General Plan

Public Facilities Element

BACKGROUND TO THE
1993 GENERAL PLAN AS AMENDED

The background section text and maps were not updated as part of the 2011 amendments to the County General Plan.

County of Sacramento
Community Planning and Development Department

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SACRAMENTO COUNTY GENERAL PLAN
PUBLIC FACILITIES ELEMENT

A. WASTEWATER COLLECTION AND TREATMENT BACKGROUND REPORT

INTRODUCTION

Most of us take sewers for granted and subsequently underestimate their importance. The vital role of public sewerage in the urban infrastructure cannot be over emphasized, especially where the population is growing as fast as in Sacramento County. We hear of many communities in California where development moratoriums caused by inabilities to sewer have stifled growth, sometimes affecting the economy.

This report is a working paper designed to develop the liquid waste component of the General Plan Public Facilities Element. As a working paper it should describe, analyze and evaluate all the intricate parts that comprise the public sewer systems in Sacramento County. A working paper must also ferret out the pertinent issues facing these systems--evoke comment and discussion. We cannot allow one of our basic needs in the public infrastructure to hinder growth or the sound management of that growth. Discovering the issues--the problems--before we confront them is essential to the vitality of the Sacramento sewerage system, this working paper, and the General Plan Update process.

INVENTORY OF LIQUID WASTE FACILITIES

Existing Liquid Waste Facilities

Existing public liquid waste facilities of Sacramento County include the regional sewerage system for the urbanized area; sanitary sewer systems in Galt, Rancho Murieta, Hood, Courtland, Walnut Grove, and Isleton; and a dedicated, single-facility system at Metro Airport (Figure 1 and Table 1). Locke conveys their wastewater to Walnut Grove, and both Walnut Grove and Courtland are in the planning stages of constructing a pipeline to convey their wastewater to the SRWTP. Metro Airport will connect to the LNWI and convey their wastewater to the SRWTP. The remainder of the county is served by private septic systems.

The Sacramento Regional County Sanitation District (SRCSD) sewerage system (Figure 2) is by far the largest, providing sewage treatment and disposal services for over 1.2 million people. The Sacramento Regional Wastewater Treatment Plant (SRWTP) is permitted to treat an average dry weather flow of 181 million gallons per day (mgd) and a daily peak wet weather flow of 392 mgd.

Formation of SRCSD in the mid-seventies was a result of the Sacramento Regional Wastewater Management Program. The program consolidated over a dozen treatment facilities and effectively eliminated effluent discharge into local intermittent streams, the lower American River, and the Sacramento River above Freeport. Previous treatment facilities, now pumping stations and storage facilities used to attenuate peak flows, are connected to SRWTP by over 85 miles of interceptor sewers. A combined wastewater/stormwater system serving downtown Sacramento is also part of the regional system.

The collection system transporting wastewater flows to the regional interceptor system is operated by three separate entities: the cities of Sacramento and Folsom, and County Sanitation District No. 1 (CSD No. 1), serving the unincorporated urban area, the cities of Citrus Heights, Elk Grove, Rancho Cordova, and portions of the cities of Sacramento and Folsom. By definition, collection sewers carry flows less than 10 million gallons daily (mgd) while interceptors transport flows greater than 10 mgd. (This capacity definition was adopted in the Master Interagency Agreement, the funding, service and operating agreement between SRCSD and its contributing agencies.)

The Water Quality Department of the Municipal Services Agency (MSA) is responsible for the operation and maintenance of SRCSD, CSD No. 1, Hood Sanitation District, Courtland Sanitation District, Walnut Grove Sewer Maintenance District, and also provides operating assistance to the Department of Airports and Sheriff's Department by contract. Other jurisdictions referred to above operate and maintain their respective systems.

Proposed Liquid Waste Facilities

SRCSD has plans to expand both the treatment plant and interceptor system. The SRCSD recently completed a master plan for the Sacramento Regional Wastewater Treatment Plant (SRWTP) to address services needs through the year 2020. The goals of this master planning effort are to accommodate future growth, maintain treatment reliability, and to meet future regulatory requirements. The major outcome of the planning effort is a capital improvement plan that identifies all of the major projects required to accommodate the major goals of the master plan. SRCSD also plans to expand the Natomas Interceptor and the Northeast Interceptor systems, but the actual date of expansion is undetermined. The lower reach of the Natomas Interceptor and the Arden Pump Station will also require expansion to accommodate increased flows from the new North Natomas Community Plan area. Sizing and routing studies have not been initiated, but the initial planning for this interceptor system was accomplished in a 1988 consultant study (Section III, Table III-2).

Assessment of Need for Additional Facilities

All proposed interceptors and trunks are based on the adopted general plans of each jurisdiction within the regional service area. The update may require additional facilities. We will identify needed additional facilities during the update based on the updated land use diagram.

Existing and proposed facilities are estimated to have ample capacity to serve the projected 2020 population. The Water Quality Department estimates attainment of the regional system's ultimate capacity, at about 600 mgd PWWF, sometime after the year 2020. Ultimate capacity includes full buildout of the treatment plant site. In addition, estimated flow levels after the turn of the century may require relocation of the outfall farther downstream or upgraded treatment (tertiary) to meet demand. Current treatment consists of primary and secondary treatment systems.

Sewage sludge is separated from wastewater during the SRWTP effluent treatment processes. The sewage sludge is highly treated through several sludge treatment processes at the SRWTP. The final solids produced from the treatment processes are classified as biosolids by federal and state regulations. Roughly 75% of SRWTP's biosolids are disposed of on the SRWTP site, while the remaining biosolids are heat dried, pelletized and sold for reuse as a soil amendment by a private company.

The grit and screenings, a SRWTP treatment process byproduct, is dewatered and trucked to the Keifer Landfill for final disposal.

LIQUID WASTE FACILITY PLANNING

This section identifies service standards and policies, planning processes, and capital improvement program planning for liquid waste facilities, primarily Sacramento Regional County Sanitation District (SRCSD) and Sacramento County Sanitation District No. 1 (CSD No. 1).

Most of the smaller public systems in the County are relatively new, have ample capacity projected through the General Plan horizon, and experience no problems. Subsequently, little planning is required or occurs. A notable exceptions includes the sewerage system at Hood.

A survey conducted by the Sacramento County Health Department in 1978 found half the private septic systems in Hood substandard. A subsequent 1980 report detailed alternatives for an adequate sewerage system; however, funds for installing the public system are unavailable and the project is not on an active work program.

Service Level Standards and Policies

SRCSD functions as a utility, providing service to customers on demand and responding to the needs identified in the adopted general plans of jurisdictions within its service area. As such, the primary service goal is to transport, treat and dispose of all wastewater generated. On a volume basis, this equates to approximately 130 gallons per capita daily (gpcd), including commercial and industrial waste. Areas characterized by a predominance of industrial uses can generate over 150 gpcd.

Another policy related to service levels is employed prior to annexation to the system. Capacity is committed only when the customer is ready to connect and use the system, avoiding allocation of capacity for undeveloped land. This policy serves to dedicate system capacity to actual users rather than speculative developments, where actual service may be years away, if at all.

Facility Planning and Capital Improvement Program

The facilities plan includes a cash flow analysis to determine the District's capability of financing the projects. Consultant reports serve as a long-range planning function and the five-year facilities plan, updated annually, provides short-term planning and construction programming while easily adapting to the capital improvement program required of county agencies.

Sacramento County, as a signator of the Master Interagency Agreement (MIA), will support SRCSD and CSD No. 1's policies to plan, design, construct and operate a regional sewerage system when consistent with the objectives of the General Plan for the unincorporated area. Extension of the sewer system within the unincorporated area shall be based upon an adopted Master Plan and shall be concurrent with other public infrastructure required by new development.

Planning problems can arise when improvements are sized to meet an anticipated demand within a drainage shed prior to the land associated with the need having received entitlements for urban uses. The Urban Service Boundary provides a long range urban growth horizon compatible with the Districts' long range implementation needs.

LIQUID WASTE SERVICE DELIVERY AND FINANCING

This section identifies service delivery policies, practices, and issues, and methods used to finance liquid waste capital facilities and services. This section also recommends policies to guide timing, location and financing of capital facilities.

A typical utility normally operates in a fashion that reasonably assures the availability of service upon demand, wherever and whenever necessary. In order to operate as a utility able to provide service to customers upon demand, the Districts must be able to finance facilities for future use and recover their cost of doing so. As grants and bonds become increasingly difficult to secure, more of the financing will need to come from user fees.

Service Delivery

The general service delivery policy of Sacramento Regional County Sanitation District (SRCSD) and County Sanitation District No. 1 (CSD No. 1) is to provide service to those classes of urban uses identified in the adopted general plans of the cities of Sacramento and Folsom and Sacramento County that generally require public utility services. One issue in need of resolution is whether or not one-acre and two-acre agricultural-residential developments require urban utility services.

The forces driving the issue of sewering agricultural-residential development include concerns of groundwater contamination, possibly requiring more sophisticated and expensive individual septic systems. Juxtaposed is the high incremental, or per unit, cost of serving lower density development with sewer utilities and the growth-inducing effects on more rural adjacent property. The county is beginning to see more requests for sewering agricultural-residential development, yet the General Plan lacks policies to guide these decisions.

Another service delivery issue arises with the timing and sizing of sewer facilities. In some instances, urban land use entitlements are approved for areas adjacent to non-urban areas that can be reasonably expected to urbanize in the near future. Sizing an interceptor or trunk sewer line to accommodate anticipated adjacent development is much more cost-effective than laying parallel lines as each area develops. However, doing so may be considered growth-inducing, a violation of state law. The problem is highlighted when the adjacent area is designated an Urban Study Area (USA), defined by the General Plan as an open space land use category. An area designated USA is studied for the appropriateness of urban uses and will most likely be urbanized, but current policy is unclear regarding the specificity of infrastructure planning allowed. The fact that the USA designation is necessarily applied to land within the Urban Policy Boundary, implying urbanization within the planning period if the feasibility study is positive, may resolve this issue.

Liquid Waste Facility Financing

Public liquid waste facilities in the county levy charges for services provided (except for dedicated systems at Boy's Ranch and Metro Airport). Service charges and connection fees are used to offset capital, operation, and maintenance costs for the conveyance, treatment and disposal of liquid waste. Additional revenues are collected in the regional district through ad valorem taxes sufficient to retire the debt on SRCSD's general obligation bond issues used to fund initial construction of the regional sewer system. Most of the $0.0189 per $100 assessed value tax is used to retire bonded indebtedness. A small portion is used to finance future capital facilities. The tax rate fluctuates as the District's tax base grows.

An owner of property within the SRCSD's sphere of influence seeking sewer service must join, or annex, to both a sewage collection district (CSD No. 1, Sacramento, and Folsom) and the SRCSD. Most fees and charges are calculated for an equivalent single-family dwelling unit (ESD), the basic user unit producing a specific amount of wastewater. Large wastewater dischargers may be assigned several ESD units for a volume-based fee. Some industrial and commercial customers pay additional service charges based on concentrations of waste which require greater treatment.

For connection to the Regional District sewer system, a one-time Capital Investment Equalization (CIE) fee is levied. The CIE fee equals "the proportionate approximate capital investment in the SRCSD for a comparable user who was connected to a sewer line within the territorial jurisdiction of the SRCSD on January 1, 1976 (start-up date of the regional system), and thereafter has remained continually connected to and in continual use of said service." The

CIE fee functions as a buy-in fee and, on an average user basis, equalizes the investment in regional sewer facilities for existing and new users. This fee increases annually.

Properties within the SRCSD boundary prior to March 1, 1989 pay the ad property tax referred to above whether or not connected to the sewer system. As a result of their participation in property taxes, they pay a lower CIE fee than properties annexed after March 1, 1989. Properties annexing to SRCSD after March 1, 1989 enter the tax rolls and begin paying ad valorem taxes at the time they actually connect to the sewer system. These properties are required to pay a higher CIE fee to compensate the SRCSD for taxes not paid.

Both SRCSD and CSD No. 1 have connection fees to provide funding for system expansions. The adequacy of these fees is reviewed and updated annually. To date, these fees, when coupled with the District's policy to not allocate capacity on a speculative basis, have been adequate to fund sewage facility expansions. Funding of the SRWTP expansion has been separate from the funds raised by connection fees.

CSD No. 1 also charges a trunk sewer connection fee. This fee is used to finance the construction of trunk sewers where required for provision of service to unsewered areas, relief trunks, and rehabilitation of existing trunks. Other sewage collection districts within SRCSD's boundaries have less formal methods of financing trunk sewers.

Both SRCSD and the collection district levy a monthly service charge to cover operating costs. Service charges for both Districts are collected in a combined billing administered by the collection district.

The method of collecting funds to finance future capital facilities is an issue expressed by some larger-use customers. The District attempts to finance as much as possible with pay-as-you-go funding, the least expensive method of financing. The opposing belief is that future customers should finance the full cost of growth-related sewage system expansion.

Developers are responsible for constructing all house and street lateral sewer lines in addition to charges identified above. In some cases, a developer also will construct necessary trunk lines and be reimbursed later by the District from connection fees.

CONCLUSIONS

The General Plan update will need to address policies for sewering agricultural-residential parcels, which presents the possibility of providing growth inducements to more rural adjacent properties. However, given the District's policies of operating as a utility extension of public sewers to agricultural-residential areas is not a problem.

Sacramento County, as a signator of the MIA, can play a role to ensure that the District's policies regarding planning, design, construction and operation is consistent with the objectives of General Plan policies for the unincorporated area. Extension of the sewer system within the

unincorporated area should be based upon an adopted Master Plan and be concurrent with other public infrastructure required by new development.

SRCSD has developed a 2020 SRWTP Master Plan for the SRWTP, an updated Sewerage System Expansion Study and a new Revenue Program which will be used to plan and finance additional sewerage system expansions required by the updates and revisions to the general plans of the agencies served by SRCSD and CSD No.1 over the 20 year planning period.

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B. SOLID WASTE SERVICES AND FACILITIES BACKGROUND REPORT

INTRODUCTION

Sacramento County has enough landfill capacity to meet the demand through the year 2037. The state legislature has helped by mandating recycling goals and incentives, through the passage of AB 939 in 1989. We must continue to promote the recycling effort through cost effective and efficient recycling alternatives, local regulation, and public education.

This report provides the background for the solid waste component of the General Plan Public Facilities Element. This report describes, analyzes and evaluates all the intricate parts of solid waste management in Sacramento County. A working paper must also ferret out the pertinent issues--evoke comment and discussion. Discovering the issues and problems before we confront them is essential to the future of solid waste management in Sacramento County and the General Plan update process.

INVENTORY OF SOLID WASTE FACILITIES

Existing Solid Waste Facilities

Sacramento County has nine active permitted solid waste facilities, including two transfer/processing stations and one landfill that are publicly owned and operated. —There are also three transfer/processing stations, one construction and demolition transfer/processing station, and one landfill that are privately owned within Sacramento County. The County owns and operates Kiefer Landfill which is located on a 660-acre site at Kiefer Boulevard and Grantline Road (Table 3).

Two Permanent Household Hazardous Waste Collection Facilities (PHHWCF) are located in the County. One of the publicly owned and operated transfer/processing stations hosts one of the PHHWCFs. The other PHHWCF is located at one of the privately owned and operated transfer/processing stations.

TABLE 3

ACTIVE PERMITTED SOLID WASTE FACILITIES
SACRAMENTO COUNTY

Facility Type	Size Acres	Expected Closure Date	Tonnage Daily
Kiefer Landfill	660	2037	1595
L & D Landfill	124	2010	1140
North Area Recovery Station	NA	NA	920
South Area Transfer Station	NA	NA	70
Sacramento Recycling & Transfer Station	NA	NA	1070
Elder Creek Recovery & Transfer Station	NA	NA	1520
California Concrete Crushing	NA	NA	200
California Waste Recovery Systems	NA	NA	60

NOTE: NA (Not Applicable)

Inactive solid waste facilities are identified on Table 4. Active and inactive solid waste facilities are also identified on the Solid Waste Facilities Map (Figure 1), including each active facility name, classification and status.

TABLE 4

INACTIVE SOLID WASTE FACILITIES
SACRAMENTO COUNTY

Site Name	Site Location	County / City
Elk Grove Disposal Site	Waterman Rd. & Bond Rd.	Elk Grove City
Dixon Pit Landfill	Florin Rd. & Campbell Rd.	Elk Grove City
City Of Folsom Corporation Yard	Leidesdorff St.	Folsom City
Gerber Road Landfill	Gerber Rd. & Vineyard Rd.	County
Grand Island Disposal Site	Grand Island Rd.	County
14th Avenue Landfill (East / West pits)	14th Avenue	Sacramento City
Sacramento City Landfill & Dellar Landfill (Old Sac City) & Cannon (Old Sac City) & Bell (Old Sac City) & SP Railroad (Old Sac City)	28th Street & A Street (5 sites)	Sacramento City
Mather AFB Landfill	Mather Air Force Base	County
McClellan Air Force Base Landfill	McClellan Air Force Base (3 sites)	County
Monroe`s Landfill	Palladay Rd.	County
Kilgore Dump	Kilgore Rd. & White Rock Rd.	Rancho Cordova City
Rio Cosumnes Correctional Center	Bruceville Road	Sacramento City
Urrutia Landfill	Garden Highway	Sacramento City
White Rock Road Disposal North & South	White Rock Rd. & Grant Line Rd. (2 sites)	County
Muddox Landfill	Bradshaw Road	County
Waring's Dump	63rd & Morrison Creek	Sacramento City
O'Neil Park/Fire Station No.5	Broadway	Sacramento City
Elvas Avenue Disposal Site	M Street	Sacramento City
Aerojet Lrc Landfill	3 Mi S Folsom; 1/2 Mi S Hwy 50	County
Aerojet Lrc Wastewater Lagoon	1.5 Mi SE of the Nimbus Dam	County
B & C Disposal Site/Jackson Rd LF	8597 Jackson Road	Sacramento City
Scollan (Old Sac City)	24th And A Streets	Sacramento City
Obie`s Dump	8437 Sheldon Road	Elk Grove City
Florin-Perkins Landfill	4201 Florin Perkins Road	Sacramento City

Figure 1


North Area Transfer Station
Aerojet Landfill
American Environmental Transfer Station
City of Sacramento Landfill
B & C Landfill
Kiefer Landfill (County)
L & D Landfill
South Area Transfer Station
Delta Transfer Station
N
SOLID WASTE FACILITIES
SACRAMENTO COUNTY, CALIFORNIA
A Sacramento County Service Area
B Independent Agencies Regulated by the County
C Proposed Expansion of Clounty Service Area (1992)
D City of Sacramento Service Area
E City of Folsom Service Area
③ Active Landfill/Class
I Inactive Landfill
T Transfer Station

Proposed Solid Waste Facilities

In accordance with the Regional Agency's Source Reduction and Recycling Element, changing regulations, and the needs of the growing community, additional solid waste facilities may need to be sited in the Unincorporated Area in the future. These facilities may include transfer/processing stations, compost facilities, construction & demolition processing facilities, and other facilities. These facilities will enable the county to continue to meet the recovery mandates of Assembly Bill 939 (25 percent diversion from landfill by 1995 and 50 percent diversion by the year 2000 and beyond). All new private solid waste facilities requiring a Solid Waste Facility Permit, issued by the Local Enforcement Agency, should obtain a conditional use permit consistent with surrounding land use.

Assessment of Need For Additional Facilities

The County landfill operating permit is valid through the year 2037, which is beyond the General Plan horizon. Aggressive waste reduction and recycling efforts could extend the county landfill's life expectancy well beyond 2037.

SOLID WASTE FACILITY PLANNING

Service Level Standards and Policies

A primary focus of the General Plan, and particularly the public facilities element, is to ascertain the long-term needs of the community. The public facilities element must quantify needed capital facilities in terms related to land development. For utility-type services, such as solid waste, a per capita level of service is identified to calculate the physical quantity of landfill space required. Solid waste service level standards can fluctuate by the amount generated and the amount subsequently removed from the waste stream through such efforts as recycling. Solid waste collection is provided by public and private collectors to customers on demand. Primary service goals are to transport, and recycle or dispose of all domestic, industrial, and commercial waste generated. Agricultural wastes are generally returned to the land on-site using current agricultural technologies, and thus are excluded from the waste stream. Solid waste entering the waste stream is generated at a rate of about twelve and four tenths of a pound (12.4 lbs) per capita daily. At the current recycling rates, disposal per capita is 6.1 pounds per day. Therefore, maintaining the current service level will require a minimum of over one ton of landfill capacity per resident each year, excluding increases in resource recovery and source reduction efforts.

Solid Waste Facility Planning and Capital Improvement Program

Solid waste facility planning in Sacramento County consists of two parts, long-range, and short-range. Long-range planning is primarily guided by a waste management plan. Short-range planning is guided by a capital improvement program. Both the waste management plan and the capital improvement program must be consistent with the General Plan. The county's

Department of Waste Management and Recycling is responsible for the management plan and the capital improvement program.

Solid Waste Management and Resource Recovery Act of 1972

The County Solid Waste Management Plan is a result of the Solid Waste Management and Resource Recovery Act of 1972. The County Solid Waste Management Plan establishes policies, goals, objectives and recommends action, while identifying proposed facilities and programs. The plan also identifies and evaluates short, intermediate, and long-term planning goals for solid waste collection, generation, storage, transfers and landfills while taking into account resource recovery, available alternative technologies, environmental impacts, administration, financing, engineering, regulation, and operations.

The state Solid Waste Management Board first approved Sacramento's Solid Waste Management Plan in 1977. The county plan is reviewed by the State Board based on a review report prepared by the county at least every three years and revised if necessary to be consistent with state guidelines. In 1983, a revision to the 1977 Solid Waste Management Plan was prepared. In the 1983 revision the county made four changes to the 1977 plan: 1) deleting the recommended Joint Powers Authority to administer and operate all transfer, disposal, and resource recovery programs; 2) expanding the discussion regarding replacement of the Sacramento City landfill to include a number of potential options; 3) updating basic planning information and data, and 4) adding a Hazardous Waste Element to the plan.

In a 1988 review report the county recommended a second revision of the 1977 plan, identifying three general areas that needed to be updated:

1. A review of the 1983 plan revisions addressing the eight topics specified in state code;

2. A sectional review of the 1983 revision describing the areas requiring revision, change, addition or data update; and

3. A discussion of major issues currently in progress which may effect the accuracy of the County Solid Waste Management Plan Revision, if applicable.

California Integrated Waste Management Act of 1989

AB 939, the California Integrated Waste Management Act of 1989, enacted a comprehensive reorganization of the state's solid waste management planning process, changing the focus from solid waste management to integrated waste management. Most significant of the changes were the creation of a full-time waste management board, replacement of the current part-time board, and a new integrated waste management planning process. The new integrated planning process required each city, county or regional agency to prepare and implement a Source Reduction and Recycling Element which identified how the new mandated recycling goals of 25 percent by 1995 and 50 percent by 2000 would be met. These Source Reduction and Recycling Elements

became part of the new County Integrated Waste Management Plan (COIWMP) which replaced the existing County Solid Waste Management Plan (COSWMP).

