SECTION 5.0
INFRASTRUCTURE MASTER PLANS

5.1 INTRODUCTION

This section describes public infrastructure, including water, sanitary sewer, storm drainage, and electric, gas, and telecommunication utilities. Each infrastructure component includes a description of existing facilities, service standards, and a description of proposed Plan area facilities required to serve proposed development, as depicted in the Specific Plan Land Use Diagram. Policies applicable to all public infrastructure are provided following each sub-section.

Additional information concerning water, sanitary sewer, and storm drainage infrastructure can be found in technical studies prepared by Murray Smith and Associates, contained in the Appendix. Other public services and facilities are described in Section 4.0. Public infrastructure financing is addressed in Section 6.0 Capital Improvement Program and Financing Strategy.

5.2 WATER SUPPLY

This section describes existing water facilities within and in the vicinity of the Plan area, service standards, and the impact Plan implementation may have on water conveyance and treatment systems. Water policies are described in Section 5.6.

5.2.1 Existing Facilities

There are currently no public water service facilities within the East Franklin Specific Plan area; Plan area residents obtain water from private wells. The closest available water line is an 18-inch transmission main located within Bruceville Road, approximately 1,000 feet north of Elk Grove Boulevard. Existing water facilities nearest the Plan area are illustrated in Figure 5-1.

The East Franklin Specific Plan Area is not currently within the boundaries of a public or private water purveyor. However, Sacramento County, through the Sacramento County Water Agency (SCWA), is responsible for the development of wholesale surface water and groundwater facilities up to the Urban Services Boundary - which includes the Plan area - adopted by the County Board of Supervisors in 1993. A special zone, Zone 40, was formed within the SCWA for the purpose of collecting fees and charges for the construction of wholesale water facilities within the zone. Before public water service can be made available to the Plan area it must be annexed into Zone 40 and the Sacramento County Water Maintenance District.

Sacramento County Water Agency (SCWA) Zone 40

In 1987, SCWA commissioned a study to address the projected water needs of the areas within the potential expanded Zone 40 boundary as it was defined at that time. That study covered areas within the Urban Zoned Area which, at that time, extended only as far south as Elk Grove Boulevard. From the projected water demands contained within that study, a network of transmission and distribution water lines were designed and constructed.

Recently, the SCWA has completed work on the *Zone 40 Water Supply Master Plan Update* (June 1995), and nearly completed work on the *Water Master Plan for Areas Adjacent to Zone 40 Water Supply Master Plan Update's Study Area* (Expanded Master Plan). The *Zone 40 Water Supply Master Plan Update* studied surface water demands and availability, as well as stabilization of the groundwater table for the extended Zone 40 service area, which extends to the Urban Services Boundary adopted by the Board of Supervisors in 1993 as part of the County's General Plan. This new study is currently in final draft form and is expected to be completed in December of 1998. The study includes sizing of transmission, storage and treatment facilities, and a plan for utilizing groundwater supplies in conjunction with surface water supplies to meet water demands within the Study Area, depicted in Figure 5-2.

Water Forum Process

The Sacramento Area Water Forum and the Foothill-Forum Water Group approved the Regional Water Agreement to provide a safe, reliable, and environmentally sound water supply. Six major "stakeholder groups" were involved in the formulation of the plan. More than forty-seven organizations represent business, environmental, public, and water district interests in the Water Forum process, which began in September 1993. In April 1995, the stakeholders agreed on a set of 65 agreements-in-principle, which serve to document the progress made to date. In January 1996, a progress report was released detailing several proposals under consideration to meet regional water needs to the year 2030. The Regional Water Agreement was approved on November 23, 1999.

The County is proceeding to secure surface water supplies via a new contract under Public Law (PL) 101-514 ("Fazio water"), negotiating a surface water assignment from the Sacramento Municipal Utility District (SMUD), applying to the State Water Resources Control Board for "winter water", and interim water transfer from water districts located in the north Sacramento River basins. PL 101-514 directs the Secretary of Interior to enter into municipal and industrial water supply contracts with the SCWA and San Juan Water District. SCWA has received a contract that provides up to 22,000 acre-feet of surface water annually, and allows the SCWA to enter into a subcontract with the City of Folsom for up to 7,000 acre-feet annually. The PL 101-514 Water Supply contract was signed on April 9, 1999; permanent water supplies under this first contract is now available since the County recently negotiated a permanent wheeling agreement with the City of Sacramento.

