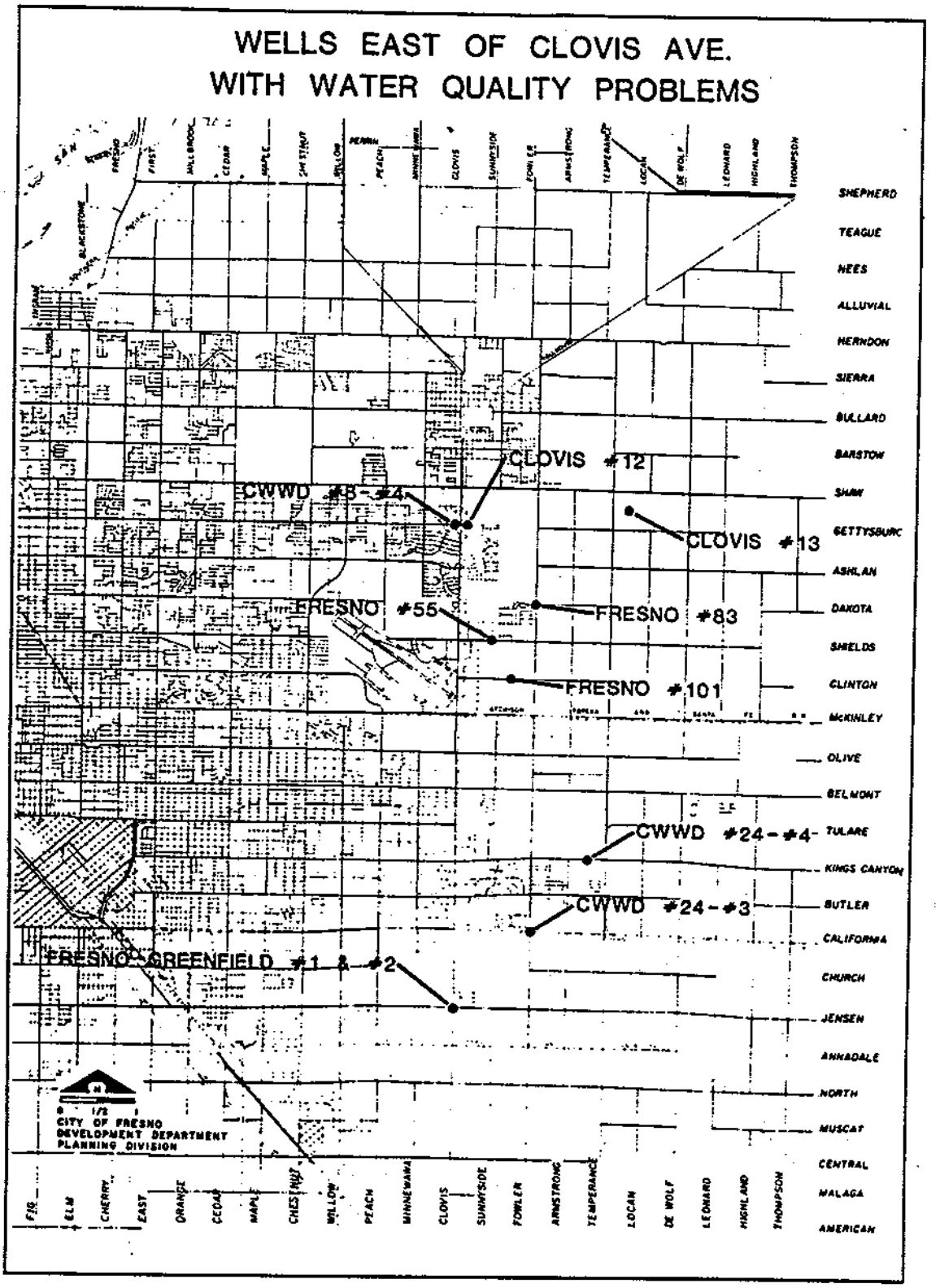
WATER QUALITY

Water quality in the area can be expected to be good in areas near the Kings River. Areas away from the river's influence may contain high nitrate concentrations and be contaminated by DBCP.

The following map and table (Figures 40 & 41) provided by the Water Division shows specific municipal or community water wells to the east which have demonstrated water quality problems. The approximate location of those wells is shown on the accompanying map of the eastern fringe of the metropolitan area.

Well test data shows that private wells in the agricultural area are even more susceptible to water quality problems, particularly DBCP and nitrate contamination, as private wells are more shallow and draw water from soil layers where those contaminants are more prevalent. It appears that DBCP is currently found no farther than 150 feet deep. The depth to groundwater in the area is approximately 100 feet. Community wells

Figure 40


WELLS EAST OF CLOVIS AVE.
WITH WATER QUALITY PROBLEMS
CLOVIS #12
CWWD #3 - #4
CLOVIS #13
FRESNO #55
FRESNO #83
FRESNO #101
CWWD #24 - #4
CWWD #24 - #3
FRESNO GREENFIELD #1 & #2
SHEPHERD
TEAGUE
HEES
ALLUVIAL
HERNDON
SIERRA
BULLARD
BARSTOW
SHAW
GETTYSBURG
ASHLAN
DAKOTA
SHIELDS
CLINTON
McKINLEY
OLIVE
BELMONT
TULARE
KINGS CANYON
BUTLER
CALIFORNIA
CHURCH
JENSEN
ANNADALE
NORTH
MUSCAT
CENTRAL
MALAGA
AMERICAN
FIG
ELM
CHERRY
EAST
ORANGE
CEDAR
MAPLE
CHESTNUT
WILLOW
PEACH
MINNEWAWA
CLOVIS
SUNNYSIDE
FOWLER
ARMSTRONG
TEMPERANCE
LOCAN
DE WOLF
LEONARD
HIGHLAND
THOMPSON
CITY OF FRESNO
DEVELOPMENT DEPARTMENT
PLANNING DIVISION

WATER WELLS EAST OF CLOVIS AVENUE WITH WATER QUALITY PROBLEMS

WELL/P.S.	PURVEYOR	LOCATION	CONTAMINANT	PREVIOUS HIGH	LAST SAMPLE
# 12	City of Clovis	Gettysburg, 600' E/O Clovis	DBCP	7.3	1.1 *
# 13	City of Clovis	3/4 mi. E/O Armstrong, ¼ mi. N/O Gettysburg	DBCP* (Also high levels of manganese, sulfite and iron bacteria)	1.4	.36*
# 83	City of Fresno	Fowler and Dakota	Manganese (PPM)	0.16	.15***
# 55	City of Fresno	Shields and Duke	DBCP	4.9	2.51*
#101	City of Fresno	Clinton and Fowler	Iron Bacteria		* **
Greenfield #1	City of Fresno	Clovis and Jensen	DBCP	1.16	.58* **
Greenfield #2	City of Fresno	Clovis and Jensen	DBCP	4.4	8.2 * **
#3	C.W.W.D. #24	Fowler and California	DBCP	22.0	0.41*
#4	C.W.W.D. #24	Kings Canyon, 1000' W/O Temperance	DBCP	2.2	.26*
#4	C.W.W.D. #8	Clovis and Gettysburg	DBCP	14.0	3.1*

* Well shut down
** Utility working on solution to problem
*** Site abandoned

NOTE: All DBCP results are in parts per billion (PPb)

Figure 41

DEVELOPMENT CONSISTENCY

constructed in the area generally penetrate DBCP restraining clay lenses and pump domestic water from deeper aquifers than private wells which average depths of 75-100 feet. Well construction techniques include a sanitary seal into a restraining clay lens between 200 and 300 feet deep. Mitigating measures include the addition of activated carbon filters to wells if there is DBCP or nitrate contamination.

GROUNDWATER RECHARGE

The 1979 208 Water Management Plan indicates that water recharge would be required in the east if development of either urban or rural residential uses is allowed to proceed.

Without this recharge to replace the incidental recharge previously applied through irrigation of crops in the area, the underground water levels will decline substantially. This decline would greatly reduce the groundwater moving through the area into the existing pumping depression beneath Fresno.

Groundwater recharge ability in the area is only expected to be moderate due to underlying clay lenses.

EXTRAORDINARY COST

Extraordinary costs associated with the development of this area have been estimated and are presented here as a best case-worst case solution.

The best case solution would be the development of community water wells to serve the area with a 75% recharge of demand requirement. Due to low production it is estimated that one-third more wells would have to be constructed in the area. In addition, each of these wells would be required to have a sanitary seal at an additional cost of 25% of the well cost. Therefore, the best case solution extraordinary cost is estimated at $2,500 per acre above the cost of development in the west or northwest.

The worst case solution involves the addition of activated carbon filters to each well.

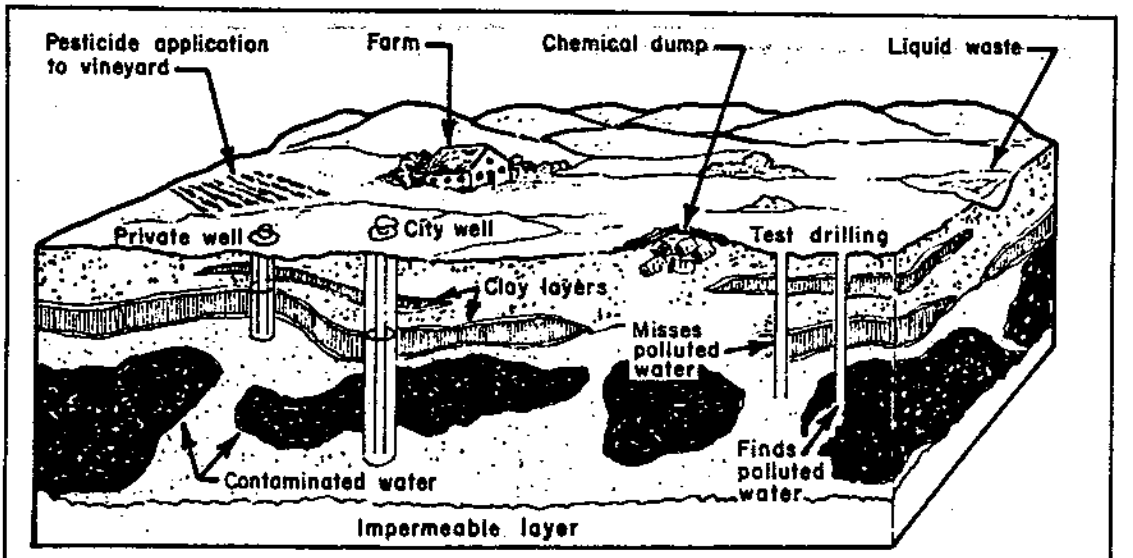
The estimated extraordinary cost for this solution is $3,000 per acre above the cost of development in the west or northwest. These figures are in 1983 dollars.

If a surface water treatment plant were to be required, the extraordinary cost including the well system with filters is estimated at $7,900 per acre in 1983 dollars.

SUMMARY

The following table (Figure 43) summarizes the total costs and per acre costs of urban services in growth areas which go beyond those costs which are considered standard in the Fresno metropolitan area (i.e., streets, parks, water mains, street lights, school fees).

Figure 42



Geologic Cross – section of Groundwater Contamination

ESTIMATED EXTRAORDINARY DEVELOPMENT COSTS

PROPOSED GROWTH AREA	SANITARY SEWER		WATER PRODUCTION		TRAFFIC CIRCULATION			TOTALS		
	TOTAL	PER ACRE	TOTAL	PER ACRE	BEST CASE	WORST CASE	MOST LIKELY	BEST	WORST	MOST LIKELY
NORTHEAST (3,630 Acres)	8. M	$2,200	24.3 M	$6,700	FWY 41 & 168-CT Herndon & Nees 6 Lanes-Local Friant 2 Lanes-Local (6.6 M) 6.6 M 1818	FWY 41 & 168-Local (89 M) Herndon & Nees 6 Lanes-Local Friant 2 Lanes-Local (6.6 M) 95.6 26,336	FWY 41-CT FWY 168-Local (65 M) Herndon & Nees 6 Lanes-Local Friant 2 Lanes-Local (6.6 M) 71.6M 19,724	38.9 M $10,716/Acre	127.9 M $35,234/Acre	103.9 M $28,624/Acre
	2 trunklines north & incremental cost to plant*									
SOUTHEAST (1,180 Acres)	5. M	$4,200	3.5 M	$3,000	FWY 180 CT 41 to Kings Canyon (50 M) Clovis Ave. 6 Lanes Local (.5 M) .5 M 423	FWY 180-Local 41 to Kings Canyon (50 M) Clovis Ave. 6 Lanes Local (.5 M) 50.5 M 42,729	6 Lane Superarterial in 180 Corridor Local Clovis Ave. 6 Lanes Local (11.1 M) 11.1 M 9,407	9 M $7,627/Acre	59 M $50,000/Acre	19.6 M $16,610/Acre
	New Fowler Ave. trunk & incremental increase in North Ave. trunk**									
WEST (8,050 Acres)	14. M	$1,700	-0-	-0-	FWY 180 CT (34 M) Misc. Streets & Overcrossings Local (19 M) 19 M 2,360	FWY 180-Local (34 M) Misc. Streets & Overcrossings Local (19 M) 53 M 6,584	Superarterial in 180 Corridor Local (17 M) Misc. Streets & Overcrossings Local (19 M) 36 M 4,472	33 M $4,060/Acre	67 M $8,284/Acre	50 M $6,172/Acre
	New Grantland Ave. Trunk & relief for Herndon & Cornelia Trunks									

Notes: All costs in 1984 dollars. M = Million
CT - CAL TRANS
Local - in most cases local costs will be paid through normal development fees.
*Does not include 6 M for a parallel trunk in Herndon Ave. to relieve existing main overloaded by anticipated densities in previously planned development north of Herndon.
**Does not include 10 M for a parallel trunkline in North Ave. to relieve the existing main overloaded by anticipated densities in previously planned development areas.

Figure 43

DEVELOPMENT CONSISTENCY

The City of Fresno, through its General, Community, and Specific planning processes, establishes land use policy for the physical growth of the community. A principal purpose of the plans is to guide future physical development so that it will:

- Be compatible with existing and planned adjacent development,
- Be adequately and efficiently served by urban services,
- Meet community goals and objectives contained in the plans.

Recommendations of the plans are implemented through the land development entitlement process by determining the consistency of development projects with plans.

The State Subdivision Map Act requires that subdivisions (including parcel maps) be consistent with adopted plans. The City Zoning Ordinance requires that a plan conformance determination be made for each rezoning application. The City Charter further requires that rezonings be consistent with a City specific plan adopted by Ordinance. The Zoning Ordinance also provides that conditions may be applied to special permits (site plan review, conditional use permit, variance) to assure they are consistent with City plans and policies.

Determining the consistency of these development entitlements with adopted plans is not always a simple process. While the intent of the plan must be maintained, there exists a need for reasonable flexibility.

This section contains the guidelines to determine plan consistency. It (1) defines plan land use categories, (2) identifies residential densities and zone districts that are consistent with land use categories, (3) indicates the extent of flexibility that can be exercised to determine plan conformance, and (4) indicates what should occur when development projects are inconsistent with plans.

PLAN LAND USE DESIGNATIONS

RESIDENTIAL

Following are the definitions of the planned residential land use categories. These definitions contain an average density (units per acre) for each category which reflects actual local development patterns but is not intended for use as a standard. The acreage upon which the density is based includes on-site development and public improvements with the exception of major streets.

Rural Density

The Rural Density plan designation provides for a non-urban residential living environment. Such areas are characterized by large residential parcels in the range of one to five acres. Typically, incidental or family-operated agricultural operations exist. The keeping of horses and bovine animals frequently occurs. The average density of this plan land use designation is one dwelling unit per two acres.

Low Density Residential

The Low Density Residential plan designation provides for the lowest density of urban residential land use and is typified by large single-family residential lots one-half acre in size. The average density for this plan land use designation is 1.75 dwelling units per acre.

Medium-Low Density Residential

The Medium-Low Density Residential land use designation provides for an urban land use pattern characterized by single-family residential development with lot sizes substantially greater than those within the Medium Density Residential designation. The typical development pattern found in such areas is the standard subdivision development with lot sizes generally 9,000-12,500 square feet, although in some cases relatively low density planned unit developments can be found. The average density for this plan land use designation in existing development is 3.3 dwelling units per acre.

Medium Density Residential

The Medium Density Residential land use designation provides for a land use pattern of predominantly single-family residential development as permitted in the R-1 (6,000 square foot minimum lot size) District. Planned developments as permitted in the R-1 and R-1-C districts (R-1-PUD, R-1-C PUD) are also typical of this plan designation. The average density for this plan designation in existing development is 6.5 dwelling units per acre.

Medium-High Density Residential

The Medium-High Density Residential land use designation provides for a land use pattern characterized predominantly by multiple family residential development as permitted in the R-2-A, R-2, and T-P zone districts.

The typical residential pattern ranges from the duplex to the large scale apartment, condominium, or planned development. The average density for this plan designation in existing multiple family development is 17 dwelling units per acre.

Areas designated for medium-high density residential uses are often found near or adjacent to single family residential areas. In such cases, it is important to assure that multiple family residential uses are developed in a manner that limits adverse effects on the single family areas.

High Density Residential

The High Density Residential land use designation provides for the highest residential densities permitted in the City. Typically, such areas are characterized by high concentrations of multiple family dwelling units, two stories or more in height, as permitted in the R-3 and R-4 zone districts. Historically, such densities have been considered appropriate only in the Central Area and in areas of student housing near the University. In some cases, relatively high density single story development occurs in the R-3-A zone district. The average density for this land use in existing developed areas is 30 dwelling units per acre.

COMMERCIAL

Neighborhood Commercial

The Neighborhood Commercial land use designation provides for a cluster of commercial establishments serving the everyday convenience goods and personal service needs of a defined neighborhood. Such uses are normally permitted in the C-1 and C-L zone district. The most appropriate size for a neighborhood commercial facility is in the range of 5 to 10 acres, and relates to functional relationships between standard uses (i.e., supermarkets, drug stores, etc.) and parking standards.

Community Commercial

The Community Commercial land use designation provides for a cluster of commercial establishments serving needs similar to the neighborhood commercial centers, but also offering general merchandise, variety, and specialty items. Such uses are normally permitted in the C-2 zone district. The most appropriate size for community commercial centers is from 10 to 20 acres although in unusual circumstances up to 30 acres may be appropriate.

Regional Shopping Center

The Regional Shopping Center land use designation provides for major anchor tenants and a large cluster of commercial establishments serving the general merchandise, furniture, hardware, and specialty goods needs of a regional service area, as permitted in the C-3 and C-4 zone districts. A Regional Shopping Center is intended to be located on a site from 40 to 100 acres or more and at the intersection of freeways, expressways, and arterials or any combination thereof.

General, Heavy, Strip Commercial

The intent of the General, Heavy, Strip Commercial land use designation is to recognize existing conditions of generalized commercial uses along major traffic corridors, as permitted in the C-5 and C-6 zone districts. Particular commercial uses which are oriented to large volumes of vehicular traffic are accommodated within commercial strips. However, it is a specific General Plan policy to discourage new strip commercial areas, except where such development is in accordance with an adopted specific plan.

Additionally, the C-4 district is consistent with this designation in areas governed by redevelopment plans.

Office Commercial

The Office Commercial land use designation provides for office developments that furnish business, finance, insurance, real estate, medical, and other professional services as permitted in the R-P, C-P, and RP-L zone districts.

INDUSTRIAL

Light Industrial

The Light Industrial land use designation provides industrial uses which do not create smoke, gas, odor, dust, sound, vibration, soot, or lighting to any degree which might be obnoxious or injurious to persons residing or conducting business in or adjacent to the industrial area. Such areas are normally permitted in the M-1-P, M-1, and C-M zone districts.

Heavy Industrial

The Heavy Industrial land use designation provides industrial uses essential to the development of a balanced economic base but which may have moderate detrimental effects on adjacent land uses. Such uses are permitted primarily in the M-2 and M-3 zone district.

OTHER DESIGNATIONS

Open Space

The Open Space land use designation provides for the preservation of unique resources, protection of the public health and welfare against environmental hazards and the meeting of recreational needs of the City's residents.

This land use designation is normally implemented through the "O" and AE-20 zone districts. Open space uses also may be established in other zone districts by conditions placed upon project approval.

Agricultural

The Agricultural land use designation provides for the preservation of agricultural land resources, thus assuring the continuation of agricultural production as an important economic activity and discouraging the premature conversion of such land to urban uses. Any activities or land uses which are inconsistent with the long-term maintenance of agricultural production are discouraged.

This plan designation is normally implemented through the "O" and AE-20 zone districts.

Open Space Transition

The Open Space Transition designation provides for a buffer between incompatible uses such as between high traffic noise generators and residential uses, or between industrial areas and residential areas. The extent of the buffer area and the appropriate treatment to mitigate adverse environmental effects will be dependent upon the unique circumstances involved. The transition normally consists of a combination of extensive landscaping, setbacks, and walls and/or berms. In many cases, the application of the Expressway Area (EA) overlay district or the use of special conditions to zoning approval (cz suffix) may be appropriate.

Reserve

The Reserve designation indicates land planned for eventual urban uses but not considered currently needed for near term development. This designation is normally implemented through the AE-5 or AE-20 zone districts and also indicates the desire of the City to encourage the continuing productive use of agricultural lands on the fringe of the metropolitan area until urbanization is timely and appropriate.

Special Designations

A variety of other plan designations may be utilized to indicate special uses or special circumstances within the planning area. The intent of these designations is usually self-evident or is explained in the text of the plans. Designations for future public facilities are considered approximate due to the uncertainty in acquiring specific parcels for the intended use. Thus, a plan amendment is not required for the minor relocation of such uses, if requested by the agency involved.

CONSISTENT DENSITIES AND ZONING

The table below indicates which zone districts and residential densities are consistent with each planned land use designation. In the case of residential projects, both zoning and density should be considered in determining project consistency.

The densities and zoning listed in the table for each planned land use category are those that are clearly consistent with the intent of the plan. Consistent zoning and densities will normally be approved without question. However, the design of any particular development proposal would be subject to review under separate entitlement processes (Site Plan Review, Conditional Use Permit).

Figure 44

PLAN CONSISTENCY TABLE

Plan Designation	Consistent Zones	Consistent Density
Residential		
Rural	AE-5, AE-20, R-R, R-A	0-1 Units/Acre
Low	R-1-E, R-A, R-1-A	0-2 Units/Acre
Medium Low	R-1-B, R-1-C, R-1-B/PUD	2-5 Units/Acre
Medium	R-1-C/PUD, R-1, R-1/PUD	5-10 Units/Acre
Medium High	R-2-A, R-2, M-H, T-P, R-P*	10-18 Units/Acre
High	R-3-A, R-3, R-4, C-P*	18-43 Units/Acre
Commercial		
Neighborhood	C-1, C-L	
Community	C-2	
Regional	C-3, C-4	
General, Heavy, Strip	C-4, C-5, C-6	
Office	RP-L, R-P, C-P	
Industrial		
Light	C-M, M-1-P, M-1	
Heavy	M-2, M-3	
Other		
Open Space	O, AE-20	
Agricultural	O, AE-20	

*Residential development as stipulated in the zoning ordinance can be approved subject to a Conditional Use Permit. Those instances in which such a deviation might be appropriate might approximate the conditions listed in the Plan Impact Criteria.

ANALYSIS OF DISSIMILAR USES, DENSITIES OR ZONING

Land uses, densities and/or zoning not listed on the Plan Consistency Table for each land use category cannot normally be found consistent with the plan. However, unusual situations may arise where unlisted uses, densities and zone districts may be justifiable.

PLAN IMPACT CRITERIA

Land uses, densities, and zoning which are dissimilar from the discrete categories of the Plan Consistency Table may be found consistent when all of the following criteria are met:

1. The generating characteristics of the proposed density or zoning are similar but no more adverse than the generating characteristics of surrounding planned or zoned land uses.

2. The proposed density and zoning will not contribute to overloading existing and planned urban service facilities.

3. The proposed density and zoning will not adversely affect the compatible relationships between uses and densities designated by the plan for surrounding properties.

4. The proposed density and zoning will support the implementation of General Plan goals and policies.

These criteria are intended to acknowledge that in some cases higher residential densities than the plan normally allows may cause no significant adverse consequences which differ from the adopted use and may be justifiable, or that some alternate categories of land uses may similarly be justifiable, even though not provided for by the adopted plan.

For instance, with respect to residential development, development corresponding to the next higher density plan designation (e.g., medium density, rather than medium low), may be justifiable when the plan impact criteria can be clearly met.

Similarly, under certain circumstances, a land use such as an office may have no more deleterious effects on the surrounding neighborhood than a medium high density residential use. A mixed use development, providing for a *designed* combination of complementary land uses (i.e., office, residential, related small scale commercial) may, at the Director's discretion, not require a plan amendment even though only one of the land use designations is shown.

Dissimilar uses which are permitted under a planned unit development or conditional use permit in a zone district for which consistency is found is also deemed to be consistent with the land use designation which includes the consistent zone district.

In every case, before a zoning or density not listed on the Plan Consistency Table is allowed without a plan amendment, the four plan impact criteria must be met.

The meeting of these criteria may be achieved through conditions placed on rezoning, subdivision, or parcel map entitlements. The conditions may limit residential densities or particular uses, or may specify certain development standards that would have to be incorporated in the design of a development proposal. The conditions can be guaranteed through a covenant on the property. Any change to the conditions would, therefore, require processing of a new entitlement and force a reevaluation of the project with respect to the criteria.

In order that General and Community Plan maps remain current with changes in Council policy, staff will initiate amendments every six months, or as necessary, to include projects on which rezoning actions have been taken. Those projects 20 acres or larger shall result in amendment of both the General and Community Plans; those under 20 acres shall result in amendment of the related Community Plan.

INCONSISTENT PROJECTS

Development projects which are not consistent with planned land use designations and do not meet the goals and policies of the plan are not consistent with the plan. In such cases, the projects should be denied.

It is recognized that, in some cases, individuals may wish to proceed with a project which is inconsistent with the adopted plan and does not meet the plan impact criteria. In those instances, a change in adopted Council policy would be necessary and an amendment to the plan is required. Such plan amendments can be prepared by staff or with the assistance of a private planning consultant. Amendments are processed by the Planning Division of the Development Department.

TRANSPORTATION

TRANSPORTATION

INTRODUCTION

Historically, transportation planning has focused on the development of streets and highways which comprise the Circulation Element of the General Plan. More recently, it has begun to take a comprehensive look at the movement of people and goods by a variety of modes, as well the interactions between transportation and other facets of the urban system. Movement systems, be they railroad, air, public transit, automobile, or non-motorized movement, all service existing land uses and encourage land development as they are improved and extended. Changes within the transportation system have an impact upon a wide range of people who may have little in common beyond the fact that they share the same route to work for a mile or two. There are few areas in the structure of the City where routine decisions affect the lives of citizens so directly. Therefore, it is particularly important that incremental, system-building decisions are made against the backdrop of a sound plan.

Today, transportation issues can be viewed on two levels. The primary issue in America revolves around the overwhelming use of the private automobile and whether lifestyles can or should be altered to diversify the ways in which trips are made. This decision may be made in part by the realities of diminishing fuel supplies and air quality. On the second level are the issues related to specific transportation modes. The emphasis of the goals and policies contained within the Transportation Element is to stress the importance of a balanced, multi-modal transportation system, rather than the continuing dominance of private automobiles, to transport people from one place to another.

BACKGROUND

The history of Fresno is strongly linked to the railroad, the main transportation mode in the late 1800's. Responsible as it was for the birth of Fresno, the Central Pacific Railroad plotted the first streets around 1872. In 1887, a franchise was granted for a horse car line from "H" Street via Mariposa, "K" (Van Ness), and Tulare Streets to the eastern city limits. The purpose of this line was the promotion and service of real estate sales at the eastern end of the City.

Later, the progress of technology delivered the automobile, making longer trips from downtown convenient for residents. The mobility provided by the automobile made possible the lower density developments toward the north now enjoyed by many Fresno residents. The configuration and alignment of streets were designed to accommodate private car ownership - hence, a grid system was laid out to complement the Downtown area. The subsequent growth and expansion in Fresno has followed the early grid pattern in the extension and addition of streets. Streets are classified based on their function in serving vehicular movement. The network of streets in the FCMA includes all classifications as defined below:

Freeways

These are divided highways having no direct access and no intersections at grade. All access is achieved by on-and-off ramps. They may carry average volumes of 1,800 to 2,200 vehicles per hour per lane at peak service levels.

Expressways

These are generally four-lane, divided roadways with access limited to signalized, at-grade intersections with major streets. They may carry average volumes of 800 to 1,000 vehicles per hour per lane at peak service levels.

Arterial Streets

These are generally four-lane divided roadways signalized at half-mile intersections with major streets. Access is highly regulated, but it is not as restricted as on expressways. Arterials normally carry a range of 400 to 600 vehicles per hour per lane at ideal service levels.

Collectors

These are generally four-lane, undivided streets and provide service for internal traffic movement within an area and connect local traffic to the arterial street system. Access to abutting property is generally permitted. Collector streets operate with 400-600 vehicles per hour per lane at ideal capacity service levels.

Local Streets

These are minor streets which function primarily to provide access to residential land with generally two lanes carrying volumes of 1,000 to 2,000 vehicles per day. They should be designed to discourage through-traffic.

STREETS AND HIGHWAYS

INTRODUCTION

An increased number of urban trips owing, in part, to population growth and urban expansion has caused varying degrees of problems in traffic movement throughout the street system in Fresno. An inadequate and discontinuous freeway system which does not take the through-traffic load off the surface streets has compounded these problems. Many technical studies have emphasized this increasingly difficult situation since 1964. Today, the construction of the freeway system by CALTRANS is hindered by funding constraints. Projected growth without this system involves increased street congestion.

In 1979, the Council of Fresno County Governments projected street deficiencies in 1995, without additional freeway construction. This transportation study was focused on the 1974 General Plan and does not reflect the many changes, as proposed by the 1983 General Plan. Figure 36 shows the existing street system and capacity deficiencies in 1995. This study discovered that 13.1 percent of the total street network within the FCMA was deficient in 1973, and projected that this percentage would at least double by 1985, if no street improvements were made. The extent to which improvement in that situation relies on freeway construction is not known.

The problems of traffic volumes on various major streets throughout the metropolitan area, compounded by the lack of freeway development, limits effective, practical and economical improvements to this high volume system. A discussion of these problems follows.

BACKGROUND

There are problems with the existing grid system of arterial and local streets in the FCMA which are independent of the freeway system. In several locations the street system is disrupted and the absence of major streets in a normal pattern has caused increased traffic volumes on the adjacent streets. The portion of the Roosevelt Community south of Kings Canyon and east of Peach Avenue has a critical deficiency of east-west major streets (discussed in some detail in the Growth Areas Section of the Plan). Therefore, the east-west traffic circulation system is presently inadequate. This problem will be magnified if residential densities are increased in the area. (See Appendix for graphics)

CIRCULATION DEFICIENCIES

Herndon Avenue is designated as an expressway. The development pattern along Herndon requires circuitous travel on frontage roads and connecting street systems. Heavy turning movements at the major intersections inhibit the function of moving traffic efficiently along the expressway. Herndon also lacks the basic capacity to meet the projected traffic demand.

Bullard Avenue, an arterial, is of substandard width between Palm and Blackstone and does not exist west of Motel Drive. It will be partially replaced by the Figarden Drive Loop. In addition, the California State University campus limits the full development of Bullard Avenue as a major east-west arterial between the Cities of Fresno and Clovis.

Shaw Avenue, an arterial, has traffic delay problems with the at-grade crossings of the SP and ATSF railroads and is of substandard width between Palm and Blackstone Avenues, Freeway 99 and North Van Ness, and Chestnut and Clovis. Gettysburg Avenue (Collector) is missing as a major street between West and Maroa.

The portion of Ashlan Avenue (Arterial) located in the unincorporated area in the Fig Garden Community is a bottleneck. Ashlan Avenue extends from west of Freeway 99 in Fresno to Sunnyside Avenue and has the potential for becoming a major transportation route from east to west between Freeway 99 on the west and Temperance Avenue on the east.

Dakota (Collector) is substandard from Weber to Crystal, but is one of the more ideal Collector streets in the FCMA as it is not continuous and thus functions appropriately for shorter trips.

Shields Avenue (Arterial), generally constructed as a standard arterial facility, is disrupted west of Weber because of the Southern Pacific Railroad and Freeway 99, and between Chestnut and Clovis Avenues because of the location of the Fresno Air Terminal.

Clinton (Collector) passes over Freeway 99 and the Southern Pacific Railroad with two lanes. To handle high-volume traffic, it would require extensive and costly widening, both of the street and the overpass.

McKinley (Arterial) provides four-lanes of east-west access, with substandard conditions west of Maroa. A grade-separated crossing of the SP and ATSF Railroads is possible, but costly. Only one-half of the interchange is available at Freeway 99, serving the south freeway approach.

Olive (Collector) passes through the existing commercial area east of the Southern Pacific Railroad as a two-lane road, and crosses the railroad tracks. Grade separation is not practical.

Belmont (Arterial) is a two-lane underpass at the Southern Pacific Railroad and has substandard width from west of Freeway 99 to Blackstone.

Butler Avenue, east of Peach, is designated a scenic drive with a local street cross-section.

Butler Avenue (Collector), between "O" and Chance Avenues and between Willow and Peach, is substandard in Collector street width. As traffic increases, due to growth to the southeast area, widening will be necessary.

Church Avenue (Collector) is unimproved between Marks and Elm Avenues and will require widening as the FCMA grows.

There is no major east-west street within the two-mile corridor between Kings Canyon, Jensen, Peach and Fowler Avenues. The normal one-mile arterial spacing is preempted by the Southern Pacific branch line (California alignment).

Willow Avenue (Arterial) is presently unconstructed from Barstow to Herndon. This portion is the missing section of a through route from Freeway 99 to Friant Road, leading to Millerton Lake.

Fruit Avenue (Collector) is substandard in width between Weber and Clinton and between Dakota and Shaw.

Major New Traffic Corridors

Grantland Avenue (Arterial) is planned to serve the northwesterly and westerly urbanization expansion as the north-south major high-capacity traffic carrier since its alignment is the boundary of the expanded growth area connecting to Herndon Avenue on the north with Whitesbridge Road (Route 180) on the south (marked "A" on Figure 45). This development will necessitate a grade separation at the Southern Pacific Railroad and interchange with Freeway 99.

The Circulation Element of the adopted Bullard Community Plan provides a crossing of the Southern Pacific Railroad at Bullard Avenue. Bullard Avenue would terminate at Motel Drive and would not cross Freeway 99. There is no existing crossing of the Freeway between Shaw and Herndon, a distance of nearly three miles. A street connecting Herndon Avenue and the proposed Grantland traffic carrier should cross Freeway 99 and be grade separated at the railroad and interchange with Freeway 99 (marked "B" on Figure 45). Bullard Avenue could be realigned northwesterly to intersect the connector street east of the railroad, then continue on to join Herndon Avenue approximately 1 mile east of the railroad (marked "C" on Figure 45). This re-design will achieve the following benefits for the community:

1. Major connection between the Bullard Comunity and the urbanization west of the Freeway, joining Grantland north of Shaw Avenue.

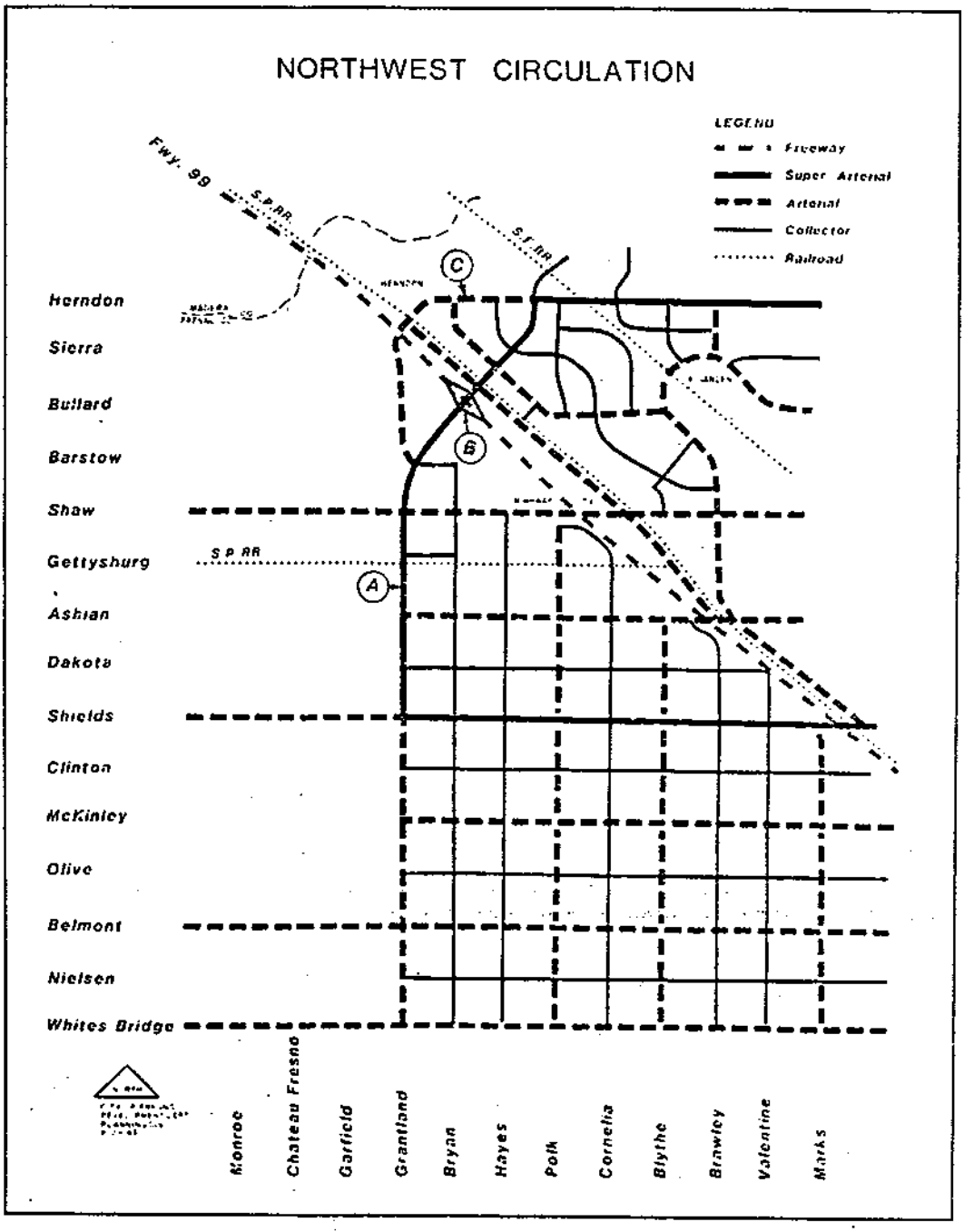
2. A separated crossing of the Southern Pacific Railroad tracks.