Capital Improvement Program

Short-range solid waste facility planning is primarily guided by a capital improvement program prepared and maintained by the Department of Waste Management and Recycling. The capital improvement program identifies major capital projects, project costs, yearly costs, and proposed methods of funding.

SOLID WASTE SERVICE DELIVERY AND FINANCING

Service Delivery

The general service delivery policy is to provide service to all residential, commercial, and industrial waste generators in the county, each having different composition and handling requirements. Unincorporated area and City of Sacramento residential collection is fully automated. Commercial and industrial collection is administered by a non-exclusive commercial solid waste franchise system

Urban area residential collection north of Calvine Road is provided by the county with commercial collection provided by franchised private collectors. The cities of Sacramento and Folsom use public agencies for solid waste collection. The unincorporated area south of Calvine Road, including Galt and Isleton, use contracted private collectors for residential and commercial collection.

Solid Waste Facility Financing

Sacramento County solid waste activities are budgeted as a public service enterprise. These activities for the most part are financed through operating revenues. The Refuse Enterprise was shown for the first time in the 1968-69 budget. The county entered the refuse business on April 8, 1968 due to the failure of a private collector to continue providing service.

Collection, recycling, composting, transfer and disposal activities are funded primarily through customer service fees, facility tipping fees and franchisee fees charged to private collectors for the privilege to collect commercial waste in the SWA region..

TABLE 5
SOLID WASTE DISPOSAL GATE FEES
SACRAMENTO COUNTY

NON-WEIGHED RATES

	Landfill	**Transfer Station**
Passenger Car/Station Wagon (per vehicle load)	$5.00	$5.00
Vans & Sport Utility Vehicles (per vehicle load)	$10.00	$10.00
All Pickup Trucks (per vehicle load)	$15.00	$15.00
Car Tires: 1 to 4 Accepted (rims OK)	No Additional Charge	No Additional Charge
Car Tires: 5 to 8 1 (rims OK)	$1.50 each for each tire over four	Not Accepted
Truck Tires: 16" to 22" In Size	$5.00 each	Not Accepted
Tractor Tires: 23" to 79" In Size	$8.00 each	Not Accepted
More Than Eight Car, Truck or Tractor Tires Up To 79"	$100.00/ton	Not Accepted
Large Appliances and CRT Electronic Waste	1 to 2 Units – No Additional Charge over basic per-vehicle charge. Additional Units: $15.00/unit	1 to 2 units - No Additional Charge over basic per-vehicle charge. Additional Units: $20.00/unit

TABLE 5 (CONTINUED)
SOLID WASTE DISPOSAL GATE FEES
SACRAMENTO COUNTY

WEIGHED RATES

	Landfill	**Transfer Station**
Normal Refuse	$26.00/ton	$44.80/ton
Hard-to-Handle Waste	$40.00/ton	$57.80/ton
Construction Materials Including Clean Dirt (no grass, weeds or refuse), Sand, Gravel, Asphalt, Tile, Brick, Concrete Products (w/o rebar), and Rock up to 18".		$44.80/ton
Clean Dirt, Sand & Gravel Up To 1 1/2 " (no grass, weeds or refuse)	No Charge	
Clean Asphalt, Tile, Brick, Concrete Products (w/o Rebar) & Rocks Up To 18"	$7.00/ton	
Asphalt, Tile, Brick, Rocks & Concrete (Rebar OK) Up To 36"	$14.00/ton	
Whole Tires: Up To 79"	$100.00/ton	Not Accepted
Split Tires	$40.00/ton	Not Accepted
Shredded Tires	$28.05/ton	Not Accepted
Tractor Tires: 80" or More	$125.00/ton	Not Accepted
Minimum Weighed Charge Per Load	$15.00	$15.00

For a current rate schedule, visit http://www.sacgreenteam.com/facilities/default.htm.

RESOURCE RECOVERY AND RECYCLING

The primary focus of solid waste collection and disposal efforts over the next twenty years will be to continue to divert as much as possible from sanitary landfills.

The world of solid waste management has evolved over the past twenty years, bringing us to where we are today, and will continue to evolve over the next twenty years.

Trends In Solid Waste

Solid waste disposal quantities have changed substantially over the years. An estimated 2.75 pounds of disposal per capita per day were collected in urban areas in 1920. By 1970, this figure had risen to 5.1 pounds/capita/day and is now at 6.2 pounds/capita/day in California for 2003. Unincorporated Sacramento County generates approximately 6.1 pounds of disposal per capita daily.

Several factors have contributed to the tremendous rise in generation rates. Economic prosperity and the rise in the average standard of living have made us a society of consumers and discarders. Frozen and packaged foods, the microwave oven and the garbage disposal have all figured in the equation. Organic and putrescible contents of garbage have decreased while paper, plastic, glass and cans have increased considerably. The most significant overall result of these trends has been an increase in the volume collected without a corresponding increase in the weight of the refuse. These phenomenon occurring in a state with dynamic population increases will have profound effects.

Since the early 1990s, Sacramento County has implemented many recycling programs to divert solid waste from disposal at landfills. The County's Source Reduction and Recycling Element describes these programs in more detail.

GENERAL PLAN ROLE AND RELATIONSHIP TO SOLID WASTE MANAGEMENT PLANNING

The California Integrated Waste Management Act of 1989 (AB 939) requires each city and county to prepare a Source Reduction and Recycling Element. This element identifies programs to assure that 50 percent of the city or county waste is diverted from landfills through source reduction, recycling or composting by the year 2000 and beyond. AB 939 also requires the preparation of a Countywide Siting Element that describes adequate transformation or disposal capacity consistent with development and implementation of the county and cities Source Reduction and Recycling Elements. The Integrated Waste Management Plan required by AB 939 consists of the following:

- The Countywide Siting Element and Summary Plan;
- Each individual county and/or city Source Reduction and Recycling Element;
- Each individual county and/or city Household Hazardous Waste Element;
- Each individual county and/or city Non-Disposal Facility Element .

General plan policies should be developed that will support and enforce the requirements of AB 939 and solid waste management planning in Sacramento County.

SACRAMENTO COUNTY GENERAL PLAN
PUBLIC FACILITIES ELEMENT

C. PUBLIC SCHOOL FACILITIES BACKGROUND REPORT

INTRODUCTION

California is one of the lowest per-pupil expenditure states in the nation. State funding for local schools is horribly inadequate and state laws stifle opportunities to raise local funds to meet school facility needs. There are several laws in the state legislature intended to avert some of the crisis, but will it be enough, soon enough? The school-age population in Sacramento County will peak and level off in the next ten years. We will need to begin building the facilities to meet those needs within the next three to five years. And state funding typically takes about five years from application to construction. Our children of the next century may indeed have schools without walls.

This working paper is designed to develop the public schools component of the General Plan Public Facilities Element. As a working paper it should describe, analyze and evaluate all the intricate parts of providing public school facilities in Sacramento County. A working paper must also ferret out the pertinent issues--evoke comment and discussion. Discovering the issues and problems before we confront them is essential to the future of the public school system in Sacramento County and the General Plan update process.

The first section is a list of goals and objectives used to develop policy recommendations and implementation programs. The final section is a summary of issues discovered during analysis and evaluation.

INVENTORY OF PUBLIC SCHOOL FACILITIES

Existing Public Schools Facilities

Primary and secondary educational needs of Sacramento County are served by eighteen elementary, high and unified school districts (Figure 2). The school districts consist of approximately 310 schools, including continuation and special education schools, with a total 1987-1988 enrollment of over 162,000 students. Table 7 identifies the number of elementary, middle and high schools in each district.

FIGURE 2
Public School Districts

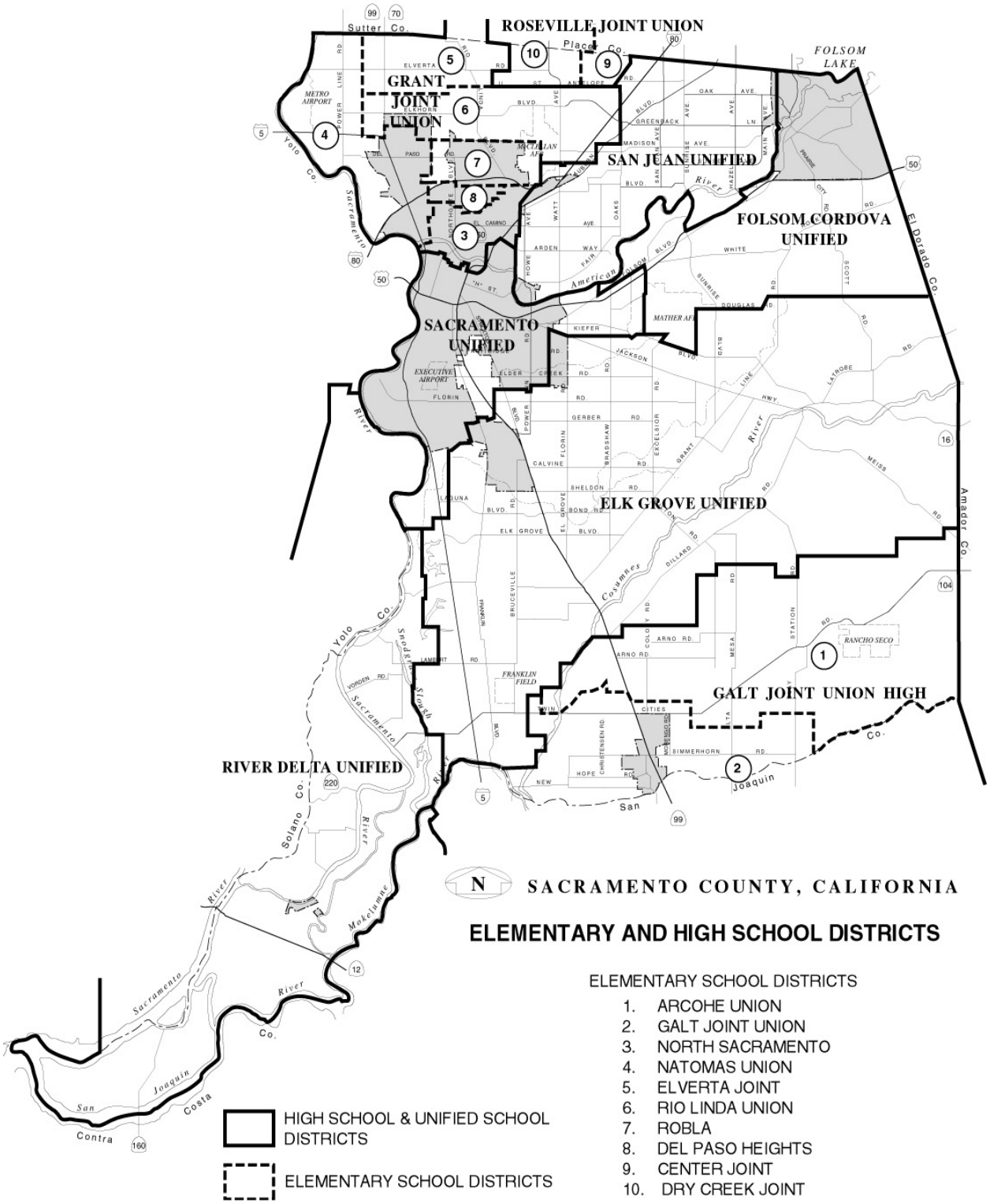


TABLE 7

INVENTORY OF PUBLIC SCHOOL FACILITIES
SACRAMENTO COUNTY

District	Elementary	Middle	High	1987-88 Enrollment
Arcohe	1			364
Center	3	1	1	3,062
Del Paso	4			1,433
Dry Creek *	1	1		430
Elk Grove	18	2	2	18,888
Elverta	2			401
Folsom-Cordova	15	3	3	11,112
Galt (Elem.)	2	1		1,573
Galt (High)			2	1,176
Grant		5	6	10,293
Natomas	2	1		1,715
North Sacramento	10			4,722
Rio Linda	19			8,648
River Delta	6		2	1,969
Robla	4			1,443
Roseville			4	3,572
Sacramento	55	12	8	46,254
San Juan	52	8	9	45,769
TOTAL (265)	**194**	**34**	**37**	**162,824**

*Dry Creek school district is one school combining K-8.

Sacramento County school districts vary greatly in size. The two largest districts are Sacramento City Unified and San Juan Unified, each with more than 80 schools and 46,000 students. The smallest is Arcohe Elementary with one school and 375 students.

Proposed Public Schools Facilities

Schools planned for construction, as identified by each school district's staff, are enumerated in Table 8. Where planned facilities were identified in a master facilities plan, the planning year (the planning horizon of the master plan) is also indicated. Most planned facilities will be in place at or about the year 2000. In addition, the Elk Grove Unified School District submitted a list of planned school sites (see Table 8A) delineating approximate locations for their future school facilities. It is anticipated that additional lists will be submitted by other school districts for future school facilities in the unincorporated area. These lists will be added to Table 8A when received to assist in the planning process.

TABLE 8

PROJECTED PUBLIC SCHOOLS FACILITY NEEDS
BY GRADE LEVEL
SACRAMENTO COUNTY

District	Elementary	Middle	High	Planning Year
Arcohe *	0	0	0	
Center	5	2	2	2001
Del Paso *	0	0	0	
Dry Creek	3	1	0	2003
Elk Grove	19	5	5	2000
Elverta *	0	0	0	
Folsom-Cordova	13	1	0	1992
Galt (Elem.) *	0	0	0	
Galt (High)	0	0	2	2000
Grant	0	0	1	1992
Natomas	2	0	0	1991
North Sacramento	1	0	0	
Rio Linda	1	0	0	1990
River Delta *	0	0	0	
Robla	8	0	0	
Roseville	0	0	3	
Sacramento *	0	0	0	
San Juan	1	0	0	1996
TOTAL	**53**	**9**	**13**	**75**

*Districts without a Facilities Plan or Plan not available; proposed facilities are unknown.

Assessment of Need for Additional Facilities

The level of school facility planning and lack of coordination with school districts makes an assessment of school facility needs an arduous task. Three-year-old, pre-1990 census population projections provide little more than order of magnitude comparisons. Department of Finance 1986 projections for 1990 are surpassed by 1989 estimates. Because of the lack of refined statistics, we suggest that the reader use the assessments made here only as indications of order of magnitude. Sacramento County's school-age population, five to seventeen years old, has grown by 18 percent since 1980, from 154,400 to a projected 1990 population of 182,200 potential public school students (Figure 3). This is a substantial increase of 27,800 students; yet it is surpassed by projections for the following decade. The school-age population for the years 1990 to 2000 is projected to grow by another 38,200 to a total of 220,400 students by the turn of the century. The 21 percent increase of this decade will represent the pinnacle of school-age population growth through the general plan horizon. The final ten years of this general plan

period, 2000-2010, should experience a modest increase in school-age population of one-half of one percent or approximately 100 students.

TABLE 8A
APPROXIMATE LOCATION OF
FUTURE SCHOOL FACILITIES

A. Elk Grove Unified School District

Elementary Schools (K-6) (Approx. 10 Net Acres)	**Community**	**Location (Approximate)**
1) Joseph Sims	Laguna West	W. of Lakepoint Dr./N. of Babson
2) Maeola Beitzel	Meadowbrook	W. of Caymus Dr. @ Montevina Dr.
3) Raymond Case	Sheldon North	W. of S.P.R.R./N. of Sheldon Rd.
4) Edna Batey	Perry Ranch	W. of Waterman RD./S. of Calvine
5) Stone Lake	Lakeside	W. of U.P.R.R./S. of Elliot Ranch Rd.
6) Elitha Donner	Laguna	9461 Soaring Oaks Dr. E. of Soaring Oaks/S. of Trenholm Dr.
7) Unnamed	Rancho Murieta	E. of Stone House Rd./S. of Escuela
8) Unnamed	Laguna Vista	E. of Frye Creek Dr./S. of Sacramento City Limits
9) Unnamed	New Growth Area	W. of Bradshaw Rd./N. of Sheldon Rd.
10) Unnamed	Calvine/Hwy 99	E. of Hwy 99/S. of Calvine Rd.
11) Unnamed	Laguna	E. of Foulks Ranch Rd./S. of Kilconnel Dr.
12) Unnamed	Sunrise Douglas	E. of Sunrise Blvd./N. of Douglas Rd.
13) Unnamed	Clay Station 1200	E. of Tavernor Rd./S. of Clay Station Rd.
14) Unnamed	Silver Springs	E. of Vineyard Rd./S. of Gerber Rd.
5 to 7 Unnamed Schools	South Laguna	W. of Hwy 99/S. of Elk Grove Blvd.

Middle Schools (7-8) (Approx. 22 Net Acres)	**Community**	**Location(Approximate)**
1) Harriet G. Eddy	Laguna	9329 Soaring Oaks Dr. E. of Bruceville Rd./N. of Soaring Oaks
2) T.R. Smederg	New Growth Area	Near Bradshaw & Calvine Intersection
3) Unnamed	South Laguna	W. of Hwy 99/S. of Elk Grove Blvd.

TABLE 8A (Cont.)

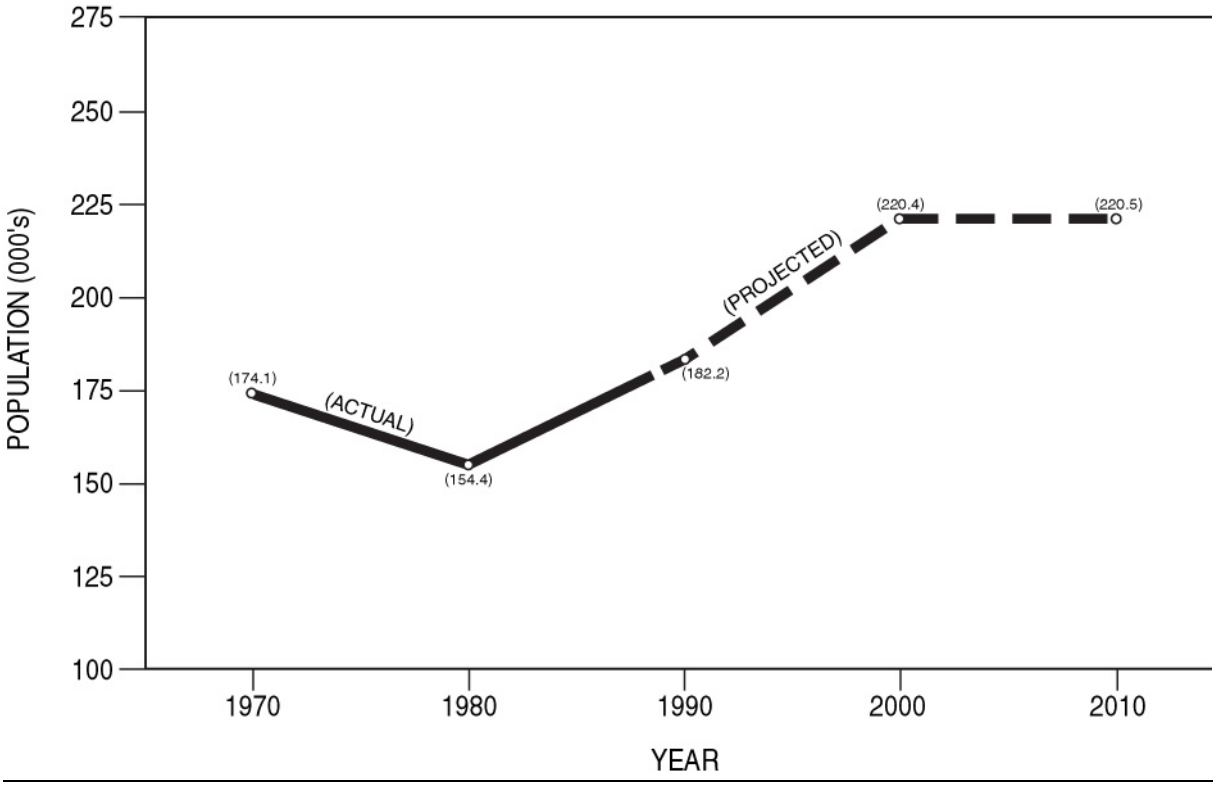
High Schools (9-12) (Approx. 40 Net Acres)	**Community**	**Location (Approximate)**
1) Laguna Creek	Laguna	9050 Vicino Dr. W. of Vicino Dr./S. of Big Horn Bl.
2) Unnamed (w/ 10 Ac. Stadium)	New Growth Area	Near Bradshaw & Calvine Intersection
3) Unnamed	South Laguna	W. of Hwy 99/S. of Elk Grove Bl.

Continuation H.S.'s (Approx. 5-8 Net Acres)	**Community**	**Location (Approximate)**
1) Laguna Creek	Laguna	SW. of Big Horn Bl./N. of Laguna Bl.
2) Unnamed	Fallbrook	E. of S.P.R.R. near Bond Rd.
3) Unnamed	South Laguna	W. of Hwy 99/S. of Elk Grove Bl.

Support Facilities	**Community**	**Location (Approximate)**
1) New District Office	Elk Grove	W. of Elk Grove-Florin Rd./ N. of Elk Grove Blvd.
2) Student Support Center	Florin	W. of S.P.R.R./N. of Gerber Rd.

FIGURE 3

SCHOOL AGE POPULATION (5-17 YRS)
SACRAMENTO COUNTY



The state demographic research unit in the Department of Finance explains this modest increase in school-age population as the second echo of the "baby bust" period. Their projection is made by applying the fertility rate to a relatively smaller pool of women of childbearing age during the decade 1990-2000, causing the number of births to drop off during the next decade (2000-2010). A large immigration of high fertility ethnic groups could substantially alter the projections.

Because we are confined to countywide population projections, allocating increases to individual school districts is difficult. However, we can surmise generally that most of the growth will occur in the Elk Grove and Roseville School Districts. Grant Joint Union School District and related elementary districts will also experience substantial increases in student population as the city's North Natomas community plan area develops.