Groundwater Analysis

An environmental analysis of the availability of long-term water supplies is required by State Law SB 901. Since the East Franklin Specific Plan Area currently has no firm supplemental water supplies, a groundwater analysis has been prepared by the Sacramento County Water Agency (SCWA) and is included in the appendix of the *East Franklin Specific Plan Water Study*. This impact analysis assumes that 100 percent of the total water needs of the Plan area is provided through groundwater supplies.

Figure 5-1 Existing Water Facilities

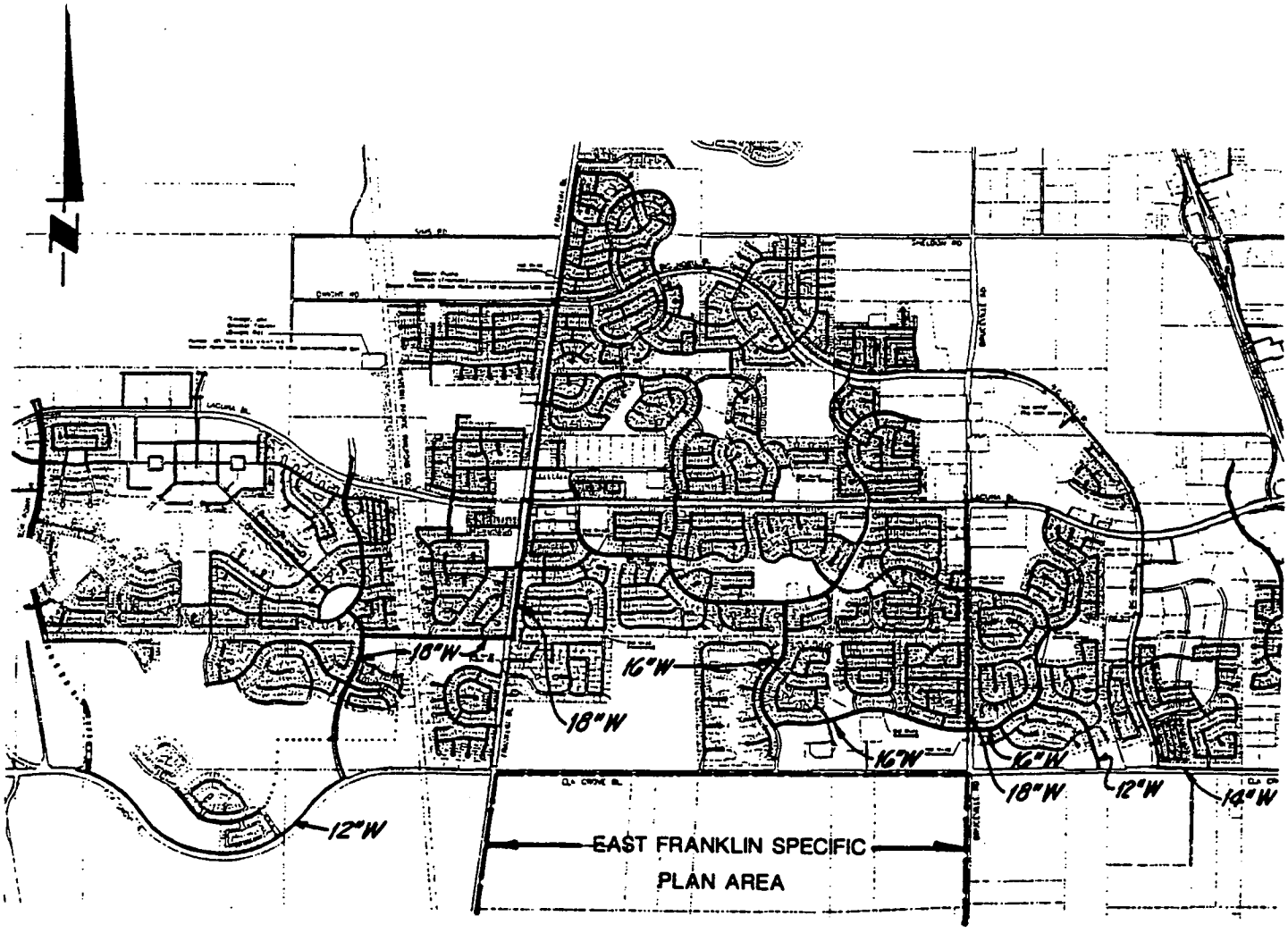
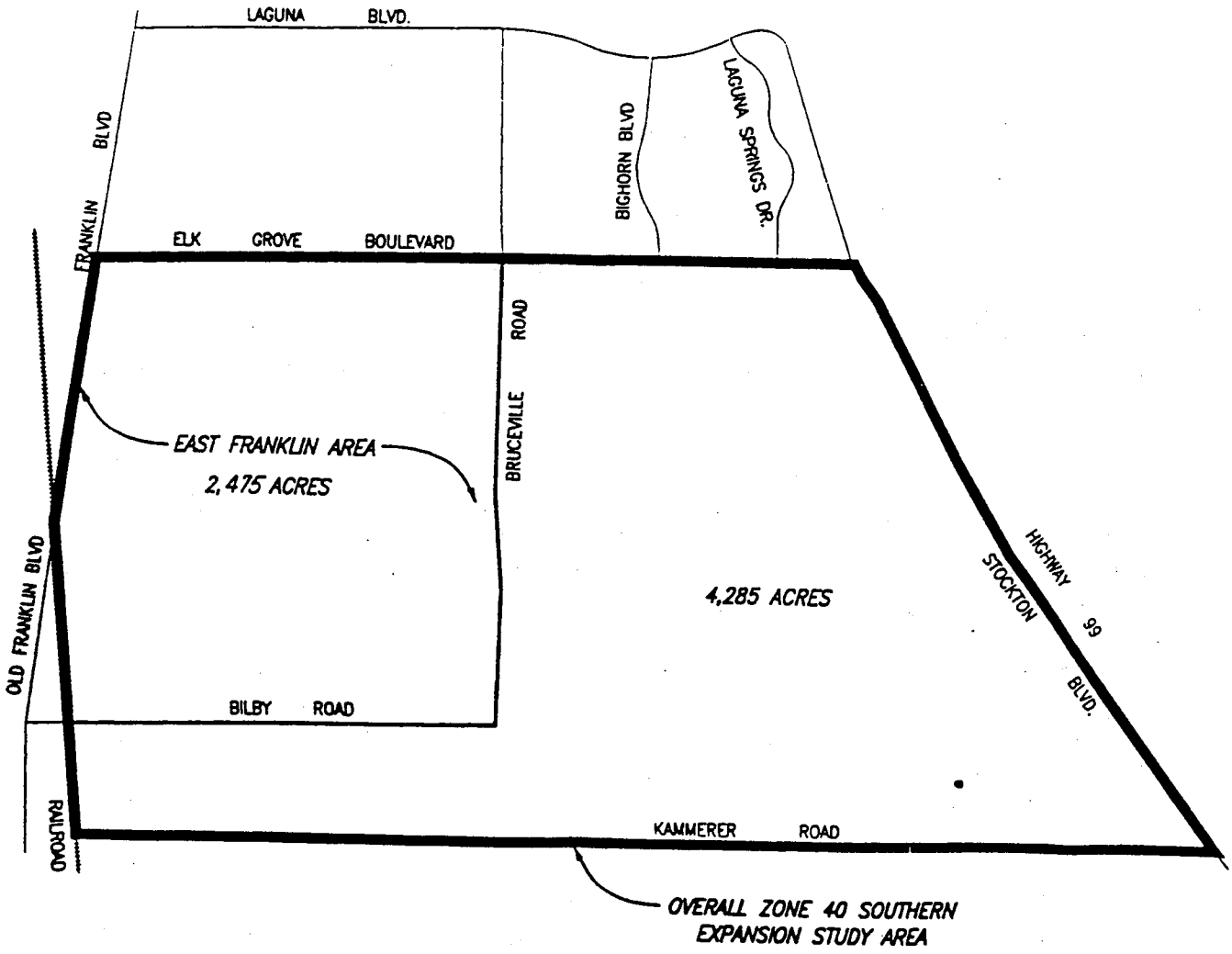