3. An interchange with Freeway 99 to serve both the Bullard Community and urbanization west of the Freeway.

North-south "standard" arterials are proposed for Polk, Blythe and Marks. The remaining one-half mile

streets at Monroe, Garfield, Bryan, Hayes, Cornelia, Brawley and Valentine would be developed as collector streets.

Figure 45



Shields Avenue (Arterial) is also shown as a major traffic facility between Grantland Avenue and Motel Drive. A grade separation crossing Freeway 99 and the Southern Pacific Railroad marshalling yards is planned to overcome the limitations of existing grade separations at Herndon, McKinley and Clinton Avenues and improving access across Freeway 99.

The projected growth west of Freeway 99 may create an impact on the existing circulation system of Fresno

Based on land use and holding capacities, the transportation impacts of the proposed development west of Freeway 99 were quantified and found to be substantial, especially impacting the ability of Freeway 99 to function.

Further transportation study is necessary to estimate more detailed impacts and recommend appropriate mitigation measures. These would include the whole range of actions being considered in the Transportation System Maintenance and Air Quality Control Strategy studies, as well as in more "futuristic" concepts.

While an update of the Streets and Highways Element (Figure 46) - a diagram designating classified streets in the metropolitan area - will be accomplished with the adoption of the General Plan, a computer-assisted analysis of street system needs will be initiated cooperatively by local agencies working through the Council of Fresno County Governments. Such a comprehensive analysis has not been undertaken in the metropolitan area since 1964, and may result in re-evaluation and further changes to the circulation system.

Providing and strengthening alternatives to the automobile would include the following:

Expanded attractive transit service,

Ridesharing/vanpooling,

Bicycles,

New mass transit concepts: light rail, fixed guideways

Communication substitutes,

More highly integrated goods and services facilities through community design.

Also, modifications in demand can be considered as a measure to reduce the impact of future developments on the transportation system. These measures would include the following:

Flex time/staggered work hours,

Four day work week,

Neighborhood work centers,

Closer goods and services.

MAJOR FINDINGS/CONCLUSIONS

1. The streets system in the FCMA has severe capacity deficiencies in some major portions during the peak hours.

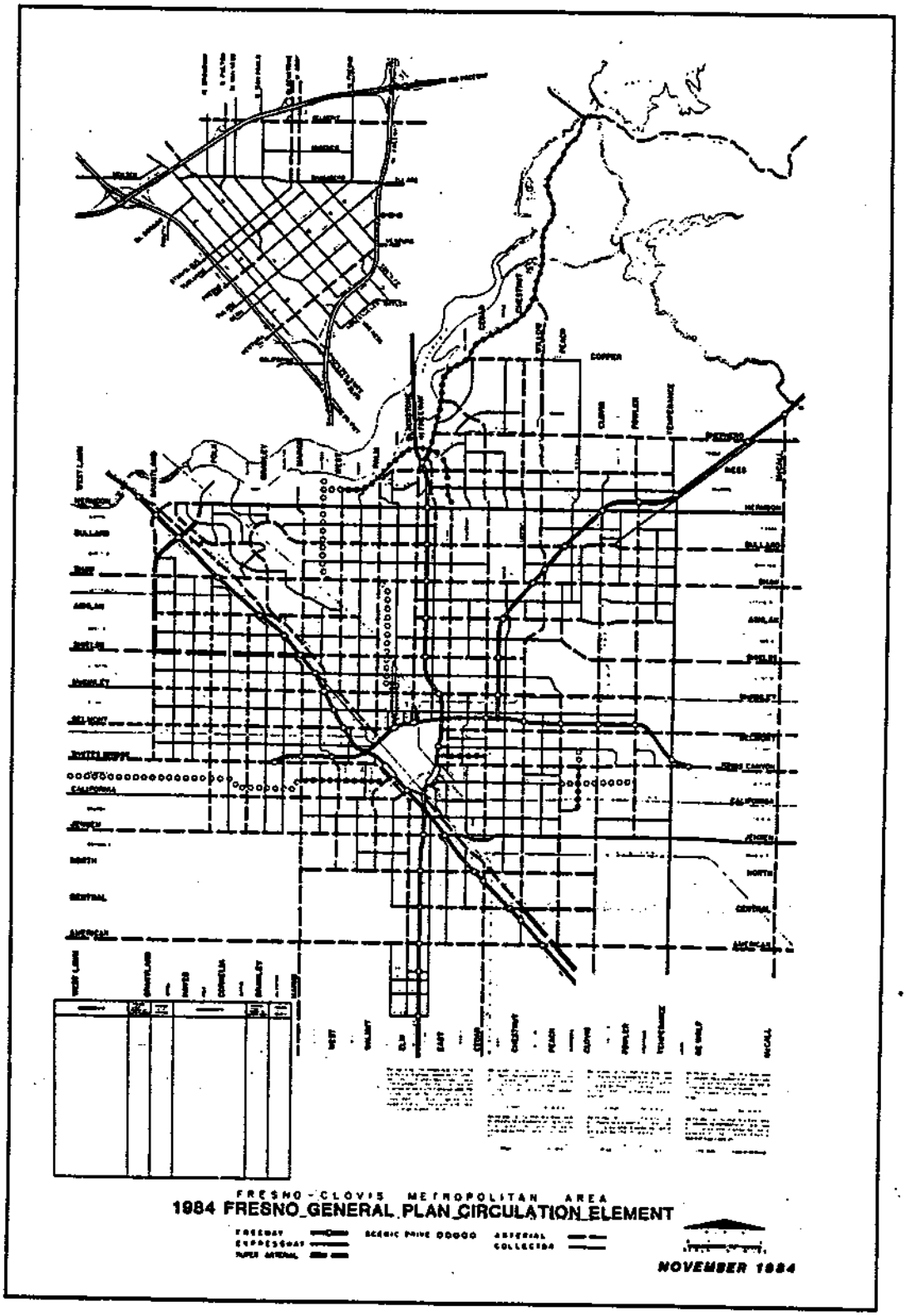
2. Transportation will potentially become a ruling constraint to further development in Fresno if major improvements to the circulation system are not made.

3. Construction of freeways would relieve the major streets from longer trip traffic loads. Alternative strategies for freeway-related circulation issues are discussed in the section on freeways, and will be further defined through a series of studies. In addition, the circulation network has some non-freeway-related problems.

4. Congestion in some major streets has caused local streets to carry heavier traffic than intended.

5. There are limited sources of funding for street improvements. Major streets will be constructed to design specifications in areas of new development through UGM fees. Street projects in older areas will be phased in order of priority through the Capital Improvement Program. Development of major street overcrossings for the new community west of Freeway 99 is discussed under the "Service Issues" section of the Plan.

Figure 46


FRESNO - CLOVIS METROPOLITAN AREA
1984 FRESNO GENERAL PLAN CIRCULATION ELEMENT
FREEWAY
EXPRESSWAY
SUPER ARTERIAL
SCENIC DRIVE
ARTERIAL
COLLECTOR
NOVEMBER 1984

ENVIRONMENTAL IMPLICATIONS

The construction of streets and roadways to facilitate mass use by private automobiles consumes a large portion of urban land. In addition, pavement of the streets requires heavy exploitation of natural resources.

Alignment of the streets and accessibility to them influences growth, development and radical changes in the values of urban land.

Streets bring noise, air pollution and dust to the area. If adequate mitigation measures are not implemented, streets will continue to be a nuisance - even though a necessity - to urban residents. Streets also provide ventilation and solar access plus public rights-of-way where non-motorized modes may move in a safe environment.

OBJECTIVE

1. Provide a streets and highways system which is safe for both vehicle users and pedestrians and which promotes efficient movement and a balanced transportation system throughout the Fresno-Clovis Metropolitan Area.

POLICIES/IMPLEMENTATION STRATEGIES

1. Participate in a cooperative and comprehensive analysis of streets and highways needs through the Council of Fresno County Governments.

2. Give priority to street and highway improvements which are necessary to achieve the following:

   - added safety

   - facilitation of a multi-modal transportation system

   - lower maintenance costs

   - increased efficiency

3. Endorse the development of future freeways within the Fresno-Clovis Metropolitan Area as multi-modal transportation corridors.

4. Provide for construction of the freeways through Fresno. Freeway 180 would serve to mitigate east-west circulation deficiencies, particularly for the Roosevelt Community Plan area and the planned urbanization west of Freeway 99. Freeway 168 would provide good access from the freeway system to the entire northeast Fresno-Clovis area. Freeway 41 north of Bullard would serve major existing and proposed development in the northern portion of the community. Freeway 41 south of 99 would improve access for West Fresno residents and industry to 41 north of 99. and the northern part of the City.

5. Provide areas for pedestrian and other non-motorized travel which enhance the utilization and efficiency of the street system.

OBJECTIVE

1. Establish a streets and highways system which is consistent with orderly growth. minimizes conflicts with adjacent land uses, and preserves the integrity of existing neighborhoods.

POLICIES/IMPLEMENTATION STRATEGIES

1. Support the development of a freeway system as the need is determined by the transportation model of the California Department of Transportation and the FCMA Transportation study.

2. Minimize conflicts between traffic on major streets and adjacent land uses through use of traffic design measures which reduce congestion and through buffering with planted strips. frontage roads, setbacks, and controlled private access.

3. Support the development of non-continuous street patterns for interior streets within new subdivisions and other measures which will protect neighborhoods from the intrusion of through-traffic in developed areas.

OBJECTIVE

1. To seek economy of public investment through efficient management and administration of the streets and highways service delivery system.

POLICIES/IMPLEMENTATION STRATEGIES

1. Seek adequate sources of funding for the street and highway system, for both improvements and maintenance.

2. Work cooperatively with governmental agencies, private developers and property owners to provide an equitable and efficient system of financing street development and improvement.

3. Plan street and land uses in a manner which retains options for necessary future expansion and protects adjacent properties from unnecessary disruption.

SCENIC HIGHWAYS

INTRODUCTION

State planning law includes scenic highways as a mandated element of the General Plan. The General Plan guidelines, however, recognize that this or other mandated elements may have varying levels of importance from jurisdiction to jurisdiction and suggest that each required subject matter be addressed accordingly in the plan. The primary function of scenic highways is that of providing a means of mobility. However, specific land use and circulation policies are required for preservation of the scenic character of those corridors.

BACKGROUND

The Fresno metropolitan area does not include any scenic corridors of regional or statewide significance. While there are indisputably areas of tremendous scenic value within the County, they are some distance from the City, with the possible exception of the San Joaquin Riverbottom area.

For this reason, the local program related to scenic highways consists of identifying streets within the metropolitan area with significant visual qualities, usually related to adjacent mature specimen trees or the quality of residential structures and landscaping along the corridor. These corridors have been designated on the community plan maps and policies have been written to aid in conservation of the existing mature trees. The streets so designated are listed according to community plan area.

The streets currently considered as scenic highways are:

Bullard Community
Van Ness Boulevard - Shields to Shaw
Van Ness Extension - Shaw to the San Joaquin River Bluff

Edison Community
Kearney Boulevard - Fresno Street to Kearney Park

Fresno High/Roeding Community
Huntington Boulevard - Freeway 41 to First
Van Ness Avenue - Weldon to Shields

Roosevelt Community
Butler Avenue - Peach to Sunnyside
Minnewawa Avenue - Florence to Tulare
Huntington Boulevard - First to Cedar

Woodward Park Community
First/Audubon/Alluvial - Herndon to Van Ness
Alluvial Avenue - Blythe to Herndon

Friant Road - Blackstone to International

The importance of building scenic qualities into new street systems for the residents of the future is recognized in this plan.

MAJOR FINDINGS/CONCLUSIONS

While the Fresno metropolitan area has no major scenic corridors due to the flat valley terrain, there are some streets which are significantly more pleasing visually due to mature street trees and landscaping. Particularly in this area with minimal topographic relief, it is important that the significant value of these specimen trees be recognized and that related private and public actions (i.e., pruning, tree removal and replanting, street widening, driveway location) place the highest priority on their preservation.

In addition, the 1984 General Plan recommends the addition of the Van Ness/Fulton couplet, a major entry to the Central Area, to the list of designated scenic streets, in recognition of the mature deodar cedars and sycamore trees. It is also recommended that street tree replacement along all designated scenic streets be with a tree of the predominant type, unless a plan for replanting has been approved by the City Council.

ENVIRONMENTAL IMPLICATIONS

Designation of highways and streets as scenic drives requires implementation of appropriate land use and circulation policies to preserve the natural or man-made features which provide a visually pleasant environment for the users of the route. Regulations imposed on the landscaping of a route may restrict provisions for the most efficient flow of traffic in deference to scenic values. On the other hand, designation of a route as a scenic drive in developing areas may be conducive to high quality developments. Overall, scenic highways are an element of urban beautification especially needed in Fresno, which does not have natural environmental features such as topography, lakes, or wooded areas.

Initial investment in landscaping along a scenic corridor may increase costs to the City. However, on streets such as Van Ness and Kearney Boulevards, landscaping has both the features of scenic qualities and low maintenance. The positive effects that such vegetation have on the air quality and ambient air temperatures is of tremendous value.

Providing scenic drives as a part of the City beautification program can be well justified in terms of positive impacts on air quality, appearance of the City, creation of a liveable environment, and cooling the temperature during the summer.

OBJECTIVE

1. Preserve and provide scenic highway routes by application of appropriate policies and regulations.

POLICIES/IMPLEMENTATION STRATEGIES

1. It is recommended that the following streets be designated as scenic in the General Plan:

   Van Ness Boulevard - Shields to Shaw
   Van Ness Extension - Shaw to the San Joaquin River Bluff
   Kearney Boulevard - Fresno Street to Kearney Park
   Van Ness Avenue - Weldon to Shields
   Van Ness/Fulton couplet - Olive to Divisadero
   Butler Avenue - Peach to Sunnyside
   Minnewawa Avenue - California to Tulare
   Huntington Boulevard - Freeway 41 to Cedar
   First/Audubon/Alluvial - Herndon to Van Ness

2. Preservation of street trees lining designated scenic streets should take precedence when private or public actions involve scenic corridors.

3. Maintenance and replacement of specimen trees along scenic streets shall be done with attention to the impact upon the visual quality of the area. Replacement shall be done with trees of the predominant type and in a comparable pattern to existing plantings.

FREEWAYS

INTRODUCTION

Discussion of a freeway system for the metropolitan area of Fresno began in the late 1950's when the State conducted studies throughout California to determine comprehensive circulation needs. During the same time period that the plan for the Central Business District was being prepared by Victor Gruen and Associates (eventually resulting in the Fresno Mall), the Freeway system was designed, agreements executed, and routes adopted for Routes 41, 168 and 180 in 1963-64 through public hearings held by the State Highway Commission.

The first contract for construction of a portion of Freeway 41 was awarded in 1964, the same year that a General Plan was prepared for the metropolitan area showing the freeway network. The City and State entered into agreements in 1966 which defined responsibilities, the City agreeing to close streets, construct frontage roads and pedestrian undercrossings and relocate utility lines, and the State promising to acquire the right-of-way and construct the freeway. Progress on the Fresno project was slowed and delayed for a period of time, as the State became involved in the construction of the interstate system - the first contract for I-5 in Fresno County also being awarded in 1966. The local community was assured that construction of the Fresno freeway system would follow the completion of I-5 and, in fact, a budget including four freeway structures was approved by the Highway Commission in 1972 for the 1973/74 fiscal year. However, late in 1972, word was received that an environmental impact statement (EIS) was required, as more than 80% of the construction funds would come from the federal government, even though the agreement and the project were approximately six years old. There were mixed opinions in the community as to the validity for the E.I.S. requirement. However, given the eventuality of further delays a study was prepared for a "core system" representing the minimum network judged to be functional. This "core system" delineated Route 41 from Divisadero to Bullard and Route 180 from Freeway 99 to Chestnut Avenue. Preparation and review of the impact statement further delayed the project, but it was finally approved without conditions in November, 1977. In the meantime, dissatisfaction had been growing in the area due to the blighting influence of the purchased and partially cleared right-of-way on adjacent neighborhoods, and to the continuing need to provide relief to congested street conditions. Local politicians and other community leaders began to pressure the State for funding and finally decided to file a suit restraining the State from building any more freeways in other areas until the Fresno system was completed.

There have been numerous petitions and appeals, but it is now clear there will not be any substantial remedy for the Fresno situation through the courts. However, in May 1980, the State Transportation Commission approved the funding of Freeway 41 at six lanes north to Bullard Avenue. Construction of that section of Freeway 41 was completed in 1982.

While this appears to be a hard-won victory for the local area, it does not fully rectify the problems. It was never intended by either the City or the State that Freeway 41 would end permanently at Bullard Avenue, an arterial street. This has resulted in that street having to absorb additional traffic estimated to be between 20,000 to 50,000 trips per day (a demand roughly requiring two or three more arterial streets). The southeastern portion of the metropolitan area is deficient in freeway access and circulation service, and there is no usable linkage between Freeways 99 and 41 without the construction of Freeway 180. In addition, the Clovis Area continues to have one of the highest growth rates in the State, compounding the need for access between the two City centers.

BACKGROUND

Those conditions and forecasts which led to the planning of the freeway system through Fresno are now upon us. While most of the major street system has been completed, there is still not sufficient capacity without the freeway system to provide a solution to the traffic volumes found on major north/south and east/west streets. As an indication of the problem, one can compare the following traffic volume projections on some of Fresno's major streets to the planned and constructed capacities.

The Preliminary 1983 Fresno General Plan proposes extensive urban growth areas to the north, southeast, and west. This proposal has important implications for the metropolitan freeway system. In particular, there is a need for a recommitment to the completion of Freeways 168 and 180 if growth is to occur as provided for in the 1984 Plan.

To the north, the completion of Freeway 41 between Bullard Avenue and the San Joaquin River remains a high priority and has been budgeted by the State. A six-lane freeway in this location would result in a shift to the freeway of some of the traffic assigned to Blackstone Avenue and Fresno and First Streets. The

Figure 47

North/South	Designed Capacity	1995 Traffic Volumes
Cedar Avenue	24,000	30,000
Chestnut/Willow	24,000	30,000
Clovis Avenue	24,000	36,000
Fresno Avenue	24,000	28,000
East/West	**Designed Capacity**	**1995 Traffic Volumes**
Belmont Avenue	24,000	27,000
Clinton Avenue	20,000	22,000
McKinley Avenue	24,000	34,000
Ventura Avenue	24,000	32,000

development of Freeway 168 from Herndon Avenue to the Freeway 180 corridor is also vitally important to the northern growth area. It would significantly reduce the traffic volumes on and crossing Herndon Avenue within both Fresno and Clovis, and would significantly improve metropolitan surface street flow, both north-south and east-west in the area east of First Street and north of Belmont. The development of the Freeway 180 corridor east of Freeway 168 with a roadway capacity of at least 30,000 ADT will be necessary to service urban development in the southeast growth area. The size of the growth area to the west dictates the development of an alternate method of crossing Freeway 99. The Freeway 180 corridor west of Freeway 99 should, therefore, be developed even though it is not the most direct desired path.

The growth and development of the Fresno Metropolitan Area planned for in the 1984 Fresno General Plan requires that additional emphasis be placed on the construction of the entire freeway system. This is also the case because peak hour capacity relief anticipated due to increased transit usage may never come. While Fresno is well aware of the importance of public transit to both air quality standards and street capacities (while also recognizing the major benefits to air quality and energy conservation from non-peak hour use of freeways), nation-wide conditions are adversely affecting the future of public transit locally. Increased fuel and personnel costs have raised the expense of running the system, just as federal support appears to be diminishing for local transit needs. Furthermore, although still high, as fuel costs moderate or even decline, it is likely there will be even less overall demand for transit service. Substantial local financial support has been expended on the transit system in recognition of its importance not only to the captive transit user but to the function of the entire urban community. Funding cutbacks will make it difficult to simply "hold the ground" on system improvements established in the past few years.

The last decade has seen major shifts in transportation policy in the State of California. The Brown Administration, starting in 1974, began the shift from an expansive, well-funded transportation system relying heavily on highway construction to one emphasizing maintenance of the existing system, public transit, rail, and various ride-sharing programs. Another shift in policy is occurring under the Deukmejian Administration. There is a new emphasis on highway construction and a reduced emphasis on public transit and rail. Passage in California of Senate Bill 215 has resulted in an additional two cents per gallon tax, with one cent allocated to cities and counties and the other cent going to the State Highway Fund, where it is used to match federal funds. Because additional State matching funds are necessary, and because reduced general fund monies for streets and roads will lead to pressure for more gas taxes for local agencies, it is likely that an additional penny or two tax on the gallon will be forthcoming in a year or two. There is also a new federal attitude regarding transportation. Federal taxes have been increased five cents a gallon, one penny of which is allocated to public transit. On balance, however, the federal government is now less supportive of public transit and more supportive of streets and highways.

Fresno's situation is extreme in its own way within the State due to the extensive delay in construction of the planned system and the lengthy history of land use planning predicated upon and designed to complement that expected freeway system. Fresno is the largest metropolitan area in the country which is not on the interstate highway system. Funding planned for the local system was diverted to the completion of I-5 along the Coastal Range, over 50 miles away. Fresno County has generally been a "donor" county, paying out more than it has received back from the State.

However, many areas feel that they have comparably substantial problems which the State should be solving. Consequently, although the funding picture for freeway construction is brighter, there is still competition for available funding. The need still remains for Fresno to look at transportation system alternatives.

An important recent development has been the increasing agreement between Fresno and the State regarding the need for and funding of freeways. Within the latest draft State Transportation Improvement Projects (STIP), funds have been programmed to complete Freeway 41 to the San Joaquin River, begin the closure of the Freeway 180 gap, and widen Freeway 99 north to Ashlan Avenue. Circulation through the growing Fresno-Clovis Metropolitan Area is a large and complex problem which demands solution if the community is going to successfully meet the simultaneous challenges of growth, energy, conservation and environmental quality.

The General Plan proposes that a series of transportation studies, discussed below, be undertaken jointly by the Public Works and Development Department. However, the partially constructed 180 gap closure between Freeways 99 and 41 is not included as a separate study area. It is seen as an internal link of the system rather than an extension in that the two related freeways and several major streets cannot function properly without this linkage. Since it is contended that the gap closure is a necessity, no design study is warranted, as any lesser construction than a freeway for the short distance between Freeways 99 and 41 would be unsafe and nearly impossible from a reasonable design standpoint.

TRANSPORTATION CORRIDOR STUDIES

Freeway 180 Corridor - Freeway 41 to Temperance Avenue

The principle issue to be studied is access from southeast Fresno (including the Fresno Air Terminal) to the freeway system. A secondary issue is that of how traffic circulation can be developed alternatively to a *high capacity* facility along the general line of the Freeway 180 Corridor. An expanded urban growth area to the southeast, as proposed in this General Plan, will further aggravate the transportation problems in the area. In particular, the east-west circulation system is currently substandard without the additional traffic from a greatly expanded area.

Without some additional eastward facility connecting directly to Freeway 41 at the 180 interchange, southeast Fresno can reach the freeway system only by way of McKinley Avenue, Tulare Street, and Butler Avenue/Los Angeles Street. The latter two routes are classified collectors; freeway access should be at arterials if significant traffic problems are to be avoided, as illustrated by the intersection of Clinton Avenue and Freeway 99. The planned system contemplated southeast Fresno's major access by way of the 180 Freeway.

A **freeway**-based "eastward facility" could consist of the following, starting at the 41/180 interchange, listed in order of benefits:

- Full freeway to Temperance
- Full freeway to Clovis, high capacity street to Temperance
- Full freeway to Chestnut, high capacity street to Temperance
- Full freeway to Cedar, high capacity street to Clovis or Temperance
- Full freeway to Chestnut only

Other "eastward" **non-freeway-based** alternatives from the 41/180 interchange could be:

- High capacity street to Clovis, Chestnut, Cedar, or Temperance
- "Long" ramps to Cedar
- "Short" ramps to First Street or on Belmont near Third

The above 180 corridor alternatives, plus the "no build" alternative, should be studied in the context of current and/or future serious deficiencies on the following southeast major street alignments (*indicates arterials):

East - West	Church Avenue (non-continuous) California Avenue (non-continuous) Butler Avenue (non-continuous) Tulare Street (non-continuous) Belmont Avenue* Olive Avenue McKinley Avenue* (width restricted) Shields Avenue* (non-continuous)
North - South	Clovis Avenue* (severe capacity problem) Minnewawa (non-continuous, limited width) Peach Avenue* (width restricted, lacks FCMA continuity) Cedar Avenue* (width restricted, severe capacity problems) Millbrook/Sixth/Orange Avenue (non-continuous) First/Hazelwood (width restricted) Fowler Avenue* Sunnyside Avenue (non-continuous) Armstrong (non-continuous)

Southeast Fresno lacks the normal complement of major streets for an area of its size and population. Problems will increase, both as the area infills with development and as development occurs further to the south and east, as proposed in the Preliminary 1983 Fresno General Plan.

Freeway 41 Corridor North of Bullard

This corridor problem stems from the need to provide adequate accessibility to large areas of the metropolitan population and disperse the 41 Freeway traffic while allowing the major street system in the area to function properly (preserving traffic serviceability while also preventing undesirable traffic on streets not planned for heavy traffic movements).

Freeway 41 Corridor major action alternatives include:

- Full freeway on the adopted alignment from Bullard Avenue to 0.4 mile north of Herndon Avenue and 4-lanes to the end of the project (0.5 mile south of the Madera County line near Audubon Drive).

- Full freeway on the adopted alignment from Bullard Avenue to 0.4 mile north of Herndon Avenue and a 4-lane expressway to the end of the project.

- Expressway on the adopted alignment with 6-lanes from Bullard Avenue to Herndon Avenue and 4-lanes to the end of the project.

- Expressway on the adopted alignment from Bullard Avenue to Herndon Avenue, improvements to Herndon and Blackstone Avenues, and a 6-lane city street on the north Fresno Street alignment to Audubon Drive.

- Full freeway on the adopted alignment from Bullard Avenue to Herndon Avenue, improvements to Herndon and Blackstone Avenues, and a 6-lane city street on the north Fresno Street alignment to Audubon Drive.

The following major streets should be allowed to function for planned traffic service levels without overload due to inadequate termination of Freeway 41:

- Shaw Avenue
- Bullard Avenue
- Herndon Avenue
- Blackstone Avenue
- Fresno Street
- First Street
- Cedar Avenue
- Willow Avenue
- Palm/Nees Connector

The following should be protected from unplanned through-traffic due to an inadequate termination of Freeway 41:

- Sierra Avenue
- Alluvial Avenue
- Audubon Drive
- Maroa Avenue
- Barstow Avenue

The completion of Freeway 41 to Bullard Avenue has provided a degree of alleviation of traffic congestion on major streets within the center of the urban area. However, traffic problems will continue to impact the existing circulation system north of Bullard Avenue. The State is proposing to fund a major extension of Freeway 41 in the next State Transportation Improvement Program (STIP). However, completion would still be several years off. An interim solution accepted by the City Council, and currently being implemented, is the reclassification and improvement of Fresno Street between Bullard and Herndon Avenues to an arterial status. It has been further proposed that Fresno Street north of Herndon be realigned to tie into Friant and be reclassified from an arterial to a super arterial. Completion of this alternative could provide higher volume circulation, and could continue to perform even after completion of the freeway.

Underlying the circulation and freeway issues is the need to provide suitable access for proper development of the various infill and UGM properties in the area.

Herndon Expressway Corridor from Freeway 99 to East of Willow Avenue

This street was planned to provide high-level through-traffic service across the northern edge of the Fresno-Clovis Metropolitan Area. It has been constructed to planned width from about Brawley Avenue to Peach Avenue in Clovis. The problems to be resolved are:

- Traffic projections indicate that the planned 4-lane divided width will lack adequate capacity to a substantial degree. This is due both to northerly community growth and significantly greater land use densities than anticipated. Commercial/office developments adjacent to Herndon are a key factor in the problem.

- Noise and appearance are growing issues.

- Although it is generally accepted that the demands of east/west Herndon traffic will take precedence, the growing traffic volume on north/south major streets will continue to interfere with the optimal functioning of Herndon Avenue.

- Access to parcels fronting on Herndon Avenue from major streets to the side will have to be carefully designed (most likely at or beyond the quarter-mile point on north/south major streets) in order to avoid conflicts and safety problems.

The corridor issue is that of how to preserve and enhance the east-west through-traffic capability without severe adverse impacts on adjoining properties. Additional lanes could be developed between intersections by modifying the present cross-sections. The major question, therefore, is how to increase signalized intersection capacity - widen and add lanes, widen and separate through lanes (which would help cross-street problem), or other solutions. A solution is essential - it is becoming increasingly clear that failure to correct Herndon Avenue's deficiencies will lead to serious environmental, community, and development problems.

Freeway 168/Chestnut-Willow Corridor from 180 Freeway Corridor to the City of Clovis

Freeway 168 was planned to provide a high level of access from the freeway system to the entire northeast Fresno-Clovis area, including an alternate route to both the Fresno Air Terminal and the State University. The Chestnut-Willow corridor was planned to supplement the freeway system and to provide a continuous arterial route from Freeway 99 at Chestnut to Friant Road at Willow. This is critical because of interruptions of "normal" arterial alignments on Peach Avenue due to the Fresno Air Terminal. In each case, the facility offered some "diagonal" circulation which is rare in Fresno. (Several normal collector street routes are also discontinuous in the northeast area.)

Development and increasing density trends combine with deficiencies in Freeway 168 to create growing unresolved problems on the following streets:

- Clovis Avenue (high volumes)
- Peach Avenue (volume and width problems)
- Willow north of Ashlan (volume and width problems, discontinuous in places)
- Chestnut north of Shaw (volume and width)
- Maple Avenue (discontinuous between Dakota & Gettysburg)
- Cedar Avenue (serious volume problems)

The corridor study would identify the problems and develop short-term or permanent solutions to missing sections of 168 and Chestnut-Willow, so that the northeast Fresno-Clovis area will have a balanced circulation system to support full development. The study should include opportunities for joint use of facilities for both autos and transit (bus or light rail).

Non-Corridor Issues — Freeways 41 and 180 West of Freeway 99

These two problems require study for better route continuity and to improve access for West Fresno to both the freeway system and the community-at-large. At present, major street continuity is not fully satisfactory, and the only convenient freeway access for the West Fresno area is on Freeway 99 just west of the Central Business District.

For Freeway 41 south of 99, the right-of-way is acquired and almost fully cleared to North Avenue. The Jensen Avenue overcrossing bridge has been constructed. Presently, Route 41 follows Elm Avenue, with most traffic using either Jensen Avenue or Ventura Avenue to reach Freeway 99 and the community. This routing is not satisfactory as a connection to Freeway 41 north of 99 for either through traffic or West Fresno access. Study alternatives range from full freeway from 99 to North Avenue, to a terminus at Jensen, to a high capacity street as an extension of Freeway 41 north (bridging Freeway 99) to either Jensen or North.

Much of the right-of-way has been acquired for Freeway 180 from Freeway 99 to Marks Avenue. Present routing is Whitesbridge via "A" and "B" Streets to 99 at Tuolumne/Stanislaus. This flow bisects a portion of West Fresno and does not provide that area good access. Continuity from Whitesbridge to Freeway 41 via the 180 connector (99 to 41) is circuitous and unattractive. Study alternatives range from full freeway from 99 to Marks, to a freeway terminous on Whitesbridge (for at least 180 traffic, and possibly also ramping for 99 to the north and south).

Full development and community stability for West Fresno depend on good solutions to both of these problems. Additionally, more recent analysis of the impact of development west of Freeway 99, as proposed in the 1984 General Plan, indicates the need for an alternate method of crossing Freeway 99 even if it is not the most direct path. This analysis suggests that the Freeway 180 Corridor west of Freeway 99 be developed with a capacity of 80,000 at Freeway 99, stepping down to a capacity of 40,000 at Grantland Avenue.

Obviously, these corridors cannot be studied only in the context of the needs of the City of Fresno. Participants in this process should include the two cities (Fresno and Clovis), the County, and the Council of Fresno County Governments.

It is expected that the transportation corridor studies would include the following components along with others which might arise as the project evolves:

1. A determination of varying functions and system demands.

2. The interrelationship between corridors and potential impacts of design alternatives of one project on another, if any.

3. Possible design solutions to solve problems, i.e., full freeway, expressway, high-capacity arterial, transit lanes, light rail, fixed guideway systems.

PUBLIC TRANSPORTATION

Public transportation is defined as a transportation service provided to the general public which can be operated by either a public, non-profit, or private agency. Local public transportation may be a conventional fixed route scheduled bus system, a demand-responsive bus or van service, taxis, car and/or van pools, subscription bus service, a specialized handicapped accessible service, or a combination of these.

The major provider of public transportation in the Fresno-Clovis Metropolitan Area is Fresno Transit. Fresno Transit is a department of the City of Fresno and it operates both a fixed route bus system, and a demand-

responsive service which gives trip priorities to the elderly and handicapped.

Fresno Transit's annual ridership and operating budgets increased continually from 1961 to 1981, when a drop in funding sources forced service cuts and fare increases that resulted in ridership declines. The 20-year period of expansion reflected a demand for a higher level of service, public policy and funding in support of the system, and inflation. The largest budget increase was in 1976-77 when the delivery of 50 new buses permitted the establishment of the present grid system.

Since Fresno Transit recovers just over 20% of its operating costs from fare box revenues, federal, state, and local subsidies have always been needed to operate the system. From 1961 to 1981, needed subsidies were available. Since the passage of Proposition 13 in 1978, local governments have experienced increasing financial pressures which have dictated cutbacks in many programs. The economic recession of the early 1980's caused even more financial pressure to be felt by local governments. Finally, the federal administration opposed future federal operating subsidies for transit. While Congress provided for a reduced level of operating funds in 1983, there is no assurance that federal operating assistance will continue in the future. Thus, the system anticipates future financial challenges and uncertainties which it has not faced in the past. These uncertainties will require Fresno Transit to review its operational plans annually, and make required adjustments.

The need for public transportation in the metropolitan area is well established. Fresno Transit ridership in 1984 was estimated at 7.65 million passengers. The importance of public transportation will likely grow as the costs and adverse environmental and social impacts of using the private automobile increase and as urban land use intensifies. Other factors which could increase transit ridership include higher automobile operating costs, future fuel crises, school busing policy, and an improved economy. The potential for increased ridership exists for Fresno since an estimated 82.5% of the 1980 population reside within one-quarter mile of an existing transit route.

TRANSIT DEPARTMENT

Fresno Transit provides scheduled fixed route service on 17 routes six days per week (see Figure 48). Generally, the routes follow a modified grid pattern with 11 routes intersecting downtown at Courthouse Park, and 6 east-west crosstown routes which do not enter the Central Business District. Service on most lines begins at 6:00 a.m. and operates until 7:00 p.m.; with headways ranging from 15 to 30 minutes during the peak period, and from 20 to 60 minutes during off-peak hours.

The transit fleet consists of 103 full-size buses, with 15 additional new buses scheduled for delivery in 1984. Approximately 74 buses are needed for peak period service, with the remaining buses undergoing maintenance or held in reserve. The fleet is maintained in a maintenance facility completed in 1983, that is capable of servicing 150 buses.

Fresno Transit ridership reached an all-time high in FY '79 with 7.2 million revenue passengers but decreased to 5.9 million revenue passengers in FY '81. This ridership decline was a direct result of major service cuts, and two fare increases. Additionally, ridership declined in FY '82 because of service cuts in September, 1982. Future ridership trends will be based on the level of service and the base fare.