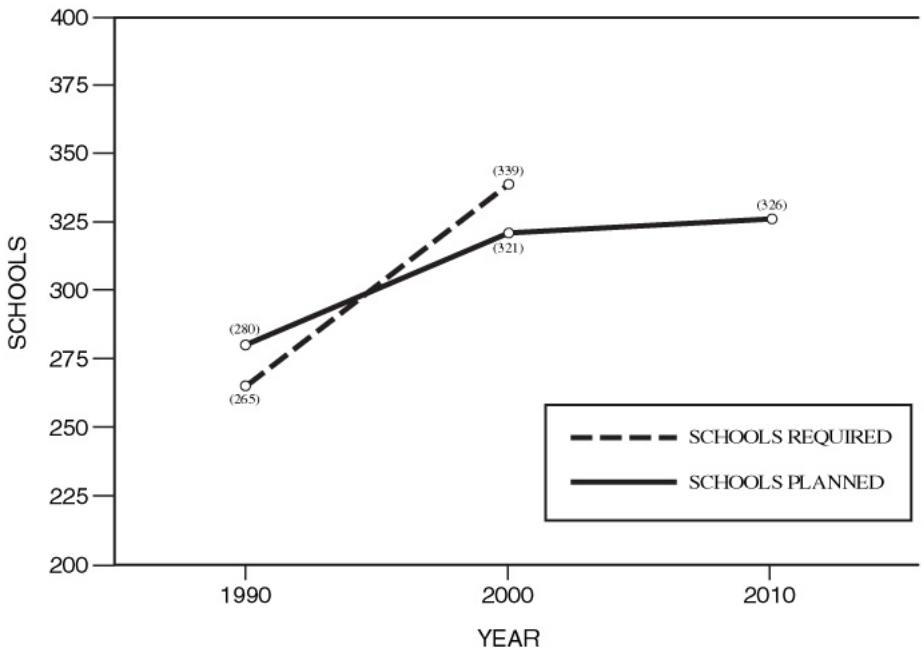
We have determined the number of schools required to house the projected student population by applying the existing design capacity average (average student load) of all schools in the County. This method does not factor use of portables, only fixed structure capacity. Design capacity averages for Sacramento County schools are: 511 students for K-6 schools, 805 students for 7-8 schools, and 1024 students for 9-12 schools. Table 9 applies the design capacity averages to projected populations at each school level.

TABLE 9
PROJECTED PUBLIC SCHOOL FACILITY NEEDS
BY GRADE LEVEL
SACRAMENTO COUNTY

	1990		2000		2010	
	Student Population	School Required	Student Population	Schools Required	Student Population	Schools Required
K-6	107,700	211	114,500	224	118,900	233
7-8	26,400	33	34,900	43	33,600	42
9-12	48,100	47	71,000	69	68,000	66
TOTAL	**182,200**	**291**	**220,400**	**336**	**220,500**	**341**

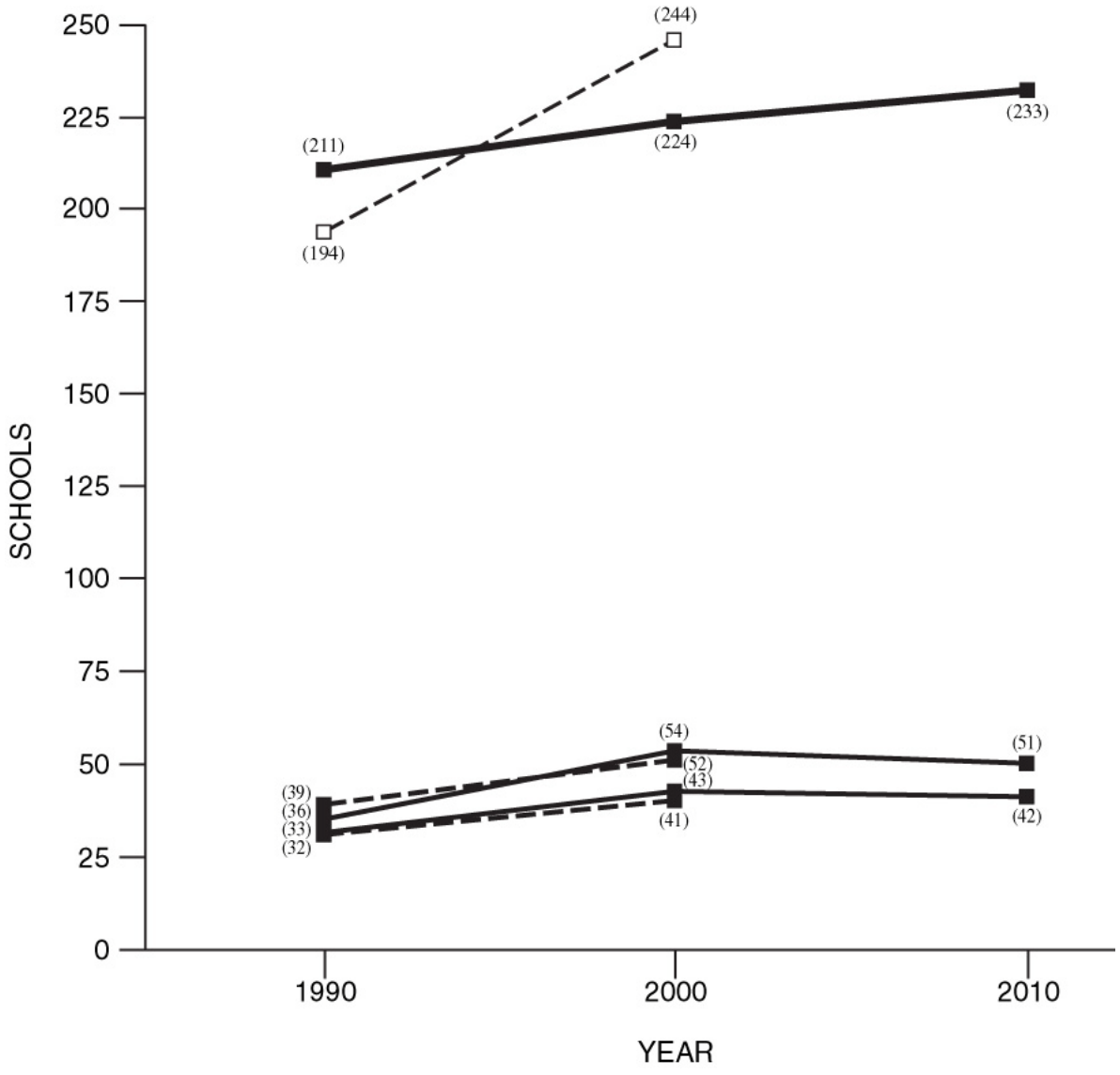
The projected public school facility requirements also are graphically depicted in Figure 4. School district plans, on a countywide basis, appear slightly overplanned for needed facilities. However, the minor difference in this comparison may be that many K-6 schools, particularly in rural areas, do not meet nor will not approach the average capacity of 511 students.

FIGURE 4
PROJECTED PUBLIC SCHOOL FACILITY REQUIREMENTS
SACRAMENTO COUNTY



Examination of planned and required facilities by grade level (Figure 5) reveals a much larger difference at the K-6 level, while 9-12 and 7-8 planned facilities appear to adequately house projected student populations.

FIGURE 5
PROJECTED PUBLIC SCHOOL FACILITIES REQUIREMENTS
BY GRADE LEVEL
SACRAMENTO COUNTY



PUBLIC SCHOOLS FACILITY PLANNING

District Variations

The 18 school districts in Sacramento County vary widely. The most obvious are in attendance area, school size, number of schools, and student population. For example, the Arcohe District consists of only one school and 364 students whereas Elk Grove Unified consists of 28 schools and over 19,000 students. Accordingly, they also vary widely in the scope and quality of their facilities planning effort. Smaller districts lack the resources to hire professional staff to perform necessary facilities planning, while others, more stable in population, have felt less need for long-range facilities planning.

Ideally, a school district would have a professional planner to prepare the planning documents. The Bureau of School Planning has encouraged school districts to adopt this practice. However, in the smaller and leaner school districts, the superintendent is forced to plan their facility needs in addition to a multitude of other tasks. Naturally, school districts which have experienced explosive residential growth and continue to grow are going to have more experienced planning staff. But it is equally important for smaller districts to begin to plan their facility needs. In some instances, smaller districts in the path of future growth soon will be forced to deal with classroom overcrowding in their schools. Dry Creek is a good example--a small district now doing an excellent planning job in preparation for projected growth in the Antelope area.

Service Level Standards

Service level standards measure the physical attributes of educational facilities and their ability to provide a given level of educational benefit. Standards provide school districts with a means to compare present facilities and plan future facilities in accordance with a desired level of service. Service level standards also ensure that school districts provide schools that are safe and afford an educational environment which supports the curriculum and the learning process. Various types of schools and programs are reflected in service level standards. A high school campus for example, requires over three times the acreage of an elementary school campus.

Service level standards for the public school districts in Sacramento County are set by the California State Department of Education, with some variation among individual school districts. For the most part, the districts follow the guidelines set by the state. Table 10 identifies the service level standards for number of students per classroom and/or laboratory, recommended size of parcel for a given number of students, and the number of pupils per acre.

TABLE 10
STATE SERVICE LEVEL GUIDELINES
BY PLANNING SERVICE AREA

	Grade Level			
	K-3	**4-6**	**7 & 8**	**9-12**
Maximum Number of] Students Per Classroom	29	33	33	28
Lab (960 sq. ft.)]			26	24
Recommended Size of Parcel and Number of Students	10 acres for 650 students	10 acres for 650 students	20 acres for 900 students	40 acres for 1650 students
Students Per Acre	.015	.015	.022	.024

Source: California State Department of Education

Planning for School Facilities

In many areas of the state, construction and rehabilitation and/or modernization funds for new and existing facilities are inadequate to meet identified needs. There is an estimated $5.5 billion shortfall statewide for new facilities according to the Schools Facilities Planning Division, State Department of Education. The need for maintenance or rehabilitation is less obvious. The State Allocation Board calculated that the demand for maintenance funds of more than $2 billion as of 1990. The school districts must accommodate their expanding student populations, as well as provide for the necessary reconstruction, rehabilitation and modernization of existing facilities. Rehabilitation and/or modernization of existing schools entail significant costs on school districts, mainly in urbanized areas. San Juan Unified School District for example, engaged the services of an architectural consulting firm that identified the need for rehabilitation of their existing facilities in excess of $155 million. The majority of this need is primarily in just replacing leaking roofs. Therefore, it is imperative that districts initiate a system of facilities master planning which anticipates major growth or changing needs as far in advance as possible. Implementing a system whereby school districts can prepare a comprehensive plan will help alleviate some of the problems of providing adequate public school facilities on a timely basis.

The State Legislature (Government Code Section 65970) and its school districts, have made a commitment that facilities will be in place when needed. Legislation reflecting this commitment (Education Code Section 17717.5), requires districts to prepare, publish and submit a five year plan, or a district master plan, which provides substantive information regarding district needs. This information serves as a foundation for assuring student needs and space requirements are matched in a timely manner.

Two documents that are very effective in assisting school districts in accomplishing their objectives are the Facility Master Plan and the Economic Master Plan. A Facilities Master Plan is a compilation of information, policies, and statistical data about a school district. The Facilities Master Plan provides a continuous basis for planning educational facilities that will meet the changing needs of a community and suggest alternatives in allocating facility resources to meet those needs. School districts are then better prepared to plan for the problems of overcrowding, provide the necessary data to apply for state school building aid, and provide the school district with a basis for evaluating alternative methods of meeting capital facility needs.

The objective of facilities planning is to encourage school districts to look beyond the state building program, and to explore a growing range of alternative solutions of providing facilities in the most economical and practical manner, prior to applying to the State Allocation Board for funds to acquire or construct new facilities or to modernize existing structures.

Various alternatives do exist. They may require changes in facility usage, in programs or curriculum, or adopting innovative methods to locally finance new facilities. There are two general categories of alternatives. The first, finding space in existing structures, may require program or facility usage changes. The second, utilization of financing alternatives, requires the district to address problems locally, prior to applying for state construction funds.

Equally as important as a facilities master plan is the requirement of each California school district to prepare an economic master plan. The most difficult and most common problem facing each public school district is obtaining funds for new school facilities. Many districts are currently forced to operate in overcrowded classrooms beyond state recommendations because facilities or improvements are not funded when needed.

The Economic Master Plan identifies and evaluates opportunities and alternatives for school districts to fund the facility needs forecast by the facilities master plan. The purpose of the economic master plan is to: Identify capital facilities in the existing facilities master plan, present an economic analysis for the acquisition and construction of the sites and facilities required to meet the forecasted need in a timely manner, review the probability of achieving state support as depicted in the economic analysis, and identify and evaluate alternative building and funding sources. Alternative funding sources include developer fees (which are set by state statutes), general obligation bonds, private bonding measures, certificates of participation, revenue anticipation bonds, community facility districts (Mello Roos), lease-purchase agreements, public/private joint ventures, and capital improvement plans.

PUBLIC SCHOOLS SERVICE DELIVERY AND FINANCING

Service Delivery

To assess service delivery, we have calculated percentages for students per classroom and size of parcel for school sites, yielding levels of impaction (overcrowding) for each school and school district. Further analysis will include (1) percentage of capacity (capacity of school to current enrollment), (2) capacity of portables (capacity of school and portables) to current enrollment, (3) state recommended capacity, and (4) state standards for size of parcel. These four measures are very useful in assessing the current level of operation, or level of service actually achieved, based on state standards. It is clear in evaluating the percentage of capacity in Sacramento County public schools that most of the school districts are operating far beyond permanent facility capacity. Though impaction is common, the remedies are quite different. In analyzing the four measures countywide we can determine what is needed to improve the level of service.

Providing the classrooms needed to house future students in Sacramento County will require a combination of actions. These actions fall into three general categories: 1) modernization and expansion of existing schools; 2) portable classrooms; and 3) construction of new schools. The first option is to modernize and expand facilities on existing school sites. Modernization will prolong the useful life of substandard facilities. Expansion of existing campuses, where feasible is the fastest and most cost effective method of providing needed additional classrooms.

The opportunity to expand existing campuses is limited by the physical size of the school sites and by the capacities of existing permanent facilities. The state recommends a minimum of 10 acres for every 650 students in elementary schools, 20 acres for every 900 students in middle schools, and 40 acres for every 1650 students in high schools. Detailed engineering and architectural studies are necessary to determine the ability of each school to absorb additional enrollment. A detailed site analysis, in accordance with the state school planning guidelines mentioned above, provide the basis for an evaluation of the expansion opportunities at existing schools.

The second option, portable classrooms, is an interim option for expanding classroom capacity because funding is inadequate to provide new schools. The State Allocation Board administers the Emergency Portable Classroom Program. School districts which require additional space may lease relocatable classrooms at $2,000 per building; they may be moved to other sites in the district as needed. Districts may also purchase the units with their own funds. A typical portable classroom unit costs $66,000.

The third option the districts must consider is construction of new schools. Both alternatives require substantial capital funding. In addition, the planning process for a new school requires a tremendous effort from the school district.

Financing Public School Facilities

Economic pressures in the aftermath of Proposition 13 forced virtually all local school districts to cut costs, reallocate expenditures and find new sources of revenue. Prior to passage of Prop. 13, the traditional sources of funding to construct new school facilities was the sale of general obligation bonds. When a school district determined that a new facility was needed, it sought the necessary voter approval to sell general obligation bonds and to increase property taxes to retire them. As a result of Prop. 13, public school districts could no longer increase property taxes to retire general obligation bonds. Schools could raise "special" non-ad valorem property taxes by a two-thirds vote of the local electorate. Non-ad valorem property taxes are based on the size of the parcel or ownership - a straight parcel tax. Some of the taxes are classified according to use: residential, commercial, industrial, agricultural or vacant.

From 1978 through 1986, when Proposition 46 restored the ability of localities to issue general obligation bonds, several alternative methods of financing capital facilities were authorized by the California Legislature. The alternatives supplemented the state school facilities aid under Leroy F. Greene, which provides the most significant potential source of construction financing for permanent and temporary school facilities. The funds are provided through sale of state general obligations bonds and the revenue generated from the state tideland oil and gas royalties. Funds appropriated for school construction are distributed by the State Allocation Board on the basis of demonstrated needs.

Developer Fees

Along with the passage of Proposition 46 in 1986, was enactment of Assembly Bill 2926, which gave school district governing boards authority to levy fees on development in order to fund construction and reconstruction of schools necessitated by such development (impact fees). The legislative package authorized fees for school construction up to $1.50 per square foot for residential development and $0.25 per square foot for commercial and industrial development, with annual cost of living adjustments (currently $1.56 and $0.26 per square foot). But, there currently is a California Assembly Constitutional Amendment #2 in the assembly reading file which would preempt local school districts ability to impose development fees in exchange for reducing voter approval for local general obligation bonds to a simple majority.

And the proper use of developer fees is extremely complex because they are controlled not only by state statutes, but also by state constitutional provisions and case law. Furthermore, no matter how unpleasant it is for school districts to levy fees, the law leaves school districts with few alternatives. It provides that the amount which can be generated by fees shall be required as a local match for any state grants for school construction, reconstruction, or modernization. A school district's state funding for school construction and rehabilitation will be lowered by the amount the district could have raised through the levy of the maximum developer fee on all new residential, commercial, and industrial construction, whether or not the district imposes the levy.

According to a survey conducted by the Coalition for Adequate School Housing, in the ten months since Assembly Bill 2926 became law, 397 school districts (72.1%) reported having

levied developer fees, and 75 (13.6%) reported they planned to do so, while 79 (14.3%) districts said that after considering the issue they decided not to levy fees, due to lack of sufficient growth and/or local opposition. Currently there are twelve impacted school districts in Sacramento County that levy fees: Elk Grove, Elverta, Folsom-Cordova, Galt, Galt High, Natomas, Roseville San Juan, Grant, Robla, Rio Linda, and North Sacramento.

OTHER FINANCING OPTIONS

School districts have available to them several other alternatives to raise revenue for facilities. The amounts which can be raised and the ability to raise them vary according to the option utilized.

Parcel Tax. In addition to developer fees, which require only a simple majority vote of a school district board, a special tax requiring a two-thirds popular vote can be levied. In 1987 the Sacramento Unified School District was successful with its parcel tax election, capturing 70 percent of the vote. A similar attempt by the San Juan School District the following year was overwhelmingly defeated with less than half of the voters in favor of a parcel tax.

Mello-Roos. The Mello-Roos Community Facilities Act was passed by the legislature in 1982 to make use of a portion of Proposition 13 which allows local governments and special districts to levy special taxes. Mello-Roos allows establishment of a Community Facilities District (CFD) by a two-thirds vote of the qualified electors of the district. In developed areas the qualified electors are the registered voters of the area designated a CFD. In CFDs with fewer than 12 registered voters, qualified electors are owners of land within the CFD and entitled to one vote for each acre they own.

There have been three attempts to utilize Mello-Roos financing by Sacramento area school districts. In 1987 voters in the rural Elk Grove Unified School District authorized $70 million of Mello-Roos financing. That same year voters in the urbanized Sacramento City Unified School District authorized over $8 million in Mello-Roos financing. An attempt in 1988 to authorize a $35 million Mello-Roos package in the Roseville Unified High School District failed, capturing only 42 percent of the vote.

Year-Round Schools. One means available to school districts to relieve pressure for new schools is establishment of year-round programs. A school may qualify for incentives if the district is overcrowded and it intends to use a year-round education plan to increase the capacity of its facilities, thereby reducing the need for new facilities or more costly alternatives. The per pupil incentive varies from $1 to $125 per pupil, depending on the degree of overcrowding, future growth projections and other criteria specified in state law. The incentive provides an especially beneficial alternative to urban areas where no land for new school construction is available or is prohibitive in cost. Only San Juan Unified and Elk Grove Unified School Districts utilize year-round programs. Generally the preference has been for the traditional single session school year at a neighborhood school.

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SACRAMENTO COUNTY GENERAL PLAN
PUBLIC FACILITIES ELEMENT

D. LIBRARY FACILITIES AND SERVICES BACKGROUND REPORT

ADMINISTRATION

The Sacramento Public Library is comprised of interdependent branch services and collections designed to make its total resources readily available and widely accessible to all residents. Branches are grouped by services, geography, and use patterns so that complete services are within reasonable travel distances of all citizens.

While it operates as a single agency, it is governed by and accountable to both the Sacramento City Council and the Sacramento County Board of Supervisors. Each jurisdiction funds library administration and associated countywide services on a shared formula basis.

CURRENT SERVICE LEVEL

Twenty-four libraries housing 1.5 million books serve the residents of Sacramento County (Figure 6). Thirteen facilities exist within the unincorporated areas of the County plus one each in the cities of Folsom, Galt, and Isleton. Eight exist within the incorporated limits of the City of Sacramento. The community planning areas of Vineyard, Franklin-Laguna, Cosumnes, Rancho Murieta, Southeast County, and North and South Natomas are without a library (Table 11).

FIGURE 6

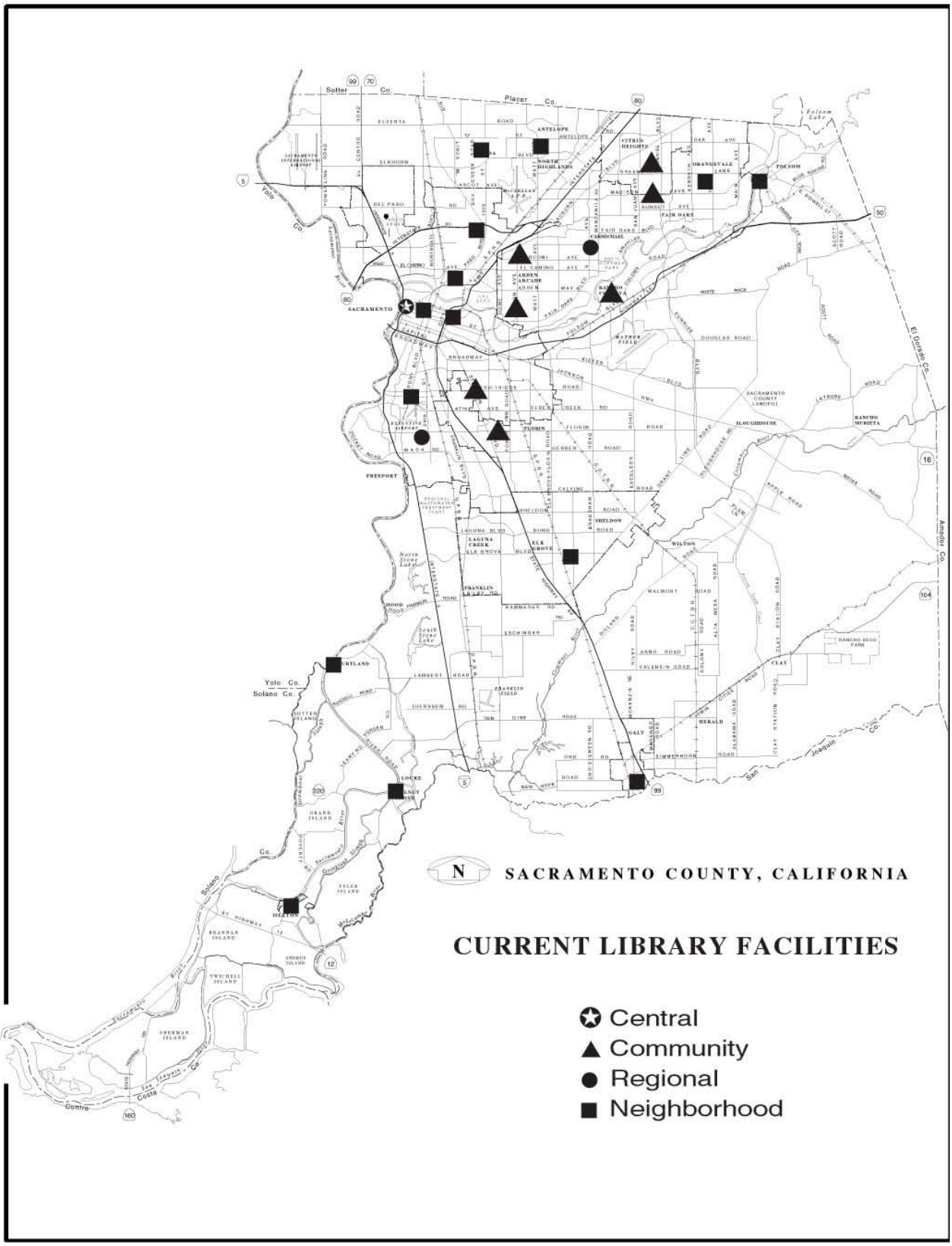

SACRAMENTO COUNTY, CALIFORNIA
CURRENT LIBRARY FACILITIES
Central
Community
Regional
Neighborhood

TABLE 11

INVENTORY OF LIBRARY RESOURCES

Community Area	1990 Population	Type of Facility	Size of Facility (sq ft)	Book Stock	Hours of Operation
ARDEN ARCADE	89,358				
Arcade Community 2443 Marconi Ave.	44,179	Community	12,000	57,000	42
Arden Branch 891 Watt Ave	45,179	Community	8,006	54,819	38
CARMICHAEL	50,642				
Carmichael Regional 5605 Marconi Avenue		Regional	14,500	130,000	42
DELTA	5,796				
Courtland Branch 129 Primasing Avenue	966	Neighborhood	708	5,000	14
Isleton Branch 101 C Street	2,898	Neighborhood	1,500	16,000	20
Walnut Grove Branch 14177 Market Street	1,932	Neighborhood	1,890	10,000	21
ELK GROVE	22,712				
Elk Grove Branch 8962 Elk Grove Blvd.		Neighborhood	4,200	27,000	33
FAIR OAKS	30,874				
Fair Oaks Comm. 11601 Fair Oaks Blvd.		Community	12,000	60,000	40
FOLSOM	30,020				
Folsom Branch 638 East Bidwell St.		Neighborhood	6,000	23,000	34

TABLE 11 (Cont.)