Figure 5-2 Water Facilities Study Area



5.2.2 Service Standards

Sacramento County requires a public water system for any new residential subdivision with an average lot size of two acres or less.

The Sacramento County General Plan addresses water supply criteria in Policies CO-20 and CO-21, which follow:

> *Policy CO-20. In new development areas, as identified in Figure III-1 of the Land Use Element, entitlements for urban development shall not be granted until a Master Plan for water supply has been adopted by the Board of Supervisors and all agreements and financing for supplemental water supplies are in place. The land use planning process may proceed, and specific plans and rezoning may be approved.*

General Plan Policy CO-20 requires that an approved Master Plan and agreements for supplemental water supplies be in place prior to granting entitlements for urban development.

A Water Master Plan for Zone 40 was completed in February of 1987. The Master Plan recommended conjunctive use with surface water supplies from a proposed Bureau of Reclamation contract or an expansion of the City's American River POU. Facilities have been designed and financing structured to implement conjunctive use of surface water and groundwater supplies within Zone 40.

The *East Franklin Specific Plan Water Study*, dated September 29, 1997, by Murray Smith and Associates, further fulfills the master plan preparation requirement, and the SCWA is planning to obtain long-term contracts for surface water by Fall of 1998. Long-term surface water contracts or other water supplies that will supplement groundwater supplies will need to be obtained prior to granting entitlements for urban development within the Plan area.

> *Policy CO-21. The Master Water Plan shall include three planning objectives which direct the Plan to consider alternate conservation measures, achieve safe yield of ground water supply in conjunction with development in new urban growth areas, and formulate a five year monitoring program to review water plan progress.*

SCWA has satisfied the objectives of CO-21 with current studies and programs, as follows:

- SCWA, being a signatory of the statewide Memorandum of Understanding Regarding Urban Water Conservation, is moving forward with a conservation program that includes a suite of water conservation Best Management Practices, as identified in the Memorandum.

- The 1987 Water Supply Master Plan has identified a safe yield for ground water extraction in the Zone 40 area which has not been exceeded based on the results of the 1993 Sacramento County Phase 1 Groundwater Study.

- The ongoing Water Supply Master Plan Update reflects the commitment to monitor the 1987 Master Plan and update the necessary elements to reflect changing conditions.

Subdivisions and parcel maps within the Plan area will comply with Policy CO-23, below, by adhering to the infrastructure plans included in this Specific Plan.

> *Policy CO-23. Subdivisions and Parcel Maps shall be required to demonstrate adequate quantity and quality of groundwater prior to approval of residential lots in areas of the County where supply and quality are doubtful.*

> *Policy LU-60. Sewer and water treatment and delivery systems shall not provide for greater capacity than that authorized by the General Plan.*

The water system proposed for the Plan area is designed in accordance with service demands of the land uses described in the Specific Plan Land Use Diagram, which is consistent with the land uses in the General Plan.

5.2.3 Development Impacts/Proposed Facilities

Water Demand

The estimated annual water demand upon full build-out of the Plan area is shown in Table 5-1. The unit water demand factors identified in the *Zone 40 Water Supply Master Plan Update* were used to calculate the estimated water demand and to formulate the water facilities master plan for the Plan area.

Annual Water Demand. As shown in Table 5-1, at full build-out the Plan area will require 8,361.0 acre-feet of water per year.

Average Day Water Demand. The total projected average daily water demand created by Plan area development is 7,463,711 gallons per day, or 7.5 mgd.