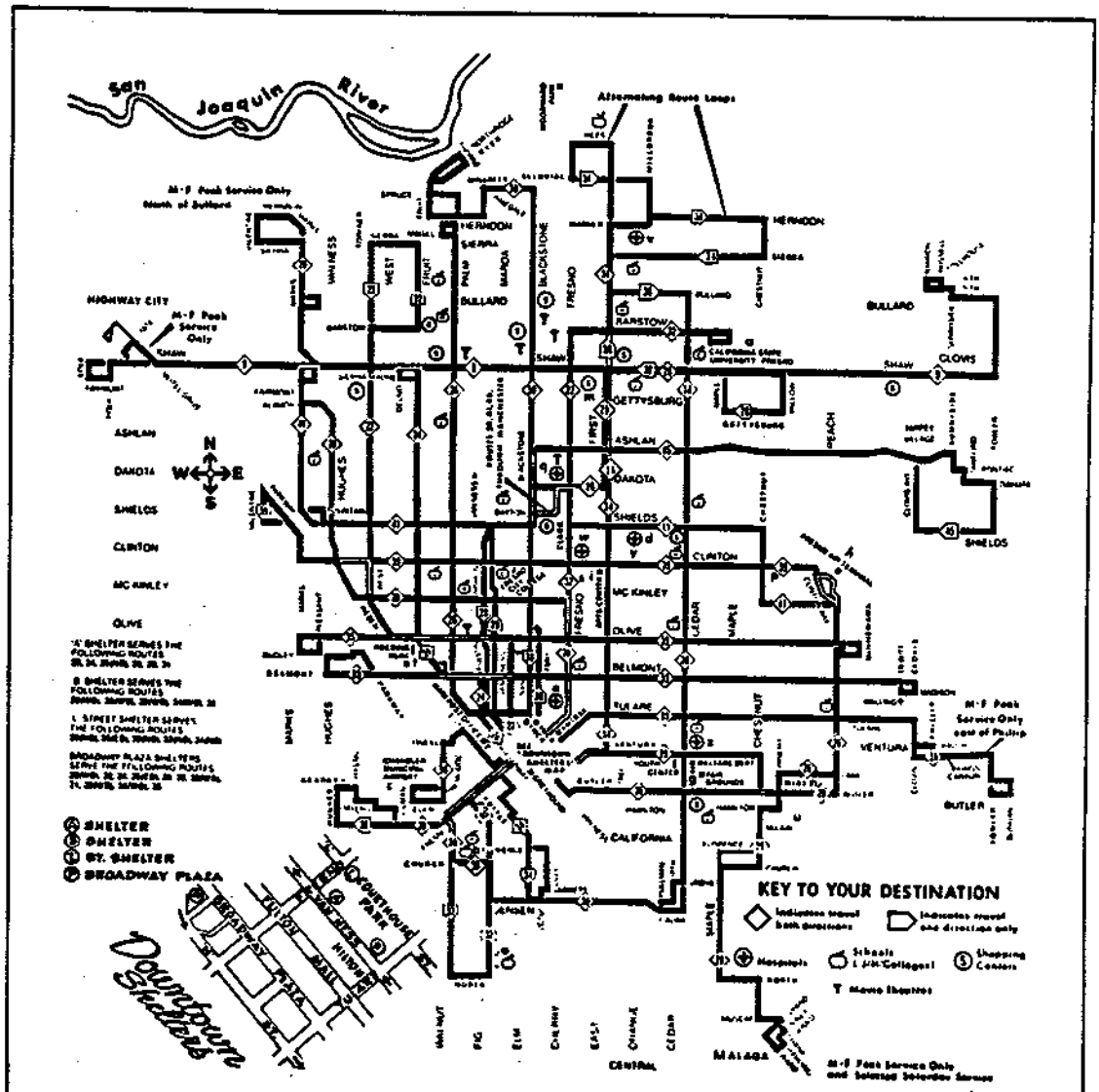
Fresno Transit's annual operating budget decreased from $8.8 million in FY '80 to $8.1 million in FY '82, while the operating cost per vehicle mile increased from $2.04 to $2.70. The 1981 and 1982 service cuts were cost effective as the operating cost per passenger decreased from $1.25 to $1.15 during the two-year period.

Fresno Transit's operating revenues are derived from several sources. In FY 82 Fresno Transit fare box revenues accounted for 21% of the operating costs. This figure reflected a State requirement that a minimum of 20% of operating costs be derived from fares and a City policy that transit fares be as low as possible. Revenues are also received from the Local Transportation Fund (LTF) and State Transit Assistance Fund (STAF) from the State, Urban Mass Transportation Administration (UMTA) operating grants, and the City of Fresno General Fund.

Capital projects are generally funded to an 80% level by UMTA capital grants, with either State or City funds used for the qualifying local matching support. As a result of the federal 1983 gas tax increase, future capital funding prospects for transit are extremely bright.

Figure 48

BUS ROUTE MAP



YOUR POINTS OF INTEREST FINDER

	Lines Serving Area
a. California State University - Fresno	9, 26, 32, 38
b. Cecil Hinton Community Center	32, 38
c. Chandler Municipal Airport	30
d. Childrens Hospital	41
e. Community Hospital	20, 32
f. Department of Motor Vehicles	22, 24, 35
g. Fairgrounds	26, 29, 38
h. Fresno Air Terminal	26, 39, 41
i. Fresno Arts Center	34, 39
j. Fresno City College	20, 28, 30
k. Fresno City/County Housing Authority	30
l. Fresno County Youth Center	29, 38
m. Fresno Fashion Fair	9, 28, 32, 34, 38
n. Internal Revenue Service Center	26, 29
o. Ivy Community Center	32
p. Junior Museum	41
q. Manchester Center	28, 30, 41, 45
r. Post Office (main)	30
s. Ratcliffe Stadium/Euless Ball Park	20, 30
t. Roeding Park & Zoo	33, 35
u. Senior Citizens Village	29
v. St. Agnes Hospital	34
w. Ted C. Wills Community Center	22
x. Valley Medical Center	29, 38
y. Veteran's Hospital	32, 39
z. Welfare Department	29, 38

HANDY RIDE DIVISION

Fresno Transit took over Handy Ride in 1977. Handy Ride is a general demand-responsive service that operates on weekdays from 7:00 a.m. to 6:00 p.m. While Handy Ride is a general transportation service, preference is given to the elderly and handicapped for work or school trips. Besides Fresno City, Handy Ride also serves Clovis and the unincorporated urbanized areas.

Handy Ride's fleet consists of six wheelchair lift-equipped vans and three stationwagons. The service operates at full scheduled capacity, but because of the high costs (were $11.83 per rider in FY '83), there are no plans to expand the service. Handy Ride has specially trained drivers that annually serve approximately 30,000 passengers.

Revenue sources for Handy Ride are the same as for the Transit Department. Handy Ride's base fare is the same as for transit, and farebox revenues are combined with transit farebox revenues, or Handy Ride would need a base fare in excess of $1 to meet a State 10% farebox recovery requirement for a specialized transportation service.

OTHER FCMA PUBLIC TRANSPORTATION SERVICES

- Inter-city air service by commercial carriers at Fresno Air Terminal
- Inter-city bus service by Western Greyhound Lines and Continental Trailways, and the Fresno County Rural Transit Agency
- Inter-city rail service by AMTRAK
- Taxi service by numerous private companies
- Transportation for handicapped riders by non-profit agencies and private companies.
- Demand-responsive door-to-door service for the elderly by the City of Clovis.
- Ridesharing information system by CALTRANS through a joint powers agreement with the City and County of Fresno

MAJOR FINDINGS AND CONCLUSIONS

1. The need for public transportation in the FCMA is clearly established.
2. For the next few years there are major uncertainties associated with the operative funding sources that have been used to fund local public transportation services.
3. Future Fresno Transit ridership levels will be directly related to the service level, the base fare, the local economy, and the local educational transportation policies.
4. Fresno Transit's most pressing need is to secure a permanent, dependable and adequate local funding mechanism that is dedicated to transit services.
5. Fresno Transit will have sufficient rolling stock and maintenance capacity to meet projected fixed route transit needs.
6. The demand for specialized service to serve the elderly and handicapped exceeds existing and projected Handy Ride capacity.
7. Fresno Transit should give priority to increasing the level of service on existing routes, over expanding service to newly developed areas.

ENVIRONMENTAL IMPLICATIONS

The positive impacts of transit use on the environment, as compared to using private automobiles, far exceeds the negative impacts. Transit can move large numbers of people from an origin to a destination with less energy, air pollution, and noise than could be achieved by using the equivalent number of private automobiles. A bus can transport nearly three times as many riders as can be carried in an automobile using an equal amount of fuel. In addition, transit is the most efficient means of reducing vehicle miles travelled, vehicle trips made, street congestion and travel accidents.

PUBLIC TRANSPORTATION GOALS, OBJECTIVES & STRATEGIES

GOAL 1

To provide transit service to a maximum number of people in the Fresno-Clovis Metropolitan Area.

OBJECTIVE

1. Fresno Transit will strive to serve all people in the urbanized metropolitan area regardless of age, sex, racial or ethnic background, and physical or mental disability.

POLICIES/IMPLEMENTATION STRATEGIES

1. Increase the transit service level throughout the urbanized metropolitan area, to the extent possible within budgetary constraints.

2. Provide a mechanism for citizen participation in order to permit an open dialogue between elected officials, Fresno Transit and the general public.

GOAL 2

To provide a quality service.

OBJECTIVE

1. Transit service will be designed and operated to move people with maximum reliability, reasonable comfort, convenience and speed.

POLICIES/IMPLEMENTATION STRATEGIES

1. That 30 minutes should be the maximum headway during peak hours, and 60 minutes should be the maximum weekday headways during off-peak hours.

2. That 95%, or more, of all trips shall run within 5 minutes of scheduled time, and that bus operations will be oriented to ensure on-time performance.

3. That coordinated connecting schedules will reduce transferring time for passengers.

4. That each coach will be thoroughly cleaned before it is put into daily service.

5. That innovative new improvements, such as: transit interchanges, park and ride lots, and circulators shall be provided when and where they are feasible.

6. That improving service to the existing service area be given priority over expanding service to newly developing fringe areas.

GOAL 3

To provide a safe system.

OBJECTIVE

1. Fresno Transit's system, including all of its physical components (vehicles, bus stops, shelters, buildings and shops) will be designed and operated to insure the safety of passengers, employees and the public.

POLICIES/IMPLEMENTATION STRATEGIES

1. Improve vehicle miles per accident each year.

2. Provide safety training for all employees.

3. Emphasize to all employees the importance of safety.

4. Reward and discipline employees on the basis of individual safety records.

GOAL 4

To operate as efficiently and economically as possible.

OBJECTIVE

1. Fresno Transit will operate at the least possible cost consistent with providing an effective public transportation program so that service will be at the lowest possible cost to both the passenger and the taxpayer.

POLICIES/IMPLEMENTATION STRATEGIES

1. Add or modify service on the basis of productivity and efficiency.

2. Make required service cuts on the basis of unproductive trips.

3. Develop and implement a management information system that provides budgetary personnel, maintenance, inventory, and operational controls.

4. Maintain a minimum farebox revenue to operating cost ratio in excess of 20%.

5. Prepare an annual short range transit plan which evaluates the system and recommends appropriate actions to increase the system's efficiency, effectiveness and productivity.

GOAL 5

To secure a reliable local funding mechanism dedicated to transit.

OBJECTIVE

1. Fresno Transit will secure a permanent, dependable, and adequate local funding source to assure that local public transportation needs can be met.

POLICIES/IMPLEMENTATION STRATEGIES

1. Determine the feasibility of a transit district.

2. If a transit district is feasible, actively promote the establishment of a district.

GOAL 6

To provide and promote an effective alternative to the use of private automobiles.

OBJECTIVE

1. Fresno Transit will develop a service level that provides an effective alternative to using the private automobile in order to reduce energy consumption, relieve air pollution and traffic congestion, and enhance the environment.

POLICIES/IMPLEMENTATION STRATEGIES

1. Enhance and promote the system's public reputation as an organization dedicated to providing the best possible service.

2. Develop an aggressive marketing program which publicizes and promotes the positive advantages of using transit including economical and environmental benefits.

3. Provide the public with easily obtainable and understandable information on bus schedules, routes, and system usage.

4. Develop and implement a public educational program designed to reach specific segments of the population.

AIR TRAVEL

INTRODUCTION

The importance and vitality of air transportation to the Fresno-Clovis Metropolitan Area (FCMA) has increased with its population and economic growth. Fresno Air Terminal (FAT) and Fresno-Chandler Downtown Airport (FCH) are the air facilities located in the FCMA, functioning at different levels of service. By virtue of the number of passengers enplaned at FAT, the Fresno standard metropolitan statistical area is classified by the Federal Aviation Administration (FAA) as a small air traffic hub. A small hub is defined as a community enplaning from 0.05 percent to 0.25 percent of the total passengers on certificated route air carriers in scheduled service in the 50 states and the District of Columbia.

The FAT is Fresno County's only air carrier airport. In comparison to FAT, the two other air carrier airports in the region (located at Merced and Visalia) generate substantially lower airline traffic.

The FAT is served by certified air carriers, commuter passenger airlines, and commuter air freight carriers. Another major use of FAT is the California Air National Guard, which occupies 12 buildings on a 58-acre site adjacent to McKinley Avenue. A high echelon helicopter repair and maintenance unit of the Army National Guard and a unit of the U.S. Marine Corps Reserve also occupy facilities at the FAT.

Four major fixed base operators at the FAT — Beechcraft West, Executive Wings, Inc., Western Piper Sales, and Wofford Flying Service — offer a wide range of aviation/aircraft services including fueling, aircraft maintenance, repair and storage, charter, flight instruction, aerial application, advertising, surveying, air taxi, patrol, rentals, and sales.

Fresno-Chandler Downtown Airport (FCH) has been in continuous operation since its opening in 1929. From 1930 through 1948, FCH was the air carrier airport serving the Fresno area. From 1948 to the Present, FCH has functioned as a general aviation reliever facility and is classified today by the FAA as a Basic Utility Stage II Airport. FCH is planned to function at its present level to accommodate non-jet general aviation aircraft. Various Fixed Base Operators at FCH offer a variety of services to meet the needs of the general aviation users of the Airport.

FRESNO AIR TERMINAL

Fresno Air Terminal, owned by the City and operated by the Department of Airports, opened in 1948. Fresno Air Terminal is located six miles northeast of the downtown area, comprising an area of approximately 1,865 acres.

State Law provides for the creation of an Airport Land Use Commission (ALUC) in counties where there is at least one General Aviation airport. The ALUC for Fresno County is responsible, through the preparation of comprehensive land use plans, for the safety and general welfare of the inhabitants within the vicinity of public airports and of the public in general.

In 1973, a Master Plan was prepared for the FAT and FCH. In 1978, a specific plan for the area surrounding the FAT was produced to provide specific guidelines for effectively dealing with community problems and opportunities generated by the presence and operation of a publicly-owned airport. Both reports provide detailed technical information about FAT and the surrounding area.

During 1978, a total of 1,150,687 passengers passed through FAT. As a result of strikes by airlines' employees during 1979/80, the FAA Air Traffic Controller's strike in 1981, the OPEC fuel price escalation in the fall of 1979, which generated several sharp increases in airline fuel costs, and the subsequent general worldwide recessionary economic downturn, the total number of passengers through FAT reflected a downward trend during the years 1979 through 1982 (1979 - 1,105,129; 1980 - 874,028; 1981 - 870,460; 1982 - 692,361). The FAT FAA-operated air traffic control (ATC) tower logged a total of 198,915 aircraft operations during the fiscal year ending June 30, 1982. Total ATC operations at FAT are projected to be 387,000 in FY 1993 and 439,000 in FY 1998. Air carrier statistics for the last quarter of 1982 and the first quarter of 1983 appeared to herald an end to the downward spiral by reflecting a return to an annual growth rate in excess of

ten percent. The latest updated terminal planning forecasts, prepared by Peat Marwick Mitchell & Company in February 1982, projects a steady increase in the number of both flights and passengers through the year 2000. Based on the present demand and in view of the apparent end of downward statistical trend, the FAT authorities strongly support the validity of this forecast. Passenger projections for air carriers serving FAT on a scheduled basis are shown in the table below.

FRESNO-CHANDLER DOWNTOWN AIRPORT

Fresno-Chandler Airport (FCH), owned and operated by the City of Fresno, opened in 1929. FCH presently occupies an area of 200 acres in the Edison Community, one and one-half miles to the southwest of downtown Fresno. During the first 19 years, FCH served as the air carrier facility for the Fresno area. Passenger airline service was transferred to FAT in 1949 while FCH continued to serve private and small and medium sized corporate aircraft. Because of increased commercial and corporate activities at FAT, the City now encourages the use of FCH as a reliever airport.

Figure 49

UPDATED TERMINAL PLANNING FORECASTS
FRESNO AIR TERMINAL
FY 1978 – FY 2000

	Basic Market Forecast of ENPLANED Passengers				
	Historical		Forecast		
	FY 1978	FY 1981	FY 1985	FY 1990	FY 2000
Major & National Airlines	488,894	279,200	535,000	850,000	1,500,000
Regional & Commuter Airlines	31,198	117,201	115,000	150,000	300,000
Total Enplaned Passengers	520,092	414,401	650,000	1,000,000	1,800,000

The Airport Master Plan recommends limiting services at FCH to accommodate only lower performance general aviation aircraft because of the facilities' limited expansion capability and the encroachment of residential uses in the area of the Airport. It is forecast that a total of 46 acres of the Airport's land shall be required by year 1993 for fixed base operations and other commercial aviation activities when Chandler reaches its full service capacity. In 1980, FCH had 61,000 operations (either take off or landing). It is forecast that operations will increase to 195,000 by 1990.

The developments in the area to the southeast of FCH are basically medium density residential uses, with some supportive commercial land uses. Large portions of the area to the northwest of FCH are still undeveloped or agricultural, with some industrial uses. Historically, the area to the northwest has been planned for industrial development to mitigate airport environmental problems.

An Environs Specific Plan for FCH, which addresses the issues related to the Airport, was adopted in 1982. The primary objectives of the Specific Plan are to achieve land use compatability between FCH and its environs, and to ensure the health, safety and welfare of the people residing or working in the area and those using the airport, as those factors are related to airport operations.

SIERRA SKY PARK AIRPORT

The Sierra Sky Park Airport, a private facility with an activity level of approximately 100 operations a day, is located to the north of Herndon Avenue near the Blythe Avenue alignment. The airport is an integral part of the adjacent residential subdivision providing taxiways between the homes (where aircraft may be stored in private hangars) and the runway. The majority of the aircraft operations are directly related to this special residential neighborhood which is not yet fully developed, and the flying school operating out of the airport.

The Bullard Community Plan established clear zones around the airport to remove the potential impingement of future residential development on the operation of the airport. The clear area can be reserved by clustering the houses and developing an open green space for the benefit and use of future residents.

To satisfy the requirements of due process, the apparent loss of development potential is removed by creating the right to accommodate the entire density in clusters around the clear area. Given a cooperative atmosphere, an equitable relationship between affected property owners and the airport can be achieved by this approach.

CONCLUSIONS/MAJOR FINDINGS

The existing FAT airfield, with certain taxiway improvements, can accommodate the forecasted air traffic demand through 1993, but the extension of Runway 11L-29R to 10,000 feet may be required after that date.

To accommodate the projected growth in passenger traffic, the FAT Master Plan calls for the expansion of the main passenger terminal building complex to the southeast along with expansion of the public automobile parking facilities and realignment of the access roadway to serve the expanded terminal complex, during the period 1979-1983 or soon therafter. Conceptual Design Planning began in 1982, and various methods of financing the anticipated $25,000,000 FAT Terminal Complex Expansion Project are being explored to facilitate possible completion within the five (5) year period 1985-1990.

The Airport Master Plan for FCH recommends limiting services to accommodate only lower performance general aviation aircraft because of the airport's limited expansion capability and the encroachment of residential uses. In 1982, FCH had approximately 62,000 operations. It is forecast that operations will increase to 195,000 by 1990.

ENVIRONMENTAL IMPLICATIONS

The 1993 Master Plan of the FAT indicates that there are some undesirable noise impacts on the residential areas to the northwest of the terminal. Assuming that the current noise abatement procedures will continue, the noise levels generated within the 20-year planning period are not expected to change more than 2dBA in areas of 60 or greater CNEL in the Environs Area (for definition of noise standards, refer to the Noise Element of the General Plan). The CNEL contour lines for the FAT are shown in the Appendix.

The FAT Environs Specific Plan attempts to: (1) reduce the noise problems in the most seriously impacted areas to the northwest of the FAT; and (2) retain the compatible land uses in the high noise level exposure areas to the southeast. The plan proposes eight (8) on-airport and sixteen (16) off-airport measures, which are fully explained in the Plan.

In studying noise impacts resulting from FCH operations, no noise sensitive uses are identified in the 60 CNEL contour area, and the 65 CNEL contour will only extend off the airport for a small area at the northwest end. Since this area is designated for industrial use, no significant noise impact is expected.

According to the FAT Environs Specific Plan, there is no definitive evidence that an aircraft at an air carrier airport would impose safety hazards on residents in areas beyond the adopted clear zones at the end of the runways. A larger portion of the aircraft accidents occur in the approach and takeoff zones, and documentation of the danger by civilian aircraft is too sparse to substantiate the imposition of restrictive land use regulations in these areas. However, regulatory provisions such as Height and Noise Overlay Districts are currently under review by the City and County of Fresno and the City of Clovis.

Potential safety hazards resulting from FCH operations are expected to be mitigated by the establishment of 3,200 ft. runways and the implementation of FAA standards to assure safe operations.

Acoustical treatment of the five schools within the 75 to 70 CNEL area of the FAT environs, if found to be necessary, would improve the teaching environment of these facilities.

Air pollution caused by the aircraft and surface vehicular traffic surrounding the airports is not considered a major issue since, in Fresno County, all airport related emissions account for approximately two percent of the total County pollutants. In addition, the Final Environmental Impact Report, prepared in 1978, for the FAT Environs Area Specific Plan, indicated that total pollutant concentrations generated at the FAT and FCH were considerably below the levels allowed by Federal and State standards.

OBJECTIVE

1. To develo. ..nd operate Fresno's airport facilities to meet present and anticipated demands in a manner w... enhances safety to the public, minimizes the adverse effects of aircraft operations on people, a... romotes the economic health of the community.

POLICIES/IMPLEMENTATION STRATEGIES

1. Provide local jurisdictions surrounding the FAT and FCH with specific guidelines for effectively dealing with community problems and opportunities generated by the presence and operation of a publicly-owned airport.

2. Allow for the orderly expansion of the FAT as envisioned by the 1993 Master Plan and the revised aviation forecasts prepared for the Environs Area Plan, while minimizing adverse environmental impacts associated with the Air Terminal.

3. Increase safety of operations by formation of a Noise and Height Overlay District.

4. Provide land use controls which support the airport facilities and well-being of the people residing and working in the airport's surrounding area.

5. Encourage the completion of a feasibility study for the relocation of FCH's operations, as part of the "Third Airport Locations Study", which is in the Council of Fresno County Governments' Work Program.

RAIL SERVICE

INTRODUCTION

The City of Fresno was originally laid out by the Central Pacific Railroad (later the Southern Pacific Railroad) in 1872. The Southern Pacific was the only railroad until 1896, when the Santa Fe line was constructed. These two railroads have continued to provide rail service to the Fresno region since that time. (See Figure 50.)

The demand for rail services has had a declining trend in recent years in the San Joaquin Valley and California as a whole. The development of freeway systems and encouragement of trucking has provided an alternative mode of shipment for business and industry. Dependence on access to the railroad has diminished, to a large extent, as the trucking industry has captured more of the transportation market. Industries benefiting from the speed and flexibility of trucks have explored new locations. This has brought a gradual change in the economy of the region and the State. As a result, rail industries have experienced sharp declines in the demand for their services.

However, environmental and economical considerations continue to make the railroad attractive as a major interregional mode of transportation.

BACKGROUND

The rail network in Fresno County consists of approximately 283 miles of operating main and branchline rights-of-way. The two major railroad companies in Fresno County are the Southern Pacific Transportation Co. and the Atchison, Topeka and Santa Fe Railway.

Southern Pacific Transportation Co. (S.P.R.R.)

The Southern Pacific Transportation Co. operates two mainlines and five branch lines which either pass through or lie completely within Fresno County on about 190 miles of right-of-way. The main freight-yard and switching facilities are located in the northwest section of Fresno along Weber Avenue. The Fresno yard has a heavy- duty mobile crane for efficient loading and unloading of piggyback trailers and containers. Southern Pacific has operated no passenger service in several years, so the passenger depot located adjacent to the Greyhound Bus Depot in Downtown Fresno is now presently being used as offices after an extensive renovation process.

From 22 to 29 train movements per day occur to the north of Southern Pacific's Fresno yard, with 22-30 train movements occurring per day to the south.

The Atchison, Topeka, and Santa Fe Railway (AT&SF)

The AT&SF Mainline enters Fresno County from the north passing through the heart of the City of Fresno to the freight yard located in Calwa. The yard has a loading ramp for "piggyback" operations.

The right-of-way within Fresno County is approximately 33 miles in length. This is a single track line with passing and yard sidings, except for the double track portion of the line between Tulare Street and Church Avenue in Fresno. About 18 freight train movements occur daily along the part of the line south of the Calwa yard, and 13 a day north of the Calwa yard. These figures are subject to seasonal cargo variations, picking up during the summer and dropping off in the winter.

Merger Considerations

In spring 1984, the Southern Pacific Transportation Company and the Atchison, Topeka and Santa Fe Railroad applied to the Interstate Commerce Commission for a merger of rail transport functions which would have a major effect on the Fresno area. If the merger request is granted, the railroads intend to abandon parallel track systems, redirecting the present operations to the existing S.P.R.R. tracks from approximately Bullard Avenue to the north to the Calwa station to the south. This will result in the abandonment of the Santa Fe tracks from north of Herndon Avenue to the Blackstone-McKinley area where industrial uses may continue to require rail service. The City is in contact with the railroad companies and has done initial work related to accompanying circulation and land use planning, should the merger request be successful.

Rail Passenger Service

AMTRAK operates four passenger trains daily on the Santa Fe line out of the passenger terminal located at Tulare and "O" Streets near downtown Fresno, two trains going to Bakersfield, the others to Oakland. Rail passenger service is characterized by slower travel speed than air transportation and higher costs than inter-City bus transportation. However, the comfort of train travel is very attractive.

If rail travel speed is improved, there are good reasons for this mode of transportation to become highly competitive with other modes of inter-city transportation. Rail transportation has less negative impacts on the environment and is more energy efficient than either the automobile or airplane. Rail passenger transportation can be an alternative to the airport expansion which seems inevitable, as long as fast ground transportation is absent. Rail transportation has the advantage of reaching into the heart of urban areas smoothly and rapidly, with possible stops at the major urban nodes.

If rail passenger transport is to be made a viable alternative mode of transportation in California, the efforts of AMTRAK officials should be directed toward decreasing the travel time between metropolitan areas to a significant extent. The implementation of a high speed rail system can only happen in the far future. The Fresno region, in the meantime, should promote short range improvements in the existing rail system such as increasing levels of service, especially rail passenger service to Los Angeles and Sacramento, and providing an improved interface between AMTRAK operations and other modes of ground transportation including local and interregional buses.

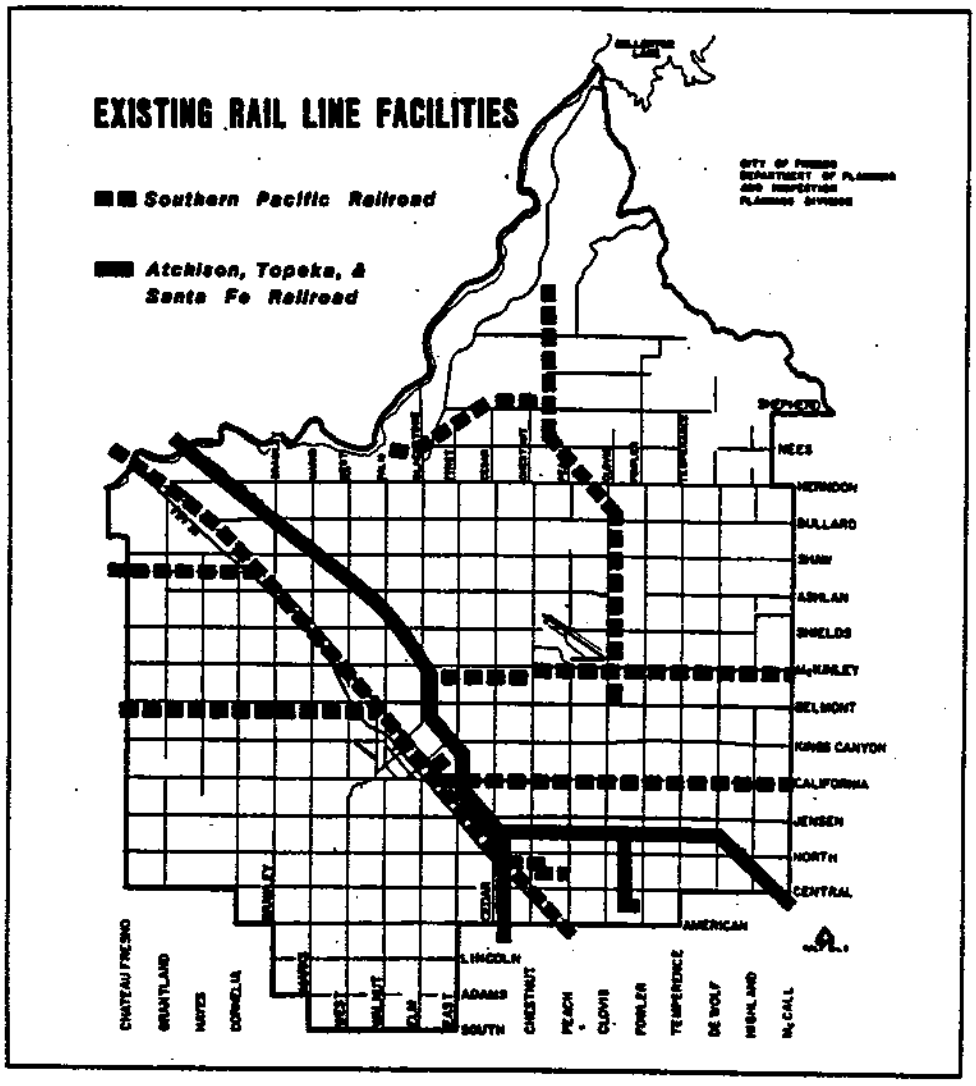
Freight Service

The quantity of commodities moved regionally and nationally generally varies directly with real per capita income. The movement of goods measured in ton miles has always increased at a slightly lower rate than population at the national level. To predict the share of the rail system in transporting goods, many factors related to the type of commodity and size of manufacturing establishments need to be considered.

If some major issues related to the rail industry are addressed, the rail system can become effectively involved in transportation of freight throughout the State. These issues, which should be solved at the national level among the different rail companies and which concern the institutional structures of the rail industry, would determine the future of operations on both rail lines passing through Fresno County.

The resolution of problems and issues associated with the operation of the rail system in Fresno County and Fresno City relies heavily on the way in which issues are ultimately resolved by the rail companies at the national level. Therefore, an examination of the jurisdictional levels which regulate and operate rail service is needed in order to determine those issues which can be addressed at local and regional levels and those issues which can be resolved through regional requests for action at State and Federal levels.

Figure 50



MAJOR FINDINGS/CONCLUSIONS

1. At the local level, the railroad industry is subject to zoning, local taxation, local laws regulating the use of private property, and local noise ordinances.

2. Improvements in grade crossings can be implemented at the local level with PUC approval, based on a priority list.

3. Trains crossing major streets at grade level in urban areas cause traffic delay and safety hazards. This is a particular cause for concern as Santa Fe's scheduling places trains in Fresno (the largest city in the Valley) at peak travel times.

4. Operation of the rail system in the urbanized area has caused noise impacts on residential areas.

5. Grade separation and problems related to railroad crossings can be better resolved with consolidation of rail lines in Fresno County.

6. Cooperation of the railroad companies to coordinate their operation schedule with the traffic flow during the day could alleviate the problems of delay and safety hazards.

ENVIRONMENTAL IMPLICATIONS

Noise - The noise generated from the operation of the railroad has adverse impacts on the noise sensitive uses along the rail right-of-way. There are nine publicly-owned facilities categorized as critical receivers within the 60db noise contour. Among these are six schools, two colleges, and the Community Hospital. The impact of noise on the Community Hospital is most severe, because it is a multi-story building located in proximity to three at-grade crossings.

An accoustical barrier can achieve a 20dBA reduction in the noise produced by wheel-rail interaction and a 12dBA reduction in locomotive noise at a distance greater than 300 feet from the barrier. Such barriers can also reduce the noise level from yard activities. However, it should be emphasized that attenuation of railroad noise must use a combination of setbacks, berms and barriers to be effective, and this should be reflected in the philosphy of the planning agency responsible for the development of areas near railroads.

Traffic flow - Currently, trains crossing major urban streets are causing delays in traffic flows and creating safety hazards at the same time of operation. The Santa Fe mainline has more impact on the circulation system than the Southern Pacific mainline, since it passes through the heavy urbanized areas. In order to minimize problems associated with delays in traffic flow, train scheduling through Fresno must not occur at peak travel times. The proposed merger, if implemented, will have substantial benefits for metropolitan circulation.

Exhaust Emissions - Another negative environmental impact associated with rail operations is that of air pollution. However, rail emits less pollutants per payload mile than any other mode of shipping or passenger transport, and less than one percent of the air pollution in the U.S. as a whole.

Research indicates that total emissions per ton-mile of freight moved by train are only about 1/3 of those produced while moving the same volume of freight by truck. Thus, it could be logically concluded that any shift in the freight transport mode from truck to rail would result in a lower volume of air pollution.

It is estimated that rail commodity transport, depending on load, route, and switching factors, is anywhere from three to five times more fuel efficient than truck transport. However, rail passenger service at existing volumes is far less fuel efficient relative to other modes.

Fire, which can be caused by rail operation, is largely reduced by use of spark arrestors and by weed control programs.

Many aspects of rail operation are characterized by negative visual impacts. The storage of materials and maintenance equipment along-side the tracks is a disturbing but inevitable part of rail operation. Another disturbing visual aspect of rail operation is the presence of communication wires alongside the tracks.

OBJECTIVE

1. Reduce conflicts betweeen rail and other vehicular modes.

POLICIES/IMPLEMENTATION STRATEGIES

1. Encourage relocation of the Santa Fe mainline operations over to the Southern Pacific tracks.

2. Improve or construct existing grade separations as necessary for the smooth flow of traffic within the community.

3. Provide additional grade crossing improvements as determined by the California Public Utilities Commission and the City.

4. At-grade crossings by minor streets and roads over rail mainlines should be considered for closure unless no other access to the property involved is available.

OBJECTIVE

1. Reduce the environmental impact of rail operations.

POLICIES/IMPLEMENTATION STRATEGIES

1. Limit future development within the 75db CNEL noise contour adjacent to rail rights-of-way to uses not adversely affected by noise.

2. Disallow the construction of "critical receivers" (e.g., hospitals, schools, rest homes) within the 60db CNEL noise contour adjacent to rail operations.

3. Require appropriate noise mitigation measures for the uses sensitive to noise in the vicinity of the railroad within the 60db CNEL noise corridor.

OBJECTIVE

1. Reinforce the provision of high-quality passenger service for the San Joaquin Valley.

POLICIES/IMPLEMENTATION STRATEGIES

1. Recommend to AMTRAK officials that AMTRAK service from Fresno to Sacramento and Los Angeles be initiated.

2. Recommend to AMTRAK officials that the interface between the regional bus network and AMTRAK be improved.

OBJECTIVE

1. React decisively to proposed abandonment of rail lines.

POLICIES/IMPLEMENTATION STRATEGIES

1. The possibility of intermodal shipment should be addressed for those enterprises affected by abandonments of rail services.

2. When rail lines are abandoned, consideration should be given to other transportation uses of the line which would be of maximum benefit to the region.

3. Adequate time should be given after abandonment of rail lines for local governments to react to take advantage of alternative uses before the land is sold to other persons or agencies.

BIKEWAYS

INTRODUCTION

As a result of the increasing costs of maintenance and operation of motorized modes of transportation and increased interest in physical fitness, bicycles have become more attractive in the eyes of the public. Compared to motor vehicles, bicycles are non-polluting, quiet, and inexpensive. The availability of bicycles and the independence which they provide are advantages over public transportation. Bicycles can be used for shorter urban trips, which in return would help to reduce air pollution and street congestion.

Fortunately, the climate and topography of Fresno encourages bicycling. Cycling can be further encouraged by providing bikeways suitable to the needs of the community.

BACKGROUND

In 1975, the Bikeways Plan was adopted by the City of Fresno, followed by the Fresno Regional Bikeway Plan. This Plan, which designated the bikeways throughout the metropolitan area, needs to be revised to include areas designated for urban expansion since 1975, as shown in the 1984 Fresno General Plan, and to reflect changing philosophies in the ideal bicycle transportation network.

Bicycles can play a role in the transportation system of the Fresno metropolitan area. According to the Bikeways Plan of 1975, most bicycle trips averaged two miles in length. Approximately 30 percent of the urban automobile trips were less than two miles. This indicates that the potentials for bike usership in the metropolitan area are excellent.

The bikeways implemented so far, as shown in Figure 51, are fragmented and discontinuous, and thus provide a limited level of service and safety. The Cities of Fresno and Clovis, the County of Fresno, and the

State Department of Transportation should cooperatively complete the bikeway network as a way of providing additional incentives for the shift from automobiles for shorter trips. Those bikeways proposed to complete the system are also shown on Figure 51.

The 1975 Bikeways Plan proposes bikeways along the canal rights-of-way. This has proved to involve substantial policy differences with the Fresno Irrigation District which, in the near term, seem unresolvable. As a result, revision of the plan to delete bikeways shown along canal banks is advised. Bikeways are more likely to meet the cyclists's need along major streets, as the cyclists and motorists tend to share similar destinations, such as schools, parks, and shopping centers. In addition, deletion of the canal bikeways eliminates safety problems caused by unsignalized crossings of canals at major streets.

The Bikeways Plan does not include the bikeways proposed in the community plans prepared after 1975, and none cover the newly developing areas or areas proposed for urbanization in the 1984 Fresno General Plan. The Council of Fresno County Governments prepared a plan for the Fresno Regional Bikeways in 1981. Nevertheless, a plan is needed for the Fresno metropolitan area to focus on the specific issues regarding the urban bikeways system and to incorporate related plans for consistency and compatibility throughout the region. Until such a plan is prepared, an interim plan for the fast-growing areas of the City can be provided through the Community Plan process.

The Bikeways Plan of 1975 calls for an educational program to inform the cyclists as well as the auto drivers of their rights and regulations which support safety of movement in the metropolitan area. As bike ridership increases, this program should be conducted in a meaningful way, especially among the 18-29 year-old age group. There are a few organizations that distribute educational information on bicycling such as the Highway Patrol, the Fresno County Council of Governments, the Department of Traffic Safety, and the Southern California Auto Club.

There are different sources of funding for the development of the bikeways at the federal, state, and local level. Bikeways in Fresno are financed primarily through Local Transportation Funds (SB 325). This fund is available to Fresno based on submission of a development project on an annual basis. The Council of Fresno County Governments is the distributing agency for this fund according to a priority list.

MAJOR FINDINGS/CONCLUSIONS

1. Revision of the Fresno-Clovis Metropolitan Area Bikeways Plan is necessary to include the newly developed areas and to provide resolution of inconsistencies between the General Plan and the community plans.

2. Until revision of the Bikeways Plan is completed, an interim plan should be provided for the developing areas of the City through the Community Planning process.

3. A stronger and more effective educational program is needed, as bike usership increases.

4. Bicycles should be considered as an important alternative transportation means for urban trips, especially given the potentials for fuel shortages.