Community Area	1990 Population	Type of Facility	Size of Facility (sq ft)	Book Stock	Hours of Operation
GALT	11,808				
Galt Branch 380 Civic Drive		Neighborhood	4,000	17,300	42
NORTH CENTRAL*	88,986				
No. Highlands Branch 3601 Plymouth Drive		Neighborhood	3,822	36,000	33
ORANGEVALE	28,331				
Orangevale Branch 8820 Greenback Ln.		Neighborhood	4,675	35,000	31
RANCHO CORDOVA	95,102				
Rancho Cordova Community 9845 Folsom Blvd.		Community	12,000	62,000	38
RIO LINDA/ELVERTA	17,422				
Rio Linda Branch 902 Oak Lane		Neighborhood	4,000	13,000	29
SOUTH SACRAMENTO	114,822				
Southgate Community 6132 66th Street		Community	12,000	69,500	40
CITRUS HEIGHTS	98,071				
Sylvan Oaks Community 6700 Auburn Blvd.		Community	12,000	50,000	35
SACRAMENTO/DOWNTOWN	31,005				
Sacramento Central Library 9th & I Streets		Central	160,000	500,000	69
NORTH NATOMAS	841	None			

*Includes North Highlands/Antelope and Foothill Farms.

TABLE 11 (Cont.)

Community Area	1990 Population	Type of Facility	Size of Facility (sq ft)	Book Stock	Hours of Operation
SOUTH NATOMAS	31,881	None			
NORTH SACRAMENTO	49,703				
Del Paso Heights Branch 930 Grand Avenue	24,851	Neighborhood	5,425	22,000	28
North Sacramento/ Hagginwood Branch 2109 Del Paso Blvd.	22,852	Neighborhood	4,000	35,000	42
VINEYARD	4,656	None			
FRANKLIN/LAGUNA	9,493	None			
COSUMNES	6,165	None			
RANCHO MURIETA	2,125	None			
SOUTHEAST	4,063	None			
EAST CITY	120,180				
Colonial Heights Comm. 4799 Stockton Blvd.	89,175	Community	1,200	50,000	40
Ella K. McClatchy 2112 22nd Street	10,335	Neighborhood	1,900	18,500	34
McKinley Branch 601 Alhambra Blvd.	20,670	Neighborhood	4,681	35,000	35
LAND PARK/ POCKET AREA	108,606				
Belle Cooledge Branch 5681 Freeport Blvd.	57,662	Neighborhood	6,002	48,605	42
Martin Luther King Memorial Regional 7340 24th Street	50,938	Regional	15,078	09,150	44

FACILITY TYPES

There are five classifications of library facilities: Bookmobile, Neighborhood, Community, Regional, and Central.

Bookmobile: Two bookmobiles, the Traveling Branch and the Wanderer, serve all county residents.

Neighborhood Branches: Fourteen Neighborhood libraries provide smaller communities with easy access to library materials. The collections are limited, but satisfy the general circulation and reference requests of local residents. Whenever patrons' needs cannot be satisfied by a neighborhood branch, the staff forwards them to a larger library or requests materials through interlibrary loan. Neighborhood branch libraries are generally located in leased buildings and are typically staffed by paraprofessionals. As such their development involves expenditure of little, if any capital funds. The most important concern influencing the establishment of neighborhood libraries is operational costs.

Community Libraries: There are seven Community Libraries serving communities or geographical areas of 50,000 people or more. If a patron's question cannot be answered, the question is referred to either a Regional or the Central Library. Hours are longer, collections are larger, and space is more plentiful than Neighborhood Branches. They are staffed by librarians rather than primarily paraprofessional staff.

These facilities, developed in larger communities, are permanent and thus require capital outlay for land acquisition and construction. In 1990, the cost of constructing such a facility was approximately $3 million, and the initial cost of acquiring 50,000 volumes was approximately $850,000.

Regional Libraries: A Regional Library is responsible for the coordination and back-up of public services for a large geographic area. It supports the services and collections of Community and Neighborhood branches within several community planning areas. It also functions as a branch library to the immediate surrounding population. There are two in existence, Carmichael Library in the County and Martin Luther King Library in the City. A third regional library is planned for the Elk Grove Community. In 1990 the cost of developing a Regional Library was approximately $6.5 million. The initial cost of acquiring 75,000 volumes was approximately $1,500,000.

Central Library: The new Central Library currently under construction on I Street between 8th and 9th Streets will serve the needs of county residents far into the next century. It will serve all neighborhood, community, and regional libraries. The Central Library will have the most extensive and specialized subject collection. In addition, it will be staffed by professional librarians with expertise in various subject areas.

Estimated cost of the library structure is $20 million. The 160,000 square foot facility will house one million volumes and over 500 reader seats. Additional services will include a media center, computer databases, meeting facilities, and special collection space.

LIFE EXPECTANCY AND CAPITAL FACILITIES

As stated previously, only neighborhood libraries are impermanent and do not involve capital expenditures. The Sacramento Public Library Master Plan identifies regular capital expenditures for repair and/or maintenance. Costs for community libraries can be divided into annual operating and maintenance expenditures. Costs of a Regional or Central library can be expected to be proportionately higher. The estimated life of all facilities will be 30 years. It is assumed that significant levels of rehabilitation will be necessary as each facility completes 30 years of service to the community.

PROJECTED SERVICE DEMANDS

According to the State Department of Finance, Population Research Unit, the population of Sacramento County will increase to 1.35 million persons by 2010; an increase of almost 400,000.

The demand for new library facilities will increase significantly. Construction of a North Highlands/Antelope Community Library by 1992 - 1993 and an Elk Grove Regional Library by 1995 - 1996 are recommended, though no secured funding source has been identified. Table 12 projects the need for new facilities and the expansion of existing facilities to the year 2010.

One of the primary goals of the Sacramento Public Library is to provide library service to new and growing community areas equal to library service in established community areas.

Table 13 identifies the levels of service for library services established by the City and County of Sacramento. These represent a modification of standards recommended by the American Library Association consistent with the urban-rural development patterns in Sacramento County. Because of low population densities in rural areas and budgetary restrictions placed upon the library system, achievement of these standards is difficult, particularly with respect to service area. The Elk Grove Branch, for example, is a neighborhood library with a service area of 240 square miles, equivalent to a service area radius of nine miles. Neighborhood library standards recommend a one to two mile radius. However, service area radius is just one measure of level of service; the low population density is another key factor.

TABLE 12
PROJECTED LIBRARY FACILITY NEEDS BY PLANNING SERVICE AREAS

LOCATION	1990 POPULATION	2010 POPULATION	CURRENT FACILITY (square feet)	PROJECTED EXPANSION (square feet)	COST 1990 $ (millions)
ARDEN ARCADE	90,358	89,351			
Arcade Community 2443 Marconi			Community 12,000	—	
Arden Branch 891 Watt Ave.			Community 8,006	Expand to 10,000 by year 2000	.75
CARMICHAEL	50,642	52,756			
Carmichael Regional 5605 Marconi Ave.			Regional 14,500	Expand to 25,000 by year 2000	2.8
DELTA	5,796	6,399			
Courtland Branch 129 Primasing Ave.			Neighborhood 708	—	
Isleton Branch 101 C Street			Neighborhood 1,500	—	
Walnut Grove Branch 14177 Market Street			Neighborhood 1,890	—	
ELK GROVE	22,712	52,553			
Elk Grove Branch 8962 Elk Grove Blvd.			Neighborhood 4,000	Regional 25,000 by year 1995	6.5
FAIR OAKS	30,874	34,387			
Fair Oaks Community 11601 Fair Oaks Blvd.			Community 12,000	—	
FOLSOM	30,020	73,096			
Folsom Branch 638 E. Bidwell			Neighborhood 6,000	Community 18,000 by year 2000	3.2
GALT	11,808	28,730			
Galt Branch 380 Civic Drive			Neighborhood 4,000	Expand to 6,000 by year 1995	

TABLE 12 (Cont.)

PROJECTED LIBRARY FACILITY NEEDS BY PLANNING SERVICE AREAS

LOCATION	1990 POPULATION	2010 POPULATION	CURRENT FACILITY (square feet)	PROJECTED EXPANSION (square feet)	COST 1990 $ (millions)
NORTH HIGHLANDS	88,986	111,947			
North Highlands Branch 3601 Plymouth Drive			Neighborhood 4,000	Community 12,000 by year 1995	3.0
ORANGEVALE	28,331	30,522			
Orangevale Branch 8820 Greenback Lane			Neighborhood 4,000	Expand to 6,000 by year 1995	
RANCHO CORDOVA	95,102	100,367			
Rancho Cordova Comm. 9845 Folsom Blvd.			Community 12,000	Community Plus leased Neighborhoods by year 2000	
RIO LINDA/ELVERTA	17,422	21,788			
Rio Linda Branch 902 Oak Lane			Neighborhood 4,000	—	
SOUTH SACRAMENTO	114,822	157,778			
Southgate Community 6132 66th Avenue			Community 12,000	Add Community at Valley Hi by by Year 2000	3.0
CITRUS HEIGHTS	98,071	99,258			
Sylvan Oaks Community 6700 Auburn Blvd.			Community 12,000	Community Plus leased Neighborhoods by year 2000	
DOWNTOWN	31,005	31,202			
Central 828 I Streets			Central 12,000	Central 160,000 by year 1991	
NORTH NATOMAS	841	47,405	— —	Community 12,000 by year 2010	3.0
SOUTH NATOMAS	31,881	56,956	—	Community 12,000 by year 1995	3.0

TABLE 12 (Cont.)

PROJECTED LIBRARY FACILITY NEEDS BY PLANNING SERVICE AREAS

LOCATION	1990 POPULATION	2010 POPULATION	CURRENT FACILITY (square feet)	PROJECTED EXPANSION (square feet)	COST 1990 $ (millions)
NORTH SACRAMENTO	49,703	86,136			
Del Paso Heights Branch 920 Grand Avenue			Neighborhood 5,425	—	
North Sacramento/ Hagginwood Branch 2109 Del Paso Blvd.			Neighborhood 4,000	Community 12,000 by year 2005	3.0
EAST CITY	89,175	90,093			
Colonial Heights Comm. 4799 Stockton Blvd.			Community 12,000	—	
Ella K. McClatchy 2112 22nd Street			Neighborhood 1,900		
McKinley Branch 601 Alhambra Blvd.			Neighborhood 4,681	Combine McClatchy/ McKinley into Community 12,000 by year 1995	3.0
LAND PARK/ POCKET/MEADOWVIEW	108,600	119,287			
Belle Cooledge Branch 5681 Freeport Blvd.			Neighborhood 6,000	Community 12,000	3.0
Martin Luther King 7340 24th St. Bypass			Regional 15,018	—	
VINEYARD	4,656	20,229	— Lease 6,000	Neighborhood Lease 6,000	
FRANKLIN/LAGUNA	9,493	50,826	12,000	Community 12,000	3.0
COSUMNES	6,165	11,118	—	—	
RANCHO MURIETA	2,125	10,021		Neighborhood Lease 1,600 by year 2000	
SOUTHEAST	4,063	4,905	—	—	

TABLE 13
CHARACTERISTICS OF FACILITIES BY SIZES
- Less Than, - Greater Than

	NEIGHBORHOOD LIBRARY	COMMUNITY LIBRARY	REGIONAL LIBRARY	NEW CENTRAL LIBRARY
GENERAL				
Annual Circulation	- 225,000	225,000-350,000	- 350,000	500,000
Service Area Radius	1-2 miles	2-3 miles	Region*	Sacramento County
Service Area Population	- 50,000	50,000	Region*	Sacramento County
FACILITIES				
Square feet	- 8,000	12,000	25,000	143,000
Seats	- 50	100	200	500
Meeting Room sq. ft.	- 800	800-1,000	- 1,000	8,300
Parking Places	- 40	100	200	120 (dedicated)

* As defined by geographical grouping of library source areas.

NEW FACILITIES

Based on 2010 population projections (Table 12) by the State Department of Finance, three libraries funded by the County have been identified for major facility upgrading (neighborhood to community and neighborhood to regional): Elk Grove to regional; Folsom to Community; and North Highlands to Community. In the short-term, North Highlands and Elk Grove are in need of immediate improved service.

North Highlands currently has a 4,000 square foot facility attempting to serve 88,986 people. This facility needs upgrading to a community-size library to support the present area population and the neighborhood library for Rio Linda/Elverta. Elk Grove and Southgate Libraries are the only county library facilities in the Sacramento Metropolitan Area south of the Business 50 corridor. The community areas of Elk Grove, Franklin-Laguna, Vineyard, and Southeast are currently served by one 4,000 square foot facility. Upgrading the Elk Grove Library to a regional library would provide regional services to present and future south county libraries as well as improve service to the immediate community area. Total population served by a regional Elk Grove library would be approximately 234,000 in 1995 and 276,000 in 2000.

Even with these new facilities, much of the rural part of the County will continue to receive minimal service. In much of the south County, books-by-mail or weekly bookmobile services will be the extent to which rural residents have convenient access to library resources.

SACRAMENTO COUNTY GENERAL PLAN
PUBLIC FACILITIES ELEMENT

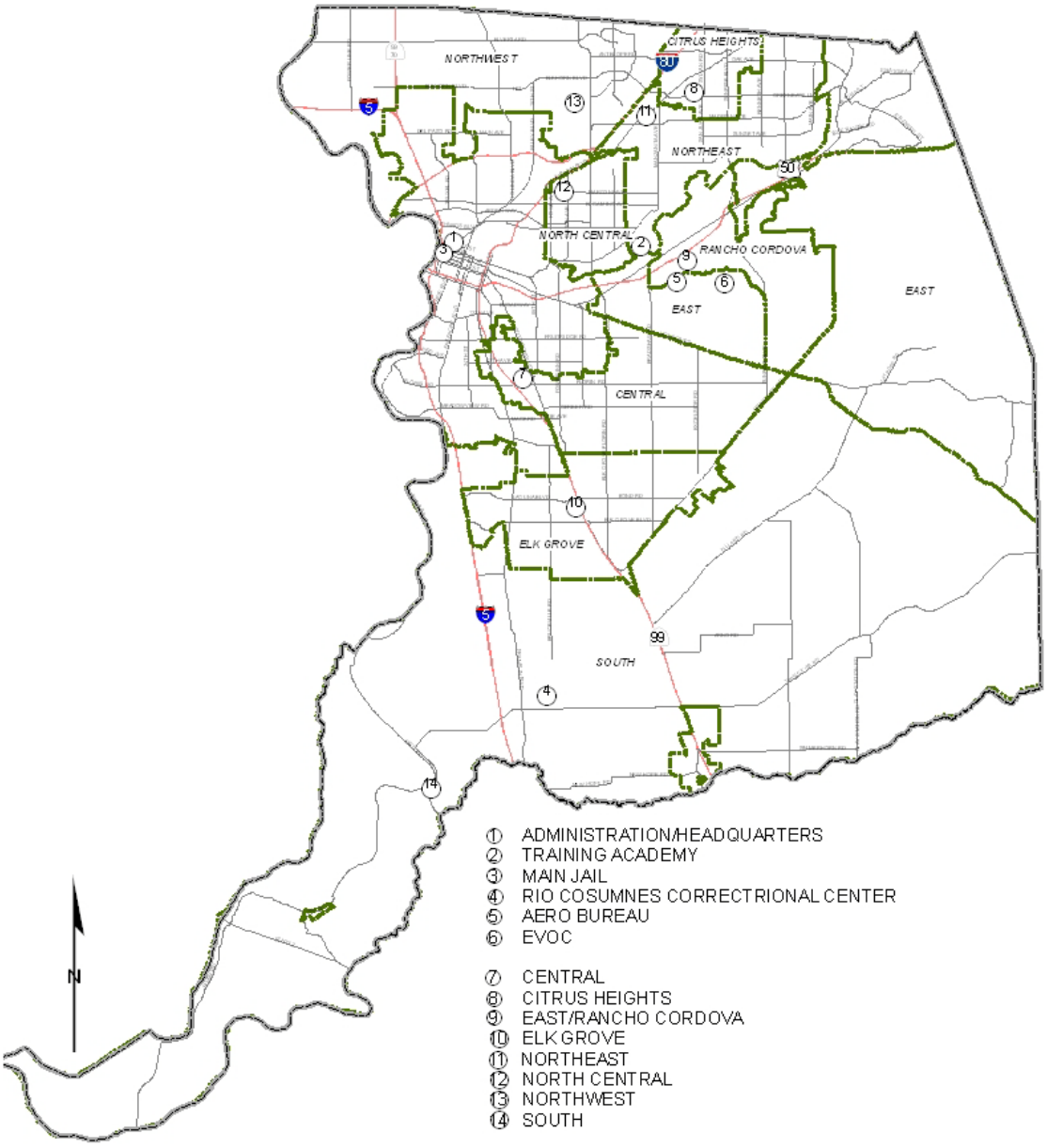
E. SHERIFF FACILITIES BACKGROUND REPORT

INVENTORY OF SHERIFF FACILITIES

Existing Sheriff Facilities

The Sacramento County Sheriff's Department provides local police protection services to the unincorporated area and provides specialized law enforcement services to both the incorporated and unincorporated areas. The basic unit of service provided to the community is the deputy sheriff. Deputies are allocated to geographic areas called patrol districts. During the 1990's the department saw significant growth with additional funding from federal grants for community based policing. There was a decentralization of field operation services to effectively meet the needs of each community in the unincorporated areas of the county. In the last three years, due to a recession in the economy, the department has seen a reduction in its annual budget. This reduction in the budget has reduced patrol staffing levels and has reduced or eliminated various programs within the department. There are six patrol districts in the unincorporated area of the county. (Figure 7) These districts are determined on community based policing as well as their geographic areas. Since the last facility report the Sacramento County Sheriff's Department has provided contract law enforcement services to three new cities within the county. These newly formed cities are Citrus Heights, Elk Grove, and Rancho Cordova. These cities account for three additional patrol districts for a total of nine patrol districts covering approximately 880 square miles.

The Sacramento County Sheriff's Department operates a headquarters building, Lorenzo E. Patino Hall of Justice Sacramento County Main Jail, Rio Cosumnes Correctional Center, five station houses, ten community services centers, court security division, work release division, civil division, training academy, firearms training facility, property warehouse, marine enforcement detail and an air support bureau with a complement of 1,414 sworn officers, including 250 patrol officers. One station house is operated within the new City of Rancho Cordova. The contract city is staffed with 77 sworn officers including 35 patrol officers. The Sheriff's Department has also contracted law enforcement services to the Sacramento International Airport.



Sheriff Facilities and Patrol Districts (figure 7)

Construction on the Lorenzo E. Patino Hall of Justice Sacramento County Main Jail was completed in February 1989. The primary function of the Main Jail is to house pre-trial inmates. The 437,000 square foot facility contains 2,432 beds. There are 316 beds for female inmates, 2,020 for male inmates, and 96 designated for medical and psychiatric use. The jail operates with an average daily population of approximately 2,310 inmates. Future plans include an adjoining tower which could provide 600 to 900 beds and additional court facilities. Both additions have been put on hold due to budget constraints.

The Rio Cosumnes Correctional Center's (R.C.C.C.) primary function is to house male and female inmates sentenced to County Jail from the Sacramento County courts. An increasing percentage of inmates housed at R.C.C.C. are pre-sentenced inmates from the Main Jail. This is done to keep the Main Jail's inmate population below the limit set by a federal consent decree. In addition, R.C.C.C. houses inmates en route to other jurisdictions, federal inmates, and is a holding facility for inmates sentenced to state prison. The total number of beds available at R.C.C.C. is 2,319 of which 268 are for females. These numbers take into account 348 beds available at the Roger Bauman Facility (R.B.F.) which is waiting to be refurbished. This equates to 1,971 beds actually available. The Board of Corrections rated capacity is 1,625, not including 23 medical beds not accounted for during a recent Board of Corrections Review in June of 2004. In 1998 the 448 Facility was completed and added 448 beds. There are several plans that could be implemented to gain additional beds at R.C.C.C. These plans include constructing a new facility, rehabbing the R.B.F. into a minimum security dorm, and adding additional bunks in the Chris Boone Facility and Stewart Baird Facility. These plans would cost several millions of dollars and would require additional staffing.

One concern of R.C.C.C. is having an adequate water filtration system. There are frequent water shortages and costs of upgrading to a system that would handle 5,000 people were estimated at 1.4 million dollars. The Kenneth Royal Firearms Training Facility is also located at R.C.C.C.