Maximum Day Water Demand. The maximum daily water demand for the Plan area has been calculated using a demand factor of 2.0, as was recommended in the *Zone 40 Water Supply Master Plan Update*. Using that demand factor, maximum day water demand has been calculated to be 15.0 mgd.

Peak Hour Demand. The peaking factors used to calculate peak hour demand and to size water system storage and transmission mains is consistent with the *Zone 40 Water Supply Master Plan Update*. Using those peaking factors, the peak hour demand for system storage has been calculated to be 27.0 mgd and the peak hour demand for transmission mains has been calculated to be 30.0 mgd.

Table 5-1
Projected Annual Water Demand at Build-out

Land Use	Area (Gross Acres)	Demand Factor (ac-ft/ac/yr)	Annual Demand (ac-ft/yr)
Residential			
Single Family, 1-2 du/ac	13	1.65	21.5
Single Family, 2-4, 3-6 and 5-8 du/ac	1,849	3.57	6,600.9
Multi. 12-24 du/ac	31	4.58	142.0
Commercial	53	3.40	180.2
Public/Open Space			
Public/Quasi Public	129	1.28	165.1
Active Recreation	150	4.28	642.0
Passive Recreation	149	0	0.0
Street Right-of-way	100	0.26	26.0
System Losses (7.5%)			583.3
Total	**2,474**		**8,361.0**

Water Supply

It is planned that Plan area water demand will ultimately be met by using a combination of ground water, surface water, and reclaimed water. The ultimate supply mix is intended to be similar to the recommended water supply alternative described in the *Zone 40 Water Supply Master Plan Update,* as follows:

Ground water -	46 percent
Surface water -	37 percent
Water conservation -	16 percent
Reclamation -	1 percent

Ground Water. Groundwater supplemented with a seasonal influx of surface water could be used to meet a portion of the water demands in the Plan area. This would include utilizing existing ground water, which could be drawn from the deep aquifer, and re-charging the affected aquifer with surface water supplies during the winter months using ground water injection wells. The center of the ground water level cone of depression is near the Plan area. Therefore, ground water injection in this area could help to stabilize, and possibly raise, ground water levels.

Surface Water. The Expanded Master Plan identifies the following six surface water supply options, some of which could help serve the southern Zone 40 expansion area:

- Intermittent Winter Water
- City of Sacramento Expanded POU (Place of Use)
- SMUD Surface Water Assignment
- CVP Water Public Law 101-514 "Fazio" Water
- Firm Surface Water Transfers from North Sacramento
- Agency Purchase of City of Sacramento Water for use in portion of Study Areas within the City POU

For the purpose of the Specific Plan EIR, SMUD water and CVP, or "Fazio", water are not considered to serve the Plan area at full build-out because these sources have been planned to serve the Zone 40 updated study area. However, prior to full Zone 40 build-out, these two sources could possibly be utilized to help serve the Plan area. Also City of Sacramento Expanded POU and Agency Purchase of City of Sacramento Water for use in portion of Study Areas within the City POU are not considered to serve the Plan Area. Surface water sources for the Specific Plan will consist of Intermittent Winter Water and Firm Surface Water Transfers from North Sacramento.

Currently, a firm source of surface water is not available in Zone 40. However, the SCWA expects to secure a firm source by Fall of 1998. Ultimately, surface water is planned to be conveyed to the Plan area through the existing City of Sacramento and Zone 40 Laguna Water systems. According to the SCWA, the existing Laguna Zone 40 water system will receive surface water at two proposed points of connection: Bruceville Road/Big Horn Boulevard intersection and Franklin Boulevard, near Francesca Circle (Franklin Booster Pump Station).

The Expanded Master Plan computer model of the ultimate Zone 40 Water system shows water being delivered to the Plan area through three points of connection: Franklin Boulevard (18-inch pipe), Foulks Ranch Drive (18-inch pipe), and Bruceville Road (36-inch pipe). The Expanded Master Plan estimates that, after Sacramento County makes some planned improvements to the Laguna system, surface water could be delivered to meet up to 60 percent of the annual demand generated by full build-out of the entire southern Zone 40 expansion area, which includes the Plan area and other areas within the urban services boundary limits.