5. Safety of the cyclist depends on a comprehensive, interconnective bikeways system with proper safety measures.

6. An implementation plan, which incorporates priority and feasibility factors for a timely and orderly development of the bikeways, should be prepared as a part of the Bikeways Plan.

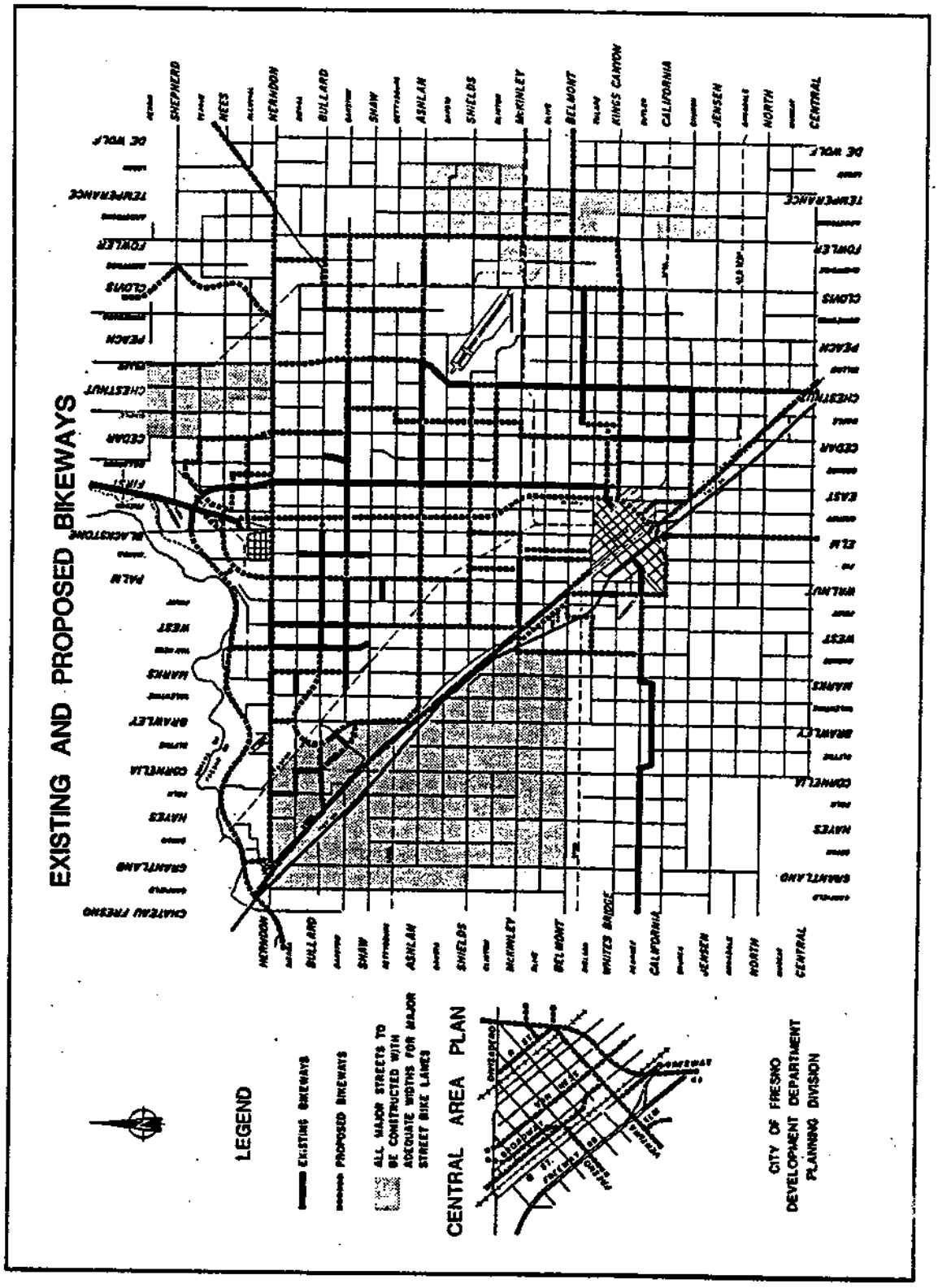
ENVIRONMENTAL IMPLICATIONS

Bikeway development is expected to have little adverse environmental impact. Bicycles are efficient in terms of operation and manufacturing. Manufacturing a bicycle requires only 1/100 of the energy required to manufacture a car.

Bikeways and bike usership have a positive impact on air quality. An increase in bicycle ridership means fewer vehicle miles travelled—hence, less air polluting emissions produced. Conversion of motorists to bicycle users would result in a reduction of noise in the metropolitan area.

Bikeways require prohibition of on-street parking along the route. Some people are reluctant to lose this privilege. The survey taken in the preparation of the Fresno Regional Bikeways Plan indicates that many

Figure 51


EXISTING AND PROPOSED BIKEWAYS
LEGEND
EXISTING BIKEWAYS
PROPOSED BIKEWAYS
ALL MAJOR STREETS TO BE CONSTRUCTED WITH ADEQUATE WIDTHS FOR MAJOR STREET BIKE LANES
CENTRAL AREA PLAN
CITY OF FRESNO
DEVELOPMENT DEPARTMENT
PLANNING DIVISION
SHEPHERD
NEES
HERNDON
BULLARD
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
KINGS CANYON
CALIFORNIA
JENSEN
NORTH
CENTRAL
WHITE BRIDGE
CHATEAU FRESNO
GRANTLAND
HAYES
CORNELIA
BRAWLEY
MARKS
WEST
PALM
BLACKSTONE
FIRST
CEDAR
CHESTNUT
PEACH
CLOVIS
FOWLER
TEMPERANCE
DE WOLF

people are willing to give up their on-street parking for better bikeways; however, it takes only a few vocal opponents to hinder development.

OBJECTIVE

1. To provide a continuous and easily accessible bikeways system within the metropolitan area.

POLICIES/IMPLEMENTATION STRATEGIES

1. Give priority to bikeways which will serve the highest concentration of cyclists and destination areas of highest demand.

2. Provide bikeways in proximity to major traffic generators such as commercial centers, schools, recreational areas, and major public facilities.

3. Develop bikeways which are continuous and which provide linkages to other bicycle facilities. Give priority to bikeway construction that links existing separated sections of the system.

4. Work toward geographical coverage of the metropolitan area with a bikeway system developed at half-mile intervals.

5. Develop a visually clear, simple, and consistent bicycle system with clearly defined areas, boundaries, and standard signs and markings, as designated by the State of California Traffic Control Devices Committee and the State Bikeway Committee.

6. Adopt a bicycle ordinance which is consistent between the County and cities.

7. Require as a condition of approval of new development adjacent to designated bikeways that the bikeway be provided.

OBJECTIVE

1. Educate both motorists and cyclists as to their rights and responsibilities when operating on public streets.

POLICIES/IMPLEMENTATION STRATEGIES

1. Develop an expanded program of education on the "rules of the road" for cyclists, both through mass media and through school and private efforts.

2. Encourage the Department of Motor Vehicles to include bicycle rules and regulations in driver tests.

OBJECTIVE

1. Maintain bicycle facilities so that they are safe and secure.

POLICIES/IMPLEMENTATION STRATEGIES

1. Provide sweeping and other necessary maintenance to clear bikeways of dirt, glass, gravel and other debris.

2. Initiate a program to install safe drainage grates along designated routes.

3. Provide adequate route lighting.

4. Initiate the installation of bicycle locking racks at public buildings, public parking lots, and public recreational facilities.

5. Amend the Zoning Ordinance to include provisions for bicycle parking facilities in the off-street parking requirements.

6. Encourage the inclusion of bicycle locking facilities in large multiple-family developments.

OBJECTIVE

1. Monitor and evaluate the effectiveness of bikeway facilities.

POLICY/IMPLEMENTATION STRATEGY

1. After the bikeways system has been in use, survey and analyze the system in terms of usage, safety and efficiency.

OBJECTIVE

1. Facilitate the linkages between cycling and other modes of transportation.

POLICIES/IMPLEMENTATION STRATEGIES

1. Explore the potential for providing bike racks or space for bicycles of Fresno Transit buses.

2. Incorporate bicycle locking racks in terminal facilities such as the Fresno Air Terminal, railroad depots, and any large transit stations which may be built in the future.

LIGHT RAIL

INTRODUCTION

The 1984 General Plan relies heavily on the incorporation of higher density residential uses in proximity to services and employment as a mechanism which will assist in the provision of affordable housing, decrease vehicle miles traveled, reduce air pollution, and diminish the loss of productive agricultural land to urban uses. However, the development of high intensity land uses with no accompanying change in the use of private automobiles would produce unmanageable congestion on city streets.

Higher densities will make all forms of joint-ride systems more functional, from ride-sharing to public transit. In addition, it seems appropriate to consider the alternative of light rail or other innovative "people-mover" systems - particularly for any future high density corridor in the new community. Therefore, we should retain our options for new systems in the design of future major transporation corridors.

BACKGROUND

The Council of Fresno County Governments completed a document entitled *Preliminary Feasibility Analysis Study for Light Rail Transit Application in Fresno County* in December 1980. This initial study was completed in recognition of the pronounced need to consider transit alternatives. Much of the discussion which follows relies on the information supplied by that study.

Collectively, all the facts favor alternative transportation modes. Larger cities tackling the magnitude of their urban trips have utilized light rail transportation successfully for years. This mode of transportation is receiving attention in fast-growing urban areas. Analyzing the characteristics of transit systems helps to determine a personalized system which can best meet the needs of riders within a service area. The important characteristics of transit systems helps to determine a personalized system which can best meet the needs of riders within a service area. The important characteristics to be highlighted include the following: frequency, speed, system capacity, intermodal interface, and safety.

1. The speed and frequency of the light rail service, like any other transit mode, depends on the service demand and the number of stops. Nevertheless, light rail is able to provide faster service, due to having a separate route with minimum traffic interference. This is especially true if traffic control devices which prioritize light rail transit movement are used.

2. Light rail system capacity is a function of vehicle capacity and speed, frequency of service, train length, and passenger loading time. Assuming a signalized track system with peak headways of 90 seconds (easily attainable between single light rail vehicles), and using vehicle capacities of 120 or 200 passengers per car, the resultant route capacities would 4,800 to 8,000 passengers per hour per day.

3. The interface between light rail transit and other modes of transportation such as bus service, rapid rail transit, and automobile parking facilities is common. The practicality of interface with buses, rapid rail transit and other modes of transportation has been proved throughout the country.

4. Light rail transit technology provides for safe system operation. The use of appropriate signaling on high speed routes and installation of safety devices ensure safe operations between elements of the system.

Labor represents the major portion of a light rail system's operating costs. A recent comparison of light rail and bus service for a similar level of service made in Rochester, New York indicated that there was a significant (approximately 25 percent) operational cost savings for light rail. The initial capital investment for light rail transit depends on the construction required and the reality of building such a system would likely depend on the availability of State and Federal funding. Nevertheless, the potentially lower labor costs for light rail may result in a favorable annual operating cost comparison with buses for similar types of transit service.

The projected growth for Fresno and the existence of rail lines throughout the metropolitan area indicate a need to consider light rail as a possible transportation mode for future travel demands. A precise study of the land use, population density and distribution pattern, socio-economic characteristics of the population and projected growth is necessary in addition to a technical study on light rail implementation to determine the feasibility of providing this service to the metropolitan area.

The use of a light rail alternative should be considered both in community plan updates and in the transportation corridor studies recommended in the "Freeway Issues" section of the Plan. Right-of-way determinations and street cross-section design for high intensity corridors should retain future options for the incorporation of light rail. Canal rights-of-way should also be considered as having potential for future connections.

MAJOR FINDINGS/CONCLUSIONS

1. Light Rail has the potential of becoming an effective alternative mode of transportation.

2. The adverse environmental impacts of light rail transit are minimal as compared to other modes of transportation.

3. A detailed feasibility study of light rail transit implementation is necessary to analyze the costs and benefits of providing transit service in the future.

4. The design of major transportation corridors should retain the option of incorporating light rail at some future date.

OBJECTIVE

1. To serve future population concentrations with feasible alternative transportation modes which are efficient, safe, and minimize adverse environmental impacts.

POLICIES/IMPLEMENTATION STRATEGIES

1. Initiate a detailed feasibility study of the incorporation of light rail transit service in major transportation corridors and in the high density corridor proposed for the new community west of Freeway 99.

2. Include the potential for future light rail systems in the freeway corridor studies recommended in the Freeway Issues section of the General Plan.

HOUSING

HOUSING

INTRODUCTION

The Housing Element is a mandated element of the City's General Plan. The purpose of the Element is to guide the planning efforts of the City in providing a "decent home and a suitable living environment" for all of the people in the Fresno-Clovis Metropolitan Area. Toward this end, the Housing Element should carry out the following three objectives established by the State:

1. Provide decent housing in a satisfying environment for all persons, regardless of age, race, sex, marital status, ethnic background, source of income, or other arbitrary factors.

2. Provide adequate housing selection by location, type, price, and tenure.

3. Develop a balanced residential environment with access to employment opportunities, community facilities, and adequate services.

The following discussion provides highlights of the Housing Element, including: findings and conclusions; policies; and implementation strategies. For a more detailed discussion, please refer to the complete document which was adopted on March 24, 1981.

Note that some of the information in this Housing Section has been updated after the adoption date of the Element, reflecting more recent data now available to City staff.

BACKGROUND

HOUSEHOLD CHARACTERISTICS AND THEIR IMPACT ON HOUSING NEED AND DEMAND

Total Households

City households fall into several different categories. Different types of households with varying incomes and household sizes create a demand for varied types of housing. Diversity has increased as the population has grown. The number of households within the City nearly doubled between 1960 and 1980. In the year 1960 there were 42,458 households; in 1970 there were 55,274; in 1980 - 82,045; and by January 1, 1982, the number had grown to 92,122.

Household Size/Changing Trend

One of the ways to classify households and to relate their characteristics to the shape of housing need is to evaluate changes in the average number of persons that they contain. Household size within the City is much smaller in 1983 than in 1960, changing from 3.07 persons to 2.61 persons. Thus, the general conclusion must be that if household size is related to the shape of housing need, then the absolute necessity for larger sized housing units has diminished over the 23-year time period. It should be noted that though the direction over the long-term has been downward, the actual low point was reached in 1979 when household size diminished to 2.56 persons/unit. Since that time it has gradually increased to 2.61. Persons participating in the market should also note that in addition to the slight reversal of the household size trend, which affects demand, other factors, particularly income, affect the amount of space and type of amenities that households want and will buy.

Income

As indicated earlier, income is an important factor in determining whether households can afford adequate housing. The U.S. Department of Housing and Urban Development has estimated that the median family income for Fresno County in July of 1981, was $21,500.

*In August 1982 dollars

Local residents are reaching an income level plateau. Average FCMA real household income is projected to increase only $120 per year between 1975 and 2005, changing from $22,900 to $25,300 over the time period.* This leveling of income, coupled with rising housing costs, has affected the type of housing that can be purchased. During the early 1980's, a need for new types of lower cost housing and for significant amounts of housing rehabilitation were evident. New single-family homes on large lots were out of reach for the incomes of much of the population.

Older parts of the City and unincorporated areas generally contained persons with lower income and less adequate housing. A need for rehabilitation is particularly necessary in these parts of town. It should be noted, though, that rates of improvement or decline vary. Some older neighborhoods such as Old Fig Garden, Huntington Boulevard and Sunnyside continue to maintain relatively high housing values in spite of the increasing age of their housing stock, and some newer neighborhoods have deteriorated rather quickly.

Low and Moderate Income Households/Non-Market Rate Housing Need Based on Federal Standards

An income less than 80 percent of the median is classified as "lower income" by the U.S. Department of Housing and Urban Development.

Using this definition, Figure 52 indicates the number and percentage of lower income households in the City in 1982. It also indicates, based on federal guidelines, the number of lower income households needing housing assistance, both in terms of housing rehabilitation and rental subsidies.

Substandard units, not vacant, not of demolition quality and occupied by lower income households, are considered suitable for rehabilitation. A community may use their own definition of substandard. Households needing rent subsidies are those renters whose incomes are below 80 percent of the median, adjusted for family size.

Figure 52

LOWER INCOME HOUSEHOLDS/HOUSING NEEDS
January 1982

	City of Fresno	
Total Nonseasonal Households	91,966	100%
Number of Lower Income Households	39,398	43%
Lower Income Household Needing Housing Assistance	16,930	18%

Source: City of Fresno Community Block Grant Application, 1982-1985 (Fresno: City of Fresno, Development Department) (1983).

The 16,930 lower income households living within the City of Fresno and needing rental subsidies are categorized by household type in the City's Block Grant Housing Assistance Plan and include 3,646 elderly, 11,781 small families, and 1,503 large families.

Other Household Characteristics that Shape Housing Need

Other special household groups have unique housing needs. For instance, housing affordable to primary heads of households may include apartments, condominiums, and mobile homes. Primary households are those which are headed by a person living alone or with unrelated persons, as opposed to family

households which are composed of at least two related persons. Primary households tend to have lower incomes than family households.

Unmarried, widowed, or other single parent households may require low maintenance types of housing with room for children and locations near child-related services such as nursery schools. They may also fall in the lower income category. Multiple family housing, zoned and developed for family uses may meet their needs. This group made up 10 percent of all City households in 1980.

Female-headed families and female-headed primary households as well as households headed by the elderly, may prefer housing located where extra security and protection are available. In 1980, female-headed families and female-headed primary households combined made up 13 percent of all City households, and 18 percent of all City households which were headed by persons over age 65.

Minority households also have some special housing needs. When household data is compared to general population data, it becomes apparent that minority households have larger families than the population as a whole. Such families may need housing with special design features such as large dining areas or more bedrooms than the average housing unit. In 1960, 15.5 percent of City households had minority heads of household. By 1970, the percentage had risen to 24.3 percent and by 1980 to 30.3 percent. Although minority households still tend to have larger families than the population as a whole, size differences are decreasing over a period of time.

Mobility

The overall trend toward increased mobility accelerated between 1970 and 1980. In 1970, 43.2 percent of all City households had lived in the same residence for five years or more and by 1980, the percentage had dropped to 35.9 percent. But the decline in real income, coupled with the increased interest rates that occurred during the late 1979-early 1980 nationwide economic downturn affected the frequency of home purchase within the local housing market area during the tail end of that time period and continued into 1982. Not only were fewer households able to move from homes they already owned to newer ones, fewer affordable older homes were on the market for first-time buyers. Based on this decline in real income and the related inability of a significant portion of the population to purchase a different home than the one they were living in, people moved less frequently. By early 1983, the trend appeared to be changing again, interest rates had declined to a level that allowed a small upturn in residential construction starts and there were signs of a possible economic recovery and a related return to greater mobility within the housing market.

HOUSING SITES

Housing Unit and Population Capacity Within the Fresno Sphere of Influence

As a part of the General Plan process, City staff has completed some rough population capacity calculations which indicate that the land designated is adequate to accommodate new residential growth for the current 20-year planning period and beyond. But the last full study of the Fresno Sphere of Influence housing unit capacity by type and density category was completed in February, 1978.

The 1983 General Plan has been designed to bring about a multitude of changes within the Metropolitan Area, including the opening of new plan areas, a move toward allowing increased densities, and the creation of desirable new sites for the location of light industry. Such actions are likely to create a change in the direction and extent of growth within the various parts of the community. Evaluating the possible impact of the various changes, staff has completed a rough estimate of population capacity in the essentially undeveloped plan areas but has not yet had time to complete a detailed analysis of housing unit capacity by the various subcategories. It is anticipated that this type of more detailed analysis will be completed at some future time.

The Capacity of the City Infrastructure

The ability of a City to provide an adequate housing supply is also closely linked to the capacity of the City's infrastructure. Decreases in public funds available for such improvements and the concomitant need for providing services to developing areas are likely to create some of the most significant problems of the current decade. City staff will need to make a concerted effort to find new financing mechanisms that are both workable and agreeable to the general public.

One of the City's tools for orderly and cost effective growth is the Urban Growth Management process. The process allows the City to manage the location and timing of growth in the City's fringe areas. It augments existing development review procedures with a formal Service Delivery Review and Cost/Revenue Analysis and provides for final action by the City Council. The growth management process has encouraged developers to make optimum use of existing facilities already available in certain parts of the City. It has also encouraged the development of vacant, smaller, "by-passed" parcels for residential uses.

HOUSING UNITS

Figure 53 summarizes the housing unit information for the City of Fresno, indicating changes that have occurred over a 20-year interval between 1960 and 1980.

Figure 53

HOUSING INFORMATION FOR THE CITY OF FRESNO

	1960		1970		1980	
	Units	Percent	Units	Percent	Units	Percent
Total Housing Units	45,231	100.0	57,672	100.0	88,749	100.0
Occupied Housing Units	42,458	93.9	55,274	95.8	81,996	92.4
Owner Occupied Housing Units	28,294	62.6	32,111	55.7	44,229	49.8
Renter Occupied Housing Units	14,164	31.3	23,163	40.2	37,767	42.6
Single Family Housing Units	39,030	86.3	44,260	76.7	54,703	61.6
Multiple Family Housing Units	6,201	13.7	13,412	23.3	34,046	38.4
Total Vacant Units	2,773	6.1	2,385	4.1	6,603	7.4
Total Available Vacant Units	1,984	4.4	1,602	2.8	6,435	7.3
Vacant Units For Sale	594	1.3	303	0.5	2,149	2.4
Vacant Units For Rent	1,390	3.1	1,299	2.3	3,668	4.1
Other Vacant Units	789	1.7	783	1.4	1,141	1.3

In terms of the direction of growth, during the 1960's, the FCMA experienced growth toward the north, including areas north of Shields Avenue, to the northeast around the University, and in the City of Clovis. Areas south of McKinley Avenue, extending into Calwa were experiencing various stages of decline and renewal. These trends continued through the 1970's. Most of the metropolitan area received a net increase in the number of housing units, with the exceptions of the Central Area and the Edison Community. The areas which received the highest gain in housing units included the Sunnyside area, East Clovis, and the Bullard, Hoover and Woodward Park Communities. During the early 1980's, substantial new development activity began to occur west of Freeway 99.

Single/Multiple Family Housing Units

The percentages of single-family housing units declined in the FCMA between 1960 and 1970 from 90.4 percent to 82.3 percent and then to 66.5 percent in 1980, while the percentage of multiple family housing units increased commensurately.

The rate of renter-occupied units increased over the same time period. This indicates that the proportion of renter occupied housing units changed in the same direction as the proportion of multiple family housing. In the 1980's, it is anticipated that owner-occupied condominium type multiple family housing units will become a larger percentage of the housing stock and reduce the traditional high correlation between renter occupancy and multiple family housing.

Vacancy Rates

According to the State Department of Finance, 5,633 units or 5.6 percent of the City housing stock were vacant as of January 1, 1983. This was down from 7.4 percent in 1980 and 6.6 percent in 1981. A five percent vacancy rate is considered adequate to allow mobility within a jurisdiction. Thus, the present City rate is quite near to the optimum one. But in the 1983 marketplace, lack of adequate mobility does exist and it is more a function of inadequate income than of a lack of available housing. The City population has continued to grow but many persons are doubling up with family members or friends. Thus, it can be assumed that with an economic recovery, the demand for housing will accelerate and unless construction of new units occurs concomitantly, the vacancy rate will decline quite swiftly.

Housing Quality and Housing Need

Figure 54 gives an indication of the amount of substandard housing within the City.

Figure 54

ESTIMATE OF HOUSING CONDITIONS
JANUARY 1, 1982

Substandard Housing Stock Including Units Needing Minor and Major Rehabilitation and Housing of Demolition Quality		Substandard Housing Stock Excluding Housing of Demolition Needing Only Minor Rehabilitation		Total Housing Stock	
Units	Percent	Units	Percent	Units	Percent
33,499	34.0	15,049	18.7	98,664	100.0

City of Fresno Housing Assistance Plan Data

Housing Assistance Plan data can be used to evaluate the speed at which such substandard housing is being rehabilitated or replaced. The latest three-year Housing Assistance Plan completed by the City was developed in April, 1983. For Housing Assistance Plan purposes, housing rehabilitation needs are based only on that proportion of the substandard housing stock that is non-seasonally used and considered year-round units. Of the 98,664 units in the January 1, 1982 housing stock, 98,497 were non-seasonal. Of those, 28,876 were considered substandard units suitable for rehabilitation. Lower income households occupied 11,704 units and, therefore, were targeted for eventual upgrading through the use of public funds and programs, but because of funding limitations, only 735 of those are likely to be rehabilitated during the current 1982-1985 Block Grant period.

Figure 55 gives an indication of the location of substandard housing within the FCMA as of 1974 and shows those census tracts where the majority of the units are above or below the FCMA norm for housing quality.

Other City Housing Unit Characteristics

As of January 1982, at least 28,876 housing units needed some form of rehabilitation.

As of January 1981, at least 4,126 housing units needed to be demolished.

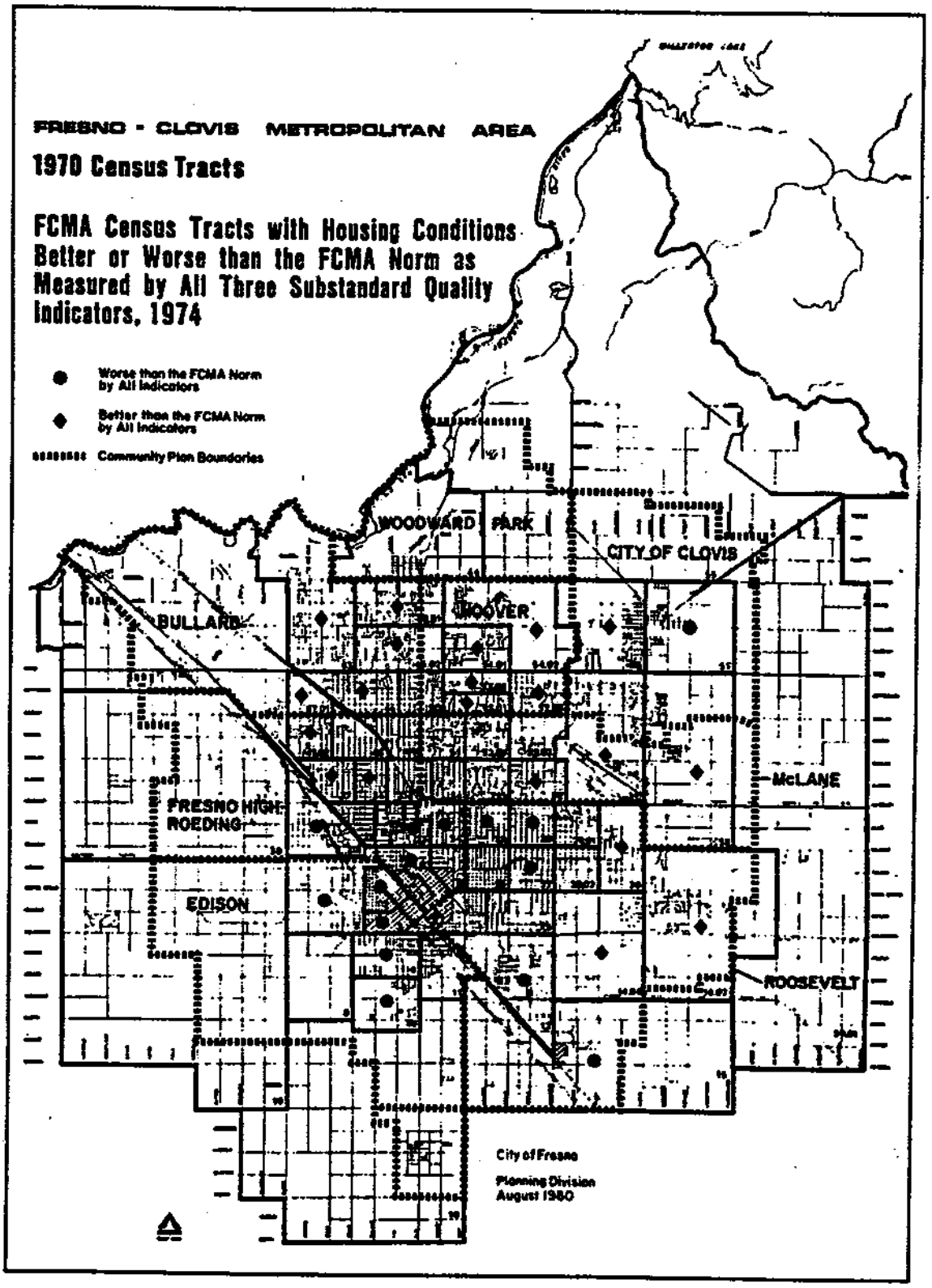
At least 4,900 households were living in overcrowded conditions at the time of the 1980 Census. The extent of overcrowding has decreased significantly since 1970.

Median gross rent had increased from $105 in 1970 to $240 in 1980.

At the time of the 1980 Census, 20,587 renter-occupied households were paying 25 percent or more of their income in rent and at least 16,378 of those were paying more than 30 percent.

The average sale price of existing homes sold through the Multiple Listing Service rose from $21,419

Figure 55


FRESNO - CLOVIS METROPOLITAN AREA
1970 Census Tracts
FCMA Census Tracts with Housing Conditions Better or Worse than the FCMA Norm as Measured by All Three Substandard Quality Indicators, 1974
Worse than the FCMA Norm by All Indicators
Better than the FCMA Norm by All Indicators
Community Plan Boundaries
WOODWARD PARK
CITY OF CLOVIS
BULLARD
HOOVER
McLANE
FRESNO HIGH
ROEDING
EDISON
ROOSEVELT
City of Fresno
Planning Division
August 1980

in 1970 to a peak of $76,422 in 1981 and then dropped slightly to $74,370 in 1982.

Median Housing Unit Value, owner-occupied units, April 1980, was $60,300 according to the U.S. Census. This was up from a 1970 median value of $15,400.

As of July 1981, the average income household making $21,500 could theoretically afford a monthly housing payment of $597, an amount considerably short of the $727 payment required for the purchase of a median priced home, valued at $74,370 (1982 median) and financed at 12 percent interest with a five percent down payment. As of June, 1983, the Federal Housing Administration (FHA) 30-year loan rate was 12 percent and conventional rates were approximately 12.5 percent.

The data on income and housing characteristics indicate that a substantial amount of the City housing stock is inadequate and that there are still economic factors that limit the ability of large segments of the population to acquire safe and sanitary market rate housing.

Regional Fair Share Allocation Plan/Non-Market Rate Housing Need Based on State Standards

Because of the regional nature of housing markets, the City's Housing Element focuses both at a regional level when discussing housing needs and at a local level when proposing an action program.

The State Housing Element Guidelines call for a Regional Fair Share Allocation Plan. The document defines local housing market areas. Each jurisdiction within a market area is then assigned and becomes responsible for a proportional share of the area's non-market rate household needs.

Housing markets are areas where local interaction has resulted in an economic and social interdependence with respect to the provision of housing, employment and service opportunities. "Non-market rate households" are those which do not have the financial capacity to meet their housing needs without sacrificing other essential needs. These households fall into an income range not to exceed 80 percent of the median income. The allocation is projected to the year 1985.

The reader should note that the Fair Share Allocation Plan was used for program evaluation at the State governmental level and the Block Grant Housing Assistance Plan for program evaluation at the Federal government level.

As specified in the State Mandated Fair Share Allocation Plan, the City of Fresno falls into the Fresno Metropolitan Allocation Area. This area also includes the cities of Clovis, Sanger, Fowler, Selma, Kingsburg and the surrounding unincorporated areas. The entire Fresno metropolitan area allocation of non-market rate housing need was 36,317 households. Of that amount, the City of Fresno's Fair Share Allocation through the year 1985 was 18,776 households.

The City's unmet housing need, based on the State Mandated Fair Share Allocation formula, can be determined by subtracting a locally derived figure of met need from the Fair Share Allocation. (The City's met need has been approximately determined, based on progress reports made in the City's Block Grant Related Housing Assistance Plan. The information has been updated, based on additional data gathered during the Housing Element preparation process.)

* Refer to the Housing Element, pages 97-99, and to the Community Development Block Grant Application, 1982-1985 for a more complete description of the various subsidy programs indicated.

As of July 1982, the City contained at least 3,757 subsidized housing units* listed as follows:

Section 235	1,196 units
Conventional Public Housing	996 units
Section 8 Combined with Sections 236, 202, 221 D (3), 221 D (4), etc.	1,586 units
Section 23	9 units
Total	3,757 units

Source: City of Fresno, Development Department, July 1982

Subtracting the 3,757 subsidized housing units from the 18,776 unit Fair Share Allocation, the City's unmet need is 15,019 units.

MAJOR FINDINGS/CONCLUSIONS

Housing Production and Projected Need

To serve new population growth and household formation within the Fresno-Clovis Metropolitan Area, approximately 5,700 new housing units of all types need to be built during each of the next five years. During each of the years from 1978 to 1982, the City of Fresno has experienced an average annual gain of 2,200 new housing units and the City of Clovis has experienced an average annual gain of 500 new units. The gain for the two cities combined was 2,700 units each year. Therefore, it appears that the cities have been moving substantially behind production needs. The lag can be attributed to a downturn in the level of construction starts during the recent recessionary period. There is still a clearly apparent need for more affordable market rate housing. For many years to come, there will also be a strong need to make use of local, state, and federal funding sources to upgrade substandard neighborhoods.

The current City Housing Assistance Plan goal for 1982-1985 is 5,268 units, including 735 units to be rehabilitated, 3,733 units of new housing construction, and 800 Housing Authority administered units. Another 3,700 units are targeted for weatherization improvements but not for full rehabilitation. In other words, current efforts to provide and/or rehabilitate non-market rate housing units fall far short of the need identified in the Fair Share Allocation and Housing Assistance Plans.

CONSTRAINTS TO HOUSING PRODUCTION

The development industry is faced with a variety of constraints to the construction of new housing. These constraints both limit the number and increase the cost of those housing units which are constructed. These constraints may be loosely classified as market, governmental, and social in nature, although there is a strong inter-relationship between these factors.

The most significant constraints to the production of new affordable housing are the cost of financing, the cost of land, and the cost of labor and materials. Constraints imposed by local government entities including the City of Fresno can also contribute to higher costs and decreased availability.

Policies concerning the location of areas designated for housing development and the density of that development are set through the City's planning process. The absolute quantity of land designated for housing purposes is adequate to accommodate the anticipated growth within the City. City planners, through the current General Plan evaluation, indicated that it was a legitimate question as to whether the land use patterns designated on the City's existing plans were conducive to the production of affordable housing for all economic segments of the community. For example, at the time of the evaluation there were large areas of land which were designated for relatively low density (large lot) residential uses which tended to encourage the production of higher cost housing. Other policies may unintentionally form a constraint to production and other community values may compete with the goal of providing affordable housing. Housing data contained in the Housing Element provides a basis for the reevaluation of City policies and the balancing of competing values. The 1984 General Plan has been developed to implement the housing related policies by providing expanded opportunities for the development of affordable housing through increases in the densities allowed.

HOUSING AGENCIES AND PROGRAMS

The subject of local housing programs is a complicated one. There are many more programs than it is feasible to present in the summary which follows. For more detailed information, consult the 1982-1985 Community Development Block Grant Housing Assistance Plan, or contact the primary agencies. The majority of housing programs which serve the local citizenry are administered by the following City department or outside agencies.

City of Fresno Development Department

This Department, in addition to administering land use, functions as a community redevelopment agency and as the administering agency for the City of Fresno Community Development Block Grant Program. The Department's redevelopment goals are the elimination of blighted areas and the expansion of the supply of low and moderate income housing. The second function this Department serves is that of preparing the Community Development Block Grant application and administering related programs. The Block Grant provides significant resources for housing.

Though the Development Department's Housing Standards Section is not the primary agency administering housing programs in the FCMA, it does work closely with other agencies to provide essential services for the improvement of housing. The section came into being in 1966, when code enforcement was removed from the Fire Department. Since that time it has undergone several reorganizations and name changes. The Housing Standards Section is responsible for enforcing the Housing Code and other pertinent ordinances relating to life, health, safety and welfare in all existing residential buildings. The Section investigates the substandard conditions in existing housing. These services are usually provided at the request of a concerned individual, the Fire and other City Deprtments, the County Welfare Department, and the County Health Department.

County of Fresno Department of Community Development

Many of the same Federal and State funded housing assistance programs which serve Fresno City residents also serve people who live in the balance of the FCMA. The principal program administered by the County Department of Housing and Community Development is the HUD funded Block Grant Program. The County program serves the City of Clovis as well as the unincorporated portions of the Fresno-Metropolitan Area. Because numerous unincorporated areas will eventually be annexed into the City of Fresno, programs administered by the County's Community Development Department are especially pertinent to the City's overall attempt to improve the housing stock and increase the supply of affordable housing.

The Housing Authorities of the City and County of Fresno

The Fresno City and County Housing Authorities share a single staff while operating under two separate boards of commissioners. The responsibility of the two boards is divided between City-directed and County-directed programs. The Housing Authority is a non-profit corporate body that is legally distinct from the cities and county in which it operates. This body is an administrative arm of the State; it pursues State concerns and effects legislative objectives.

In the past, the Housing Authorities' role was perceived to be limited to administering conventional public housing projects, but this role has broadened. Today, the Housing Authorities may be involved with any housing-related work financially assisted by the Federal or State government. As such, the Housing Authorities strive toward enabling persons or families lacking adequate income to live without overcrowding in decent, safe and sanitary dwellings.

ENVIRONMENTAL IMPLICATIONS

Environmental Implication of Housing Production/Fulfillment of CEQA Requirements

Under the California Environmental Quality Act (CEQA) guidelines, an evaluation called a Negative Declaration is often prepared for projects which could potentially have a significant effect on the environment but which the City finds, on the basis of an Initial Study, not to have such an effect. A Negative Declaration includes a brief description of the planning document under consideration; the location of the planning area; a finding that the project will not, in and of itself, have a significant effect on the environment; an initial study documenting reasons to support the findings; and mitigation measures, if any, included in the project to avoid potentially significant adverse effects.

The Housing Element has passed through the CEQA review process. A Negative Declaration was submitted to the State Office of Planning and Research and City compliance with environmental review requirements has been verified.