Each patrol division is based out of a station house. The Northwest Division (McClellan Station) is located at the former McClellan Air Force Base (now known as McClellan Park) and serves the communities of Antelope, Elverta, Foothill Farms, Garden Highway, McClellan Park, Natomas Industry, North Highlands and Rio Linda. At this time the public does not have direct access to the McClellan Station, all interaction with the public is done through the Northwest Service Center. The Northeast Division is located at the Garfield Station and serves the communities of Carmichael, Fair Oaks, Foothill Farms and Orangevale. The North Central Division is located at the Marconi Station and serves the communities in the Arden-Arcade area. The East Division is located at the Rockingham Station. Currently the East Division shares the Rockingham Station with the Rancho Cordova Police Department. The East Division serves the communities of Rosemont, Gold River, Butterfield-Riviera East and Rancho Murieta. The Central Division is located at the Florin Station and serves the communities of South Sacramento, Florin, Fruitridge, Lemon Hill and Vintage Park. The Central Division also oversees the South Bureau. The South Bureau deploys out of the Bond Road Facility and serves the communities of Wilton, Walnut Grove, Willow Berm, Brannon Island, Sherman Island, Ryde, Galt, Hood, Freeport, Franklin, Courtland and Sloughhouse. Both the Citrus Heights

Police Department and Elk Grove Police Department have a headquarters/station house and serve their respective communities.

Community Service Centers are located throughout the unincorporated areas of the county. Service Centers provide a place where citizens can report non-urgent or on-going problems. Reports can also be taken for burglary, theft, or vandalism. At some Service Centers the public can make contact with Problem Oriented Policing (P.O.P.) officers. Service Centers are located in the following areas: Northwest, Carmichael, Fair Oaks/Orangevale, North Central, Central, Willow Berm, Walnut Grove, Wilton, East, and Rosemont. Service centers are also located at the contract city locations of Rancho Cordova, Citrus Heights and Elk Grove.

The Sacramento County Sheriff's Department Training, Planning & Research Division headquarters is located at McClellan Park. The Sheriff's Department, in conjunction with the Sacramento Police Department, Sacramento City Fire Department, Sacramento Metropolitan Fire Department, and the Los Rios Community College, formed a Joint Powers Agreement (J.P.A.) establishing the Northern California Regional Public Safety Training College. The Training, Planning & Research Division consists of the Academy, Emergency Vehicle Operations Course (E.V.O.C.), In-service Training, and the Range. The Academy is currently located at a water treatment facility near the American River. Currently there are plans to move the academy to the McClellan site. There are also plans for forming a regional academy with the Sacramento Police Department.

The department's firearms facility is located in Elk Grove at R.C.C.C. There are plans to form a JPA with the Sacramento Police Department for the use of a firearms range also located at McClellan. This would provide two ranges serving both the north and south areas of the county.

The Sacramento County Sheriff's Department was in search of a permanent facility to conduct driver training (E.V.O.C.). In August of 1998 arrangements were made with the Department of Airports to lease the former Mather Air force Base Alert Pad. The Sacramento Regional Driver Training Facility (S.R.D.T.F.) was established in conjunction with the Sacramento Police Department, and the Sacramento City Fire Department. The following is a list of training resources available at the facility: three multi-media classrooms, four driving simulators, water flooded skid pan, accident avoidance course, threshold braking course, commercial vehicle placement course, motorcycle course, pursuit immobilization technique course, and a 4x4 course. The S.R.D.T.F. receives continuous requests from local, regional, state, and federal law enforcement agencies for training.

To adequately meet the training needs of the Sheriff's Department the facility will need to expand. The department is working with the Department of Airports for a new lease agreement. These new upgrades would provide a "city grid" course along with various obstacles, and a perimeter track. There are also plans to upgrade the "skid pan" in regards to water run off. This upgrade would cost approximately $40,000.

Proposed Facilities

The Sheriff's Department is continually looking for ways to improve its service to the community. Recent budget cuts have jeopardized the status of the station houses and community service centers as well as a reduction or elimination of services provided to the public. There are several plans to upgrade existing facilities within the department. Current projects are the new shower/locker room located at McClellan Park funded by the JPA, Bldg 600 at McClellan Park for Homeland Security training, Response Incident Command training, Cyber-Terrorism training & Investigations in partnership with numerous agencies, planning of a new station house for the Northwest Division and refurbishing R.B.F. at the Rio Cosumnes Correctional Center. Other plans on hold due to the budget include: the building of another tower at the Main Jail; building a new housing facility (costs estimated over several million dollars and would require additional staffing), upgrading the water filtration system at R.C.C.C.; adding a "city grid" course and upgrading the skid pan at E.V.O.C.

Assessment of Need for Additional Services and Facilities

The provision of Sheriff's Department services is highly labor intensive, providing a variety of public protection services including calls for service, matters under investigation or surveillance, trouble spots, and routine patrolling. One patrol officer per thousand people is a standard which is frequently used in law enforcement to measure levels of service. Reaching this standard allows quick response times, smaller patrol areas, and preventive patrol. When this standard governs resource allocation for law enforcement, staff would increase in direct relation to population. At the present time, there are 250 patrol officers or 0.45 per thousand people.

In January of 2002 the State Department of Finance estimated 47.1% of the county's population lived in the unincorporated area, giving Sacramento County one of the largest unincorporated populations among all counties in the State. However, the recent trend for communities to incorporate is responsible for a decrease in population of the unincorporated area. From January 2003 to January 2004 the total population of the county grew approximately 1.8% and the unincorporated population shrunk by 1.4%.

A three year study by the Sheriff's Department and the Administration and Finance Agency completed in 1990 recommended a standard of 615 calls for service/officer/year is necessary to achieve the Peace Officer Standards and Training (P.O.S.T.) Commission standard of a one to two minute dispatch time.

Response time is time for operator to receive call, get information to the dispatcher, dispatcher to find an officer, and an officer to get to the location. Dispatch time is the same as queue time. Queue time is the time it takes a dispatcher to find an available officer to take the call (one to two minutes is an acceptable standard). The focus is on the number of officers needed to ensure a one to two minute dispatch time. The Sheriff's Department uses priority "1" calls to establish response times. Priority "1" calls are those determined critical in nature, (incidents that contain the potential of endangerment of human life). From July 2003 to April 2004 there were approximately 20,709 priority "1" Call's For Service (C.F.S.). The average time from call

receipt to dispatch time was 5.75 minutes and average time from dispatch to arrival was 9.30 minutes (5.75+9.30 = 15.05 mins from call receipt to arrival).

Demand for local police protection results from population growth; increased rates of crime, particularly major crimes and crimes associated with the use and sale of drugs; and services mandated by the State and Courts. For example, the state mandates programs, such as rape victim counseling notices and programs to correct the problems of domestic violence and provides only limited funding for these services. In addition, the department has created special positions to combat the drug and gang problems in the county. Finally, the courts required the department to increase prison facilities to reduce jail overcrowding.

TABLE 14
SHERIFF DEPARTMENT PERSONNEL
(UNINCORPORATED)

	1979	**1989**	**2004**
Sworn Personnel [4]	719	1,072	1,341 [1]
Non-Sworn Personnel [5]	221	434	667 [2]
Patrol Services	270	272	250 [3]
Detectives[6]	45	92	123
Jail Personnel	78	249	679
Marshall's Office	0	52	0
Correctional Health Services			154

SHERIFF DEPARTMENT PERSONNEL
(CONTRACT CITIES)

	2004
Sworn Personnel [4]	258 [1]
Non-Sworn Personnel [5]	40 [2]
Patrol Services	132 [3]
Detectives	36

1 Includes all sworn

2 Includes all non-sworn

3 Includes only patrol officers (deputy sheriffs)

4 Combined total equals total SSD Sworn personnel

5 Combined total equals total SSD Non-Sworn personnel

6 Includes 7430, 7431, 7433. 7435, 7437, 7439, 7442, 7446 and Field Service Detectives

The Sheriff's Department provides the following services:

Contracted Law Enforcement Services

A recent trend with communities in Sacramento County was to incorporate and form cities. This began with Citrus Heights in 1997, Elk Grove in 2000, and most recently Rancho Cordova in 2004. Each newly established city formed their own government and has signed contracts with the Sheriff's Department to provide law enforcement services to these cities. The Cities of Citrus Heights and Elk Grove formed their own police forces effective July 1, 2006 and are no longer a part of the Sheriff's Department.

The Sheriff's Department also has contracts with Regional Transit, the Department of Social Security, and the Sacramento International Airport. The Sheriff's Department is continually looking to provide law enforcement services to all areas within the county. With new contracts there would be the need for additional staffing and for equipment.

TABLE 15

OFFICER / POPULATION RATIOS
SACRAMENTO REGION

Jurisdiction	Officers	Population	Officers Per Thousand
City of Sacramento			
Sworn[1]	706	426,000	1.65
Patrol[2]	314		0.74
City of Stockton			
Sworn[1]	388	261,300	1.48
Patrol[2]	165		0.63
San Joaquin County (Uninc.)			
Sworn[1]	313	134,600	2.32
Patrol[2]	124		0.92
Sacramento County (Uninc.)			
Sworn[1]	1,341	560,741*	2.5
Patrol[2]	250		0.40

* Department of Finance, Annual Certified Population (01/01/06)

1 Includes all sworn

2 Includes only patrol officers (deputy sheriffs) in unincorporated area

The Marine Enforcement Detail patrols over 300 miles of navigable waterways and close to 400 total miles of waterways. The primary mission of the Marine Enforcement Detail is to enforce State and local ordinances and statutes on the waterways of the county. Related duties include investigation of vessel accidents, boating related deaths and drowning, and boating under the influence. The detail also works drowning recoveries, assists stranded boaters, and promotes and conducts vessel safety inspections. The detail conducts full time patrols, ten hours a day, seven days a week, with some nighttime patrols.

The detail has six patrol boats, one personal watercraft, and three smaller craft that can be used for flood rescue if needed. Additionally, the detail receives up to four personal watercraft annually through a law enforcement loaner program with the manufacturers. The detail is also equipped with a side-scan sonar unit used for body recovery and evidence location. The side-scan sonar can also be utilized for Homeland Defense needs to search a port or structure for submerged objects. The detail recently received a grant for a new flat bottom boat to conduct side-scan sonar and dive operations.

The Sheriff's Air Support Bureau was established in 1978 and is located at the former Mather Air Force Base. It provides aerial patrol and surveillance service primarily to the unincorporated area of the county. The bureau is currently equipped with five helicopters and four fixed wing aircraft. The helicopters are comprised of three Eurocopter-EC120's purchased in 1999, and two Huey UH-1H helicopters acquired through an Army Surplus Program. The Eurocopters provide regular patrol functions and the Huey's provide additional emergency operation capabilities. The fixed wing aircraft are comprised of two Cessna 206's, one Cessna 210, and one Piper Navajo twin engine transport. The responsibilities of the Cessna's are surveillance and the Piper is for transportation.

The department provides service from the helicopters 12 hours a day, seven days a week, from 2:00 p.m. to 2:00 a.m. The fixed wing aircraft are available 10 hours a day, five days a week, from 9:00 a.m. to 7:00 p.m. A flight crew consists of one pilot (deputy) and one observer (deputy). In 2002 the crews flew approximately 1,140 hours and handled approximately 5,180 calls, with an average response time of two minutes. The Sheriff's Department determined that twenty hours air coverage a day is an acceptable standard of service. Meeting this standard requires an additional helicopter, two pilots, two observers (four deputies), and one additional mechanic. The minimum air coverage needed for the year 2010 would be an additional four helicopters, twenty-four deputies, three supervising sergeants and four mechanics. This would provide twenty-hour coverage for areas north and south of the American River.

Field Services

The decentralization of all field services was to address several problem areas. The deputies assigned to patrol were so busy and understaffed they did not have the time to learn the areas and population they patrolled. Several changes were made to combat this problem. With the adoption of a community oriented policing program, the Sheriff's Department moved its services

out to the communities. Station houses, along with service centers, were opened and Problem Oriented Policing (P.O.P.) Officers were created. With recent budget cuts the department reduced its patrol staffing levels, P.O.P. Officers, and eliminated or reduced various other programs.

Investigations

As part of the decentralization of field services the detectives were also moved to the station houses. The detectives assigned to the station houses are responsible for burglary, theft, narcotics, and domestic violence reports. Three investigative divisions were created, Centralized Investigations, Narcotics Investigations, and Hi Tech Crimes.

The Centralized Investigations Division is comprised of Child Abuse Detail, Sex Assault Detail, Elder Abuse Detail, 290 Registration Detail, Homicide Detail, Major Crimes, Robbery, Warrant Detail, SACCATS and Real Estate Bureau.

The Narcotics Investigation Division identifies, investigates, and eradicates mid-to-upper level illegal drug organizations within the greater Sacramento Area. Additionally, the division is responsible for the headquarters duties of the California Multi-Jurisdictional Methamphetamine Enforcement Team (CAL-MMET). Detectives in the division are assigned to CAL-MMET, Crack Rock Impact Project Sacramento (C.R.I.P.S.), High Intensity Drug Trafficking Area (HIDTA), Centralized Narcotics Enforcement Team (C.N.E.T.), Special Equipment Operations (S.E.O.), and an intelligence unit specific to narcotics investigations. During the decentralization, the Narcotics Investigation Division was actually downsized to provide detectives at the station houses. The detectives were divided amongst the divisions to take care of street level narcotics problems within their districts with no outside assistance. The Tactical Enforcement Bureau is comprised of the Special Enforcement Detail and the Critical Incident Negotiations Team

The Hi Tech Crimes Division is located at the Orange Grove facility and is comprised of the following units; Identity Theft and the Sacramento Valley Hi-Tech Crimes Taskforce (S.V.H.T.C.T.F.). The S.V.H.T.C.T.F. consists of three component parts: the High Technology Crimes Task Force; the Identity Theft Task Force; and the Internet Crimes Against Children program (I.C.A.C.). Each of the aforementioned task forces is funded by grants, either state or federal.

The Sheriff's Department also has a Special Investigations Intelligence Bureau (S.I.I.B.). S.I.I.B. detectives are assigned to investigate specific crimes including state and federal gaming violations, prostitution related offenses, solicitation for murder or extortion. Additional areas of responsibility include monitoring domestic and international terrorist events, dignitary protection, and the enforcement of state and local laws as they relate to bingo and the alcoholic beverage industry.

Special Operations

The Special Operations Division is headquartered at the Bond Road facility in Elk Grove. It is comprised of the Homeland Security, Air Support Bureau, Canine Enforcement Detail, Emergency Operations Unit, Explosive Ordinance Detail, Motor Detail, Mounted Enforcement Detail, Regional Transit Police Services, and the Volunteer Services Bureau.

SHERIFF FACILITIES PLANNING

The Sheriff's Department determines its service level standards and need for additional facilities.

SHERIFF SERVICES FINANCING

Factors which create demand for law enforcement services are not in a constant relationship with factors which increase the supply of revenue. With the State Budget having many problems of its own, the Board is now required to continually reevaluate priorities. Demands on the General Fund grow at different rates due to a variety of factors. Demand for services increase due to population growth, sociological changes and the unemployment growth rate. Factors which increase revenue are principally related to population growth and governed by restrictions, such as those instituted by Proposition 13 on the growth of property taxes, and by a limited growth in per capita retail sales. Law enforcement services must compete directly with all other demands on the General Fund that has limited resources. The Sheriff’s Department will continue to look for additional revenue sources to decrease dependence on the General Fund.

SACRAMENTO COUNTY GENERAL PLAN

PUBLIC FACILITIES ELEMENT

F. ENERGY FACILITIES BACKGROUND REPORT

INTRODUCTION

Energy generation within Sacramento County is limited. The two most feasible sources of energy (fuel) in the County are natural gas and solar radiation, applied in configurations and applications that include: cogeneration, fuel cells, solar photovoltaics, and solar thermal electric facilities. Policies are needed to guide the anticipated growth of these energy producing activities. Considerable effort is underway by SMUD, the State and Federal Governments to commercialize and expand the use of solar energy and cogeneration. This section provides information and discusses issues pertaining to the siting of cogeneration, fuel cells, and solar energy generating facilities, electric distribution facilities, and natural gas production and distribution facilities.

DEFINITIONS

ACRONYMS AND TERMS

CEC: The California Energy Commission.

Cogeneration: The sequential use of a fuel such as natural gas for the production of both electrical and useful thermal energy.

EMF: Electric and magnetic fields. kM Kilovolt9 equal to 1,000 Volts kW: Kilowatt, equal to 1,000 Watts.

MW: Megawatt, equal to 1,000,000 Watts.

PG&E: Pacific Gas and Electric Company.

PUC: The Public Utilities Commission.

Scenic Corridor: As defined in Sacramento County Zoning Code Section 130-151, a strip of land on each side of a stream or roadway which is generally visible to the public traveling on such a route. The scenic corridor for a freeway shall include the horizontal distance of one thousand (1000) feet from the center of the freeway. The scenic corridor for a scenic highway or scenic country route shall include a horizontal distance of 500 feet on each side of the center line with a minimum distance of 300 feet beyond the right-of-away or the edge of the stream. A Scenic Corridor is the same as a Scenic Sign Corridor (ZC Section 335-36).

SMUD: The Sacramento Municipal Utility District.

Viewshed: Portions of the landscape that can be seen from a point, or from a roadway. Features that are hidden, though in close proximity, are not considered to be within the viewshed.

WAPA: The Federal Western Area Power Administration.

ELECTRIC FACILITIES

The electric supply system includes generating sources and the network of power lines and substations that deliver electricity from a generating source to consumers. The system includes high capacity facilities such as transmission lines, regional interties, and bulk substations; intermediate facilities such as subtransmission lines and substations; and local facilities including distribution lines and neighborhood substations. The network of transmission, subtransmission, and distribution lines is commonly called the "electrical system".

ELECTRIC GENERATION FACILITIES

Cogeneration Facilities: Facilities designed for the sequential use of an energy source, resulting in both the production of electricity and of thermal energy for some industrial processes such as petroleum refining, food processing, ice making, and space heating and cooling needs. Electricity produced in excess of a facility's needs can be sold to an electric utility. Cogeneration systems typically use considerably less fuel to produce a unit of electricity and heat than separate energy systems. Cogeneration systems range in size from several kilowatts to several hundred megawatts. Both public and private energy end-users can own and operate cogeneration systems, as can utilities and developers. Reduced energy costs are the primary benefit for end-users, however, environmental impacts associated with energy conversion may be considerably less for cogeneration applications than for separate systems.

Cogeneration facilities may be classified into two basic types. Where energy input to the system is first applied to a useful thermal energy process, and then the waste heat from that process is used to generate electricity, the system is known as a "bottoming-cycle" cogeneration facility. Such facilities are usually small and not as economically competitive as "topping-cycle" cogeneration applications, where energy is used first to produce electricity and the waste heat is then applied to some industrial process. The most likely fuel for additional combustion cogeneration facilities in the Sacramento area is natural gas, resulting in less air pollutant emissions than other fossil fuels.

Small-scale "topping-cycle" cogeneration applications, some less than 1 Mw are most cost effective when operated as "self-generators". These systems are designed to meet both the electricity and process energy requirements of facilities such as hospitals, hotels, jails, manufacturing facilities, large office complexes, large institutions such as universities, and refineries and other industries.

Conventional Power Plants: These include hydro power, steam turbine generators fifed by coal or natural gas, natural gas-fired combined cycle or simple generation units, and nuclear generation stations. With the shutdown of the SMUD-operated Rancho Seco nuclear plant, Folsom Dam, rated at approximately 200 Mw represents the County's only large conventional power plant currently in operation. The focus of the information and policies in this Element is there-fore limited to smaller-scale generation facilities.

Fuel Cells: Fuel cells produce energy through chemical transformations instead of combustion. Given the air quality constraints on new combustion sources, alternative generation technologies such as fuel cells are becoming more attractive. A fuel cell is essentially a chemically-powered battery in which the overall reaction combines hydrogen and oxygen to produce water, $C0^2$, heat and power. Fuel cells are most cost effective for cogeneration applications where they have a very high efficiency rating. Fuel cells generally range in size from 200 kW to several MW. SMUD presently has two 200 kW phosphoric acid fuel cells (PAFCs) and may expand the use of this technology. Reductions in capital costs and improved efficiency and reliability are necessary to bring fuel cells to full commercial availability. The commercialization of fuel cells may result in the evolution of a more dispersed electricity generation system to serve utility systems and individual end-users.

Photovoltaics: A technology that converts the sun's electromagnetic energy (not its heat) directly into electrical power. In the last decade the energy conversion efficiency of photovoltaic (PV) cells has increased significantly while production costs have declined. Still, solar photovoltaic utility-scale technology for centralized generation power plants is not yet cost effective. SMUD operates a precommercial-scale (2 MW) photovoltaic facility at the Rancho Seco site constructed in the early 1980s. SMUD is currently participating in the sustained and orderly commercialization of utility photovoltaic technology which, in the near term, will result in distributed generation applications of PV in its service area. Photovoltaic systems have a variety of environmental and distributed power benefits which increase as the systems are located nearer to load centers. The SMUD PV Pioneer program is actively working with homeowners and commercial building owners to site distributed power PV rooftop and integrated building systems.

Solar Thermal Electric Facilities: Solar thermal electric technologies concentrate solar energy as heat into a working fluid, which is in turn used to drive a steam turbine for electricity production. Some of these plants do not require any fossil fuel input, while hybrid solar thermal plants require fuel for backup operation as discussed below. These technologies use less fossil fuel and produce fewer air pollutant emissions than the equivalent capacity of the cleanest natural gas-fired power plant.

There are three primary categories of solar thermal electric concentrating technologies: parabolic trough, central receiver, and parabolic dish. The parabolic trough is the only type that is currently economically feasible. In its present application, the parabolic trough is natural gas-assisted, using natural gas to create steam for electricity production during periods of low insolation or during evening hours. Therefore, the same air quality concerns associated with natural gas-fired cogeneration must be addressed when siting gas-assisted solar thermal electric facilities. Solar thermal electric facilities that require large quantities of water should be examined from a water use perspective.

Solar central receiver technology may become feasible within the next few years as production costs are reduced. In this technology, a field of computer-guided mirrors focuses sunlight onto a tower-mounted receiver. A molten salt mixture of sodium/potassium nitrate is used as a circulating heat transfer fluid. The hot fluid can be stored in a tank, allowing electricity production during cloudy periods or at night. This "thermal storage" eliminates the need for natural gas, and produces no combustion emissions. However, since the solar central receiver technology converts solar energy to electricity using a steam turbine, water supply may be a siting factor.