Reclaimed Water. The Expanded Master Plan recommends that reclaimed water from the Sacramento Regional Wastewater Treatment Plant be ultimately delivered to the proposed southern expansion area to irrigate landscaping along street right-of-ways, in commercial areas, and in active recreation areas within the proposed Zone 40 southern expansion area. As illustrated in Figure 5-3, a water distribution system consisting of a 24-inch backbone transmission main and pipes ranging from 10- to 12-inches in diameter has been designed to distribute reclaimed water from the Treatment Plant.

The 782 acre-feet of irrigation water required annually for all recreational areas (i.e., Parks) and street rights-of-way within the Plan area could be met using reclaimed water. The Plan area's overall reclaimed annual water demand is 0.32 acre-feet per acre. If the remaining ±4,254 acres in the southern Zone 40 expansion area outside the Plan area develop with a similar land use mix and annual water demand, the total estimated reclaimed annual water demand for the southern expansion area will be 2.9 mgd per average day.

The SCWA intends to serve the entire southern Zone 40 expansion area with reclaimed water. The Sacramento Regional Wastewater Treatment Plant's proposed Phase 2, 5.0 mgd Reclamation Plant, therefore, has sufficient capacity to meet the reclaimed water demands for the entire East Franklin Specific Plan.

Water Conservation. The *Zone 40 Water Supply Master Plan Update* indicates that water conservation will account for an estimated water demand reduction of approximately 19 percent. The reduced water demand resulting from water conversation is used in determining the amount of surface water and ground water supplies required for sizing water mains. The Plan area will adopt water conservation measures identified in the Master Plan Update.

Water Supply Alternatives. Two basic water supply alternatives are presented in this study: 1) Groundwater only and 2) Use of a combination of ground water, reclaimed water, and surface water. As previously discussed, to propose using ground water as the sole water supply source for the East Franklin Specific Plan area would be contrary to Sacramento County General Plan policy. The "Groundwater only" alternative, therefore, has been presented as a worst case scenario in the event other sources of water supply cannot be obtained.

Utilizing a combination of ground water, reclaimed water, and surface water, is the preferred alternative. This alternative is consistent with historic Sacramento County Water Agency/Zone 40 goals and County General Plan policy.

For an interim period, Zone 40 has been using only ground water. In a worst case scenario, ground water could supply 100 percent of the water for the East Franklin Specific Plan area. The *East Franklin Specific Plan Evaluation of Groundwater Impacts* study, prepared by the SCWA, provides an engineering analysis which shows that "ground water can be considered a long-term reliable source of supply in the East Franklin Specific Plan Area".