Certain mitigation measures will be carried out as the Housing Element programs are implemented and as specific housing projects and related changes in City infrastructure are proposed. The numerous environmental impacts generated by an increased population are discussed elsewhere in the General Plan.

The placement of housing units, or the lack of such development, can generate social, economic and physical impacts. Several of these impacts were identified as issues during public hearings carried out prior to adoption of the Housing Element. They included:

1. Discussion of the pros and cons of **inclusionary zoning**. An inclusionary housing program is one which seeks to include low-and moderate-cost housing units in all or most new construction projects. The inclusionary housing units would be provided by the private sectors at affordable prices to households who meet certain program eligibility requirements set down by local government. Such programs have often been implemented using an inclusionary zoning ordinance. Under this type of program, each developer has the responsibility for providing a specified percentage of low and moderate-cost housing units at a particular range of prices (or rents). The cost of the private subsidy to the eligible buyer would be shifted either to the developer or to the buyers who purchase the remaining homes in the development at market price, or to both. Most jurisdictions have placed resale controls on the subsidized units to insure that the low-and moderate-cost housing stock is retained for the target population for up to 30 years. During the time that the Element was prepared, several inclusionary ordinances were studied. It was the conclusion of the Development Department staff that inclusionary ordinances would raise the cost of the average non-subsidized market rate housing unit, thus displacing another segment of the population from the market. It also became apparent that the greatest need for such ordinances occurs in the Coastal Zone and in metropolitan areas where the availability of land is very limited or extremely expensive. Because of the intrinsic problems identified, an inclusionary ordinance was not deemed appropriate for Fresno.

2. Discussion of the pros and cons of **rent control**. During mid-1982, the Mobilehome Owners Protection Seekers (MOPS) lobbied the Council, asking that a rent review board be set up by the City. A similar request was also made of the County Board of Supervisors. Both government groups refused to grant the petition. Data gathered by City staff revealed that although mobilehome park rents had been increasing yearly, they had been increasing at a rate less than both general inflation and the average dollar increases for apartment rent. It was also perceived that majority community values would not be in support of rent control. As a follow-up to the Council hearing and at the urging of City staff, the City and County Housing Authorities have developed a list of recommended Section 8 Rent Subsidy Program changes that would make the Program better serve the needs of lower income mobilehome park occupants. The list of recommended changes will be forwarded to the Department of Housing and Urban Development, Washington, D.C., where it is anticipated they will be given due consideration.

3. Discussion of the effectiveness of **programs to prevent housing discrimination**. As follow-up to the Housing Element hearings and at the urging of the District Office of the State Department of Fair Employment and Housing, the Community Housing Leadership Board was reorganized and expanded in late 1982. The City of Fresno is a member of the Board which works to assure that the Building Industry properly carries out its affirmative marketing responsibilities and that the general public is made aware of their housing rights and opportunities. A $25,000 HUD grant for the 1982-1983 fiscal year was obtained to carry out the Board's mandate. The Leadership Board contracted with the Fresno County Consumer Protection Division to prepare and distribute brochures on both housing rights and housing opportunities and to facilitate several housing opportunities workshops.

4. Discussion of the **need to identify migrant housing needs** in the metropolitan area. A staff study has since been completed. The conclusion reached was that although the City would work to provide permanent housing for lower income farm worker families, truly migrant housing should be located in rural portions of the County and close to job opportunities.

5. A discussion of the **need to apply the State Density Bonus Law** in the local jurisdiction. A staff study, contained in the March 1982 Annual Housing Report delineates how the Law is applied within the City.

6. Discussion of the **need for site identification for subsidized housing** to allow better dispersion

throughout the community. A site map indicating priority areas for the location of subsidized housing and a related study have since been completed and are included in the Annual Housing Report which is available from the Planning Division of the Development Department.

7. Discussion of the **City displacement and relocation policies** and their impact on certain population groups. A re-evaluation of those policies is included in the Annual Housing Report. In that re-evaluation, staff states that "where the City has a contract (Owner-Participation Agreement) with private developers, it will be expected that displacement will be an issue to be handled in a constructive manner, through negotiation, to preclude unnecessary hardships on project households. Most of the displacement problems will be resolved through the project plan. The remaining hardship displacement will be covered by specific developments for the entire project, or through arrangements with the particular property owner-participant".

8. Discussion of the **need for increasing residential densities** through the General Plan process and the potential conflicts that might be generated by the actual application of the new policy in specific neighborhoods. In the ensuing months since the Housing Element discussions, through the General Plan Development process, staff has made many recommendations that will, in fact, substantially increase densities. As higher density development is actually proposed, the details of each plan will need increasingly careful staff evaluation to assure that adequate amenities will be a part of the finished product.

9. Discussion of the pros and cons of (start-und)allowing accessory housing on single(end-und) (start-und)family lots(end-und). At the time of the Housing Element hearings, the Area Agency on Aging and the Older American's Organization lobbied for "granny housing" which is a type of accessory living quarters for the elderly. An ordinance conditionally allowing attached secondary units of 640 square feet or less for family members on single-family lots was adopted by the City Council on June 14, 1983.

10. In order to facilitate the development of affordable housing, a (start-und)mobilehome subdivision ordinance(end-und) was adopted in June, 1981, and provisions to allow for the permanent placement of mobilehomes on single-family lots were adopted in August of that year.

To summarize, housing construction or the lack of it can generate physical, social, and economic impacts. The City has, and will continue to use a number of methods to evaluate and mitigate these various impacts. Examples are in the previous paragraphs.

OBJECTIVES

The Housing Element contains a number of objectives to which the City aspires. After a series of meetings with many special interest groups, the Planning Division staff met with a group of persons that provide housing and housing services in the metropolitan area. The group reviewed a set of housing-related objectives and policies proposed by staff. The objectives and policies were refined and amended to better portray the needs and objectives of the community as a whole. The objectives established and later adopted by the City Council are as follows:

1. To provide present and future FCMA residents with a sufficient housing supply.

2. To provide and preserve quality housing within the FCMA.

3. To assist in the provision of decent housing for those residents who otherwise cannot afford such housing.

4. To minimize housing costs for those FCMA residents who obtain housing through the private market.

5. To foster a healthy and viable local housing industry.

6. To provide housing opportunities without discrimination on the basis of race, religion, ethnicity, sex, age, marital status, household composition or other arbitrary factors.

7. To provide housing that varies sufficiently in location, cost, design, style, type and tenure to meet the needs of FCMA residents.

8. To encourage the construction of housing that will minimize adverse environmental effects and government costs, enhance public safety and encourage energy conservation.

POLICIES/IMPLEMENTATION STRATEGIES

The following section includes a summary of Housing Element policies. Policies are established to guide the City as it makes decisions and implements policies related to the allocation of public resources, and as it establishes and amends plans, performance standards and programs which ultimately affect the housing market. The City exercises significant control of the implementing policies which can be carried out by its own staff. For instance, it controls the long-range planning process, the entitlement process, the code enforcement process, the redevelopment process and the Block Grant rehabilitation process. In other instances, the City exercises less control but policies can allow for coordination with other public agencies which provide housing services, with citizens, and with the private sector. Policies of the two types are contained in the current housing Element:

1. Encourage an adequate supply of rental and purchase housing at affordable prices through the advanced planning process.

2. Strive to provide an adequate supply of both rental and purchase housing at affordable prices through its entitlement process.

3. Take full advantage of existing governmental subsidy programs for new housing.

4. Explore new and expanding State, Federal, and local government programs affecting housing.

5. Establish and maintain programs to preserve and upgrade housing quality in deteriorating or potentially deteriorating neighborhoods.

6. Maintain and establish incentive programs that instill neighborhood identity and pride.

7. Provide public facility improvements in a manner consistent with City standards and policies as well as the needs and desires of area residents with priority given toward supporting the revitalization of deteriorating neighborhoods.

8. Encourage the building industry to provide lower cost housing through innovative design and building techniques.

9. Promote development design and programs which provide increased residential security and safety.

10. Provide adequate housing for different lifestyles, family types and sizes.

11. Assure an adequate supply of emergency housing that is available as temporary shelter.

12. Provide market rate, high quality housing in the inner-city to achieve a better economic mix.

13. Provide assisted housing in areas not impacted with minority and low income groups and subsidized housing proximate to employment, transportation, commercial, and recreational centers.

14. Assure the fairness and adequacy of compensation and relocation assistance to persons and families displaced by public programs.

15. Participate in and/or coordinate as appropriate the activities of local governments, citizen groups, and the private sector relative to the provision of adequate housing for all households.

16. Support the enforcement and development of Federal and State anti-discrimination laws.

17. Insure that new residential construction is consistent with the environmental goals of the City of Fresno.

18. Enhance housing liveability through energy conservation in new and existing housing.

19. Minimize costs of local government related to new residential construction in fringe areas.

The reader interested in the programs designed to implement each Housing Element Policy may refer to pages 112 to 122 of the complete document. The Development Department is responsible for the preparation of an annual housing progress report to the City Council. The reports are designed to summarize yearly the progress toward implementation of all programs listed in the Housing Element.

Nine letters or memoranda of comment were received. The document then proceeded to public hearings before the Fresno City Planning Commission and the Fresno City Council. The Element was amended by the Council and adopted on March 24, 1981.

ECONOMIC DEVELOPMENT

ECONOMIC DEVELOPMENT

INTRODUCTION

Fresno has been fortunate in having a healthy and expanding economy. During the last two decades, total wage and salary employment in the County nearly doubled, with each industrial sector sharing in the growth. Economic forecasts show a continuation of rising employment levels and a diversification of the economy. Such prospects for continued growth mandate the need for a comprehensive plan for the economic development of Fresno.

The following section describes both the historical and the projected economic development of Fresno in terms of its employment structure. The employment projections are based on the assumptions that the year 2000 population will reach 840,100 persons within Fresno County (588,100 persons within the Fresno-Clovis Metropolitan Area) and that the future employment growth will follow the trends occurring since 1960. The population projections were prepared jointly by the Planning Departments of the Cities of Fresno and Clovis and the County of Fresno. The methodology is explained briefly in the "Population Characteristics" section of this document. Finally, this section analyzes unemployment problems significant to Fresno County.

Nearly all of the data and analysis in this section are for Fresno County rather than a smaller geographic area, because the County is the labor market. Any smaller geographic area would ignore the labor force flows between the City of Fresno and Fresno County and downgrade the importance of agriculture, the prime industrial sector of the region. In addition, more up-to-date and detailed employment data are available for the County of Fresno than for smaller jurisdictions such as the Fresno-Clovis Metropolitan Area and the City of Fresno.

PROJECTED EMPLOYMENT

Fresno's economy has changed from an exclusively agriculture-dependent system a century ago to its present multifunctional system of diverse industries. This cumulative change in economic structure is expected to continue through the end of this century.

Total wage and salary employment in Fresno County grew from 122,000 to 235,900 workers in the 20-year period between 1960 and 1980. This represents an average annual gain of 5,700 workers. According to employment forecasts, County wage and salary employment will reach 365,200 workers by the end of the century. This means that an average of 6,600 persons will be added to the work force each year between the years 1980 and 2000.

According to Figure 56, the non-agricultural wage and salary category added 97,700 more employees during the past two decades, more than doubling the 1960 non-agricultural work force of 85,000 persons. Figure 57 indicates that, by the year 2000, another 115,500 will have joined the 1980 non-agricultural work force for a total of 298,500 employees in this category.

While each employment sector, except that of mineral extraction, will continue to increase its work force, the sectoral distribution for County employment is expected to vary substantially. Figure 58 shows that the sectors expecting to capture a growing share of County employment during the period 1980-2000 are retail trade; finance, insurance and real estate; and services. The sectors projected to represent a decreasing percentage of total employment are agriculture, mineral extraction, nondurable goods manufacturing, transportation and public utilities, federal government and local government. Construction, durable goods manufacturing, wholesale trade, and state government are expected to each maintain their same employment portion throughout the next two decades.

Although the agricultural sector continues to capture a decreasing share of total Fresno County employment, it is still the dominant industry. In 1982, agriculture employed one-fourth of all Fresno County's wage and salary workers and thousands of agriculture - related workers were categorized in other sectors such as wholesale trade, manufacturing, transportation, finance and government. Even by the year 2000, one-fifth of all County wage and salary workers will still be employed by the agricultural sector. This sector also serves as the County's leading income-producer. The annual gross value of agricultural products in Fresno County has increased from less than $400 million in 1960 to over $1.86 billion in 1982.

Figure 56

WAGE AND SALARY EMPLOYMENT
FRESNO COUNTY
1960-1980

INDUSTRIAL SECTOR	1960	1965	1970	1975	1980
Total Wage and Salary Employment	122,000	138,700	154,100	195,200	235,900
Agricultural Wage and Salary Employment	36,700	38,900	36,200	45,800	52,900
Non-Agricultural Wage and Salary Employment	85,300	99,800	117,900	149,400	183,000
Mineral Extraction	800	1,100	800	800	1,000
Construction	5,400	5,600	5,000	7,000	11,200
Manufacturing	14,100	15,400	17,600	20,100	23,300
Durable Goods	4,900	5,500	7,300	8,900	10,900
Nondurable Goods	9,200	9,900	10,300	11,200	12,400
Transportation and Public Utilities	8,000	7,800	7,900	8,600	11,000
Wholesale Trade	7,400	8,300	9,300	11,500	14,000
Retail Trade	17,000	19,600	22,000	26,800	34,600
Finance, Insurance and Real Estate	3,600	4,600	5,400	7,400	11,000
Services	12,500	17,000	21,800	27,800	36,000
Government	16,500	20,400	28,100	39,400	40,900
Federal	2,100	2,400	2,900	6,500	7,900
State and Local	14,400	18,000	25,200	32,900	33,000
State	1,700	1,900	2,200	2,700	2,900
Local	12,700	16,100	23,000	30,200	30,100

Source: State of California Employment Development Department

However, because of the prominence of its agricultural industry, Fresno County suffers from the inherent problems of agriculture's seasonal nature. While providing jobs for one-third of all County workers during the harvest season, agriculture employs only 15 percent of all workers in mid-winter when farm activity slows to its minimum. Thus, during part of the winter months, local employment experiences sharp reductions due to the decline in agriculture - related jobs.

The future average annual employment level of agriculture is projected to grow steadily from 56,200 workers in 1982 to 70,000 workers in the year 2000. Although the increased use of mechanization will displace some farm workers, the growing demand for agricultural products will stimulate farm production and increase harvest acreage, resulting in a net gain in agricultural employment during the next 20 years.

Government (federal, state and local) is now the second largest employer in Fresno County. Since 1960, government's share of County employment has increased from 14 percent to 17 percent in 1982. However, in light of expected fiscal conservatism, this sector should decrease its share from 17 percent to 12 percent in the next two decades. Much of the moderate employment gains in federal government will be attributed to the expansion of the Internal Revenue Service as population growth in the Western United States increases the Fresno Internal Revenue Service work load. Despite the rapid population gains forecast for Fresno

Figure 57

WAGE AND SALARY EMPLOYMENT
FRESNO COUNTY
1982-2000

INDUSTRIAL SECTOR	1982	1985	1990	1995	2000
Total Wage and Salary Employment	232,000	254,100	292,300	330,600	368,500
Agricultural Wage and Salary Employment	56,200	58,500	62,300	66,100	70,000
Non-Agricultural Wage and Salary Employment	175,800	195,600	230,000	264,500	298,500
Mineral Extraction	1,100	1,000	1,000	1,000	1,000
Construction	8,300	9,500	11,500	13,500	15,500
Manufacturing	21,400	22,800	25,100	27,400	29,700
Durable Goods	10,000	11,000	12,600	14,200	15,800
Nondurable Goods	11,400	11,800	12,500	13,200	13,900
Transportation and Public Utilities	10,400	10,700	11,300	11,900	12,400
Wholesale Trade	12,700	13,700	15,300	17,000	18,600
Retail Trade	33,400	39,000	48,900	58,700	68,400
Finance, Insurance and Real Estate	11,200	13,200	16,700	20,200	23,600
Services	37,400	45,000	58,400	71,700	84,900
Government	39,900	40,700	41,800	43,100	44,400
Federal	7,000	7,200	7,400	7,700	7,900
State and Local	32,900	33,500	34,400	35,400	36,500
State	2,700	2,900	3,100	3,400	3,700
Local	30,200	30,600	31,300	32,000	32,800

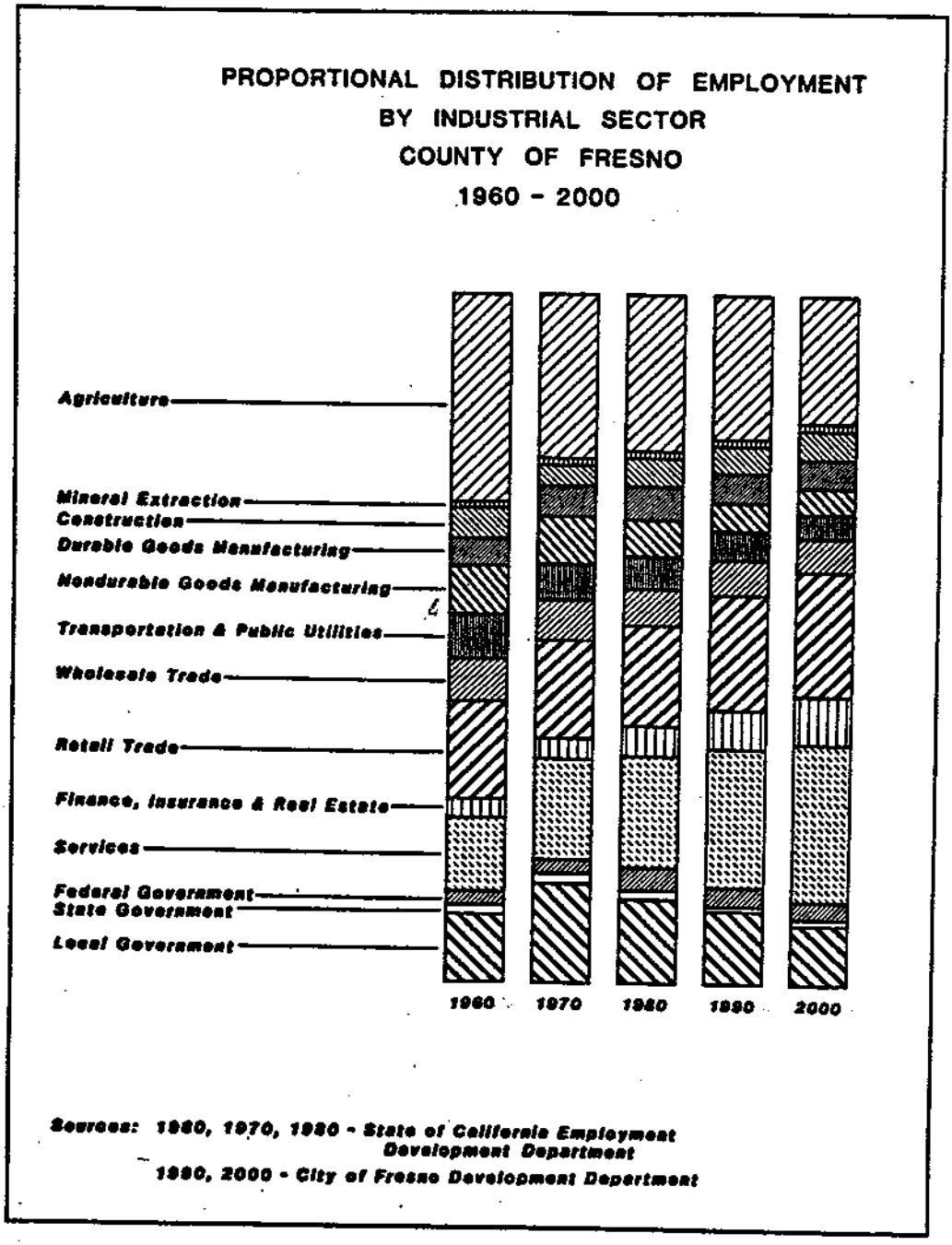
Sources: 1982 Data - State of California Employment Development Department
1985-2000 Data - City of Fresno Development Department

County, both state and local government will experience modest growth in response to future budgetary limitations.

The third largest County employer category is services, which includes workers that provide a wide variety of personal, professional and business services such as beauticians, dry cleaners, hotel employees and repairmen, and those persons engaged in health, legal, engineering, accounting and architectural services. Workers who provide specialized services closely allied to agriculture, mining, transportation, government or any other separate industrial category are classified in their respective sectors. In 1982, services workers accounted for 16 percent of all County wage and salary workers, up from 10 percent in 1960. In anticipation of large population growth, the services sector is projected to surpass both agriculture and government to become the leading County employer by 1995. By the year 2000, nearly one-quarter of all County jobholders will be employed in services.

With the projected increase in population and the greater demand for consumer goods, retail trade is expected to continue its healthy growth trend, increasing its 1982 worker share of 14 percent to 19 percent by the year 2000. Although the wholesale trade sector will increase its work force in response to an increased demand for the distribution of products, this sector will continue to employ only 5 percent of all County workers between now and the year 2000.

Figure 58



Despite the slowdown in construction activity at the beginning of the 1980 decade, the long-term outlook for both construction and finance and insurance and real estate is positive. New residential and business expansion should stimulate job gains in these sectors. Employment projections indicate that construction will maintain a 4 percent share of all County workers throughout the period 1980-2000 while finance, insurance and real estate will increase its share from 5 percent to 6 percent.

Both the durable goods and nondurable manufacturing sectors will add to their work forces. However, the durable goods manufacturing division will maintain the same 4 percent portion of the 1982 County employment to the year 2000 while the nondurable goods manufacturing division will decrease its worker

share modestly from 5 percent in 1982 to 4 percent in 2000. Most of the growth will be due to increased food processing and the manufacturing of non-electrical machinery and fabricated metal products in response to the nation's growing demand for foodstuffs and farm processing machinery and equipment.

As during the last two decades, transportation and public utilities are forecast to capture a decreasing share of all County workers. Technological advancements in this sector will moderate employment growth in the coming years. This sector's 1960 share of 7 percent dropped to 4 percent in 1982 and is projected to continue to decline to 3 percent by the year 2000.

EMPLOYMENT

Despite the healthy increase in job opportunities during recent years, Fresno County has been burdened with high unemployment levels. While the County and the United States have followed the same fluctuating pattern of annual unemployment rates during the years 1970-1982, the rates for the County have been consistently higher than those of the nation. During this period, the County annual average unemployment rates exceeded the national rates by an average of 2.4 percent. Figure 59 shows that the State has also enjoyed a generally lower unemployment rate record than Fresno County, especially after 1976.

In addition, the agricultural orientation of the Fresno County economy has caused wide variations in the monthly unemployment rates. Figure 60 shows that because of the seasonal character of agriculture, the monthly unemployment rates for the years from 1970 to 1982 fluctuated by four to six percentage points within each year. During the months when farm activities are at an ebb, unemployment in the County has reached from 10 to 16 percent of the labor force.

MAJOR FINDINGS/CONCLUSIONS

Past employment records indicate that Fresno has enjoyed rapid economic growth, affecting every industrial sector. This expansion and development into a more complex and diverse economy has benefitted Fresno, especially in terms of an increased tax base and the provision of employment. However, serious problems have also been created. With the prospects of continued growth, these and other potential problems must be examined.

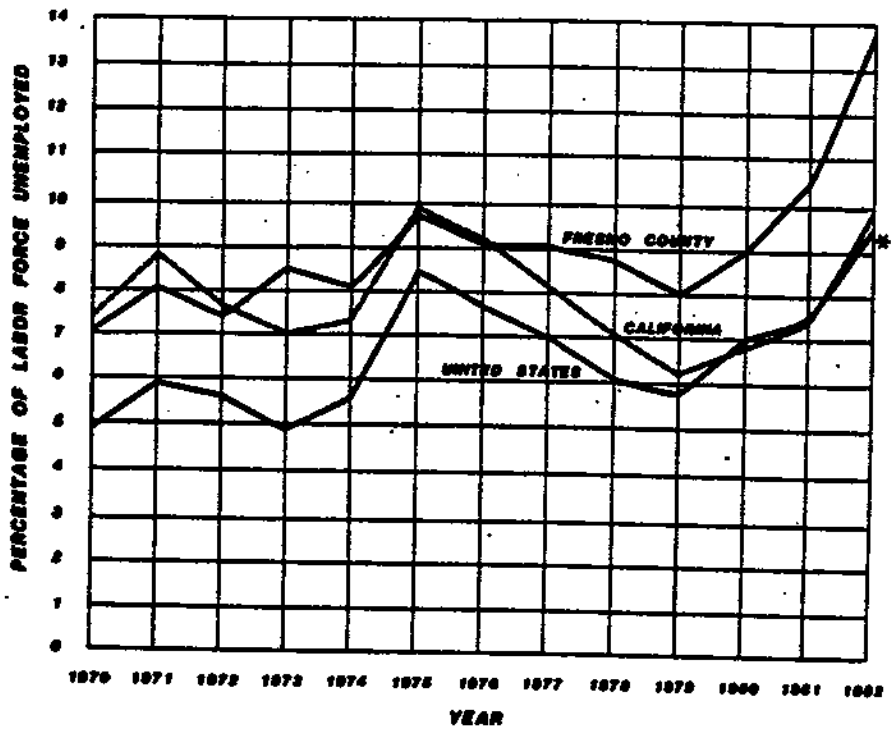
First, Fresno must strive to sustain a healthy economic base. Provisions must be made for expanding economic activities, increasing economic stability and using public services for the benefit of the private sector.

Secondly, Fresno should provide adequate employment opportunities for its residents by encouraging the expansion or development of growth industries and assisting the unemployed and underemployed in obtaining jobs. Fresno's challenging investment climate with relatively low development costs are attractive to potential industries. However, there is strong competition for these industries from other metropolitan areas in the State and from other states. Fresno should offer additional incentives to induce more firms to establish in this area.

The relatively high unemployment rate in Fresno County suggests a need for effective training and job placement programs, involving both the public and private sectors. In light of expected budgetary limitations at all levels of government, such employment programs must rely heavily on agencies from the private sector such as the Chamber of Commerce and its Economic Development Corporation. This corporation is a newly-created, broadly-based organization supported by both the private and public sectors with goals "to promote and guide the industrial and commercial development of our region; to provide the needed jobs over the next five years for our ever - increasing work force; and to preserve the extraordinary quality of life." In addition, special programs should be established to deter high unemployment during the months of agricultural inactivity. Some of these unemployed are part of the "excess" labor force of women and children who desire to work only during peak agricultural months and therefore inflate the unemployment rate during winter months. Many agricultural workers migrate to other areas when Fresno County agricultural activities slow. Nevertheless, the problems of seasonal unemployment are severe enough to threaten the County's economic health.

While the agricultural orientation of the Fresno economy has aggravated the unemployment problem, it has, at the same time, provided insulation from national economic downturns of the past several decades. However, policies should be established to assure that income levels for both individuals and businesses can experience real increases after adjustment for inflation, provide the basic needs of both residents and businesses, and encourage further economic expansion. Such policies would include the recruitment of industries offering above-average wages and the establishment of planned industrial areas to create

Figure 59



* For the year 1982, the United States unemployment rate was calculated by including military employment as part of the labor force. Such a method usually results in an unemployment rate .1% lower than the rate yielded by excluding military personnel from the calculation. The unemployment rates for the United States for the years prior to 1982 as well as the rates for all years for Fresno County and California have been computed as in the past, by utilizing only civilian labor force data.

Sources: United States Bureau of Labor Statistics
State of California Employment Development Department

economics of operations. Further, the revitalization of the Central Area should be one of the high priority economic programs. The City should develop incentives such as fee exemptions and tax credits to promote private investment in the Central Area. Also, improvement of the area's infrastructure and assembly of developable parcels should facilitate the rejuvenation of economic activities.

ENVIRONMENTAL IMPLICATIONS

Further economic development, especially if unregulated, could adversely affect the environment socially as well as physically.

Socially, economic growth will generate more employment and population, thereby challenging the adequacy of Fresno's housing, schools, circulation system, police and fire protection and public utilities (water, sewer, gas, and electricity).

Figure 60

PERCENTAGE OF LABOR FORCE UNEMPLOYED
FRESNO COUNTY 1970-1982

Year	Percentage of Labor Force Unemployed	
	Annual Average	Monthly Average Range
1982	13.8%	10.3 - 16.1%
1981	10.5	7.7 - 13.5
1980	9.0	7.0 - 10.7
1979	8.0	6.2 - 10.3
1978	8.8	6.5 - 11.5
1977	9.1	6.7 - 11.6
1976	9.1	7.1 - 12.1
1975	9.8	7.7 - 12.5
1974	8.1	6.9 - 9.8
1973	8.5	6.5 - 11.5
1972	7.4	5.7 - 9.6
1971	8.1	5.4 - 10.5
1970	7.1	4.9 - 9.5

Source: State of California Employment Development Department

However, economic expansion can also have positive social benefits such as raising personal income levels, increasing job opportunities to help relieve high unemployment and offer a wider variety of career choices, increasing the tax base, resulting in more revenue to the local government, and diversifying the economic structure to create stability.

Physically, industrial development may harm the environment with pollution such as noise, vibration, smoke, odor, dust, glare and heat. Such effects may be minimized by utilizing City ordinances and the requirements of the California Environmental Quality Act and by considering the recruitment of industries with the least adverse impact.

Locational criteria for industrial development should be established to provide such environmental protection measures as the adequate buffering and containment of industrial areas from adjacent residential development, the minimization of commuter distances to mitigate the adverse effects of traffic, and the location of industries with offensive odor downwind from other types of development.

The goals of economic development and policies to achieve these goals and address the adverse consequences of unregulated expansion are listed below.

OBJECTIVES

The objectives of the Economic Development Plan are listed below, followed by policies to address each objective.

1. Maintain a strong economic base.
   - Expand the breadth and diversity of economic activities.
   - Increase the shortand long-term stability of the economy.
   - Optimize the contribution of public services to the operation of the private economy.
2. Provide meaningful and sufficient employment opportunities.
   - Identify and encourage expansion or recruitment of growth industries.
   - Utilize the full complement of skills in the labor force.
   - Assist the unemployed and the underemployed in obtaining satisfactory jobs.
3. Increase the level of earned income for individuals and businesses.
4. Revitalize the Central City.
5. Minimize the adverse environmental effects of industrial growth on the physical environment.

POLICIES/IMPLEMENTATION STRATEGIES

1. Maintain a strong economic base.
   - Designate planned industrial areas so as to create an economy of operations and determine necessary service requirements for potential industries.
   - Utilize capital improvements to stimulate business development.
   - Encourage the expansion of externally-funded public service employment, e.g., the Internal Revenue Service.
   - Pursue a program of expanding more suitable tax bases, focusing on hidden subsidies.
   - Assign priority to capital improvements and service improvements on the basis of orderly urban growth and management.
   - Maintain a firm Urban Growth Management Policy to increase urban efficiency.
   - Enact policies to encourage the utilization of bypassed vacant parcels.
2. Provide meaningful and sufficient employment opportunities.
   - Utilize the Chamber of Commerce and existing federal, state and local government manpower agencies to encourage the retention and expansion of existing industries.
   - Act as an industrial recruitment agency for the City and County governments.
   - Coordinate federal, state, and local government manpower training activities.
   - Advise on coordination in training programs for other agencies such as public schools, community colleges, vocational, preprofessional and technical schools.
   - Promote the expansion of the range and accessibility of educational and career advancement training opportunities for the unemployed, underemployed and seasonal workers.

- Attract non-agricultural industries to reduce seasonal instability in the local economy.

- Reduce the processing time and provide capital improvements for favorable industries.

- Continue affirmative action hiring programs, focusing on minority groups and the unemployed.

- Continue to require affirmative action hiring programs for contractors to the City of Fresno.

3. Increase the level of earned income for individuals and businesses.

   - Recruit industries which provide above-average wages to its workers.

4. Revitalize the Central City.

   - Pursue a policy of tax credits and development incentives for the rehabilitation of existing properties and the stimulation of private capital investment.

5. Minimize the adverse environmental effects of industrial growth.

   - Consider the recruitment of industries with minimal environmental impact in terms of energy and resources consumption and pollution.

   - Give the highest priority to industrial growth in areas where growth will have the least traffic impact.

   - Require adequate buffering and the clustering of industries to protect adjacent residential development.

   - Locate planned industrial areas in a manner which will reduce commuting distance and thus minimize the adverse effect of traffic on air quality.

   - Locate odor-producing industries downwind from other types of development.

SPECIAL ISSUES

SPECIAL ISSUES

INCREASED RESIDENTIAL DENSITIES

INTRODUCTION

The subject of higher densities is a policy item which is a regular discussion topic on Planning Commission and City Council agendas, as individual apartment or condominium projects are analyzed and approved or disapproved. We anticipate that it will be a continuing source of neighborhood debate for some years to come. Over the past five years, City policy favoring increasing residential densities has evolved through analysis and discussions of City services, resource conservation, and planning values. The changes in housing style, type, and density happening incrementally throughout our community may, in fact, have the most far-reaching effects of any issue addressed by the 1983 General Plan.

Due to cheap land, a complete absence of any real barriers to growth, perceived community preferences, and custom, Fresno has been built at very low densities. In fact, there is evidence to support the statement that Fresno has the lowest overall densities of any medium-sized city in California. Just to place the issue in some context, for instance, San Francisco houses twice the population on less than half the land area. This characteristic accounts for some of the pleasant features of the Fresno environment which place emphasis on outdoor living and privacy. The large-lot single family home has been equated with "the good life". However, as the metropolitan area grows, lower densities also contribute to the less desirable characteristics of living in Fresno such as street congestion, air pollution, and increased travel time. In addition, there are related public costs which are becoming more observable in these days of limited funding which include such service items as public transit, park maintenance, public landscaping, street lighting, street maintnance, and police and fire operations.

FACTORS SUPPORTING INCREASED DENSITIES

The impetus for change in the perceptions of the staff, elected officials and the development community toward residential densities has come from a broad range of value-based and pragmatic positions. Conceptually, two streams of thought have emerged - one based on planning values such as resource conservation and cost-effectiveness of public services and the other based on changing market conditions. The following listing is not exhaustive, but indicates a theoretical framework for recommended policy changes.

PLANNING FACTORS:

1. Farmland Conservation - The most useful contribution which cities can make to the conservation of agricultural land is that of compact urban form. Given our agriculturally-based economy, stewardship of the land resource is crucial.

2. Air Quality - Those air quality problems lacking local remedies in Fresno have to do with automobile usage. If residential densities are increased and services and employment opportunities are made more closely available, trip length reductions will either improve air quality or at least allow us to keep even, in spite of a growing population base.

3. Public Transit - Public transit may never become revenue - positive in Fresno, given historical development patterns. However, studies indicate that densities approximating 12 units per acre are needed for self-supporting transit systems. Increased density and attention to designing future growth to focus on corridor intensification can improve the cost-effectiveness of public transportation.

4. Public Service Efficiencies - Given proper design, nearly all service systems function more efficiently with more compact development. Basic infrastructure (i.e., sewer, water, streets, street lighting) costs are lowered if the service base is increased over a reduced geographic area. The same case can be made if trip length is reduced for such public service units as police, fire and park maintenance.

CHANGING MARKET-BASED FACTORS:

1. Life-Style Changes

   Changes in population and in household formation have increased the demand for smaller, low-maintenance dwelling units. The increasing numbers of singles, childless couples, single-parent families, and "empty-nesters" will continue to feed the need for housing alternatives to the suburban tract home.

2. Effect of Speculation on Land Prices

   Land costs in the Central Valley have always been considerably lower than in other California metropolitan areas. However, the period from the early 1970's through 1981 saw a considerable increase in Fresno land costs. This was particularly evident in the Woodward Park Community where residential land speculation increased costs per acre approximately ten times in six years.

3. The Recession

   The recession and consequent economic changes of the late 1970's and early 1980's has increased interest rates and caused basic changes in mortgage programs which made new housing inaccessible to a majority of the population for a period of time. While the housing financing situation is easing, there are indications that some basic changes have occurred which may make home ownership a less certain future for larger numbers of the population.

4. Increased Builder Responsiveness

   A rather predictable response to new housing types in the 1970's was "Fresno's not ready for that". As builders were able to sell whatever they built, there was little incentive to experiment. The market has changed, and there is a need to be competitive. Condominiums, patio homes, duplexes, and apartments are becoming a stronger part of the housing mix; and Fresno builders will meet market demands as the economy grows stronger and money for housing becomes available.

NEIGHBORHOOD RESISTANCE TO HIGHER DENSITIES

Opposition to newer development at higher densities from owners of surrounding parcels is not uncommon, whether it be a two parcel in-fill project in an older neighborhood or a condominium or apartment project in a newly developing north Fresno community. That opposition has both its rational and irrational components.

Concerns over neighborhood quality top the list of arguments used to oppose rezoning requests at the Planning Commission and City Council. The following items are most frequently cited as fears:

- increased traffic with attendant congestion and safety problems
- inadequate maintenance of rental units
- lifestyle differences (i.e., people will be noisy and rowdy, less concerned with how the area looks, less invested in the neighborhood)
- increased population will result in congested services, overcrowding in neighborhood schools, etc.
- lowered property values
- adopted City plans cannot be trusted.

Fears not necessarily based on objective fact are stated either explicitly or implicitly in most deliberations over increased densities. In some sense, even the desire of neighbors to "pull up the drawbridge" after they have achieved their desired location and status is based on a fear that conveying the same privileges to others will endanger their hard won material and social benefits. Particularly, when relating to apartments and renters, homeowners tend to assume that future inhabitants will have differing values, be less stable and of lower incomes than themselves. These presumptions may be inconsistent with socio-economic data about the populations targeted for new housing and the price of new rental units. Alternative housing types are likely to house our children, our parents, and ourselves at such times as our lives and our needs change.

PLANNING CONSIDERATIONS

Staff and legislative efforts to deal with proposed higher densities are in an evolutionary stage. While all involved would like to have a clear-cut set of guidelines for decision-making, all projects differ and must be evaluated individually. It is evident, however, that higher density projects require more careful staff evaluation prior to acceptance of a tentative map or site plan for the effects on such things as localized circulation, flood control and relationships to existing development. New standards for useable open space in higher density projects may need to be developed if we are to maintain neighborhood quality. If we can no longer assume the backyard as the focus of much of a family's recreational activity, there should be either some substitution of privately-developed common open space or an upward adjustment in ratios of public park land. This is discussed in more detail in the Open Space section of the General Plan.