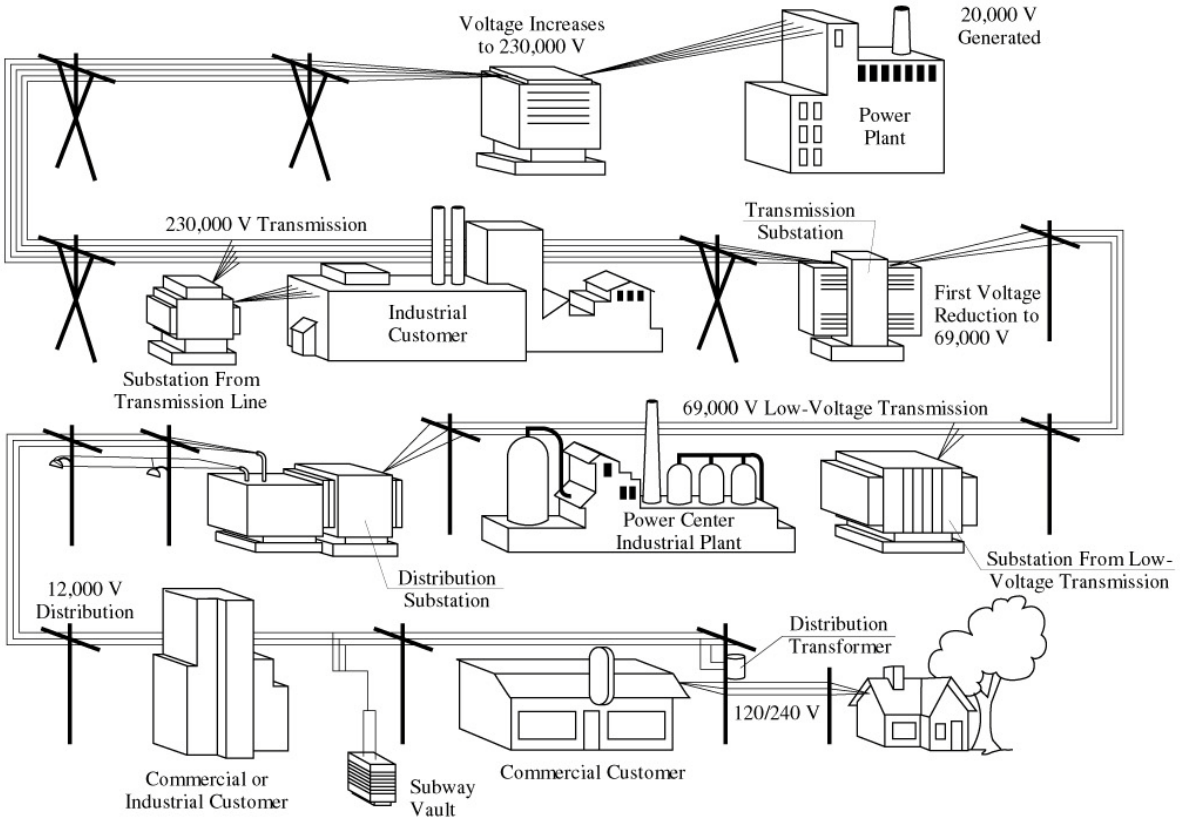
The first commercial solar central receiver plants will likely be in the 100 to 200 MW capacity range. SMUD has expressed interest in developing a plant in the 100 Mw range and California State University has completed some initial siting studies.

ELECTRIC DELIVERY FACILITIES (See Figure 1 a)

Distribution Lines: Local lines to deliver electricity to customers. SMUD policies call for undergrounding 12 kV distribution lines in new residential areas with suburban or urban intensities. Often, in established communities and rural areas, distribution lines are constructed overhead using wooden poles in roadside and other available easements. Where feasible, distribution facilities are mounted on poles that also carry subtransmission lines.

Figure 1a

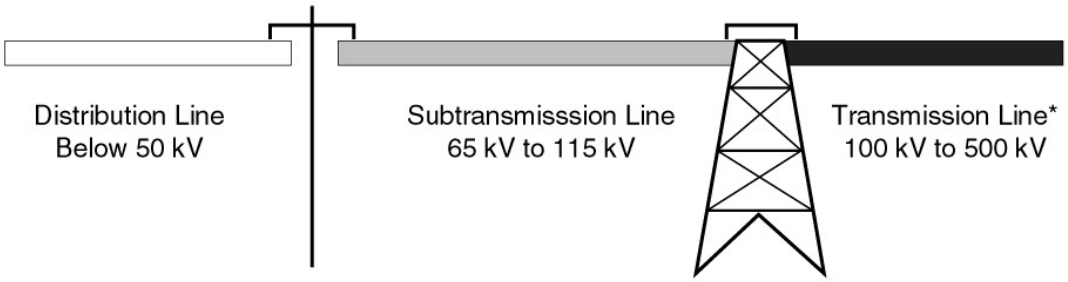
Electricity Delivery System



Source: CEC. Electric Power Line Permitting in California. June, 1989: P.I-4

Figure 1B

Major Types of Electrical Power Lines Found in Sacramento County



* The general category of transmission lines normally includes interties and that part of a system connected as a grid (versus radial). Interties are usually high voltage lines, i. e., 115, 220, 230, 345, or 500 kV, connecting two regional or state bulk power systems,

Source: CEC. Electric Power Line Permitting in California. June, 1989: P.I-2

Distribution Substations: Transform power delivered at subtransmission voltages to lower voltages appropriate for distribution lines which carry power to consumers. A distribution substation requires from 1/4 acre to more than one acre. It contains power transformer switching, regulating, and protection equipment, as well as other necessary apparatus. The substation design may include metal enclosed housing control buildings and open BUS work and is en closed by a solid wall or security fence. Distribution substations are required to be setback from public street frontages by at least 25 feet. The setback area may be planted with vegetation to mitigate visual impacts.

Distribution Transformers: Further reduce voltages to levels appropriate for customer service, typically 277/480 volts and 120/240 volts. These transformers are often mounted on distribution poles or pad-mounted on transformer boxes. In most cases service lines to residences and businesses do not require an easement.

Interties: Transmission lines that connect regional bulk power systems. In California, transmission lines normally range in voltage from 60 kV to 500 kV (Figure lb). The higher voltage lines tend to be more economical. They also offer the advantage of carrying bulk power over long distances and reducing the number of lesser voltage lines that would otherwise have to be built. For purposes of this plan, transmission lines are defined as power lines rated for 100kV or higher. This is consistent with the Sacramento County Zoning Code and with State legislation establishing a local review process for transmission lines.

Subtransmission Lines: Convey stepped-down power from the bulk substations to one or more distribution substations. In the SMUD system, subtransmission lines range from 60 kV to 72 kV with 69 kV lines most commonly occurring. Normally, subtransmission lines are constructed using wooden poles, although tubular steel poles are sometimes used. A 69 kV line may be constructed in a 12.5 foot easement along roadways; however, easements of more than twice that width may be required when line routes do not follow public roadways.

Transmission Lines: The largest capacity power lines carrying bulk power from power plants to large substations or other parts of the electrical grid. Transmission lines are usually constructed using steel lattice towers. Single pole tubular steel structures are an alternative to lattice towers and are being increasingly used for design reasons and also because they reduce aesthetic impacts (See Figure 2a and 2b). Examples include the 230 kV monopoles found at Rancho Seco, and along Howe Avenue. Easement widths are established to provide necessary clearance for electric facilities as required by federal and state codes. Clearances are impacted by several factors of line construction such as span length, conductor size and material, and cross-area configurations, as well as climatic factors such as temperature and wind loads. Easement widths must therefore be determined on a case-by-case basis. Easements for 230 kV lines vary between 100 and 200 feet in width, although they can be as narrow as 60 feet when running along railways, canals, or other linear buffers. The minimum easement width for proper safety clearance is 30 feet. Pursuant to the County's Construction Specifications, specific guidelines must be adhered to when placing utility poles adjacent to roadways (See Figure 2C).

Transmission Substations (also called Bulk Substations): Reduce power, delivered transmission voltages, to subtransmission voltages. They are large, highly visible facilities generally containing banks of power transformers, switches, control buildings, regulating and protection equipment and bus work suspended or elevated on insulation. Transmission lines may enter the site from several directions. A bulk substation can be large enough to occupy a city block and may be enclosed by a security fence or wall. Figure 3 is a schematic map of transmission lines and substations in Sacramento County.

NATURAL GAS FACILITIES

Distribution Mains: Pipes that supply gas (0.25 to 60 pounds per square inch gage ([psig]) to individual service lines. Easements for these mains must be wide enough to provide safe access and working areas for maintenance and construction vehicle and equipment, excavating and stockpiling spoil material, and pipeline installation. Such easements are typically 10 feet wide.

Service Lines: Supply gas to individual customers from the distribution mains. New service lines are usually polyethylene plastic. Service lines may require formal easements when entering or crossing customer property.

Storage Facilities: Bulk storage facilities. PG&E has only one gas storage facility in the Sacramento area, located at Lampasas and Edgewater Avenues.

Transmission Mains: High pressure steel gas lines (greater that 60 psig), supplying distribution mains. Easements for these mains must be wide enough to provide safe access and working areas for maintenance and construction vehicles and equipment, excavating and stockpiling spoil material, and pipeline installation. Such easements are generally 40 to 50 feet wide in rural areas and 20 to 30 feet wide in urban areas.

ELECTRIC FACILITIES

PLANNING LAND USES NEAR ELECTRIC FACILITIES

In order to avoid land use conflicts, the Planning Department must coordinate with SMUD, PG&E, and any other affected power line owner before permitting projects to be sited near existing or planned energy facilities. Coordination is achieved in part through SMUD and PG&E participation on the County's Subdivision Review Committee (SRC) which evaluates the technical aspects of development projects; through written responses the affected utilities may submit as part of any public review and comment process; and consents from the affected utilities which are required for proposed improvements within utility rights of way. Further, the utilities can coordinate and review Environmental Impact Reports and tentative proposed land use plans.

Figure 2A

Modern Monopole Transmission Line Design

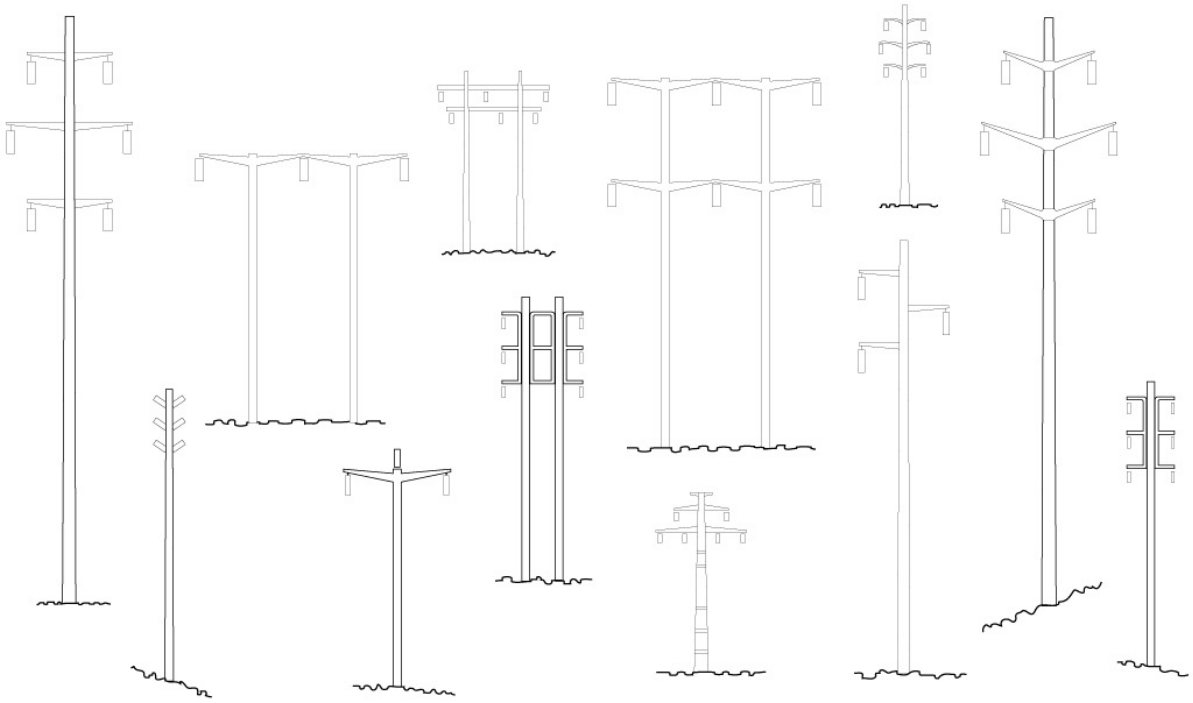
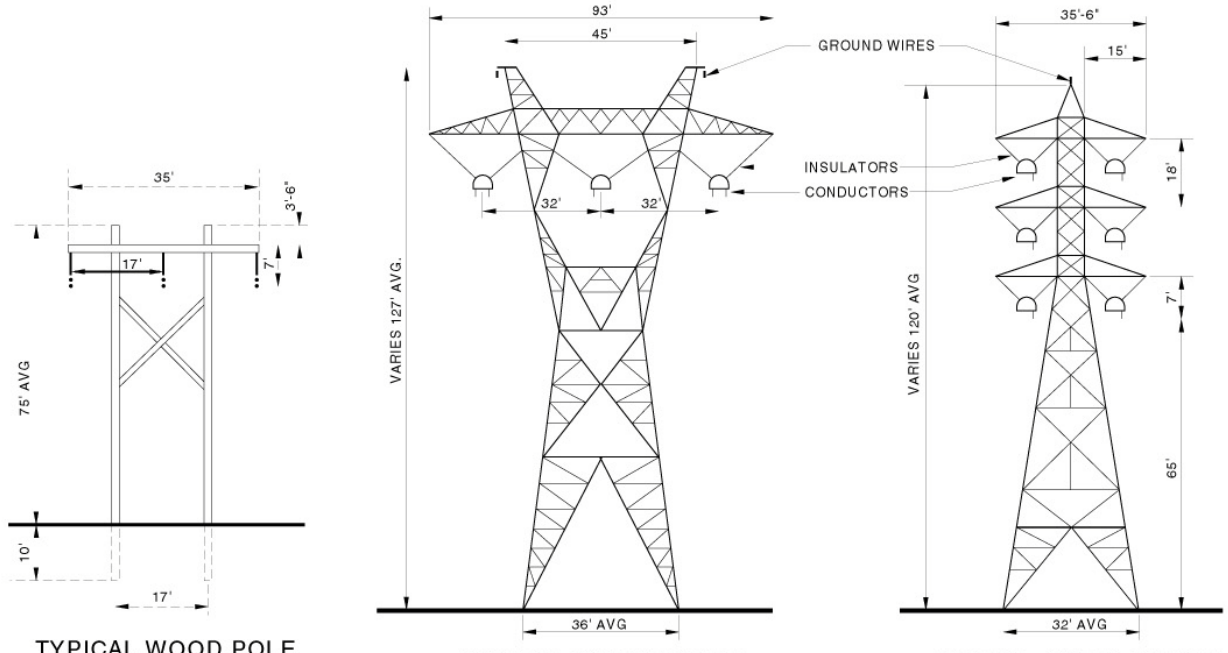


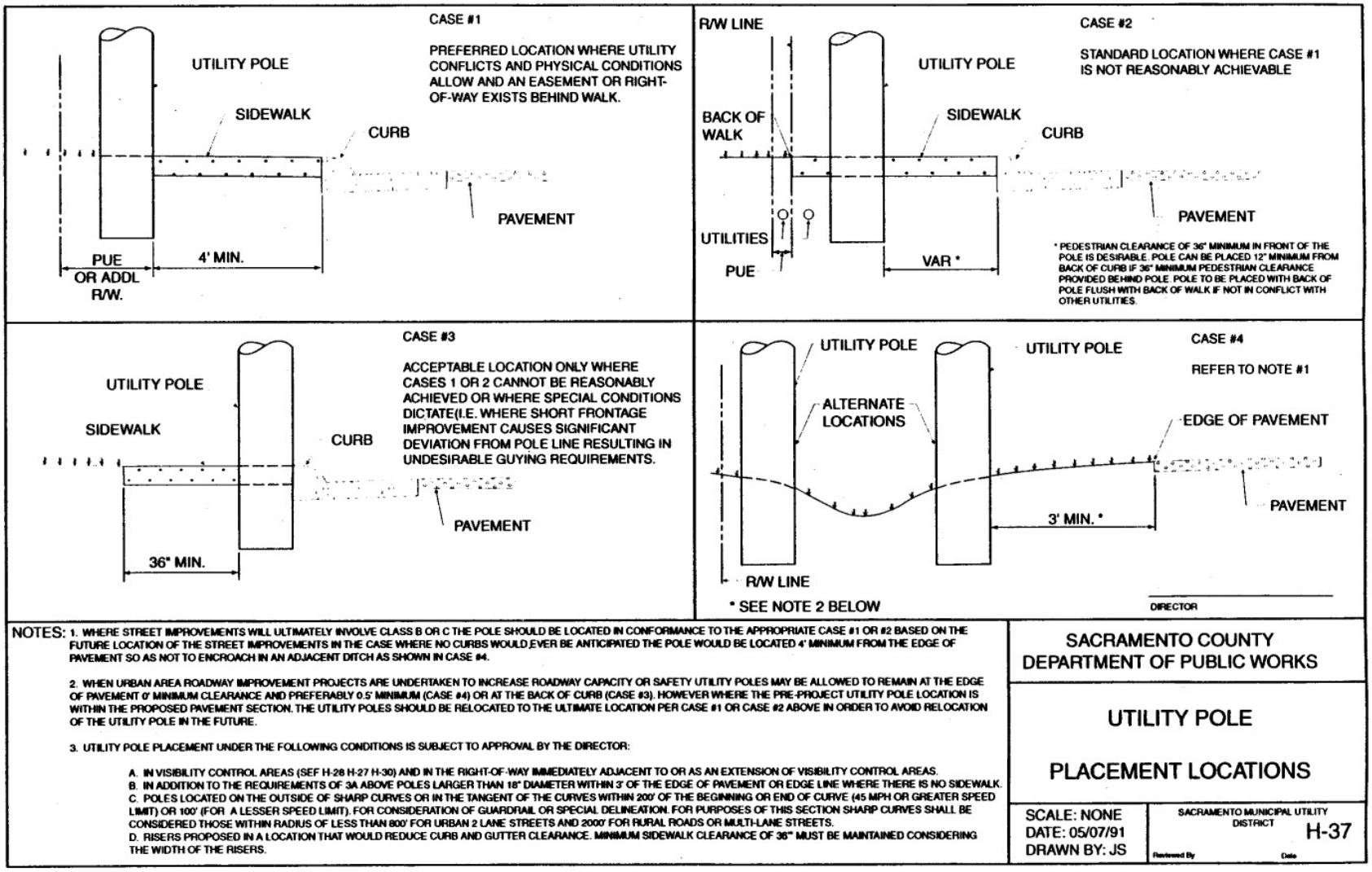
Figure 2B

Typical Electrical Power Line Structures



Source: CEC. Electric Power Line Permitting in California. June, 1989: P. I-5

FIGURE 2C



NOTES:

1. WHERE STREET IMPROVEMENTS WILL ULTIMATELY INVOLVE CLASS B OR C THE POLE SHOULD BE LOCATED IN CONFORMANCE TO THE APPROPRIATE CASE #1 OR #2 BASED ON THE FUTURE LOCATION OF THE STREET IMPROVEMENTS IN THE CASE WHERE NO CURBS WOULD EVER BE ANTICIPATED THE POLE WOULD BE LOCATED 4' MINIMUM FROM THE EDGE OF PAVEMENT SO AS NOT TO ENCROACH IN AN ADJACENT DITCH AS SHOWN IN CASE #4.

2. WHEN URBAN AREA ROADWAY IMPROVEMENT PROJECTS ARE UNDERTAKEN TO INCREASE ROADWAY CAPACITY OR SAFETY UTILITY POLES MAY BE ALLOWED TO REMAIN AT THE EDGE OF PAVEMENT 0' MINIMUM CLEARANCE AND PREFERABLY 0.5' MINIMUM (CASE #4) OR AT THE BACK OF CURB (CASE #3). HOWEVER WHERE THE PRE-PROJECT UTILITY POLE LOCATION IS WITHIN THE PROPOSED PAVEMENT SECTION, THE UTILITY POLES SHOULD BE RELOCATED TO THE ULTIMATE LOCATION PER CASE #1 OR CASE #2 ABOVE IN ORDER TO AVOID RELOCATION OF THE UTILITY POLE IN THE FUTURE.

3. UTILITY POLE PLACEMENT UNDER THE FOLLOWING CONDITIONS IS SUBJECT TO APPROVAL BY THE DIRECTOR:

A. IN VISIBILITY CONTROL AREAS (SEE H-28 H-27 H-30) AND IN THE RIGHT-OF-WAY IMMEDIATELY ADJACENT TO OR AS AN EXTENSION OF VISIBILITY CONTROL AREAS.
B. IN ADDITION TO THE REQUIREMENTS OF 3A ABOVE POLES LARGER THAN 18" DIAMETER WITHIN 3' OF THE EDGE OF PAVEMENT OR EDGE LINE WHERE THERE IS NO SIDEWALK.
C. POLES LOCATED ON THE OUTSIDE OF SHARP CURVES OR IN THE TANGENT OF THE CURVES WITHIN 200' OF THE BEGINNING OR END OF CURVE (45 MPH OR GREATER SPEED LIMIT) OR 100' (FOR A LESSER SPEED LIMIT). FOR CONSIDERATION OF GUARDRAIL OR SPECIAL DELINEATION. FOR PURPOSES OF THIS SECTION SHARP CURVES SHALL BE CONSIDERED THOSE WITHIN RADIUS OF LESS THAN 800' FOR URBAN 2 LANE STREETS AND 2000' FOR RURAL ROADS OR MULTI-LANE STREETS.
D. RISERS PROPOSED IN A LOCATION THAT WOULD REDUCE CURB AND GUTTER CLEARANCE. MINIMUM SIDEWALK CLEARANCE OF 36" MUST BE MAINTAINED CONSIDERING THE WIDTH OF THE RISERS.

SACRAMENTO COUNTY
DEPARTMENT OF PUBLIC WORKS

UTILITY POLE

PLACEMENT LOCATIONS

SCALE: NONE
DATE: 05/07/91
DRAWN BY: JS

SACRAMENTO MUNICIPAL UTILITY DISTRICT

H-37

Reviewed By Date

THE PLANNING PROCESS FOR ELECTRIC FACILITIES

Public concern that may accompany energy facility siting indicates the importance of good planning and coordination between the County, utilities, and developers. The input from several agencies may be considered in the siting decision depending on the location and type of energy facility being proposed. Except where preempted by state or federal laws or regulations, Sacramento County regulates facilities with 100 kV or greater capacity. Facilities of privately owned public utilities such as PG&E are subject to the sole authority and exclusive jurisdiction of the PUC. However, the PUC has provisions in effect for the utilities it regulates to work closely with local governments and to give due consideration to municipal concerns.

In addition, the PUC is currently considering a revision of General Order 131 which would formalize review procedures for electric power lines and associated facilities between 50 kV and 200 kV. The proposed amendment would provide opportunities for local agency review and comment within a new PUC permit process.

General Plan: This Element of the General Plan provides policies directing energy facility siting, and other elements provide broad guidance on noise, aesthetic, safety, and environmental issues.

Zoning Code: The Sacramento County Zoning Code requires a permit to site transmission lines or substations rated at 100 kV or higher. After a public hearing the Board can approve a project, approve an alternative, or disapprove a project. The Zoning Code also prioritizes the types of locations preferred for siting these facilities, and requires mitigation for visual and noise impacts.

Siting Transmission Facilities: When SMUD proposes a transmission facility, they first solicit a review from local jurisdictions in a process known as "pre-scoping." The CEQA process is then initiated, followed by preparation of the appropriate Environmental Document. The County has 60 days to comment on the Environmental Document, typically an Environmental Impact Report (EIR) for transmission facilities. The County may comment on the EIR, supporting or rejecting it, or proposing modifications to the project.

The construction of new transmission lines, rated 100 kV or greater, is subject to the issuance of a County Siting Permit. The Planning Department responds with a staff report to the Board of Supervisors recommending support, denial, or modification of the project. A Board denial can be overridden with a 4/5 vote by the SMUD Board. This has occurred only once, in 1981, when SMUD overruled the Board's request to route transmission lines underground from the Rancho Seco Nuclear Power Plant to the Pocket Substation.

Siting Subtransmission Facilities: SMUD subtransmission systems are planned to accommodate load growth in specific community areas. Long-range planning of subtransmission systems is driven by planned land use and is summarized in SMUD's Electric Study Plans for each community area. These plans provide insight for planners, land developers, SMUD's design staff, and others into the requirements for orderly expansion of electric facilities for ten to twenty year timeframes.

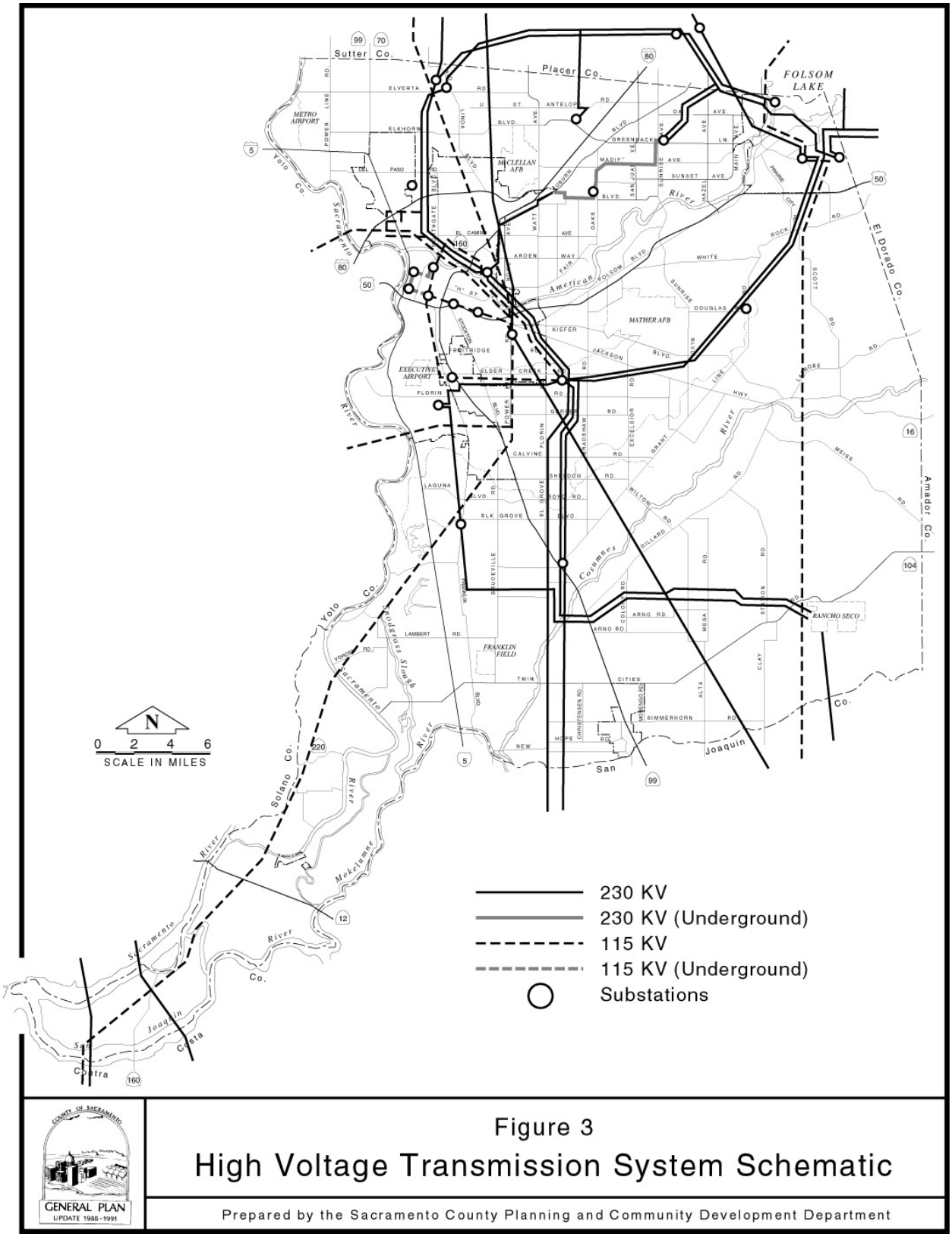


Figure 3

High Voltage Transmission System Schematic

Prepared by the Sacramento County Planning and Community Development Department

SMUD's Study Plans, based on City and County land use projections, alert planners and developers to the need for coordinating with SMUD early in the development process. The Plans emphasize the importance of dedicating public utility easements for necessary powerlines, and working closely with SMUD on the siting of substations within new developments.

In 1988, coordination between the County and SMUD was formalized through a Memorandum of Understanding (MOU) calling for mutually accepted policies and procedures with regard to siting 69 kV overhead power lines and distribution substations. The MOU obligates the Planning Department to notify SMUD's Distribution Systems Service Planning Group upon preparation, modification, or updating of the General Plan, any Community Plan, or the Public Facilities Infrastructure Plan. The Planning Department advises SMUD of General Plan amendments calling for a change from rural to urban land use designations, or any other significant increase in land use intensity.

Possible Revisions to the Siting Process: As of late 1994, the PUC is considering a revision of General Order 131 (GO 131) which would formalize PUC review procedures for privately owned public utilities' electric power lines and related facilities between 50kV and 200kV. The proposed amendment (GO 131-D) would provide opportunities for local agency review and comment within the context of a new PUC permit process. Public notification would be required as part of the process.

As proposed, the amendment would provide for exemptions from the PUC permit and local review process including the following: the replacement, intersetting or minor relocation of existing power line facilities, the conversion of existing overhead lines to underground, the placing of new or additional conductors, insulators, or their accessories on supporting structures already built, the construction of projects that are categorically exempt from CEQA, or the construction of emergency projects consistent with the definitions of the word 'emergency' pursuant to CEQA. These exemptions also apply to facilities to be relocated or constructed in connection with a broader action by another agency which undertakes environmental review pursuant to CEQA and facilities which are to be located in a franchise or in a road widening setback easement or in part of a designated utility corridor in compliance with a local government general plan for which a final Environmental Impact Report (EIR) or Negative Declaration has been prepared pursuant to CEQA.

NATURAL GAS FACILITIES

Existing And Planned Gas Transmission Facilities

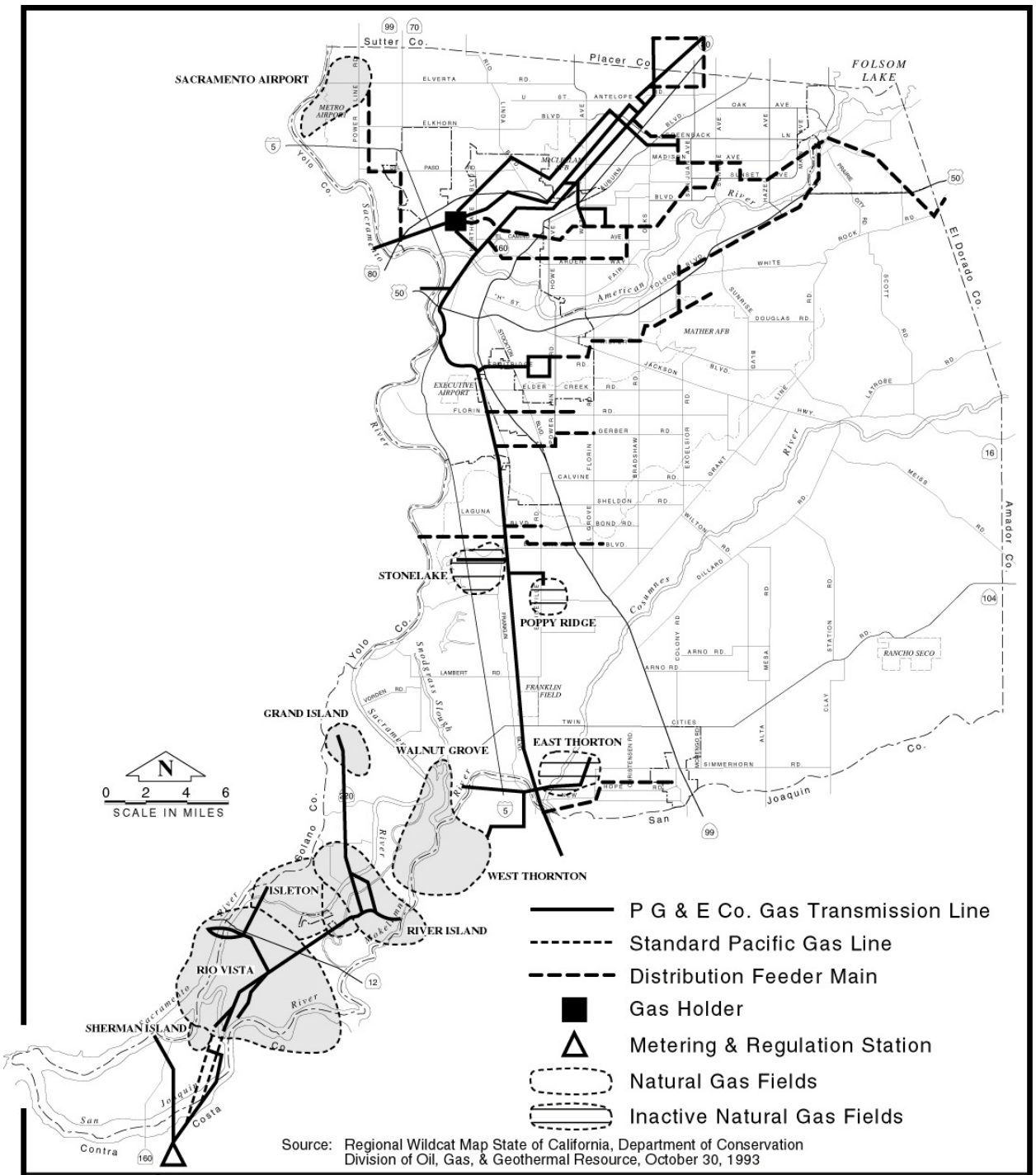
Natural gas production supplements the county's energy supply. Several privately owned gas fields in the Delta area have active gas wells. Gas transmission facilities in the County are owned and operated by PG&E (see Figure 4). In addition, SMUD is proposing to construct a 64 mile 20 inch natural gas pipeline, of which 39 miles would be located in Sacramento County (see Figure 5).

Transmission mains and distribution mains are located in easements granted to PG&E or in franchise areas. Service lines are located in easements granted to PG&E, in public utility easements, or in franchise areas. New transmission mains are constructed as facilities age and demand increases. Whenever possible, PG&E adds capacity in the existing easement either by replacing smaller mains with larger mains, by constructing additional mains parallel to the existing facilities, or by increasing the operating pressure of existing mains. Planned extensions to PG&E's primary network are shown in Figure 5. Most of the present installation work is on low pressure distribution and service mains for new or existing customers in developing areas of the county.

THE PLANNING PROCESS FOR GAS FACILITIES

The planning process for gas facilities is much less complex than for electrical lines. Wherever feasible, new gas lines are placed in the same underground trench as existing gas lines. The Planning Department coordinates with PG&E before siting projects near planned or existing gas facilities. Entitlement requests submitted to the Planning Department are routed to a number of outside agencies for review and comment; PG&E is one of these agencies. Comments received are typically folded into staff reports, as conditions of approval. A PG&E staff member also sits as a representative on the County's Subdivision Review Committee (SRC).

Gas wells require a Planning Commission use permit when located in Agricultural-Residential, Urban Reserve, or Industrial Reserve zones. Standard conditions of approval accompany the issuance of use permits.



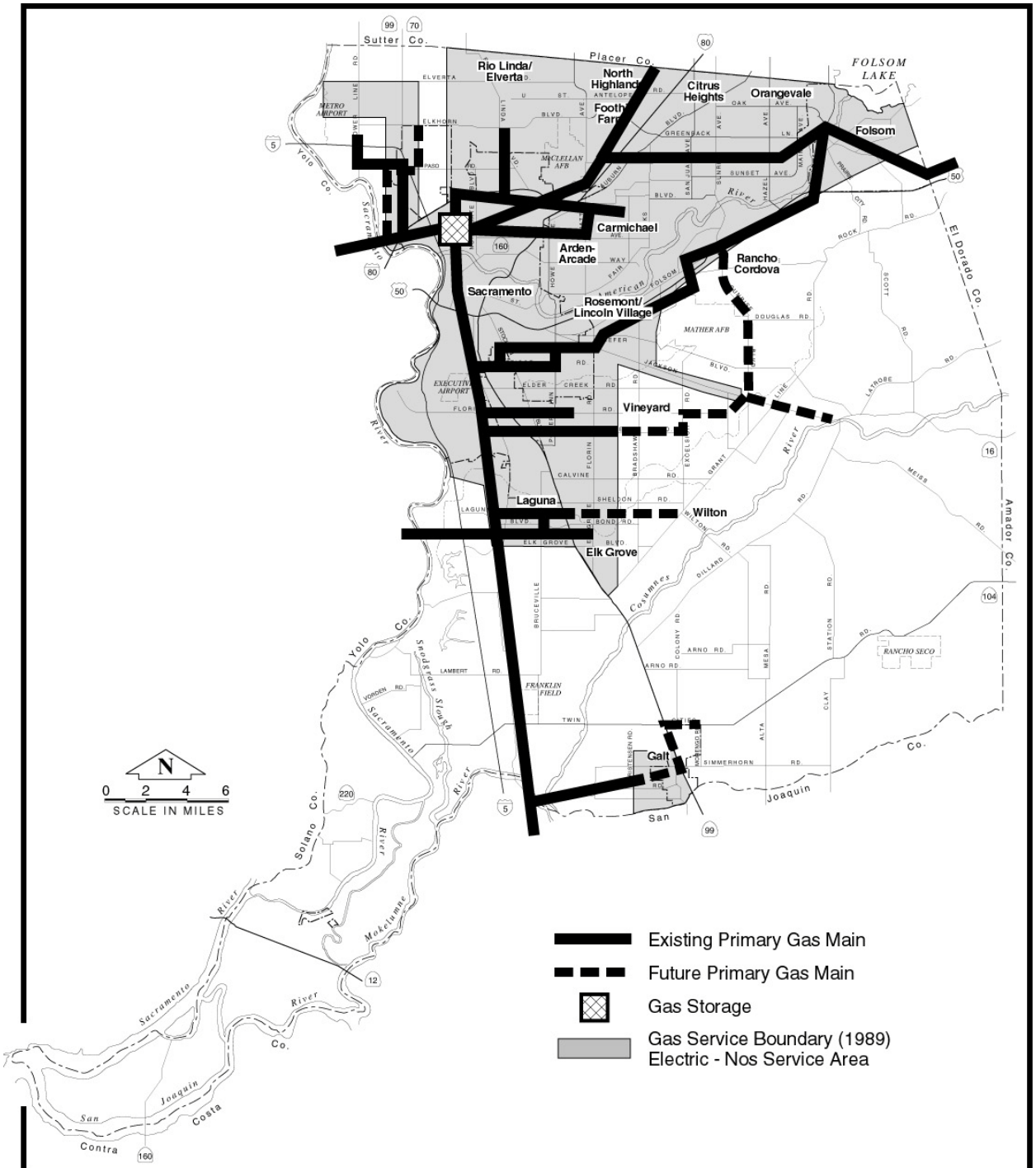
Source: Regional Wildcat Map State of California, Department of Conservation Division of Oil, Gas, & Geothermal Resource, October 30, 1993

GENERAL PLAN UPDATE 1988-1991

Figure 4

Natural Gas Facilities Schematic

Prepared by the Sacramento County Planning and Community Development Department

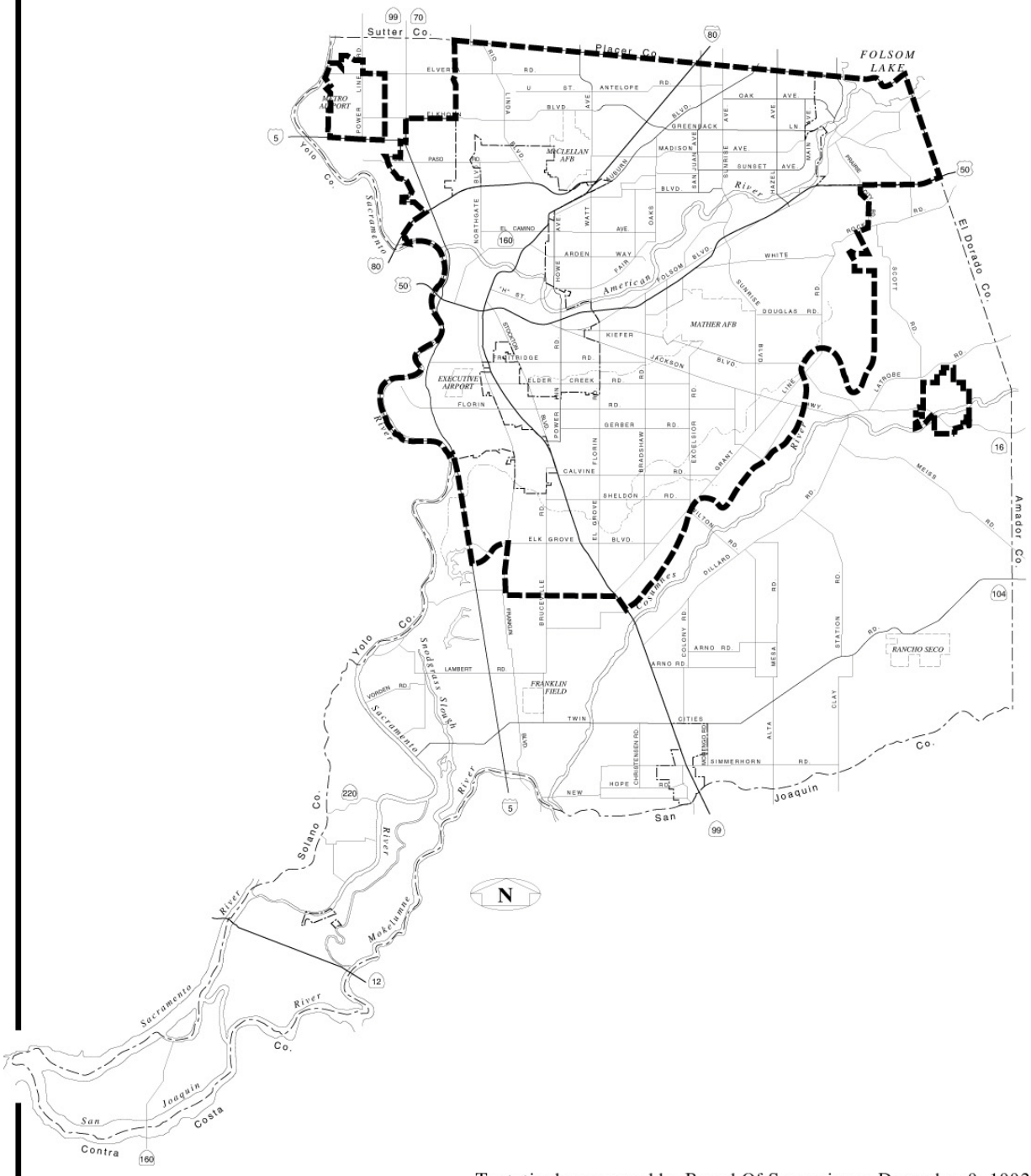


GENERAL PLAN
UPDATE 1988-1991

Figure 5

P. G. & E. Service Area

Prepared by the Sacramento County Planning and Community Development Department



Tentatively approved by Board Of Supervisors, December 9, 1992

GENERAL PLAN
UPDATE 1988 1991

Figure 6

Urban Service Area

Prepared by the Sacramento County Planning and Community Development Department

IMPACTS OF ENERGY FACILITIES

ELECTRIC FACILITIES

Like most energy production and distribution facilities, electric facilities have the potential for environmental, aesthetic, economic, nuisance, safety, and health impacts. It is often impossible to site facilities without some impact in one of these areas. However, the planning and siting process is a cooperative one that involves utilities, the County, state and federal regulatory agencies, the public, and other interested organizations. This process requires a balancing between various needs, higher costs to mitigate other impacts, and at times accepting more significant impacts to maintain project feasibility. Section VIII of this Element provides policy direction for this balancing, and requires an open process with the reasoning and finding clearly stated.

ELECTRIC AND MAGNETIC FIELDS

The Nature of EMF: Power frequency (60 Hz) electric and magnetic fields are invisible fields of force created by electric voltage (electric fields) and by electric current (magnetic fields). These fields are associated with all power lines, electric appliances, and with the wiring in buildings at home, school, and work. The characteristics of electric and magnetic fields are quite different. Voltage on any wire produces an electric field in the area surrounding the wire. Electric field strength is described in terms of voltage per unit distance at a specified position, and it is commonly measured in volts per meter (V/M). A magnetic field is produced from the flow of electricity (current) in a conductor (circuit). The magnetic field is measured in terms of lines of force per unit area. Measurements are given in gauss (G) or milligauss (mG) which is one thousandth of a gauss.

Electric fields are addressed through well established policy since they are associated with the relatively well known phenomena (nuisance shocks) and are easily blocked. Magnetic fields are more problematic because they can penetrate solid objects. Most of the research in the EMF area has focused upon whether exposure to magnetic fields might be associated with serious human health effects.