The following general criteria are recommended for use in the evaluation of projects which do not meet a strict interpretation of plan consistency. They are suggested to allow sufficient flexibility to evaluate small scale in-fill projects or other situations which could not have been foreseen during plan preparation.

All of the following criteria should be met before determining plan/project consistency:

1. The proposed use will have no substantially detrimental effects on surrounding land uses.
2. The proposed use will have no substantially adverse environmental effect.
3. The density or intensity of uses proposed will not contribute toward the overloading of the service capacities of the planning area.
4. The proposed use will not set a precedent for other unplanned uses in the immediate area.
5. The proposed use will not adversely effect the integrity of the plan as a whole.

Additionally, one or more of the following conditions should exist if a project normally inconsistent with adopted plans is to be found consistent with the plan:

1. The site is not suitable for the plan designated land use.
2. The development of planned uses is economically infeasible as substantiated by an economic analysis.
3. The proposed use has an overriding social or economic benefit to the community as a whole.

INFILL PROJECTS

The term "infill" is used by planners and others to denote the development of bypassed vacant and underutilized land within an already urbanized area. Vacant parcels within the urbanized area are traditionally held off of the market at the time of initial development of a neighborhood for a variety of reasons personal to the property owner. These could include a wish to retain the family home and/or semi-rural setting, a wish to apply at some later date for a small commercial site, the inability of an elderly relative to deal with a move, lack of sophistication regarding the real estate market, and similar individual situations. Small parcels then become more difficult to develop as market requirements change and the range of uses considered appropriate for the parcel become more constrained.

The theoretical reasons for urbanizing bypassed parcels are fairly obvious. Urban services such as police, fire protection, sewer, water and parks are already available for the parcel. Development of a parcel will increase the assessed value and thereby increase the taxes paid in, with no appreciable increase in costs for services. Thus, the cost/efficiency of the entire urban service system is improved. In addition, developed parcels are more likely to be maintained and do not pose the problems of weeds and rubbish for the neighborhood.

A survey done by graduate students of the Department of Urban and Regional Planning, California State University-Fresno in 1982 (Infill - A Case Study of Fresno, California) found approximately 800 acres of residentially-zoned infill land within the Fresno Metropolitan Area, excluding southwest Fresno and the downtown area. Approximately 55% of that land is in parcels below one acre in size.

There are several problems which are inherent to infill development, including but not limited to the following:

1. Most builders prefer to build on a larger site where they can gain the efficiencies involved in being able to group material costs and to move specialized workers (i.e., electricians, plumbers) from one unit to the next. This is generally referred to as "economy of scale".
2. Not all residentially zoned parcels are marketable;

   - Adjacent properties may be in need of rehabilitation,

   - Adjacent uses may reduce the viability of new investment, such as heavy strip commercial uses with problems of noise or aesthetics,

   - Financing may be difficult to obtain due to perceptions regarding the reliability or profitability of investment in older areas,

   - It may be less possible to charge market rates for rental properties in older areas if comparable rental opportunities are available in more attractive areas.

3. It may be difficult for staff to justify support for the higher densities needed to make infill development work, if the necessary zoning constitutes a distinct shift in the prevailing zoning pattern-referred to as "spot-zoning".

4. Existing residents of the neighborhood tend to anticipate that a change in use will result in depreciation of the market value of their property.

This last point may need further elaboration and has, in fact, been discussed in the "Special Issues" section on **Increased Residential Densities** immediately preceding this topic. Public hearings held on rezoning for infill projects have historically produced substantial numbers of neighborhood representatives voicing opposition to the proposed changes.

Given the visible results of standard "four-plex" design in some older neighborhoods which provides minimal open space and attention to architectural design, these reactions can be understandable. However, newer planned unit development techniques and improved attention to design make it possible to avoid some of the problems associated with older infill projects.

In contrast, there are groups within the metropolitan area which feel that local government has not put sufficient emphasis on infill development as an alternative to fringe area growth. Those who hold this position feel that development incentives or growth limitations would result in the more rapid build-out of infill parcels. The City staff's response to these groups has included the following points:

The Urban Growth Management policy and attendant fees impose costs on fringe area growth which have made comparable infill projects more attractive to local builders.

- Infill projects tend to be the domain of particular builders, not necessarily the same ones who build standard fringe area subdivisions. Therefore, if you limit the ability of a developer to build on the fringe, he may not, in fact, move to infill development, but may instead move to another community altogether.
- Fundamentally, the decision to develop a parcel remains with the property owner, who may have a variety of reasons for delaying action. This is not an area where increased governmental controls are encouraged or fiscally indicated.

Nonetheless, the City of Fresno does continue to support infill development. The availability of urban services and the need for affordable housing will continue to provide sufficient incentives for viable sites.

The pervasive concerns of neighboring residents and the very real need for attention to neighborhood quality must be addressed in each development proposal. Past experience speaks to a need for improved design of infill projects with attention to such details as adequate useable open space, landscaped setbacks which blend with adjacent uses, placement of parking, storage, and refuse containers, building heights, and potentially even architectural treatment (e.g., roofing materials, color, blending with existing architectural styles).

Negotiated agreements between the developer and the neighborhood derived through the public hearing process are becoming more common. An informal survey conducted by the university students cited earlier

indicated that most neighbors find that infill projects do not, in actuality, produce all of the feared adverse consequences. Those projects which exhibit superior design appear to blend successfully into existing neighborhoods. Necessarily, decisions on infill which involve increased densities will involve impacts on the existing neighborhood. Those criteria listed in the section on **Increased Residential Densities** can be used to evaluate broad-scale implications of a project. With attention to detail in site design, new projects can be successfully integrated into existing neighborhoods.

CENTRAL AREA STRATEGY

INTRODUCTION

The health of the Central Area is important to the Fresno Metropolitan Area due to the functions which it performs for the community and the long-range investment which it represents.

As a city's older areas continue to age, the conservation and revitalization of the older, existing areas becomes more and more important in maintaining a healthy, safe environment, and avoiding the stagnation and eventual decay of many older cities. This requires an efficient and effective revitalization program with strategies to ensure the protection and rejuvenation of a community. These strategies should be directed toward the pursuit of future investment, economic development, and economic stability.

Elements of a revitalization strategy include policy and direction for the long-term; an effective geographic base which encompasses the extent of related land use types and neighborhood problem areas; a flexible program with both sound base resources for long-term economic development and innovative financing capabilities for short - term impact; and a comprehensive implementation process with a full range of activities such as marketing, land assembly, site preparation and disposition, rehabilitation and construction incentives, as well as participation by property owners and citizens.

BACKGROUND

Since the late 1950's, the revitalization of the Central Area has been the focus of substantial public and private interests. One of the most important actions in providing a basic strategy for necessary investments in the Central Area was the formulation of the Gruen Plan for the entire Central Area and the Central Business District. The implementation of its basic concepts continues today. It features growing cooperation between public and private sectors, a continuous evolvement of program functions, and development of the Central Area with a comprehensive range of retail, civic, office, cultural, entertainment, and residential uses in a multi-use center concept. The implementation approach seeks a balance between new construction, rehabilitation, historic preservation, and owner participation. It places emphasis upon protecting key investments and attracting compatible uses with mutually reinforcing market functions.

PRESENT STRATEGY

The present Central Area Strategy is expressed in the General Plan, three community plans, one specific plan, and nine community redevelopment plans, prepared at various levels of detail. These plans collectively contain the basic directions and opportunities for further evolvement of the implementation/revitalization process for the Central Area and its adjacent, interrelated transition (outer-neighborhood) areas. Following is a summary of the basic concepts, activities, and outlook of each of the adopted plans in the Central Area.

The FCMA General Plan of 1974 identified the Central Area as a continuing dominant focal point of urban form, while suburban areas outside of the Central Area would contain clusters of higher density development at specified community centers. The General Plan policies were intended to reinforce the vitality of the Central Area as a prime location for retail, office, entertainment, cultural, and government activities and quality housing, as well as to develop priorities for public actions.

In 1977 and 1978, the **Edison, Fresno High/Roeding, and Roosevelt** Community Plans were adopted as refinements of the 1974 General Plan. The majority of the Central Area is included within the boundaries of the Fresno High/Roeding Community Area. These plans clearly define the role of the Central Area as one of Fresno's major financial and commercial centers, as well as the dominant governmental center of the region. Their recommendations related to the Central Area support the concepts of high densities, multi-use transition areas, and innovative techniques for revitalization.

In addition to the general land use policies of Community Plans, the Central Area has been the focus of detailed planning efforts associated with redevelopment activities initiated in Fresno in 1957. There cur-

rently exists one specific plan and nine redevelopment plans within and adjacent to the Central Area. Figure 61 identifies the plans and depicts their respective boundaries.

The **Civic Center Master Development Plan** was adopted in 1966 as a specific plan for the 99-acre Civic Center area, including the government and convention centers, and areas for office, commercial, residential and cultural uses. Special aesthetic design requirements covering 103 acres were created by the Civic Center Overlay District. A Pedestrian Environment Study for the Civic Center and adjacent areas provides concepts for landscaping, malls and the uniform treatment of sidewalks and street furniture.

The nine redevelopment plans, in accordance with California State Community Development Law, are considered as specific plans which provide, in addition to detailed land use, zoning, and circulation recommendations, further implementation steps which include acquisition, rehabilitation, and public improvement recommendations. The redevelopment process also has its own source of revenue generation and tax increment financing to further aid in implementation of the redevelopment plan.

Two of the redevelopment projects - **West Fresno III and South Angus Street** - have been completed. The West Fresno III project, comprising 34 acres, provided for the expanded municipal service center. The South Angus Street Project cleared 88 acres of deteriorated buildings and constructed new single and multi-family residential units, as well as a park site. Any further planning efforts related to these completed projects will be directed toward protecting the substantial public and private investments that have been made.

The **Central Business District Project** was adopted in 1961, covering 85 acres. It was originally formulated under the concepts of the Gruen Plan for the Central Area, based upon the concept that the CBD would be the retail and commercial center for Fresno's six county region of influence. The 1978 amendment of the redevelopment plan broadened developmental potentials for the CBD, eliminating the specificity of the original plan, yet retaining the concepts and broad guidelines from the original Gruen Central Area Plan. Redevelopment activities to date have stabilized, protected, and provided the basis for the CBD's rejuvenation. Substantial private rehabilitation and new construction has occurred on land assembled and made available through the redevelopment process for many commercial, retail, office, and public facilities. The Malls, Mariposa Plaza, and the construction of public parking are also among activities directed by the CBD redevelopment plan. Recent trends have involved a combination of new construction/private rehabilitation for office and supportive commercial uses.

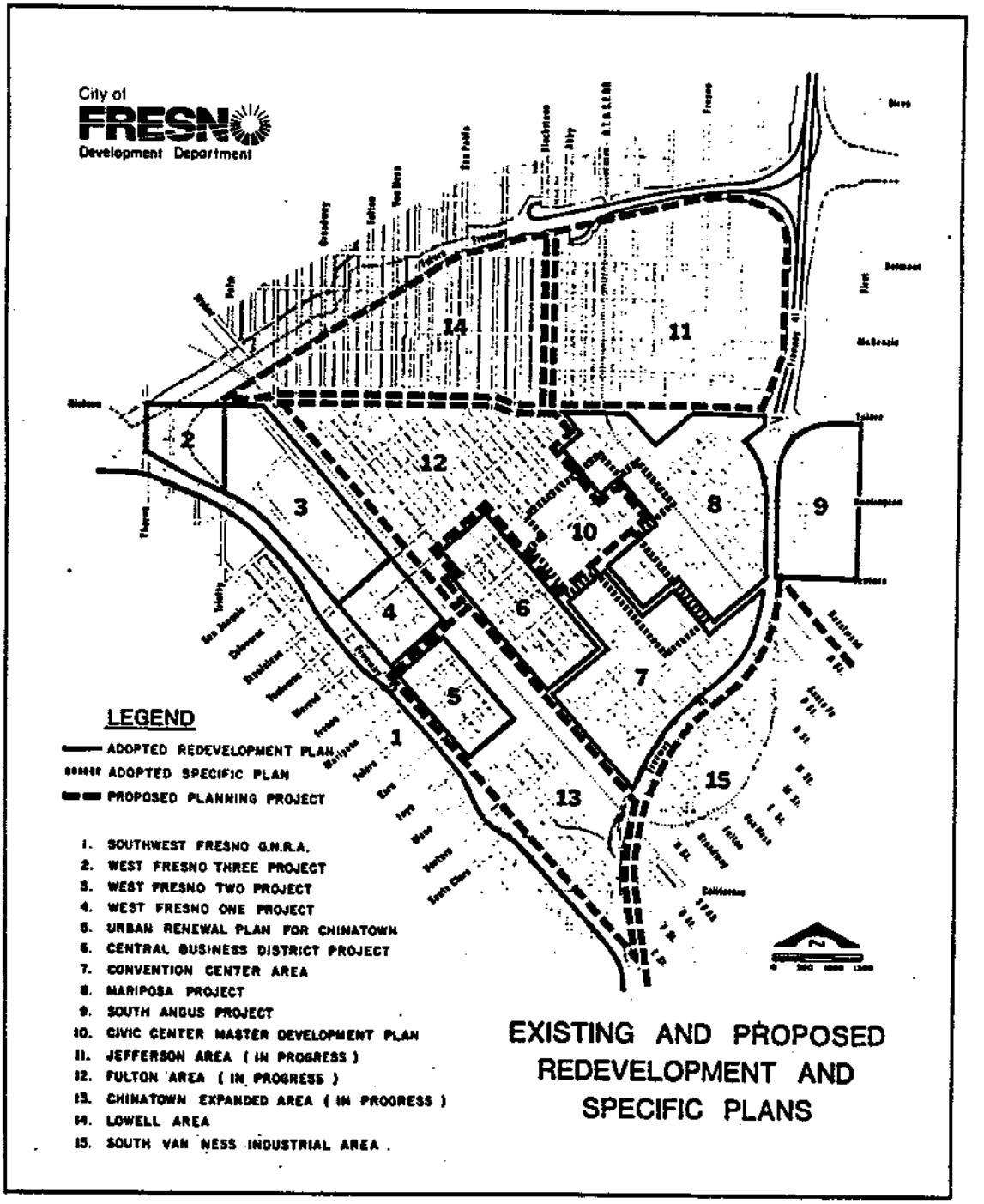
The **Mariposa Project**, covering 120 acres, was started in 1969, and has provided substantial private investment for the rehabilitation and new construction of medical/professional offices, and new housing in the Huntington Park Apartment, and Condominium Complex. Continuing redevelopment activities involving land assemblage, rehabilitation, historic restoration, owner participation, and key public improvements will provide development opportunities for further office, commercial, residential, public facilities and cultural uses.

The 120-acre **Convention Center Area**, adopted in 1982, is the newest redevelopment area. This project has been undertaken in order to reverse trends of physical blight and economic stagnation. The development of the Conference Center and the Centre Plaza Hotel will reinforce the Convention Center and is expected to be the catalyst for protecting existing businesses and attracting further office, commercial, and entertainment-oriented uses to the area.

The **Chinatown Rehabilitation Project** was started in 1965, with the code enforcement process and a parking implementation program, stimulating the construction of several new commercial facilities. A plan amendment is now underway, based upon the Chinatown Revitalization Strategy prepared by consultants. This is intended to reactivate the plan with new revitalization activities, and expand the rehabilitation and redevelopment process to the adjacent, older residential areas in order to more comprehensively address the upgrading of the area. The second phase of new surface parking improvements in the commercial area is now underway.

The **West Fresno I and II** projects were started in 1961 and 1962, comprising 96 and 108 acres, respectively. Both projects are among the most successful ever undertaken by the City, having generated a substantial number of commercial and light industrial developments, as well as the private rehabilitation of existing structures. This has resulted in an increase of the tax base in West Fresno I of two and one-half times the amount of the original tax base, and fourteen times the original base in West Fresno II. These two projects are nearing completion with the recent groundbreaking for the Chihuahua Mercado, a $4 million industrial, commercial, and Mexican cultural center in West Fresno I.

Figure 61


City of
FRESNO
Development Department
LEGEND
ADOPTED REDEVELOPMENT PLAN
ADOPTED SPECIFIC PLAN
PROPOSED PLANNING PROJECT
1. SOUTHWEST FRESNO G.N.R.A.
2. WEST FRESNO THREE PROJECT
3. WEST FRESNO TWO PROJECT
4. WEST FRESNO ONE PROJECT
5. URBAN RENEWAL PLAN FOR CHINATOWN
6. CENTRAL BUSINESS DISTRICT PROJECT
7. CONVENTION CENTER AREA
8. MARIPOSA PROJECT
9. SOUTH ANGUS PROJECT
10. CIVIC CENTER MASTER DEVELOPMENT PLAN
11. JEFFERSON AREA (IN PROGRESS)
12. FULTON AREA (IN PROGRESS)
13. CHINATOWN EXPANDED AREA (IN PROGRESS)
14. LOWELL AREA
15. SOUTH VAN NESS INDUSTRIAL AREA
EXISTING AND PROPOSED
REDEVELOPMENT AND
SPECIFIC PLANS

A portion of the **Southwest Fresno GNRA** lies within the transition area of the Central Area. This project was started in 1967, covers three square miles, and was recently amended in 1983, to achieve plan conformity with the Edison Community Plan. The area has been substantially improved through new construction and rehabilitation of residential and commercial construction, new public improvements, and new school and park sites.

FUTURE DIRECTIONS

The Central Area and its transition areas have also been the focus of specific studies intended to maintain the viability of its revitalization efforts through program improvements and the targeting of resources to the areas of greatest need. The 1976 Central Area Housing Study (CAHS) and the 1977 Housing and Community Development Strategy Report were two key studies which established a foundation and direction for the potential designation of new redevelopment areas within the Central Area and a concentrated rehabilitation effort for the older neighborhoods south of McKinley Avenue, which encircle the Central Area. A third key study, the 1982 Comprehensive Housing Strategy, by the Urban and Rural Systems Associates (URSA), has been the basis for rehabilitation program improvements. These are directed towards an expanded boundary for target neighborhoods (McKinley, Chestnut, Jensen, North, and Hughes Avenues), the development of innovative financing mechanisms to support a comprehensive package of rehabilitation, in-fill housing, and new construction improvements over a broader area. Figure 62 identifies the new Revitalization Target Area Boundary.

Based upon the CAHS recommendations, redevelopment planning studies have been initiated in the **Jefferson Area** (north of Community Hospital and east of Abby Avenue), and in the **Fulton Area** (south of Divisadero, between the Southern Pacific Railway and Tuolumne Street). Planning efforts in the **Lowell Area** (west of Abby Avenue and north of Divisadero) will follow Jefferson and Fulton, thus filling the last planning void in the Central Area itself. The key element in the Jefferson planning studies is in establishing a nucleus of new housing and neighborhood commercial development as a catalyst for a phased program of rehabilitation and in-fill of new housing.

The Fulton Area has the potential role of a multi-use transition area of strong cultural and historic character located between major commercial, office, governmental and residential land uses. The CAHS identified the Lowell Area as having potential as an in-fill new housing/rehabilitation area with some historic characteristics where a long-term implementation program needs to be defined.

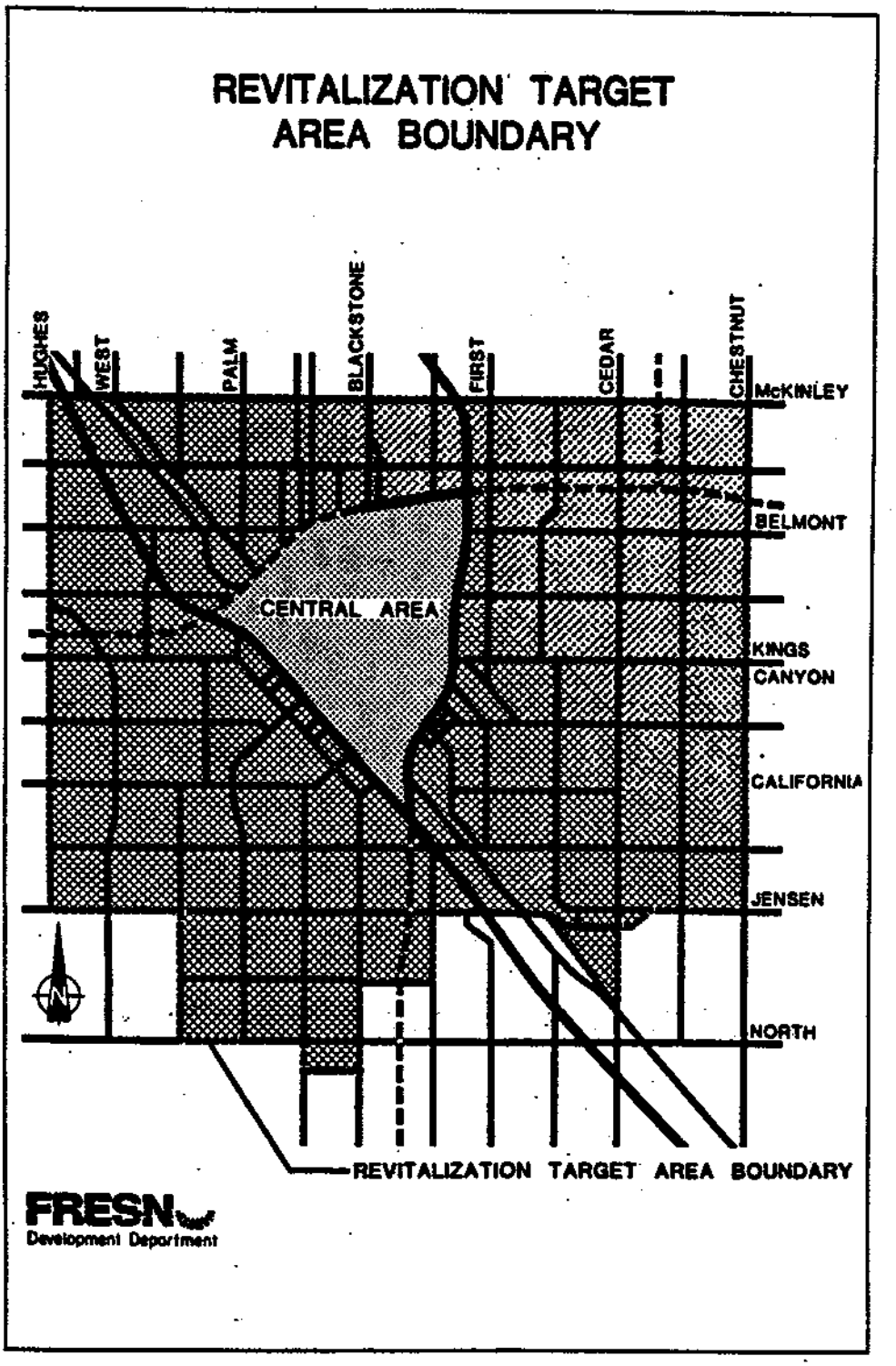
In addition to the new redevelopment plans necessary to fill the remaining planning/implementation voids in the Central Area, a comprehensive development plan for the entire Central Area is also proposed to consolidate public policy for the area in one administrative document.

A **Central Area Development Plan** would be a master plan developed at a level of detail comparable to that of community plans. It would coordinate policies and implementation programs into a meaningful guide for decision makers. Such a development plan could properly examine the interrelationships between land uses and districts in the Central Area, and comprehensively address the functional, physical, economic, circulation and image problems of the Central Area and its several entryways. In short, the Development Plan would provide an overview of the area, the conceptual and policy directions for new growth, and the level of involvement of the public sector in stimulating investment by the private sector.

Though the completion of the freeway system encircling the Central Area will create a certain physical and psychological barrier between it and the adjacent neighborhoods, the coordination of planning activities and improvements in these transition areas is important in developing an appropriate image and functional interrelationship with the Central Area. To the southwest, the recent updating of the Southwest Fresno General Neighborhood Renewal Plan will not only ensure that the pace of neighborhood revitalization will continue, but the emphasis on new residential, commercial, and industrial development will complement and reinforce parallel improvements within the Central Area itself. The **South Van Ness Industrial Area**, south of Freeway 41, has been the subject of a study where consultants prepared a market analysis, conceptual development plan, and an implementation strategy to retain existing firms and attract new businesses to the area. Further detailed planning activities, based upon the consultant study concepts is necessary to provide the legal framework for establishing a redevelopment project as provided under California Community Redevelopment Law.

The neighborhood strategy that has been employed in southeast Fresno has involved two target neighborhoods, Arlington Heights and Alta Vista. Basic to the revitalization strategy has been the protection of existing investments through the concentration of public improvements on a phased program involving a

Figure 62


REVITALIZATION TARGET
AREA BOUNDARY
HUGHES
WEST
PALM
BLACKSTONE
FIRST
CEDAR
CHESTNUT
McKINLEY
BELMONT
CENTRAL AREA
KINGS
CANYON
CALIFORNIA
JENSEN
NORTH
REVITALIZATION TARGET AREA BOUNDARY
FRESNO
Development Department

combination of housing rehabilitation and public improvements on an assessment district approach.

There have been changes in federal funding programs with drastic impacts on local revenues in recent years. This has emphasized the need to develop a more independent and continuous source of base funding for effective revitalization efforts. One potential source of funding which should be considered involves the use of tax increment funding as available through the estabishment of redevelopment areas in accordance with Community Redevelopment Law.

This approach could be used in expanding the neighborhood revitalization effort eastward to Chestnut Avenue, consistent with the new Revitalization Target Area boundary.

It seems reasonable that the initial redevelopment plan area to be addressed within this portion of Southeast Fresno could include the area bounded by First, McKinley (including Freeway 180 right-of-way) Cedar, and Ventura Streets. In this manner, the existing investments in Alta Vista and Arlington Heights would be protected and continued to completion. This would also address interim and long-range problems related to the proposed Freeway 180 right-of-way, and provide a program for upgrading neighborhoods originally constructed in the unincorporated area. However, a comprehensive analysis would be necessary to assess specific needs and revitalization/redevelopment actions in the area.

This could provide a longer-range base for a continuous, in-depth revitalization effort which could employ further creative loan programs, small-scale improvement districts, and future federal and state programs. The emphasis of such a strategy should be directed towards a comprehensive neighborhood revitalization program with select infill of new construction on bypassed properties.

The major public improvements to date in the older neighborhoods north of the Central Area, between the Freeway 180 right-of-way and McKinley Avenue, has involved the construction of the Ted C. Wills Community Center and the housing rehabilitation activities which have occurred on a scattered site basis. The revitalization program in these older neighborhoods has not been as successful as southeast Fresno, due in part to lack of funding for assessment districts. Further studies are necessary to identify potential redevelopment areas to provide a long-range funding base for a comprehensive neighborhood revitalization program with select infill of new construction on bypassed properties.

CONCLUSION

It becomes obvious from the review of the numerous plans and renewal activities in effect that a comprehensive plan is needed for the entire Central Area, along with further detailing of an implementation strategy for the transition areas between the freeway loop and the new Revitalization Target Area Boundary. The downtown area has experienced a renewed and significant market interest resulting in a recognizable trend toward its revitalization. Further public and private efforts may be retarded without the consolidation of public policies into an overall strategy for continued revitalization.

The proposed Central Area Development Plan is the key element which will coordinate policies and implementation programs into a meaningful guide for decision-makers. Public and private interests would benefit mutually through comprehensive planning and prioritization for action.

Therefore, the proposed implementation strategy represents an opportunity to provide an overview of the issues and related program of actions for the Central Area for the first time since the preparation of the original Gruen Plan in the late 1950's. Also, in order to provide proper directions for the City's revitalization efforts in the 1980's, the Central Area implementation strategy identifies the need and the basis for eventual expansion of a revitalization program to address the long-range rejuvenation of the older neighborhoods south of McKinley Avenue. Detailed program strategies will be based upon priorities for housing rehabilitation, new public improvements, and infill with new housing development.

STREET TREE POLICY

INTRODUCTION

There is a high degree of citizen interest in tree preservation in the Fresno urban area. The expression of this interest has not only come from residents of older neighborhoods with large mature trees, but from residents of newer neighborhoods who recognize the importance of trees to their environment. That interest needs to be translated into effective policies and programs.

When the City was founded in 1872, there were no trees in the immediate area. Soon the settlers began

planting trees, for the benefits of both shade and beautification. Examples of early landscaping efforts include Kearney Boulevard, Huntington Boulevard, Van Ness Boulevard, Court House Park, Commercial Park (now the site of the Greyhound Bus Depot), Roeding Park, the Blakely Estate of East Tulare Avenue, and the campus of Fresno City College. Older streets of the City are often enhanced by a huge canopy of street trees such as elm, camphor, oak, sycamore, palm, ash, locust, eucalyptus and maple.

There are examples of the extensive use of palm trees to line streets and roads throughout the area. Other trees commonly lining streets and roads include sycamore, olive, deodora cedars, and eucalyptus.

Large mature trees benefit the Fresno area in many ways. First, they insure a level of environmental quality that would otherwise be unavailable. Large trees help to purify the air, reduce noise, provide shade and a canopy effect for streets, and trap dust. Secondly, large trees cool the air, the ground, and housing, resulting in energy savings through a reduction in the use of home air conditioning. Thirdly, trees are an amenity. They add beauty and value to a neighborhood, helping to maintain the quality and enduring attractiveness of a residential area. Fourth, trees provide an enduring connection to the natural environment, the sense of which is so often missing from modern urban development.

Recently, the Parks and Recreation Department has developed an inventory of street trees and other public trees. This project will be a useful management tool in, for example, the development of spraying and trimming schedules.

Constraints to Tree Preservation

1. There are jurisdictional constraints to the establishment of a comprehensive tree preservation policy. An effective preservation effort requires a strong commitment over time from both political bodies and directly related staff. Street trees, for instance, while publicly maintained, are perceived by residents as their property and in specific cases it has been difficult to mandate the preservation of trees within the easement in front of people's homes.

2. There are financial and technical constraints limiting the preservation effort. The City has, over the last few years, been reducing the funds needed to implement tree planting and maintenance programs. Currently, just two persons are assigned to plant trees in the public areas of Fresno. Tree preservation is suffering because the pest control and tree trimming activities have been drastically reduced. Studies indicate that the relative financial commitment of the City of Fresno to tree planting and maintenance is now less than the commitment made by other large Valley cities such as Sacramento and Modesto. In addition, some of the technical problems encountered are as follows:

   In past years, many mature trees have been removed because of damage done to sidewalks, curbs, gutters and streets by the root systems of large trees planted in narrow parkways. Other mature trees have been removed because their root systems interfere with underground utilities.

   Although these problems relate to the location and size of the tree and the placement of expensive improvements, they also relate to watering practices and soil characteristics. The major reason that root systems are near the ground surface is the practice of shallow watering instead of deep watering. In some areas of town, an impenetrable hardpan layer close to the soil surface also causes root systems to be very shallow.

   The historical solution to these problems has been to replace large street trees with a limited variety of small ornamental trees. This action has often destroyed the visual consistency of rows of large trees by breaking the pattern with small ornamental trees. Although problems of concrete damage exist, the substitution of small trees is not an acceptable solution because they do not provide the benefits of large trees listed earlier. Other solutions are needed in order to maintain large mature trees in older areas of town and insure the growth of large trees in newer areas.

3. The City's existing street tree policy, allowing a varied tree pattern by providing property owners a limited selection of street trees and replacement trees, results in an inconsistent pattern and will never allow the natural symmetry of a tree-lined street or the shading benefits of a canopy provided by larger trees.

4. Potential development sites are often cleared before project applications are submitted to the City for evaluation. Thus, preservation on private property is limited. Subdividers are required to plant street trees, but usually are not required to save trees that already exist on potential development property.

OBJECTIVES

1. Several measures are recommended which will help in increasing and preserving the numbers and variety of trees which provide a needed environmental resource in this arid region. These measures include an adequately funded tree preservation program, and changes in property development standards to allow for large street trees in new subdivisions and in other types of developments. In addition, it is recommended that the City reconsider its position of allowing a mixture of trees lining the street and return to a consistent pattern within the block or subdivision in order to improve the attractiveness achieved through a consistent pattern.

2. Proposals one through seven have previously been incorporated into Community Plans and were taken from the City Parks and Recreation Department recommendations to revise the existing Street Tree and Parkway Ordinance. The remainder of the proposals were taken from a thesis document prepared by Roger Bordeaux Taylor, a Fresno City planner.

POLICIES/IMPLEMENTATION STRATEGIES

1. Consistent with current City policy, mature street trees will only be removed when all possible options to save the trees have been explored by the Parks and Recreation Department.

2. A corrective root-pruning program shall be continued where possible to reduce root damage to sidewalks, curbs, gutters and streets.

3. An amendment to the zoning ordinance shall be drafted for Council consideration to provide that no sewer, water or utility service connections be placed within the center one-third (minimum thirty feet) of the total frontage of a residential lot. This will provide an area for three plantings where disruption of service facilities or tree roots will not be necessary in future years.

4. New property development standards for residential subdivisions is to be drafted for Council consideration, which will allow for monolithic sidewalks and large tree planting in front yard setback areas rather than parkways.

5. A formalized program shall be established with all utility companies and contractors to insure the protection of trees when work by these agencies is being done in City parkways.

6. A formalized program shall be established to educate both residents and property maintenance personnel of private businesses on proper watering practices for desirable tree growth. Such a program could use television, newspaper, radio and brochures enclosed in water billings.

7. City policy shall be altered to establish a consistent street tree type for each street or subdivision to be determined by the Director of Parks and Recreation or his representative working with the developer. Street tree replacement shall be with the predominant species existing in the area.

8. Parks and Recreation staff shall prepare a report to Council within six months of adoption of the General Plan, indicating progress toward implementation of the above. Constraints to implementation should also be identified.

9. The following changes are to be made in City Ordinances.[2]

   The present City of Fresno Tree Regulations are contained in Sections 11:301 through 11:310 of the Fresno Municipal Code (F.M.C.). The City should explore the possibility of amending these regulations to encourage property owners to donate to the City for transplanting to some other site those larger trees which would otherwise be destroyed.

   This would only apply to the desirable types of trees, for which transplanting is feasible.

[2]Roger Bordeaux Taylor, "The Preservation of Trees in the Fresno-Clovis Metropolitan Area" (Master's Thesis, California State University, Fresno, 1980, pp. 130-132)

For a city the size of Fresno, the cataloging of all of the private trees in the City, although feasible, may not be very practical. The most practical approach would be to make tree removal decisions on a case-by-case basis with very specific guidelines.

The subdivision regulations of the City of Fresno are contained in Section 12:000 of the F.M.C. Section 12:1004-21 which presently requires that the tentative map show all trees which are to remain (if any). This statement implies that developers will want to save trees although the ordinance does not require it. This part should be changed to require that all trees on the entire site be shown on the tentative map. This would normally require a very small increase in the time for the preparation of the map. This requirement could logically be included in the provisions for the preparation of Parcel Maps also located in Section 12, 12:01201 through 12:1207 of the F.M.C.

The designation of all existing trees, regardless of type of condition, should also be required for the site plan review and conditional use permit applications.

Development standards for parking lots should be modified to allow a minor reduction in the number of required parking stalls if by so doing valuable trees could be preserved (Section 12:306, I., F.M.C.). These standards should also require that planting areas be of sufficient size to allow adequate room to plant large shade trees.

Landscaping requirements should be added to the requirements for the C-4, C-5, and C-6 Zone Districts. The C-3 Zone District should be expanded to include trees for the purpose of providing shade, beauty and ecological values such as oxygen production and pollution absorption.

The benefits derived from these proposals, if they are implemented, will include all those benefits associated with large mature trees and their preservation as valuable environmental resources. Additional benefits would be a change in development standards for new residential subdivisions allowing the planting of large street trees, and the creation of more pleasant commercial pedestrian environments. By changing the development standard to monolithic sidewalks, the variety of trees which can be used would also be increased.

HIGH-RISE POLICY

INTRODUCTION

From time to time, the City Council has been asked to review their policy limiting the construction of buildings over four stories to the Central Area. Usually, these requests have been accompanied by a specific project design at a particular location. As construction requirements for high-rise buildings increase costs significantly, there has been limited demand for high-rise entitlements in Fresno where land costs are low and designers are more likely to choose a lower cost one-or two-story garden office or apartment style. Both these economic realities and the City's adopted policy have helped reinforce, to a degree, the selection of the Central Area as the primary location of multi-story structures. The economic climate of the 1980's, so far gives no indication that this basic pattern will or should change. The supply of office space currently under construction or for which development entitlements exist is further likely to limit the number of high-rise office proposals coming to the City.

However, there is justification for setting out analysis and policy direction at a broader scale in the General Plan in order to be able to respond to specific development proposals in a timely manner with a comprehensive approach if needed. If there is a considerable change in related community and market conditions in the future, it would be advisable to focus development of the intensity which high-rise represents in areas where there will be the greatest community benefit with the least disruption. The following material deals with such design considerations, as requested by the City Council, and designates key areas in which high-rise buildings could be located. Following adoption of the General Plan, comparable work will be done on Site Design Criteria. These criteria will be more site specific and will establish techniques and procedures for protecting and enhancing the natural and man-made assets of designated areas. Combined, these two studies will address the urban design concerns involved in the location of high-rise buildings.

The design component will add a "vertical" dimension to the predominately one-dimensional qualities of planning and zoning for the community, considering the characteristics of: the height and bulk of multi-story buildings and relationships to surrounding properties; buildings and use; aesthetic effects; and other environmental factors. The degree to which the resulting intensification of land use affects such services as traffic circulation, sewer line capacities, and fire prevention and protection provides the basis for the amount of floor space (in high-rise buildings and other buildings) that may be permitted in a given area.

BACKGROUND

Provisions for multi-story buildings outside the downtown area would require a change in the existing policies which have limited the construction of buildings over four stories in height to the downtown area since 1958, with few exceptions. The existing policy has supported the revitalization of the Central Area and within the Central Business District in particular. The existing policy has fostered the development of eleven buildings with five stories or more in the Central Area, including four in the Central Business District and two in the Civic Center.

The height and location of existing multi-story buildings are tabulated in Figure 63. The general characteristics of the twenty-seven buildings are summarized as follows:

1. Heights range from 54 feet to 248 feet.

2. Fourteen buildings are more than 103 feet high and are eight stories or more.

3. Eleven buildings with five stories or more were constructed in the Central Area since 1958, including four in the Central Business District and two in the Civic Center.

4. Twenty-two are within the Central Area.

5. Excepting four hospitals and five apartment buildings multi-story buildings are used predominantly for office purposes.

6. Three of five multi-story apartment buildings are located in the Central Business District.

An estimated 700 to 800 dwelling units occupy floor space above the second floor. These approximately 800 dwelling units represent only four percent of the total number of apartments that have been constructed in groups of five or more (19,283) in the City of Fresno. Approximately 680 of these apartments are elderly housing in Masten Tower, California Hotel (converted), Fresno Hotel (converted), Silvercrest Fresno, (Salvation Army facility), and Glenn Agnes (old St. Agnes Hospital converted).

The list of buildings excludes buildings on the California State University Campus over which the City has no jurisdiction. Water towers, and the Bekins Storage Building do not involve human occupancy and are excluded. Weinstocks department store, with a windowless third floor (top floor), is 76 feet high and is not listed.

At this time, the addition of six stories is contemplated by the recent purchaser of the Old Bank of America Building (northwest corner of Tulare and Fulton Mall), together with the complete refurbishing of the existing eight-story building. Original plans provided for a 10-story element for the Imperial Savings Building at the southwest corner of Tulare and "L" Streets.Foundations designed for the Bank of America Building and underground parking structure at the northwest corner of Tulare and Van Ness and the Bank of Agriculture at Van Ness and Merced provide for higher structures.

There are no specific standards and regulations in the Zoning Ordinance which provide for tall buildings at suburban locations. Property development standards for each zone district specify building height limitations and generally provide for over-height structures, subject to evaluation under the conditional use permit process. Essentially, the policy which has limited high-rise buildings to the downtown area has operated effectively as an overriding condition, with three exceptions for buildings at suburban locations (with 54, 76, and 86 feet of overall structure height).

The term "high-rise" may evoke images of the impressive skylines of major metropolitan areas and towering structures such as New York City's Empire State Building and World Trade Center and Chicago's Sears Tower and John Hancock Building. However, the perception of multi-story buildings is determined by general area and the exact location of such a structure. Fresno does not have an urban environment comparable to the aforementioned major cities.

Currently, residential dwelling units are not allowed above a threshold of 50 feet outside of the downtown area. The threshold of height of 50 feet relates to desirable requirements for fire suppression and rescue measures and was determined by the Fire Department. The threshold height also reflects the predominant existing limitations of the Zoning Ordinance which, in general, requires buildings and structures with heights over 35 to 50 feet to be subject to a conditional use permit.

Figure 63

BUILDINGS WITH FOUR STORIES AND OVER

BUILDING	NO. OF STORIES	TOTAL HEIGHT (FEET)	FRESNO CENTRAL AREA			OTHER LOCATIONS	YEAR STARTED OR COMPLETED
			CBD	CIVIC CENTER			
Silvercrest	8	92			*		1979
Hope Manor Addition	5	60			*		1978
Masten Towers	11	120	*				1974
St. Agnes Med. Center	6	86				*	1974
Guarantee Center	4	54				*	1972
UCB	8	128	*				1970
Fresno Hilton Hotel	8	128	*				1970
Fresno Comm. Hospital	10	103			*		1969
Fed. Building	6	82		*			1967
1st Western Bank	6	99	*				1965
County Courts & Admin. Bldg.	8	135		*			1963
Fresno Townhouse (Del Webb Center)	22	248			*		1962
State Bldg.	5	105		*			1958
Valley Med. Center	6	92				*	1958
Veterans Hosp.	7	84				*	1948
Old St. Agnes Hosp.	4	60				*	1928
Penney Bldg.	4	86	*				1925
Security Bank	15	221	*				1923
P G & E	10	173			*		1923
Patterson Bldg.	8	118	*				1922
Hotel California	9	152	*				1922
Equitable Bldg.	6	89	*				1922
Fresno Guarantee	12	149	*				1919
Old B of A Bldg.	8	120	*				1918
Hotel Fresno	6	88	*				1915
Mason Bldg.	6	82	*				1915
Helm Bldg.	10	127	*				1913

* All heights approximate

Planning & Inspection Department
2/23/81

The height limitations of the Zoning Ordinance specify over-all structure heights, and the design component relates to heights of floor space intended for human occupancy. The threshold of 50 feet also provides for a more realistic evaluation of the ratio of floor space to land area. The different approaches to building heights should be made consistent with a common definition in the Zoning Ordinance.

MAJOR FINDINGS/CONCLUSIONS

The High-Rise Policy is intended to provide a **process**, rather than an end product. The process is essentially one of design review, which evaluates the physical relationship between the area in which a high-rise building is to be located and the characteristics of the building itself. The Special Site Design Study will present criteria for the evaluation of these physical relationships and characteristics. General criteria common to all nodes and areas are anticipated, together with more special criteria for each selected area. Design review will be based on submitted site plans, elevation drawings and other information and is expected to be similar to the Conditional Use Permit process.

The High-Rise Policy can be expected to result in intensely concentrated business centers containing commercial, office and residential uses at designated locations in existing built-up areas and in areas planned for urbanization. High-rise buildings can also be expected within existing concentrations of commercial uses, particularly in the area within one-half mile radius of the Freeway 41/Shaw Avenue Interchange. The design component will encourage development opportunities in the designated nodes and areas, leading to a planned gradual change in the form and characteristics of the City. At the same time, the potential role of high-rise development as a strategy to offset the decline of older, deteriorating areas of the City may be substantial.

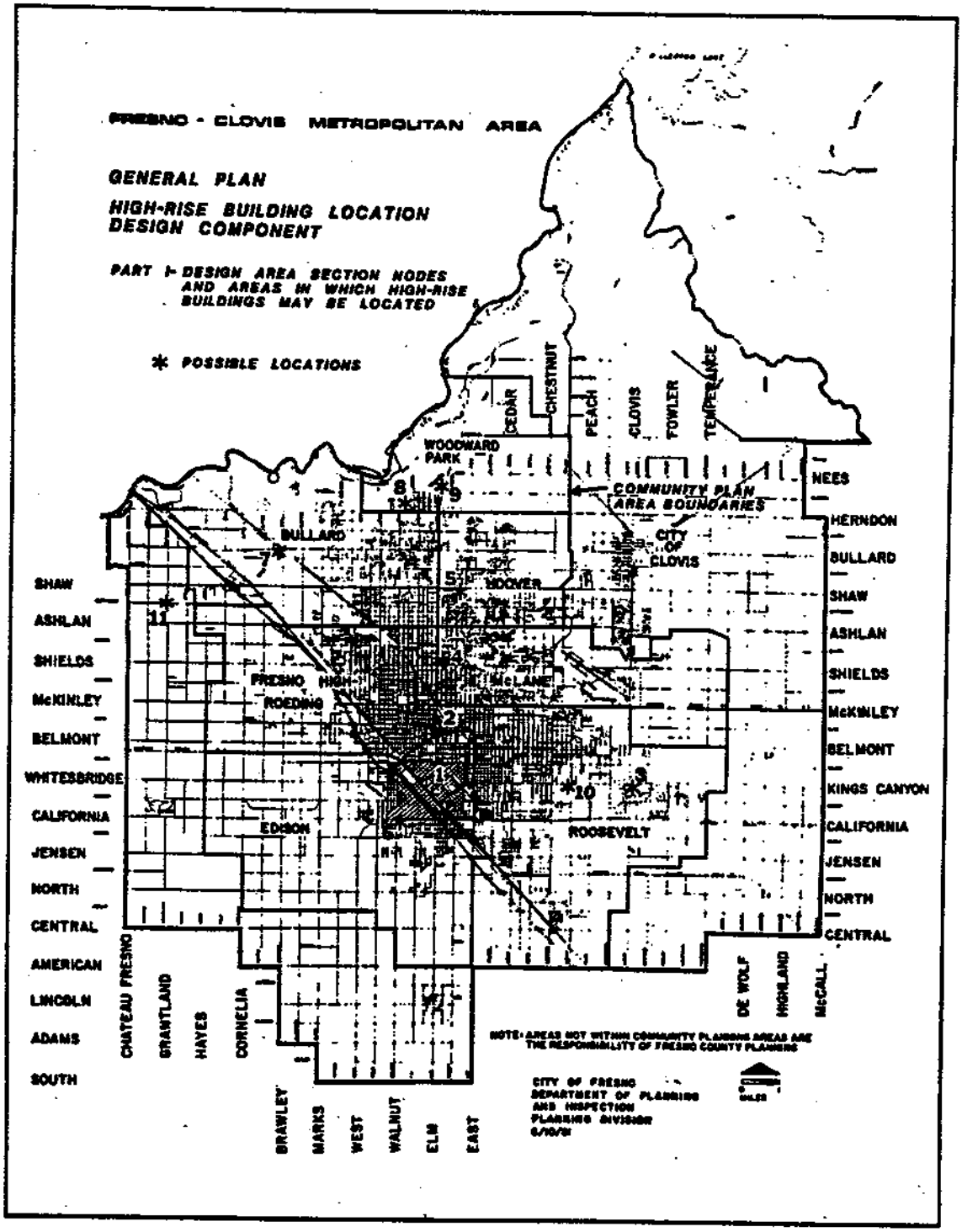
Although the conditions under which high-rise development may occur in the downtown area are unchanged, removal of the constraints to suburban high-rise development can be expected to further reinforce the shift of development interests away from the Central Business District. Existing urban service systems which were built with capacities intended for intensified concentrations of downtown uses, including high-rise buildings, will continue to be underutilized. Water and sewer lines, storm drainage facilities, and electrical and gas distribution lines were sized and installed to provide for a reconstructed, high intensity Central Business District and a revitalized Central Area. Major streets in the circulation system were improved and modified to facilitate access between the Central Business District and the planned freeway system encircling the Central Area. Should the opportunity to develop suburban high-rise buildings lead to increased land values in key suburban areas, the potential for sustaining the remaining vitality of the Central Area will continue to diminish.

At the same time, the decreasing availability of land in key suburban areas is increasing those land values. Supported by general inflation and increased building costs, development costs for office and commercial uses have begun to exceed the level of a reasonable return on investment through leases and rentals. There are indications that increasing land values and construction costs are approaching a threshold that will begin to favor intensification of land use through the construction of multi-story buildings. If the ratio between the floor area that can be constructed on a given parcel of land is increased (considering required off-street parking) by a multi-story building, a more profitable return on investment becomes possible. The costs per square foot that include fire safety, elevators, and other special construction requirements will be higher for a high-rise building than for a one-or two-story building. However, floor space in seemingly more attractive high-rise buildings with other apparent amenities at desirable locations provide the basis for higher rental and lease prices. Pressures for suburban high-rise buildings are, thus, directly attributable to the economics of the real estate market.

Although the enhanced marketing of real estate is the driving force behind the desirability of suburban high-rise buildings, some of the undesirable features of such intensification of land use will be avoided by encouraging their introduction into the planned multiple use centers shown in the General Plan. The clustering of major uses and high-rise buildings within planned nodes and other limited areas will promote the development of a coherent city form and prevent the excessive loading of major streets and unwarranted demands for unplanned expansion of urban service systems.

Over the long term, high-rise buildings within planned nodes and areas lead to shorter trips for private automobiles with consequent savings of fuel and reduced amounts of vehicle emissions. Although some economies in the use of land and transportation may be attributed to the potential for more floor space per acre of land, it is unlikely that high-rise buildings will significantly affect the unconstrained development of the ever popular suburban neighborhood that continues to absorb land at the edge of the City.

Figure 64


FRESNO - CLOVIS METROPOLITAN AREA
GENERAL PLAN
HIGH-RISE BUILDING LOCATION DESIGN COMPONENT
PART I - DESIGN AREA SECTION NODES AND AREAS IN WHICH HIGH-RISE BUILDINGS MAY BE LOCATED
* POSSIBLE LOCATIONS
CEDAR
CHESTNUT
PEACH
CLOVIS
FOWLER
TEMPERANCE
WOODWARD PARK
COMMUNITY PLAN AREA BOUNDARIES
CITY OF CLOVIS
BULLARD
HOOVER
McLANE
FRESNO HIGH-ROEDING
EDISON
ROOSEVELT
NEES
HERNDON
BULLARD
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
KINGS CANYON
CALIFORNIA
JENSEN
NORTH
CENTRAL
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
WHITESBRIDGE
CALIFORNIA
JENSEN
NORTH
CENTRAL
AMERICAN
LINCOLN
ADAMS
SOUTH
CHATEAU FRESNO
GRANTLAND
HAYES
CORNELIA
BRAWLEY
MARKS
WEST
WALNUT
ELM
EAST
DE WOLF
HIGHLAND
McCALL
NOTE: AREAS NOT WITHIN COMMUNITY PLANNING AREAS ARE THE RESPONSIBILITY OF FRESNO COUNTY PLANNING
CITY OF FRESNO
DEPARTMENT OF PLANNING AND INSPECTION
PLANNING DIVISION

In recognition of the differences mentioned earlier between the design components recommended threshold and the existing provisions of the zoning ordinance, the potential for multi-story buildings with occupied floor space at heights up to forty feet is also addressed. Considerations for this type of building apply to locations within designated nodes and areas and at random locations. Both the Conditional Use Permit process and Specific Site Design Criteria will be used in the evaluation of proposed locations and characteristics of this type of building.

As the companion of the intensification of land use, residential densities may be increased by the "stacking" of dwelling units in multi-story buildings. Although a sufficient amount of open space and recreation space must be guaranteed to the occupants of multi-story buildings, more efficient use of the land becomes attractive with the higher densities that may be achieved.

There has not been an historical desire for a high-rise residential life-style in the Fresno area. Building codes and fire codes increase costs for multi-story residential buildings with floor space above three stories. When added to the cost of elevators and stairways, it is apparent that apartment dwellings in multi-story buildings have not been considered marketable in this community. Apparent lifestyle choices combined with construction costs and the policy which limited high-rise buildings to the downtown area have favored the suburban single family residence and the garden apartment in one-or two-story buildings. However, the popularity of multi-story apartment buildings and condominiums will probably be fostered by the prevailing need for affordable housing. If small dwelling units in multi-story buildings can be presented at attractive costs, some of the demand for housing may be met and residential options will be expanded.

The opportunity for residential uses in the same building with office and/or commerical uses would increase the attractiveness of investment in such a building. If properly designed, the possibility of merely shopping "downstairs" would also make the dwelling units in a multi-story, multi-use building attractive to many home buyers. Mixed land use concepts can assist in creating these opportunities.

ENVIRONMENTAL IMPLICATIONS

Depending on the particular location, the introduction and presence of a high-rise building can be expected to uniquely affect the environment of the surrounding area.

Urban services such as fire protection, sewer and water supply systems, and storm water drainage are expected to be particularly impacted by the highly intense service demands resulting from occupied multi-story construction.

The potential traffic generation of a high-rise project will substantially exceed the per acreage yield of a typical office development. Resulting traffic will heavily impinge upon the local circulation system, particularly during peak-hour travel.

Energy consumption for an intensely-developed site will be considerable. However, this will not be substantially more than that consumed by any similar land use containing the same floor area, particularly depending upon the proposed materials of construction (i.e., reflective glass).

The visual impact of high-rise development can affect the entire local community but particularly those properties immediately adjacent to the project site. In addition, noise and glare (from night lighting) will be expected to affect abutting properties. The magnitude of the affect of potential impacts is determined by the type of adjacent land uses.

OBJECTIVES

The design component is directed toward the following objectives:

1. To strengthen the multiple-centers city form incorporated in the General Plan.

2. To provide for the grouping of high-rise buildings with other major uses in nodes and areas intended for regional, community, and general commercial services.

3. To provide for two dimensional planning and zoning to accommodate high-rise buildings outside of the downtown area.

4. To provide for the regulated intensification of land use at appropriate locations.

5. To reduce pressures for unwarranted over-intensification of land use at inappropriate locations.

6. To protect properties in the vicinity of high-rise buildings from the adverse effects of: traffic generated noise and vehicle emissions; visual intrusion; the encroachment of masses of structure; interruption of view and air movement; and encroachment upon solar access.

7. To protect urban service systems from excessive overloading and the consequent demand for new and expanded systems.

8. To enhance the aesthetic qualities of nodes, areas, and the city-scape in general.

9. To ensure the fire safety of the occupants and the building.

POLICIES/IMPLEMENTATION STRATEGIES

I. Design area policies and standards:

A. Any building in which floor areas intended for human occupancy are 50 feet or more above the finished floor elevation of the ground floor shall be located in the following nodes and areas, as depicted on Figure 64. Other areas may be identified at a future time, if warranted.

1. Fresno Central Area excepting the Central Business District Urban Renewal Project Area, Civic Center Area, and within the C-4, Central Trading District.

2. Both sides of North Blackstone and North Abby Avenues between East Harvey and East McKinley Avenues.

3,4,5. Existing regional and community commercial nodes.

6,7. Proposed community commercial nodes.

8,9,10. Potential regional and general commercial nodes for which proposals for development of regional shopping centers have been received.

B. Within designated nodes and areas, provisions for fire protection and suppression for a high-rise building, including built-in fire protection systems, fire equipment, and fire equipment running distances, shall be determined by the Fire Chief. Provisions for fire protection and suppression which are determined by the Fire Chief shall be the overriding standard in the location of a high-rise building.

C. There shall be adequate vehicular access from a high-rise building to two major streets. Alternative provisions for access shall be approved by the Director of Public Works.

D. A high-rise building shall not result in the over-intensification of land use within a designated node or area, considering the aggregation of proximate floor areas.

E. The costs for new urban services induced by a high-rise building (including street widening, signalization, increased sewer trunk line capacities, liquid waste processing facilities, water wells, and water lines) shall be borne by the developers.

F. Residential uses in high-rise buildings within designated nodes and areas shall be encouraged, particularly in combination with office and commercial uses in the same building.

G. Within designated nodes and areas, and at random locations, multi-story buildings intended for human occupancy not more than **40 feet** above the finished floor elevation of the ground floor shall be evaluated under the Conditional Use Permit provisions for over-height buildings of the district in which it is located. However, conditional approval shall also consider Special Site Design Criteria.

H. The specific location of any multi-story building shall be subject to the more detailed criteria and standards of Part 2 - Special Site Design Section.

2. Considerations for which criteria are to be developed in the Special Site Design Section in order to implement the high-rise component are outlined as follows:

- Maximum concentrations of floor area;
- Maximum distances from single family residential uses;
- Protection of urban services systems;
- Protection of adjacent properties and the urban environment;
- Minimum site areas;
- Ratios of floor area to parcel area;
- Energy conservation; and
- Other considerations.

3. Other implementation measures are expected to involve:

- Narrative special plans for the designation of nodes and areas;
- A design review process;
- A design overlay district to be applied to the underlying zone district of the property for which a high-rise building is proposed;
- Other measures, as determined;
- Aesthetic impacts (height, bulk, material, landscaping, architecture of adjacent buildings, compatability);
- Growth inducing impacts; and
- Other significant environmental effects.

APPENDIX

APPENDIX

Mandated Elements of the General Plan:

Land Use - LU
Circulation - C
Housing - H
Conservation - CO
Open Space - OS
Seismic Safety - SS
Noise - N
Scenic Highway - SH
Safety - S
Optional - OP

ELEMENTS INVOLVED	ISSUES, POLICIES AND IMPLEMENTATION
CO	A. Conservation of Natural Resources
CO	1. Air Quality
CO	2. Water Resources
CO	3. Agricultural Land
CO, OS	4. Flora and Fauna
CO	5. Mineral Resources
SS	6. Seismic Safety
S	7. Safety
N	8. Noise
OP	B. Provision of Urban Services
LU	1. Metropolitan Planning
OP	2. Coordination with Local Agencies
LU	3. Urban Growth Management
OP	4. Annexation
OP	5. Water
OP	6. Sewer
S, CO	7. Flood Control
OS, LU	8. Open Space and Recreation
CO, OP	9. Energy Conservation
LU	C. Land Use
LU	1. Established Areas
LU	2. Developing Communities
LU	3. New Growth Areas
LU	D. Development Consistency
C, SH	E. Transportation
H	F. Housing
OP	G. Economic Development
LU, S, OP, C, OS	H. Special Issues
	1. Increased Residential Densities
	2. In-fill Projects
	3. Central Area Strategies
	4. Street Tree Policy
	5. High Rise Policy

Appendix 1

RESOLUTION NO. 83-92

A RESOLUTION OF THE CITY OF FRESNO
APPROVING THE JOINT RESOLUTION ON
METROPOLITAN PLANNING

WHEREAS, the Cities of FREWSNO AND CLOVIS are municipal corporations in the State of California incorporated under the laws of said State with CLOVIS functioning under the general laws thereof and FRESNO being a Charter City, and the COUNTY OF FRESNO is a Charter County within the State of California; and

WHEREAS, it is deemed to be in the public interest that these three entities work cooperatively and agree to meet at lease annually regarding matters related to urban growth and development in the Fresno-Clovis Metropolitan Area; and

WHEREAS, it is the intent of the Cities of Fresno and Clovis and the County of Fresno to administer local governmental services in a prudent and efficient manner; and

WHEREAS, the three agencies recognize that many of the actions described in this resolution will require amendments to their General Plans and that such amendments will be subject to the required environmental documentation and public hearing processes:

THEREFORE, BE IT RESOLVED THAT THE COUNTY OF FRESNO AND THE CITIES OF FRESNO AND CLOVIS AGREE THAT:

1. The Cities of Fresno and Clovis shall prepare General Plan updates for their planning areas within the proposed urban boundary shown on exhibit "A" (hereinafter referred to as the Urban Boundary), and Fresno County shall initiate an amendment to its General Plan to include that Urban Boundary. The final Urban Boundary shall be adopted as part of the required General Plan processes by each jurisdiction.

   The Cities of Fresno and Clovis and the County of Fresno do hereby express their intention not to amend the final Urban Boundary unless there is agreement among the affected parties to the change; and

2. The Urban Boundary shall be reviewed and updated a minimum of ten years; and

3. The Cities of Fresno and Clovis and the County of Fresno have the primary responsibility for comprehensive planning within the Urban Boundary and as part of their planning process may choose to designate some areas within the Urban Boundary as appropriate for interim agriculture, rural density, or permanent open space; and

4. The Cities of Fresno and Clovis and the County of Fresno shall recommend to the Local Agency Formation Commission (LAFCO) that it adopt as its Sphere of Influence Line for the Cities of Fresno and Clovis a line coterminous with the Urban Boundary. Any changes resulting from the plan adoption process shall also be directed to LAFCO for similar action; and

5. The Urban Boundary shall be based on the accommodation of a population of 588,000 persons for the planned urban areas of Fresno and Clovis; and

6. The County of Fresno does hereby initiate for consideration during its first General Plan amendment cycle of 1983, an amendment to its General Plan to revise the Fringe Area Policies to restore the referral policy for the Cities of Fresno and Clovis; and

7. In order to promote increased efficiency and economy in the provision of Urban services and housing opportunity, and to conserve productive agricultural land, the County shall support the City-adopted land use plans within the Urban Boundaries of the Cities of Fresno and Clovis.

   The Cities shall continue to make an effort to incorporate Fresno County land use policies for protection of agriculturally related industrial operations at the urban interface; and

9. Until the adoption of General Plan updates by the Cities of Clovis and Fresno, the County of Fresno expresses its intent that all unincorporated areas not designated urban or not having an urban zone

within the Urban Boundary shall be zoned AL-20 by the County of Fresno, and all properties zoned AE-20 shall retain those zones; and

10. The County shall institute procedures to amend the AL-20 zone district to eliminate those uses not compatible with the holding zone concept; and

11. Within the Urban Boundary and two miles beyond, each party to this agreement shall, in the early stages of preparation of land use and circulation proposals and General Plan amendments consult at the staff level in such fashion as to provide meaningful participation in the policy formulation process, and shall likewise consult on other policy changes which may have an impact on growth or the provision of urban services. Those parties shall also be given the opportunity to respond to the jurisdiction proposing the change before the final document is prepared for presentation to the hearing bodies; and

12. After the Cities of Fresno and Clovis adopt updated General Plans, the County shall initiate an amendment to the Fresno County General Plan to provide that the area planned by the Cities of Fresno and Clovis for eventual urban uses and currently designated on the County General Plan as rural residential shall be reserved for urban uses by the County be rezoning to agricultural zone districts. Further, the County hereby expresses its intent not to add additional or expand existing rural residential areas adjacent to the Urban Boundary without concurrence of the affected City; and

13. Within those areas currently designated as Rural Residential in the County General Plan and which fall within the Cities' Urban Boundary general or community plans shall be prepared by the Cities in cooperation with the County which address the retention of rural residential uses and/or the eventual conversion of that land tohigh density uses; and

14. Urban development and the provision of urban services within the Urban Boundaries shall be the responsibilities of the Cities of Fresno and Clovis; and

15. The County will support urban unification; to this end, the County shall oppose the creation of new governmental entities within the Urban Boundary and will support efforts to consolidate existing special purpose districts; and

16. The County of Fresno shall initiate proceedings to consider the dissolution of those County Water Works Districts for which the Board of Supervisors is the governing body that are situated within the Urban Boundary of the City of Fresno to thereby transfer such responsibility of providing water to that City; and

17. The Cities of Fresno and Clovis shall emphasize the inhabited annexation process and shall work with the established neighborhoods to encourage a negotiated unification of the existing urbanized area. Such a program shall stress the clarification and resolution of identified neighborhood concerns; and

18. For all annexations, the Cities of Fresno and Clovis shall provide to the property owners directly affected, an appropriate program which describes the service delivery program and the existing land use plan, including any proposed changes filed with the City or publicly proposed for the neighborhood; and

19. The City of Fresno shall consult with the County of Fresno at the staff level when developing proposed annexation boundaries, and such boundaries shall be configured to create logical annexations; and

20. The City of Fresno shall agree that, when an annexation is based on a County referral, the City will confine its request to that area necessary to establish legally required contiguity, or as required by LAFCO; and

21. The Cities of Fresno and Clovis shall request, jointly with the County, that LAFCO adopt a policy that that body will not consider requests to amend the Sphere of Influence unless the County and appropriate city or cities have agreed to the change; and

22. During the general plan update process the three agencies shall discuss the policy ramifications fo major sewer facilities. Following the adoption of the general plans of the Cities of Fresno and Clovis, the two cities shall meet to work out a plan for the financing and construction of the Fowler sewer trunkline system of an alternative means of sewering the northeastern portion of the planned urban area.

ATTEST:

Jacqueline L. Ryle, City Clerk
City of Fresno

ATTEST:

Darlene Richards, Clerk
Board of Supervisors

ATTEST:

Michael Prandini, City Clerk
City of Clovis

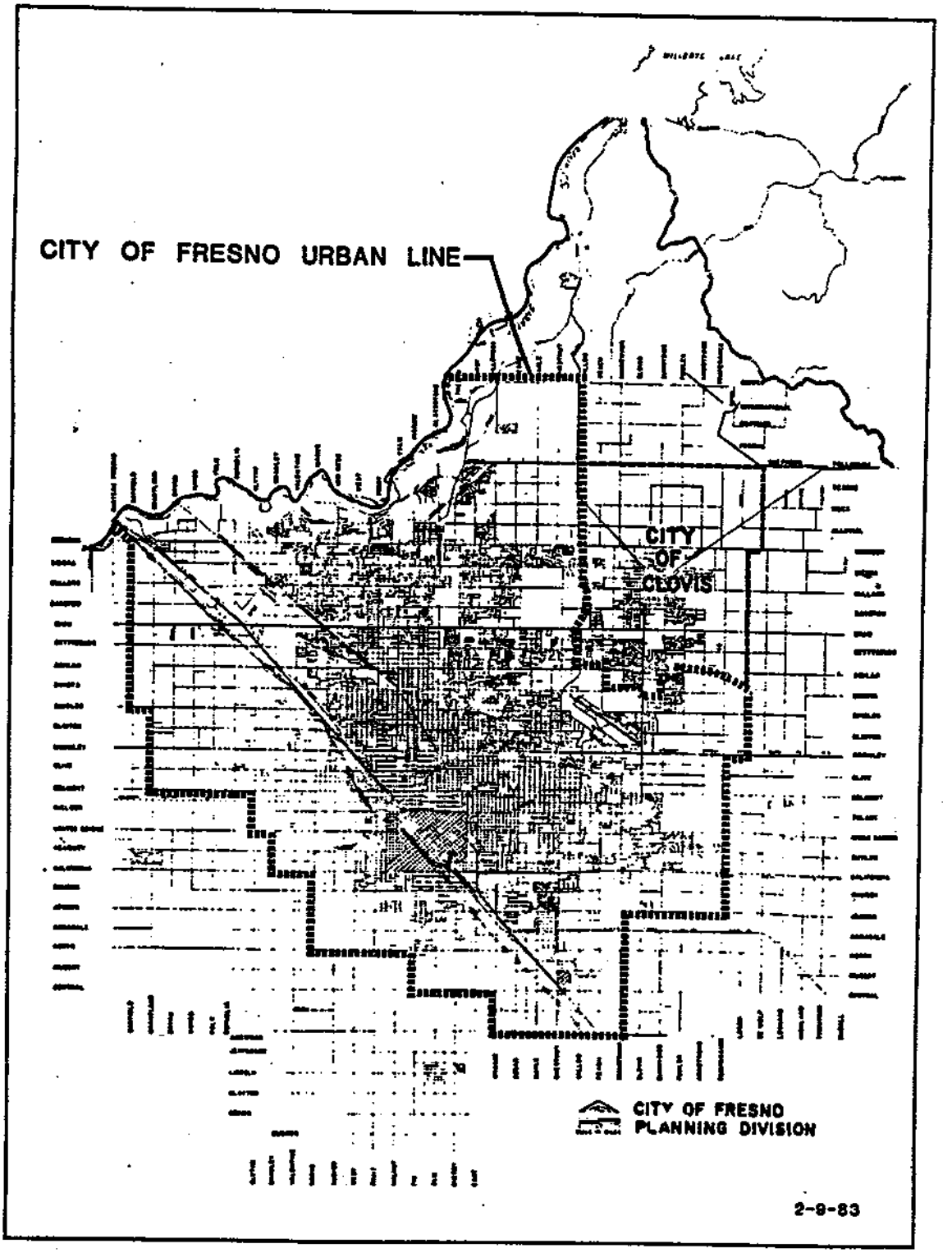
3/31/83

Daniel K. Whitehurst, Mayor
City of Fresno

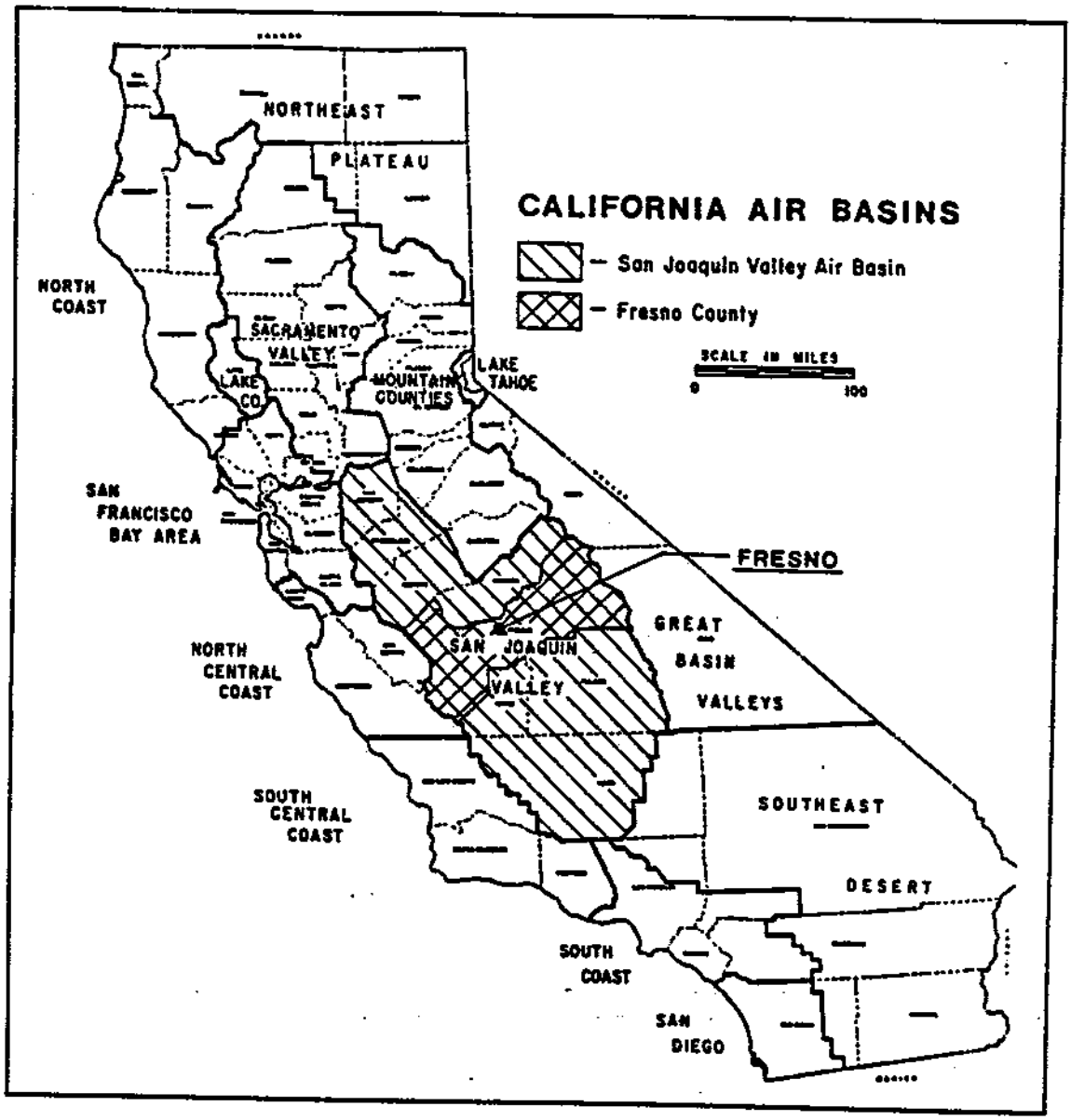
Jeff Reich, Chairman
Board of Supervisors

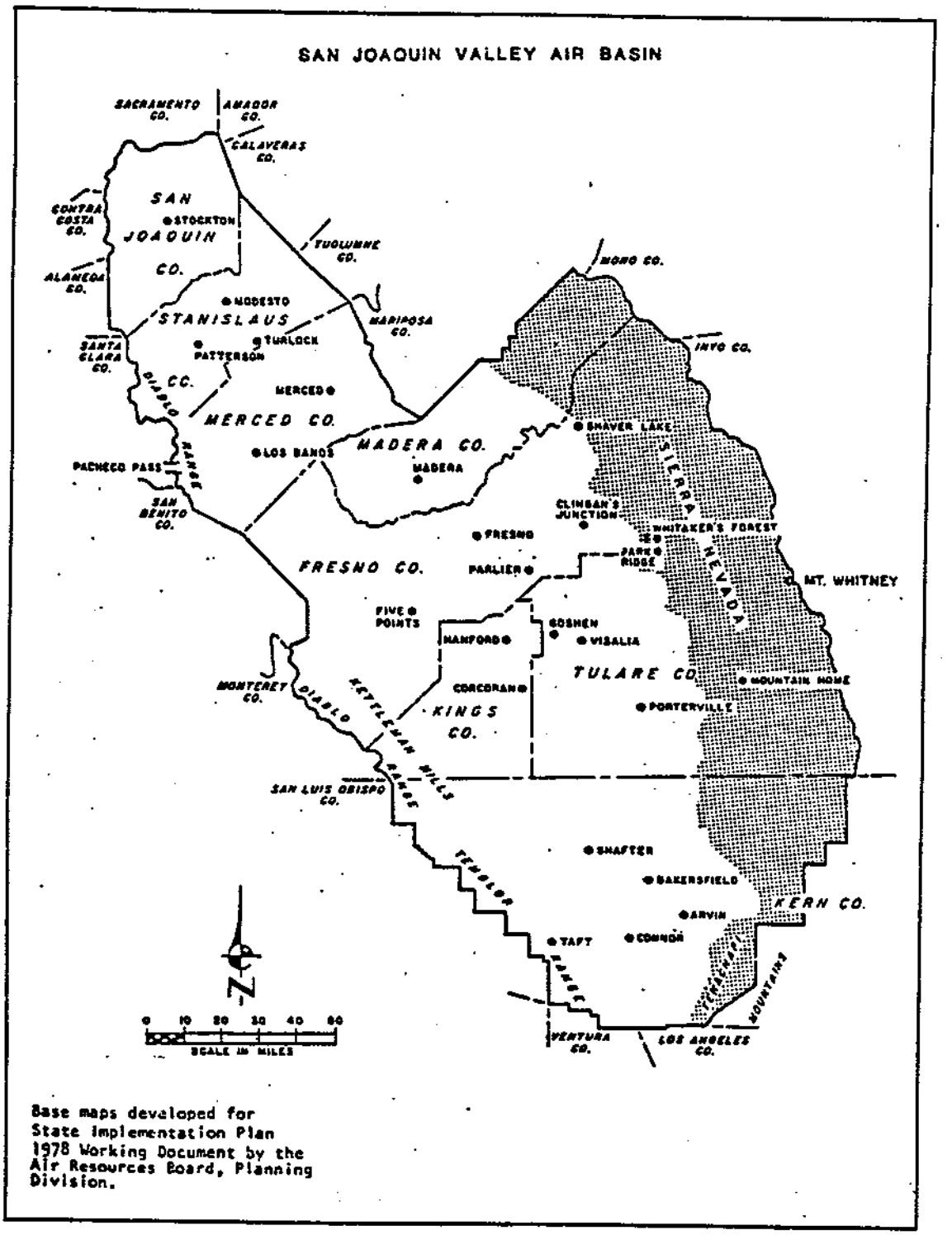
Harry Armstrong, Mayor
City of Clovis

URBAN BOUNDARY



Appendix 2


CALIFORNIA AIR BASINS
— San Joaquin Valley Air Basin
— Fresno County
SCALE IN MILES
0
100
NORTHEAST
PLATEAU
NORTH COAST
SACRAMENTO VALLEY
LAKE CO.
MOUNTAIN COUNTIES
LAKE TAHOE
SAN FRANCISCO BAY AREA
FRESNO
GREAT BASIN VALLEYS
SAN JOAQUIN VALLEY
NORTH CENTRAL COAST
SOUTH CENTRAL COAST
SOUTHEAST DESERT
SOUTH COAST
SAN DIEGO



Base maps developed for State Implementation Plan 1978 Working Document by the Air Resources Board, Planning Division.