The State of Current Research: While there is broad disagreement among concerned citizens, the scientific community, and electric industry experts, most research on the health effects of EMF was inconclusive. Some reports cite evidence of health effects, notably male breast cancer, leukemia, brain cancer, and Alzheimer's disease. Other reports conclude that there is no connection between EMF and disease. The conflicting reports on the health effects of EMF are related in part to the complexity of EMF exposure assessment and in part to the difficulty of eliminating confounding factors in research on human health. Because the scientific data remains inconclusive it makes sense to establish EMF policy that can be reasonably implemented.

The lack of evidence of a "normal" dose-response relationship adds to the challenge for EMF research. Nearly all of the positive studies have been unable to identify a consistent dose-

response pattern between EMF exposure and disease. The concept of "EMF dose" is more than just an issue of EMF measurement. It also involves the issues of selecting an appropriate surrogate measure to represent historical exposures and also selecting an aspect of fields that are relevant to health (e.g., cumulative exposure, peak exposure, intermittency, frequency, etc.) and other issues. Other design limitations exist in EMF studies that could potentially bias the results. Some examples of these include selection of controls (comparison groups) for childhood studies lack of any exposure measurements in most of the occupational studies, and limited study designs for many of the occupational studies.

Twenty-eight major scientific panels of national and international recognition have reviewed the EMF issue since 1977. In these "reviews" interdisciplinary scientific panels collect and analyze hundreds of individual EMF studies. Each of these reviews are sponsored and published by government agencies or established science, health or academic institutions. They represent the most authoritative efforts to place the whole of science on EMF into perspective. Risk assessment and policy making are often based on the findings and consensus opinions of distinguished panels such as these. The scientific panels' conclusions are unanimous in finding that the weight of the evidence does not show EMF causes adverse health effects or that development of standards was appropriate or reasonable.

Reports by the National Research Council, American Medical Association, American Cancer Society, National Institute of Environmental Health Sciences, and CDHS conclude that insufficient scientific evidence exists to warrant the adoption of specific health-based EMF mitigation measures. The potential health impacts associated with EMF exposure are still too speculative for evaluation and preparation of impact mitigation measures.

U.S. National Academy of Sciences (NAS): The results of a NAS study entitled "Possible Health Effects of Exposure to Residential Electric and Magnetic Fields" were released in October of 1996. After examining more than 500 studies spanning 17 years, the NAS committee, a panel of 16 scientists, said that there is no conclusive evidence that EMF plays a role in the development of cancer, reproductive and developmental abnormalities, or learning and behavioral problems. While the report finds that current body of evidence does not show that exposure to EMFs presents a human health hazard, the report also concludes that there is a reliable, though low, statistical correlation between living in close proximity to power lines and the incidence of childhood leukemia; although the causative factor responsible for that statistical correlation has not been determined. The following summarizes their conclusions:

> Following a comprehensive evaluation of published studies relating to the effects of power frequency EMF on cells, tissues, and organisms (including humans), the conclusion of the committee is that the current body of evidence does not show that exposure to these fields precepts a human health hazard. Specifically, no conclusive and consistent evidence proves that exposures to residential EMF produce cancer, adverse neurobehavioral effect, or reproductive and developmental effects.
>
> The committee reviewed residential exposure levels to EMF, evaluated the available epidemiologic studies and examined laboratory investigations of cells, isolated tissues and animals. At exposure levels well above those normally encountered in residences, EMF can

produce biologic effects (promotion of bone healing is an example), but these effects do not provide a consistent picture of a relationship between the biologic effects of EMF and health hazards. An association between residential wiring configurations (AKA: wire codes) and childhood leukemia persists in multiple studies, although the causative factor responsible for that statistical association has not been identified. No evidence links contemporary measurements of magnetic-field levels to childhood leukemia.

American Cancer Society (ACS): In the journal, "A Cancer Journal for Clinicians", the ACS reviewed EMF 13 residential and occupational epidemiologic studies. In an article authored by ACS's research staff cited the following findings:

"Evidence suggesting that exposure to EMF may or may not promote human cacinogenesis is mostly based on epidemiologic observations. While those observations may suggest such a relationship for leukemia and brain cancer in particular, the findings are weak, inconsistent, and inconclusive. The weakness and inconsistent nature of the epidemilogoic data, combined with the continued dearth of coherent and reproductive findings from experimental laboratory research, leave one uncertain and rather doubtful that any real biologic link exists between EMF exposure and carcinogenicity."

American Medical Association (AMA): The AMA adopted recommendations of its Council on Scientific Affairs (CSA) regarding EMF health effects. The report was prepared as a result of a resolution passed by AMA's membership at its 1993 annual meeting. The following recommendations are based on the CSA's review of EMF epidemiological and laboratory studies to date, as well as on several major literature reviews:

Although no scientifically documented health risk has been associated with the usually occurring levels of electromagnetic fields, the AMA should continue to monitor developments and issues related to the subject.

The AMA should encourage research efforts sponsored by agencies such as the National Institutes of Health, the U.S. Department of Energy, and the National Science Foundation. Continuing research should include study of exposures to EMF and its effects, average public exposures, occupational exposures, and the effects of field surges and harmonics.

AMA should support the meeting of an authoritative, multidisciplinary committee under the auspices of the National Academy of Sciences or the National Council on Radiation Protection and Measurements to make recommendations about exposure levels of the public and workers to EMF and radiation.

National Institute of Environmental Health Sciences and U.S. Department of Energy: The National Institute of Health Sciences and the U.S. Department of Energy published an informational booklet titled "Questions and Answers EMF Electric and Magnetic Fields Associated with the Use of Electric Power". On the issue of governmental reviews of EMF and health, the report states the following:

"Most resent reviews concluded that the existing evidence, although suggestive, does not

show that EMF causes cancer. These include national reviews by the U.S. Environmental Protection Agency, the Committee on the Interagency Radiation Research and Policy Coordination, the Australian Minister of Health, the National Radiological Protection Board of the United Kingdom, the Danish Ministry of Health, the French National Institute of Health and Medical Research, and reviews sponsored by the states of California, Texas, Connecticut, Illinois, Maryland and Colorado.

Recent research remains ambiguous and inconclusive. Several recent studies have reported positive associations between EMF exposure and disease: the Swedish childhood cancer studies (Feychting & Ahlbom, 1993), the Swedish occupational study (Floderus et al., 1993), the French-Canadian occupational study (Theriault et al., 1994), the Norwegian worker study (Tynes et al., 1992), and the USC residential study (London et al. 1991).

However, several recent studies have generally not supported associations between EMF exposure and disease: a study on male breast cancer (Rosenbaum et al., 1994), on depression among electrical workers (Savitz et al., 1994), depression among women residentially exposed (McMahon et al., 1994), the Southern California Edison occupational study (Sahl et al., 1993), and the National Cancer Institute childhood leukemia study (Linet et al, 1997). Two Scandinavian childhood cancer studies, Denmark (Olsen et al., 1993) and Finland (Verkasalo et al., 1993) were inconclusive.

The results of an eight year study conducted by the National Cancer Institute (NCI) were released in July 1997. This study, using a control group of more than 1,200 children, is considered by many in the scientific community to be the most definitive to date. This study was intended to address some of the shortcomings in previous research. Although other studies relied on indirect estimates of exposure to electromagnetic fields generated by power lines, the NCI team went inside hundreds of houses to take one-day measurements. Based on the findings, the researchers conclude: "our conclusions provide little evidence that living in homes characterized by high measured time-weighted average magnetic field levels or by the highest wire-code category increases the risk of acute lymphoblastic leukemia (ALL) in children" [Linet et al. Residential Exposure to Magnetic Fields and Acute Lymphoblastic Leukemia in Children; New England Journal of Medicine 1997; 337:1-7]. Two comprehensive studies are currently underway in Canada and the United Kingdom. The results of these studies are expected in the next 12 to 16 months.

GENERAL APPROACHES TO EMF POLICY

Setbacks: One of the means to mitigate potential EMF impacts is to require a buffer between human populations and the EMF source. Setbacks may be established in widths proportional to the power line voltage class. Electric field levels are related to voltage level and setbacks are assumed to mitigate any impact from these fields. Magnetic field levels are the result of a complicated relationship between distance, current strength, conductor geometry and phasing arrangement. As a result, setbacks may not mitigate the possible impact on human health, if any from exposure to magnetic fields. The relationship between EMF exposure and health is unclear and because of this, no health based standards or regulations for long term exposure have been established by any state, national, or international agencies. As a result, the setback may be too

wide and waste land, or too narrow and expose the population to higher than average EMF levels.

Burying power lines underground may improve aesthetics, but it may also increase magnetic field exposure levels. Since magnetic fields can penetrate solid objects, and buried power lines are generally closer to the population, magnetic field levels can be higher directly above and in close proximity to the underground line. However, certain underground power line designs will have lower magnetic field levels than overhead lines. Underground power line construction costs are usually 10 to 20 times higher than overhead construction costs.

Performance Standards: An alternative approach is to establish a performance standard for EMF exposure, expressed in milligauss. Implementation of the standard offers flexibility, since a reduction of EMF at the source would allow a reduction in buffer width. A report by Rolick and Phillip (1993) outlines numerous engineering approaches to reducing EMF levels including powerline configuration, increased voltage, splitting currents, and conductor spacing. The California Public Utilities Commission (CPUC) is in the midst of a six year study (1994-2000) to determine if in fact there are health risks associated with exposure to EMF. In the interim the CPUC has chosen not to adopt a numerical standard for EMF exposure (B. Kanesharo, CPUC)

GOVERNMENT POLICY ON EMF

Federal Government: Currently there are no federal guidelines dealing with EME In October 1992, the U.S. Congress authorized the creation of the $45 million, five year National EMF Research and Public Information Dissemination Program to conduct research to determine if EMF poses a risk to human health, and if so, to determine the significance of that risk. Legislation was introduced in 1993 by representative George Miller(D), California in the U.S. Congress to set an exposure standard of 2.0 milligauss average per day for new construction of schools and day care centers. Congress did not hold a hearing on the bill and it died at the end of 1994 session. Since that time, no new federal EMF legislation has been proposed or introduced.

In 1999, the Director of the National Institute of Environmental Health Sciences will report back to Congress on the results of this extensive study funded by Congress over the last 5 years. This report may finally determine the significance of potential EMF risk and propose mitigation technologies if the study concludes that EMF poses health risks.

State Government: In November 1993, the California Public Utilities Commission adopted interim EMF measures, pending the receipt of more definitive scientific/medical evidence, to address public concern about potential health effects form utility electric facilities and power lines. The interim measures adopted by the PUC are:

- Utilities are to develop and implement no-cost and low-cost steps to reduce EMF levels at new and upgraded facilities.
- Hold workshops for utilities to develop EMF design guidelines.
- Utilities are to develop uniform residential and workplace EMF measurement programs
- Insure stakeholder and public involvement in development of research and education programs.

- Authorize a $1.5 million four-year education program.
- Authorize a $5.6 million four-year non-experimental administrative research program directed by the California Department of Health Services.
- Authorize utilities to contribute to federal experimental research conducted under the National Energy Policy act of 1992.

One interim step authorizes utilities to implement no-cost and low-cost steps to reduce EMF levels for new and upgraded electric facilities only. No-cost steps apply to all projects and low-cost measures apply on a project-by-project basis. The CPUC has defined low-cost measures as a benchmark funding level for EMF mitigation of four percent of total budgeted project costs. The four percent level is neither a floor nor a ceiling on spending for EMF mitigation.

In 1992, the California Department of Health Services produced a publication titled "Electric and Magnetic Fields: Measurements and Possible Effects on Human Health from Appliances, Power Lines, and other Common Sources". This document concluded that the scientific information was inconclusive. It supported continuing information and research programs so that future policy would have a sound basis, and suggested individuals take personal steps if they have concerns.

The California Energy Commission, in a 1993 update of their staff report "High-Voltage Transmission Lines: Summary of Health Effects Studies", concluded the scientific evidence that EMF exposure posed a risk was limited, but supported efforts to minimize public exposure only through low- and no-cost siting practices and magnetic field reduction measures.

The School Facilities Planning Division of the State Department of Education has established the following limits for locating school sites near high-voltage power transmission line easements (School Site Selection and Approval Guide. Sacramento 1993.):

1. 100 feet from edge of easement for 50-133kV Line
2. 150 feet from edge of easement for 220-230 kV Line
3. 350 feet from edge of easement for 500-550kV Line

These guidelines are based on Southern California Edison Company information.

Local Regulation: SMUD's Board of Directors adopted an EMF Program policy statement on April 18, 1991. General features of the program include supporting and participating in further research, informing the public and SMUD employees about research results, arid practicing prudent avoidance. SMUD's practice of prudent avoidance includes loaning magnetic field meters, providing free magnetic field measurements, providing prudent avoidance information to concerned individuals, using low- and no-cost designs for reducing EMF for new electric facilities, and dedicating an Environment Specialist to follow EMF research and to answer the public's EMF questions.

EMF Policy Elsewhere: At present 28 jurisdictions in California have established EMF policies and regulations. The General Plans for Roseville and Santa Cruz both contain policy language that addresses the potential impacts associated with exposure to EMF. The cities of Fremont, Daly City, Concord, and San Luis Obispo require disclosure statements regarding possible health effects of EMF as a part of specific residential development proposals. The San Luis Obispo Land Use Ordinance also requires estimates of EMF levels with applications for new or upgraded electric transmission facilities, substations, and communication facilities.

ELECTRIC AND MAGNETIC FIELDS IN THE COURTS:

Court decisions issued in recent lawsuits are important to gaining a legal perspective on EMF. This information has a significant bearing on local EMF policy since it is critical in determining the responsibility of, and financial risk to, the County.

EMF and Disease: A number of EMF related lawsuits have gone to court across the country. Zuiderna vs. San Diego Gas and Electric (SDG&E) was reportedly the first personal injury and property damage case in the country to go to trial. The suit brought by Michelle and Ted Zuidema on behalf of their daughter, alleged that EMF was the cause of their daughter's kidney cancer and diminished their property values and created a "nuisance" (San Francisco Chronicle, Image Magazine, March 14, 1993). After a two years of pre-trial activities (starting in 1991) and a four week trial, a jury ruled in favor of SDG&E.

EMF and Facility Location: In 1985, the Klein Independent school district won a verdict against Houston Light and Power Company in a Texas County court which forced the utility company to move a mile of power lines 2,500 feet from school property. The power company spent $8,000,000 moving the cables. ("High-Voltage Debate," National Journal, August 17, 1991).

EMF and Inverse Condemnation: In a 1988 case, SDG&E vs. Daley. a California appellate court found that the utility company could be held liable for a diminution in the value of property because of public fears about EMF. Land acquisition was required prior to the installation of powerlines. The court ruled that EMF fears could lead to compensable injuries whether or not EMF was demonstrated to have health effects. The court also ruled that the plaintiffs (Daley) still have to prove that the property was in fact devalued, and the devaluation was caused by the fear of EMF (Real Estate Law Journal, 1991,20:193). In a 1995 case, SDG&E vs. Superior Court, (1995) 32 Cal. Anp. 4th 1062, the Appellate Court dismissed an EMF-based inverse condemnation claim against San Diego Gas and Electric Company. The Court dismissed the claim on two grounds: (1) the CPUC has exclusive jurisdiction over California utility EMF issues; and (2) in order to recover damages for inverse condemnation, the plaintiff must show that it is "more likely than not" the case that exposure to EMF will result in actual harm. The State Supreme Court reviewed the case in 13 Cal. 4th 893 (1996). The Supreme Court affirmed the Court of Appeals decision. It held that a superior court action for property damage allegedly caused by EMF arising from powerlines owned and operated by a public utility was barred because such an action would conflict with the regulatory policy of the PUC. Lastly, New York State's highest court issued a ruling, stating that the actual health impacts are "irrelevant to the central issue of market-value impact." (Sacramento Bee, Oct.10, 1993). The plaintiff still has the

burden of proof regarding the devaluation and the cause of the devaluation. The New York ruling applies only to land acquisition for the installation of new transmission lines.

POTENTIAL IMPACTS OF NATURAL GAS FACILITIES

Generally, natural gas facilities have fewer impacts than electrical facilities. Most notably, gas facilities can disturb natural habitat and cultural resources through trenching and service road grading. Aesthetics are rarely a problem, and except for the danger of explosion, there is no major health risk issues associated with gas lines. Still, the County requires consultation with, and consent of, the responsible utility prior to approving new development in the vicinity of any existing utility facility. Utility concerns include ensuring unrestricted utility access and preventing easement encroachments that might impair safe and reliable maintenance and the operation of the facility.

In order to assure that natural gas well drilling and operations are conducted in a safe and environmentally sound manner the County typically imposes the following use permit conditions of approval:

Natural gas well use permit conditions of approval:

A. If toxic fluids are used during drilling, the storage sump shall be of metal, or artificially lined with impervious materials, to preclude seepage of wastes

B. The composition of toxic drilling fluid additives shall be reviewed and approved by the Hazardous Materials Management Section of the State Health Services Department and the California Regional Water Quality Control Board, Central Valley Region.

C. Earthen (or similar) beans shall be erected around drill sites and shall be of sufficient height to prevent runoff from the site entering drainage ditches.

D. All drilling muds (toxic and nontoxic) and rock cuttings shall be stored and disposed of to the satisfaction of the California Regional Water Quality Control Board, Central Valley Region.

E. A drilled area shall be restored to its original state when the well is abandoned.

F. Project proponents shall apply for a drilling permit to the satisfaction of the State Division of Oil and Gas.

G. No gas well shall be located within three hundred feet of a structure used for human habitation.

H. Gas wells developed on either industrial or agriculturally zoned land shall not be located within one thousand feet of the boundary of property zoned for residential, interim estate, or recreational purposes.

I. Upon confirmation of the drilling rig height, project proponents shall notify the Federal Aviation Administration (FAA) for determination of hazard.

J. Upon installation of the drilling rig, appropriate flag markers shall be attached in compliance with FAA advisory.

Those operations not subject to the County's discretionary review process are still subject to a permitting process administered by the State Department of Conservation, Division of Oil and Gas.

POTENTIAL IMPACTS OF COGENERATION FACILITIES:

SMUD has recently proposed establishing relatively large cogeneration power plants in Sacramento County. Without careful regulation, these facilities may cause significant environmental impacts especially if located in or near residential or rural areas. Issues relating to biological resources, water supply, visual impacts, air quality, and hazardous materials need to be resolved through proper design, siting, operational constraints, and the implementation of specific mitigation measures.

Small-scale cogeneration applications are most often integrated into larger industrial, commercial, or institutional complexes, such as the existing 20 MW facility at the U.C. at Davis heating and cooling plant. They may have minimal impacts if they are properly designed and operated. Very small cogeneration systems, with potential output ranging from 60 to 200 kW, are often located in hotels and hospitals in urban areas. They are usually packaged natural gas-fueled units designed to minimize space usage, and visual and noise impacts. Due to the continuing poor air quality in Sacramento County, the Air District requires combustion systems of 50 BHP (brake horse power) or greater to use BACT (best available control technology) and obtain emission "offsets".

Despite their relatively high fuel efficiency, gas-fired cogeneration facilities still emit nitrogen oxides (NO^x), reactive organic gases (ROG), sulfur oxides (SO_x) particulate matter (PM), and carbon monoxide (CO). NO^X emissions are precursors to ozone and may need to be controlled through a post-combustion technique which requires the use of ammonia. Anhydrous ammonia is often used for this purpose but it is extremely hazardous. If it is accidentally released into the atmosphere during transportation, storage, or handling in urban areas, it could seriously affect public health. Aqueous ammonia is a less hazardous form of ammonia that may be used instead to reduce such risks to manageable levels.

Mitigation Measures:

Hazardous Materials

Reduce the risk of hazardous material releases by employing the following measures: (1) the use of toxic materials should be replaced with those that are non-hazardous or less hazardous, (2) locate chemical storage and handling areas on impervious surfaces, surrounded with berming sufficient enough to accommodate spills. Runoff from these

areas should be treated prior to discharge, (3) in an effort to reduce human error implement a safety management and education program, (4) prepare an emergency response plan, and (5) establish buffer zones to minimize potential impacts to sensitive receptors.

Noise and Visual Intrusion

Noise and visual impacts should be minimized by implementing the following: (1) locate noise sources away from sensitive receptors, (2) install noise attenuation barriers when appropriate, (3) limit extreme noise producing operations to daytime hours, (4) avoid or reduce exhaust stack plumes, (5) provide landscaping in concert with fencing, in compliance with zoning code standards, along the perimeter of the site, and (6) direct lighting away from adjacent residential uses.

Air Quality

Mitigation for the operation of cogeneration facilities, in order of desirability, include the elimination of existing boilers or other emission generating equipment as replacement facilities become operational, the elimination of off-site emissions generating equipment, and the purchase of emission offsets [i.e., emission reduction credits (ERC)] from users located within the local air district/basin.

Natural Resource Protection

The owner/operator of a cogeneration facility shall consult with the California Department of Fish and Game and/or the U.S. Fish and Wildlife Service for all projects that may impact sensitive biological resources.

POTENTIAL IMPACTS OF FUEL CELL FACILITIES

Fuel cells are easily sited near electrical load centers in urban areas because of their low emissions, minimal noise, and modular nature. They produce negligible air pollutant emissions such as NO^X, CO, ROG, or SO^X, and they produce less $C0^2$ than conventional fossil fuel-burning technologies. The discharge water from a fuel cell is within sanitary sewer discharge standards and would meet local regulatory requirements. Under most normal operating conditions however, there is no continuous drain of water from the system. The minimal impacts and minor siting constraints of fuel cells may greatly facilitate electricity production in urban areas

POTENTIAL IMPACTS OF PHOTOVOLTAIC FACILITIES

From a siting perspective, the impacts of utility-scale photovoltaic facilities are limited since they emit no air pollution and use neither water nor hazardous materials. Biological impacts and consumption of agricultural lands could still be significant for large multi-megawatt utility-scale facilities.

POTENTIAL IMPACTS OF SOLAR THERMAL ELECTRIC FACILITIES

Solar thermal technologies have various potential environmental impacts. The heat transfer fluids may be toxic and need to be appropriately managed to reduce risks to public health and the environment. Commercial-scale solar thermal facilities require large tracts of land, and therefore may impact biological resources or consume significant agricultural acreages.

OTHER ENERGY FACILITY ISSUES

The Difficulty of Obtaining "Offsets":

Projects with emissions that exceed specified levels may have to provide emission reduction credits (ERCs) as pollution "offsets". ERCs are in limited supply in Sacramento and can be expensive to obtain. SMUD has purchased ERCs for its cogeneration projects from five different sources. The prices paid range from $10,000 -$30,000 a ton. One of SMUD's projects will also utilize ERCs through the elimination of rice straw burning. Because of Sacramento County's air quality attainment status, both emission control requirements and offset requirements for new gas-fired cogeneration facilities and other large stationary sources may continue to increase.