Appendix 4

Important Farmlands Inventory: Definitions (Soil Conservation Service, USDA)

I. Prime farmlands meet all the following criteria:

1. The soils have:

   A. Dryland: aquic, udic, ustic or xeric moisture regimes and an available water capacity of at least 4 inches per 40 to 60 inches of soil to produce the commonly grown cultivated crops (cultivated crops include, but are not limited to, grain, forage, fiber, oilseed, sugarbeets, sugarcane, vegetables, tobacco, orchard, vineyard, and bush fruit crops) adapted to the region in 7 or more years out of 10; or

   B. Irrigated: xeric, ustic, aridic or torric moisture regimes in which the available water capacity is at least 4 inches per 40 to 60 inches of soil and the area has a developed irrigation water supply that is dependable (a dependable water supply is one in which enough water is available for irrigation in 8 out of 10 years for the crops commonly grown) and of adequate quality; and,

2. The soils have a temperature regime that is frigid, mesic, thermic or hyperthermic (pergelic and cryic regimes are excluded). These are soils that, at a depth of 20 inches (50cm), have a mean annual temperature higher than 32F (0C). In addition, the mean summer temperature at this depth in soils with an 0 horizon is higher than 47F (8C); in soils that have no 0 horizon, the mean summer temperature is higher than 59F (15C); and,

3. The soils have a pH between 4.5 and 8.4 in all horizons within a depth of 40 inches; and,

4. The soils either have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and,

5. The soils can be managed so that, in all horizons within a depth of 40 inches (1 meter), during part of each year the conductivity of the saturation extract is less than 4 mmhos/cm and the exchangeable sodium percentage (ESP) is less than 15; and,

6. The soils are not flooded frequently during the growing season (less often than once in 2 years); and,

7. The product of K (erodibility factor) x percent slope is less than 2.0; and,

8. The soils have a permeability rate of at least 0.06 inch (0.15 cm) per hour in the upper 20 inches (50cm) and the mean annual soil temperature at a depth of 20 inches (50cm) is less than 59F (15C); the permeability rate is not a limiting factor if the mean annual soil temperature is 59F (15C) or higher; and,

9. Less than 10 percent of the surface layer (upper 6 inches) in these soils consists of rock fragments coarser than 3 inches (7.6 cm); and,

10. The soils have a minimum rooting depth of 40 inches.

II. Farmlands of statewide importance meet all the following criteria:

1. The soils have:

   A. Aquic, udic, ustic or xeric moisture regimes and an average available water capacity of at least 3.5 inches within a depth of 60 inches (1.52 meters), or in the root zone (root zone is the part of the soil that is penetrated by plant roots) if the root zone is less than 60 inches deep, to produce the commonly grown cultivated crops (cultivated crops include, but are not limited to, grain, forage, fiber, oilseed, sugar beets, sugarcane, vegetables, tobacco, orchard, vineyard and bush fruit crops) adapted to the region in 7 or more years out of 10; or,

   B. Xeric, ustic, aridic or torric moisture regimes in which the available water capacity is at least 3.5 inches within a depth of 60 inches (1.52 meters) or in the root zone if the root zone is less than 60 inches deep and the area has a developed irrigation water supply that is dependable (a depend-

able water supply is one in which enough water is available for irrigation in 8 out of 10 years for the crops commonly grown) and of adequate quality; and,

2. The soils have a soil temperature regime that is frigid, mesic, thermic or hyperthermic (pergelic and cryic regimes are excluded). These are soils that at a depth of 20 inches (50cm) have a mean annual temperature higher than 32F (0C). In addition, the mean summer temperature at this depth in soils with an 0 horizon is higher than 47F (8C); in soils that have no 0 horizon the mean summer temperature is higher than 59F (15C); and,

3. The soils have a pH between 4.5 and 9.0 in all horizons within a depth of 40 inches (1 meter) or in the root zone if the root zone is less than 40 inches deep; and,

4. The soils either have no water table or have a water table that is maintained at a sufficient depth during the cropping season to allow cultivated crops common to the area to be grown; and,

5. The soils can be managed so that, in all horizons within a depth of 40 inches (1 meter), or in the root zone if the root zone is less than 40 inches deep, during part of each year the conductivity of the saturation extract is less than 16 mmhos/cm and the exchangeable sodium percentage (ESP) is less than 25; and,

6. The soils are not flooded frequently during the growing season (less often than once in 2 years); and,

7. The product of K (erodibility factor) x percent slope is less than 3.0; and,

8. Less than 10 percent of the surface layer (upper 6 inches) in these soils consists of rock fragments coarser than 3 inches (7.6 cm).

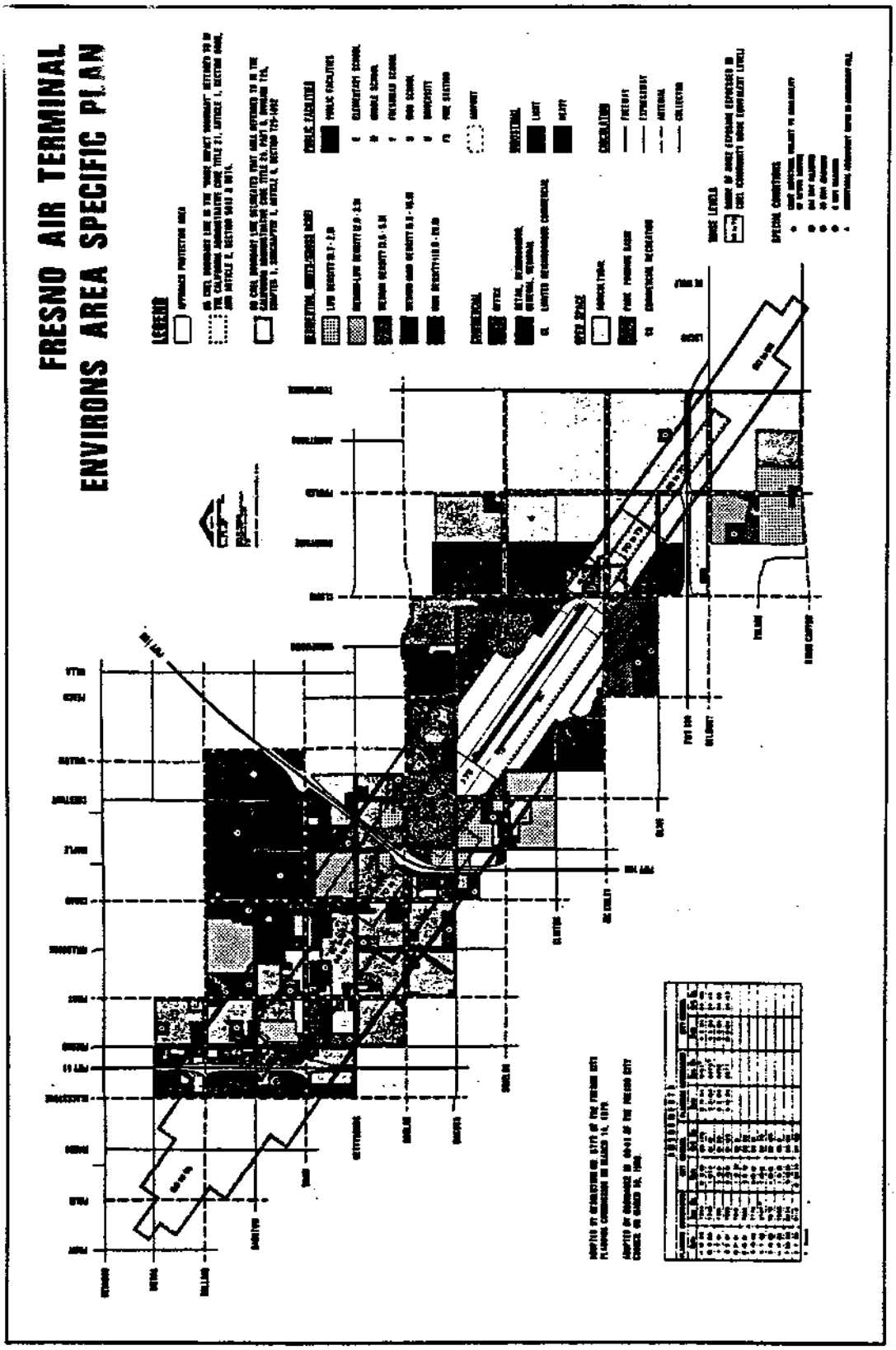
III. Characteristics of unique farmland:

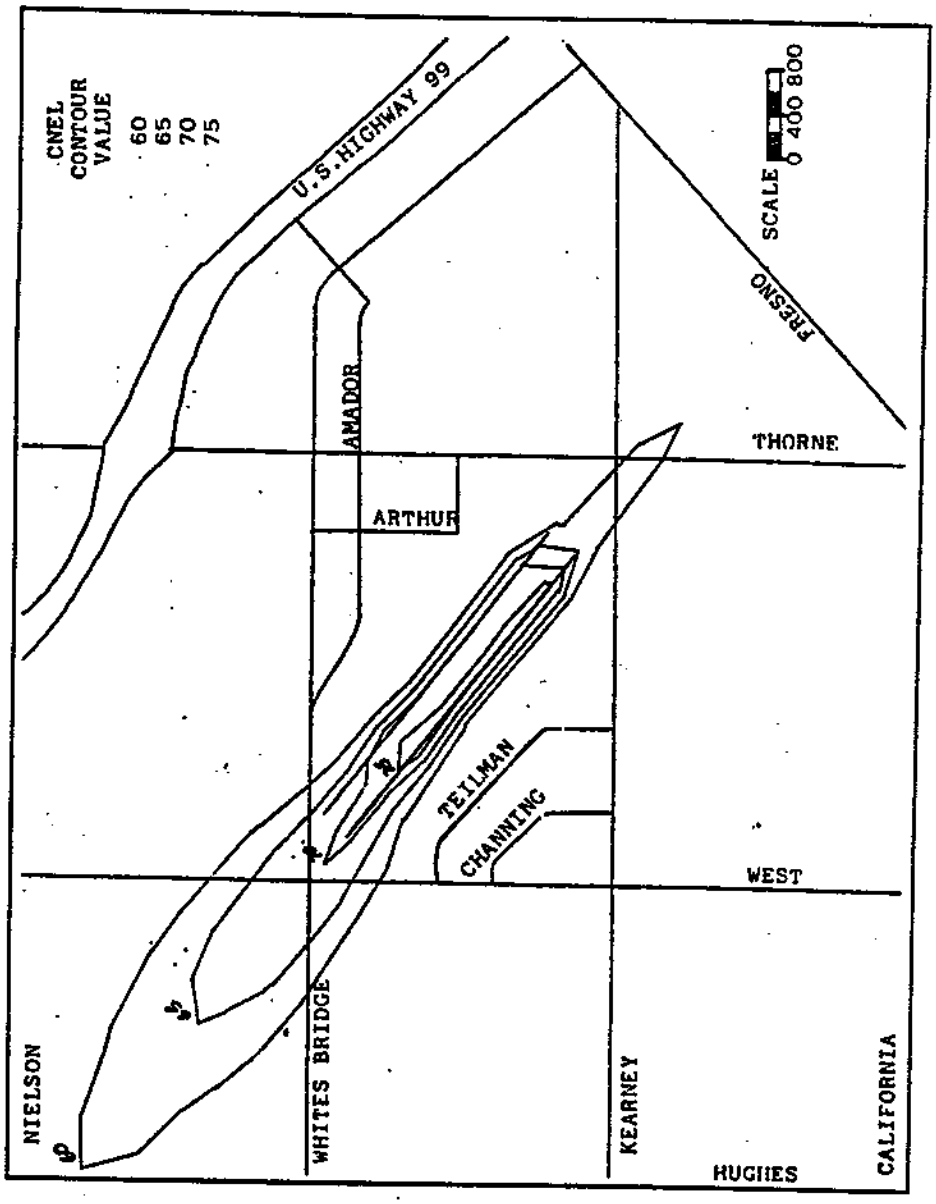
1. It is used for a specific high-value food or fiber crop;

2. It has moisture supply that is adequate for the specific crop; the supply is from stored moisture, precipitation, or a developed irrigation system;

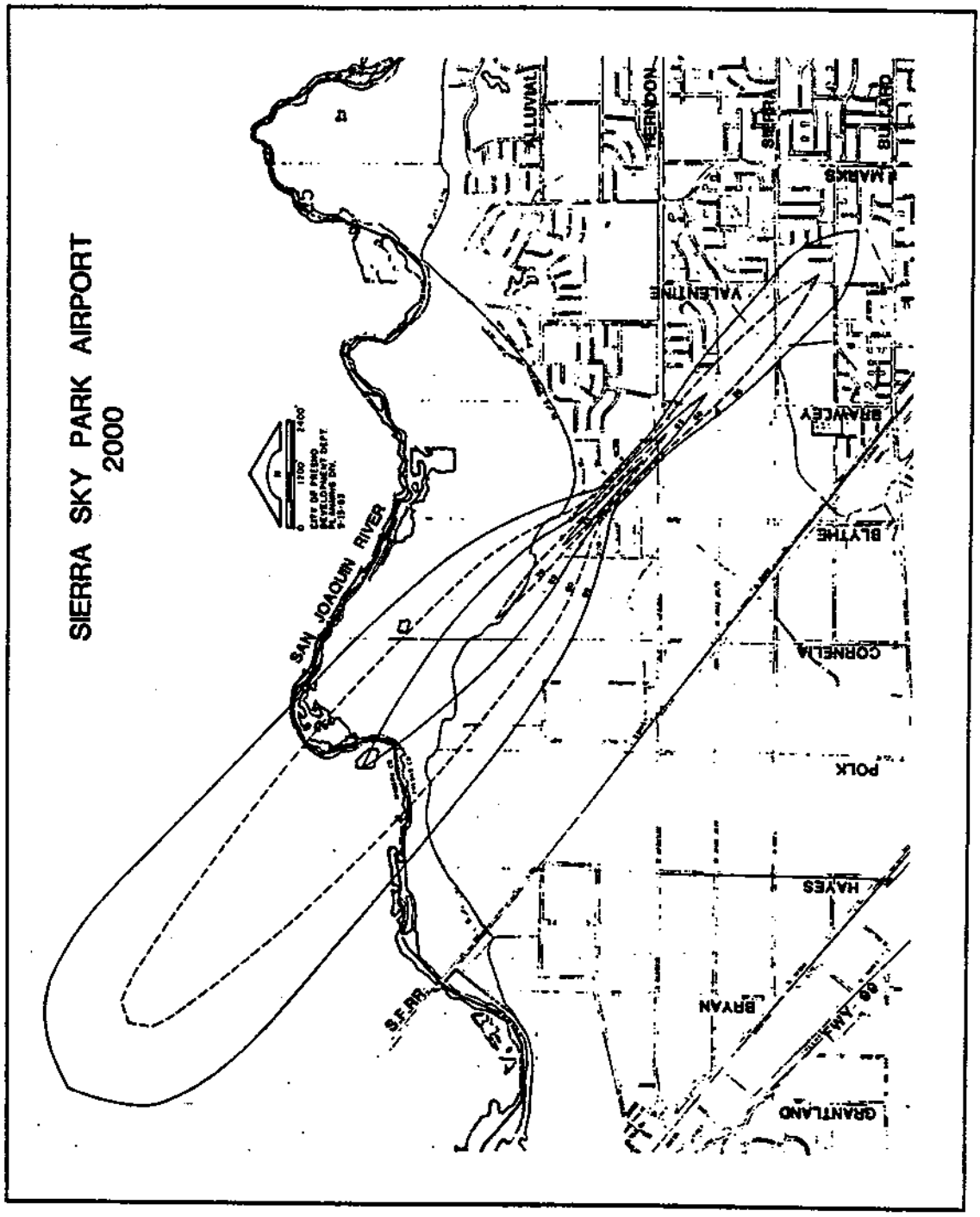
3. Combines favorable factors of soil quality, growing season, temperature humidity, air drainage, elevation, aspect, or other conditions, such as nearness to market, that favor the growth of a specific food or fiber crop.

Appendix 5





FRESNO-CHANDLER DOWNTOWN AIRPORT
2000


SIERRA SKY PARK AIRPORT
2000
SAN JOAQUIN RIVER
S.F.R.R.
ALLUVIAL
FERNDON
SIERRA
BILLARD
MARKS
VALENTINE
BRAWLEY
BLYTHE
CORNELIA
POLK
HAYES
BRYAN
GRANTLAND

Appendix 8

SPECIFIC PLANS

*County of Fresno Specific Plan	ADOPTION DATE
1. SOUTH ANGUS STREET	11-21-59
2. SHAW AVENUE LAND USE POLICY	01-14-64
3. KEARNEY PARK GENERAL PLAN	12-29-64
4. URBAN RENEWAL PLAN FOR THE WEST FRESNO BUSINESS DISTRICT REHABILITATION PROJECT (CHINA TOWN)	07-22-65
5. NORTHWEST AIR APPROACH DENSITY CONTROL - F.A.T.	06-05-66
6. WEST FRESNO URBAN RENEWAL PLAN II	04-13-67
7. PALM AVENUE LAND USE POLICY*	10-10-67
8. CIVIC CENTER MASTER PLAN	04-18-68
9. EAST SHAW AVENUE BOULEVARD AREA DISTRICT	06-25-68
10. VAN NESS-FORKNER LAND USE POLICY*	07-09-68
11. BULLARD COMMUNITY AREA FIVE LAND USE POLICY*	07-23-68
12. FRISBIE-GROVE CONCENTRATED CODE ENFORCEMENT AREA	07-25-68
13. EDISON MANOR CONCENTRATED CODE ENFORCEMENT AREA	07-25-68
14. PARKING AND LOADING SPACE STANDARDS	01-07-69
15. WEST FRESNO URBAN RENEWAL PLAN III	01-14-69
16. WEST SHAW AVENUE AMENDMENT	02-05-70
17. WALNUT GARDENS SPECIFIC PLAN*	04-28-70
18. DAKOTA AND FIRST LAND USE POLICY	03-18-71
19. EAST SHAW AVENUE POLICY (E. SHAW, N. CEDAR, E. RIALTO & N. 9TH)	05-27-71
20. NORTH FIRST STREET DEVELOPMENT POLICY (MCKINLEY & E. LAMONA)	06-24-71
21. FRUIT-CHURCH INDUSTRIAL AREA SPECIFIC PLAN	10-07-71
22. BIKEWAYS PLAN/BARSTOW AVENUE	06-15-72
23. SOUTHWEST FRESNO URBAN RENEWAL PLAN	08-17-72
24. BUTLER-WILLOW AREA SPECIFIC PLAN	11-09-72
25. CENTRAL BUSINESS DISTRICT MASTER PLAN	01-11-73
26. ASHLAN MILLBROOK-NORTHWEST AREA SPECIFIC PLAN	03-22-73

27. EAST SHAW AVENUE-NORTH/MARIPOSA-FIRST AREA SPECIFIC PLAN	3-29-73
28. GLENN AVENUE LAND USE POLICY*	7-23-73
29. NORTH AVENUE INDUSTRIAL TRIANGLE SPECIFIC PLAN	9-27-73
30. WEST FRESNO URBAN RENEWAL PLAN I	10-25-73
31. SUN GARDEN ACRES SPECIFIC PLAN	3-21-74
32. MARIPOSA URBAN RENEWAL PLAN MARIPOSA MEDICAL CENTER	12-04-75
33. NELSON AREA SPECIFIC PLAN	1-08-76
34. BLACKSTONE-BULLARD AREA SPECIFIC PLAN	1-08-76
35. YOSEMITE JUNIOR HIGH AREA SPECIFIC PLAN	3-04-76
36. 1993 AIRPORT MASTER PLAN - FRESNO AIR TERMINAL	5-27-76
37. 1993 AIRPORT MASTER PLAN - FRESNO - CHANDLER DOWNTOWN AIRPORT	5-27-76
38. FIRST STREET BIKEWAY SPECIFIC PLAN BARSTOW TO SHIELDS AVENUE	6-10-76
39. N. FIRST STREET/E. BARSTOW AVE. BICYCLE WAY SPECIFIC PLAN (N. FIRST ST./ E. BARSTOW TO E. HERNDON AVE./E. BARSTOW AVE./N. FRESNO TO N. CEDAR AVE.)	
40. VAN NESS-WEST-HERNDON-ALLUVIAL SPECIFIC PLAN FOR CORONA TIERRA ESTATES	10-18-77
41. BULLARD-FRESNO AREA SPECIFIC PLAN (PREMILINARY)	
42. BULLARD-MARKS AREA SPECIFIC PLAN (PRELIMINARY)	Terminated
43. SAN JOAQUIN BLUFFS AREA SPECIFIC PLAN	11-13-79
44. ALLUVIAL-FIRST AREA SPECIFIC PLAN	8-19-80
45. EASTGATE AREA SPECIFIC PLAN (PRELIMINARY)	Terminated
46. ELM AVENUE SPECIFIC PLAN (PRELIMINARY)	Terminated
47. FRESNO AIR TERMINAL ENVIRONS AREA SPECIFIC PLAN	4-07-80
48. FRESNO CHANDLER DOWNTOWN AIRPORT ENVIRONS SPECIFIC PLAN	5-25-82

*County of Fresno Specific Plan

GENERAL PLAN AMENDMENT NO. GP-2

The High-Rise Policy statement on page 9 is amended to read:

- Buildings over a height of four stories, or exceeding sixty feet, shall only be allowed within the boundaries shown on Exhibit 64-A and pursuant to Section 12-321 of the Fresno Municipal Code.

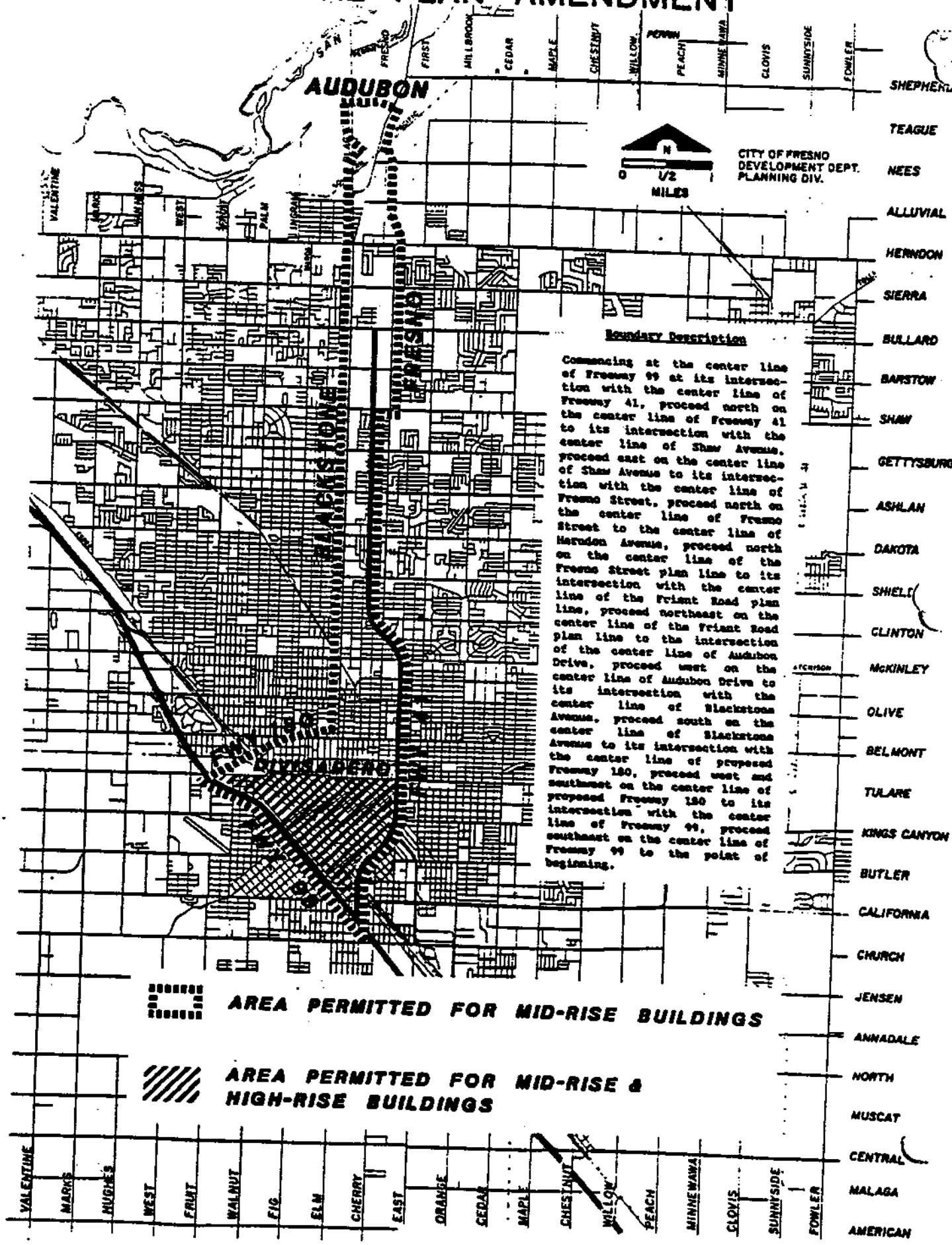
- Exhibit 64-A and Section 12-321 of the Fresno Municipal Code are intended to fulfill policy direction provided in the 1984 General Plan to further study locations for mid rise and high rise buildings and to develop a comprehensive process and standards and criteria for their development. High rise nodes shown on Exhibit 64 that are outside of the mid rise-high rise boundary shown on Exhibit 64-A shall not be permitted for development with buildings over four stories, not to exceed 60 feet in height. Those high rise nodes outside of the mid rise-high rise building boundary shown on Exhibit 64-A shall be studied for development of buildings over four stories as part of the update process for all Community Plans.

- This policy statement shall supersede any conflicting provision contained on pages 209 through 216 of this General Plan.

NY:vs
4920T/237

Figure 64A

GENERAL PLAN AMENDMENT



GENERAL PLAN AMENDMENT NO. GP-4

The 1984 Fresno General Plan Open Space and Recreation Element is amended to incorporate the City of Fresno Master Plan for Parks and Recreation as a component and to revise Policy/Implementation Strategy Statement No. 4 on page 69 to read:

4. The City of Fresno has adopted and shall pursue an acreage-per-1,000 people open space standard of 3.0 acres of park land for every 1,000 persons residing within the City and will ensure the development of sufficient park land or private usable open space in areas designated for higher density. The park acreage standard includes the following components:

Neighborhood Parks	.75 acres/1,000
Community Parks	.25 acres/1,000
Regional Parks	2.00 acres/1,000

General Plan Appendix 9, Section A, pages 231 and 232, Parks and Other Public Grounds within the City of Fresno, Neighborhood and Community Parks, as well as UGM Parks Sites Maps I and II, pages 233 and 234, shall be superseded by updated information contained the Master Plan for Parks and Recreation.

This General Plan Amendment, including the Master Plan for Parks and Recreation, shall supersede any other conflicting provisions contained on pages 64 - 70 and 231 - 235 of the 1984 General Plan.

Appendix 10

County, State, and Federal Recreation Sites Proximate to the City of Fresno

A. **County**

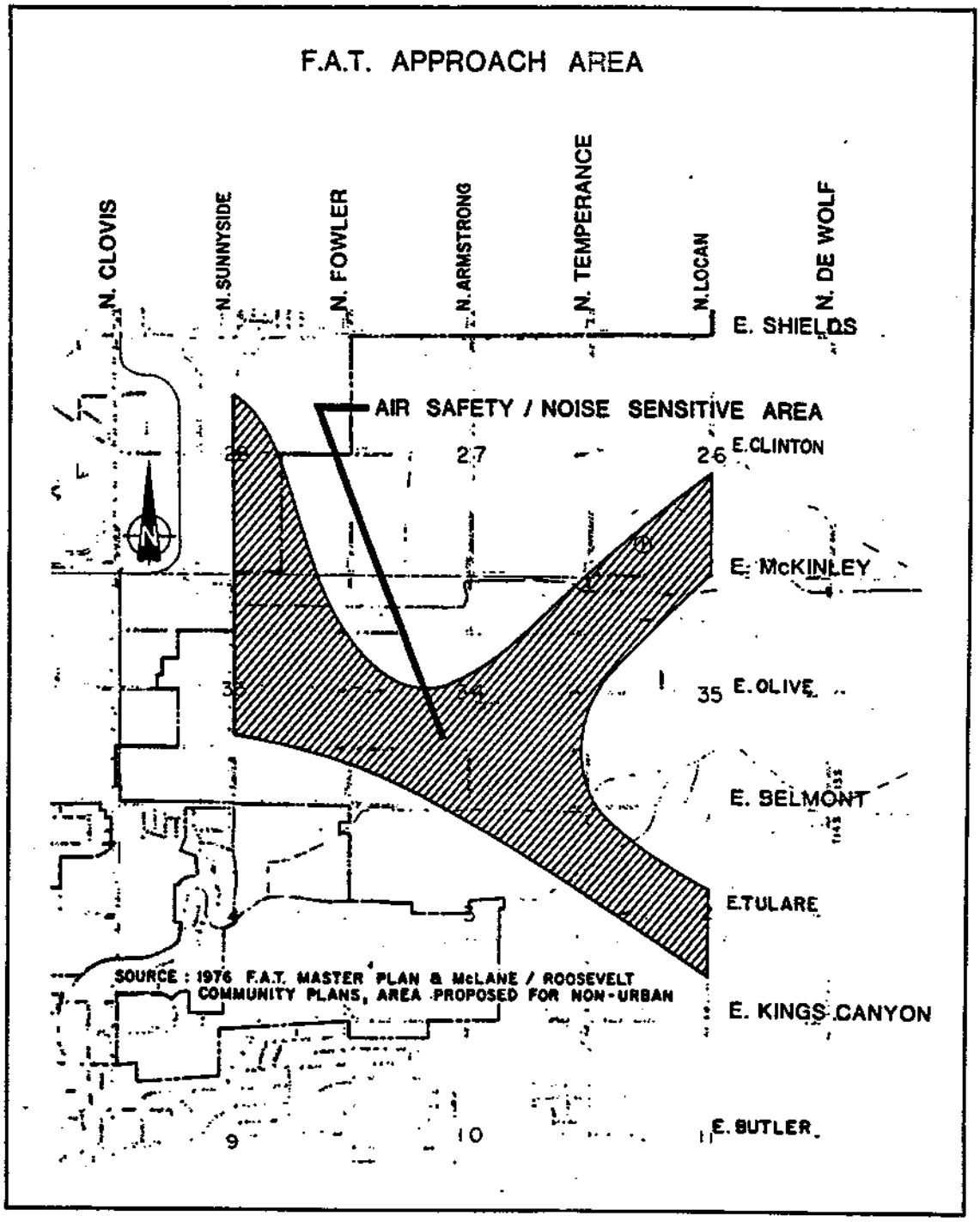
1. Avocado Lake Park - 23 miles east of Fresno. Day use area with picnic, barbeque facilities and fishing area.
2. China Creek - 16 miles east of Fresno at Centerville.
3. Choinumni Park, Picnic and Camping Area - 33 miles east of Fresno. Day use and overnight camping units. Picnic, barbeque facilities, hiking trail and fishing on the Kings River.
4. Kearney Park - 7 miles west of downtown Fresno. Picnic, barbeque facilities and tot lot play area.
5. Kings River Green Belt Park - 20 miles east of Fresno. Nature study area.
6. Laton-Kingston Recreation Park - 25 miles southeast of Fresno. Day use area.
7. Lost Lake Recreation Area - 19 miles north of downtown Fresno. Day use area. Picnic and barbeque facilities, 38 acre lake for fishing, nature study area.
8. Skaggs Bridge - Picnic areas, fishing, play areas, and tot lot.
9. Three Rocks Fishing Access - 50 miles west of Fresno. Fishing only.
10. Upper Pine Flat Recreation Area - 57 miles east of Fresno. Day use and overnight camping. Picnic and barbeque facilities.
11. Winton Recreation Area - 37 miles east of Fresno. Day use area, picnic and barbeque facilities.

B. **State**

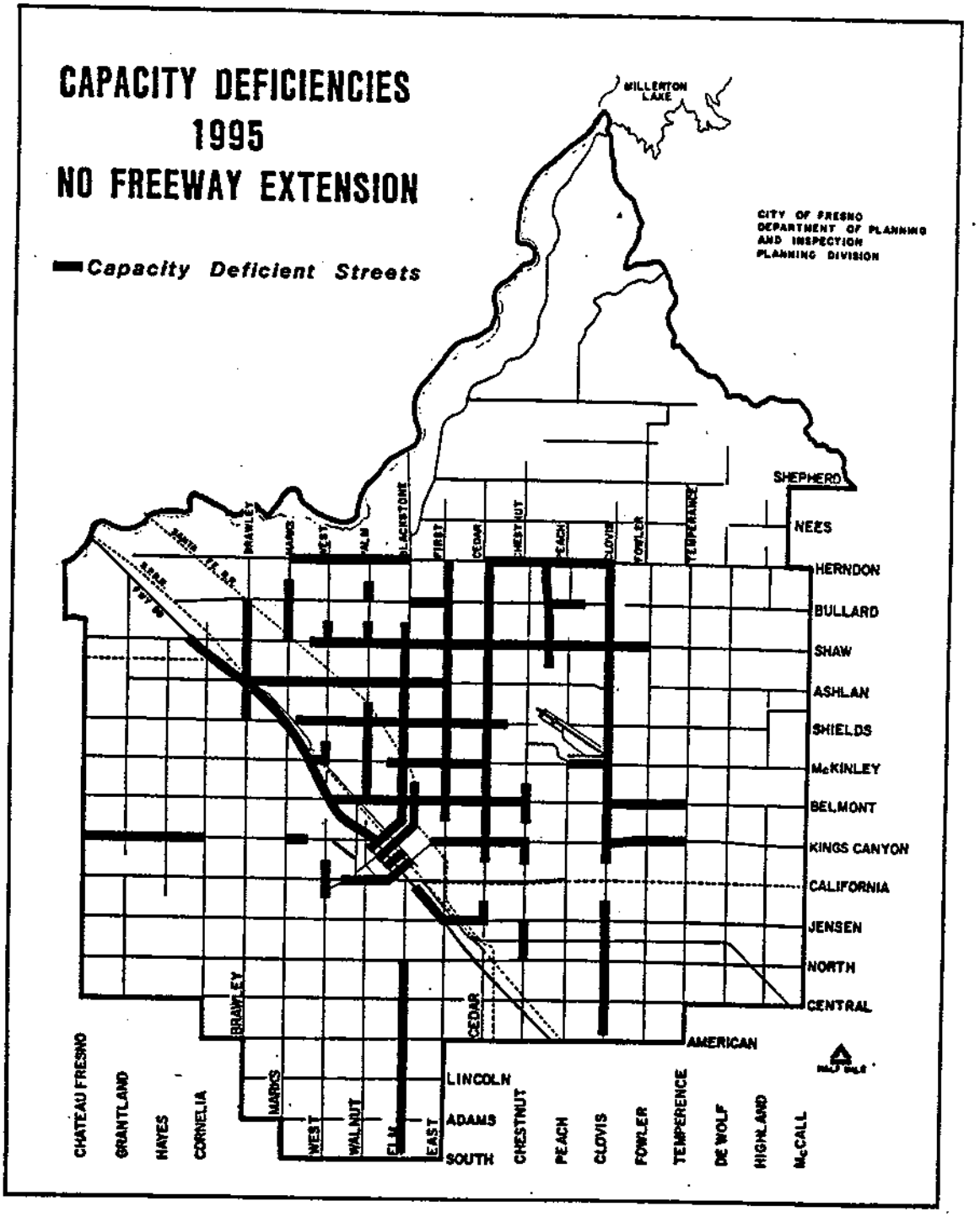
Millerton Lake State Recreation Area - camping, picnic facilities, swimming, fishing, hiking, exhibits.

C. **Federal**

1. National Park Service - Yosemite, Kings Canyon, and Sequoia National Parks.
2. U.S. Army Corps of Engineers - Pine Flat Recreation Area.
3. U.S. Forest Service - Sierra and Sequoia National Forests.


F.A.T. APPROACH AREA
N. CLOVIS
N. SUNNYSIDE
N. FOWLER
N. ARMSTRONG
N. TEMPERANCE
N. LOCAN
N. DE WOLF
E. SHIELDS
AIR SAFETY / NOISE SENSITIVE AREA
E. CLINTON
E. McKINLEY
E. OLIVE
E. SELMONT
E. TULARE
E. KINGS CANYON
E. BUTLER
SOURCE : 1976 F.A.T. MASTER PLAN & McLANE / ROOSEVELT COMMUNITY PLANS, AREA PROPOSED FOR NON-URBAN

Appendix 12


CAPACITY DEFICIENCIES
1995
NO FREEWAY EXTENSION
Capacity Deficient Streets
MILLERTON LAKE
CITY OF FRESNO
DEPARTMENT OF PLANNING
AND INSPECTION
PLANNING DIVISION
SHEPHERD
NEES
HERNDON
BULLARD
SHAW
ASHLAN
SHIELDS
McKINLEY
BELMONT
KINGS CANYON
CALIFORNIA
JENSEN
NORTH
CENTRAL
AMERICAN
LINCOLN
ADAMS
SOUTH
CHATEAU FRESNO
GRANTLAND
HAYES
CORNELIA
BRAWLEY
MARKS
WEST
WALNUT
ELM
EAST
CEDAR
CHESTNUT
PEACH
CLOVIS
FOWLER
TEMPERENCE
DE WOLF
HIGHLAND
McCALL