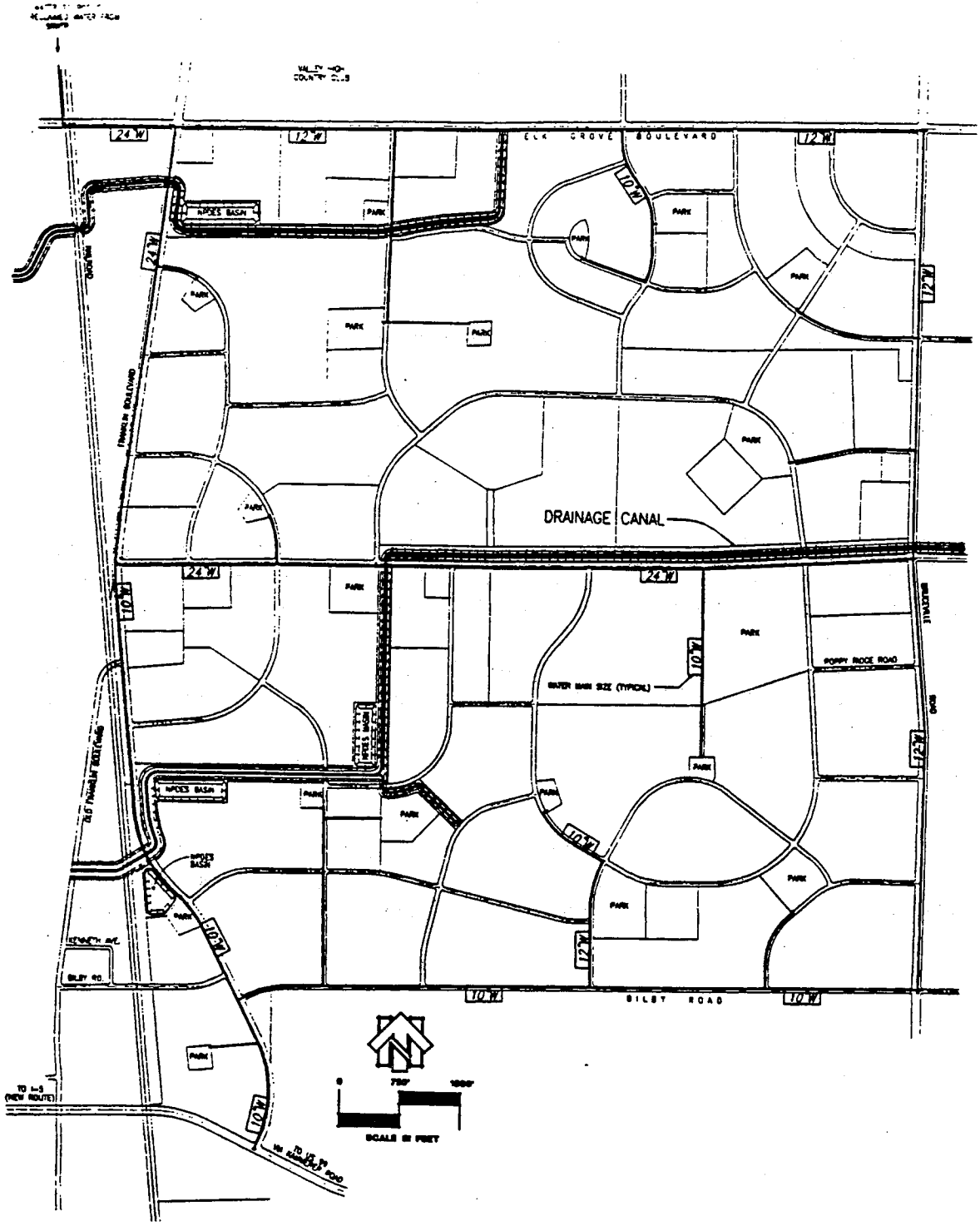
The evaluation of ground water impacts was addressed in the ground water impact study by modeling two different scenarios to determine the reliability of ground water supplies. The first scenario evaluated the incremental impacts of the Plan area's water demands on ground water elevations within Plan area and the Elk Grove cone-of-depression. The second scenario presented an the evaluation of ground water impacts in a worst case cumulative impact scenario, which assumes that ground water is used to supply all new urban growth within the General Plan Urban Policy Area.

The results of the ground water impacts analysis showed that the ground water elevations in the Plan area would be lowered by a maximum of 9.8 feet, and elevations within the Elk Grove cone of depression would be lowered by a maximum of 10.6 feet. These ground water levels are estimated to be stabilized after the first 20 years.

With the cumulative impact scenario (assuming the entire Zone 40 area and the East Franklin Specific Plan area will build-out with 100 percent reliance on ground water), the analysis shows that the ground water aquifer will experience a maximum 100-foot ground water elevation decline. These levels are also estimated to be stabilized after the first 20 years.

The above scenarios and their resulting impacts are highly unlikely and contrary to County General Plan policy, but are presented to comply with SB 901. The ground water modeling analysis shows the impacts to ground water supplies in the worst case scenario.

Figure 5-3 Reclaimed Water System



Water System Facilities

The proposed East Franklin Specific Plan Area water system is shown in Figure 5-4 Water Facilities Master Plan. The water system depicts transmission mains, planned storage and treatment facilities, and a schematic location of the necessary ground water wells.

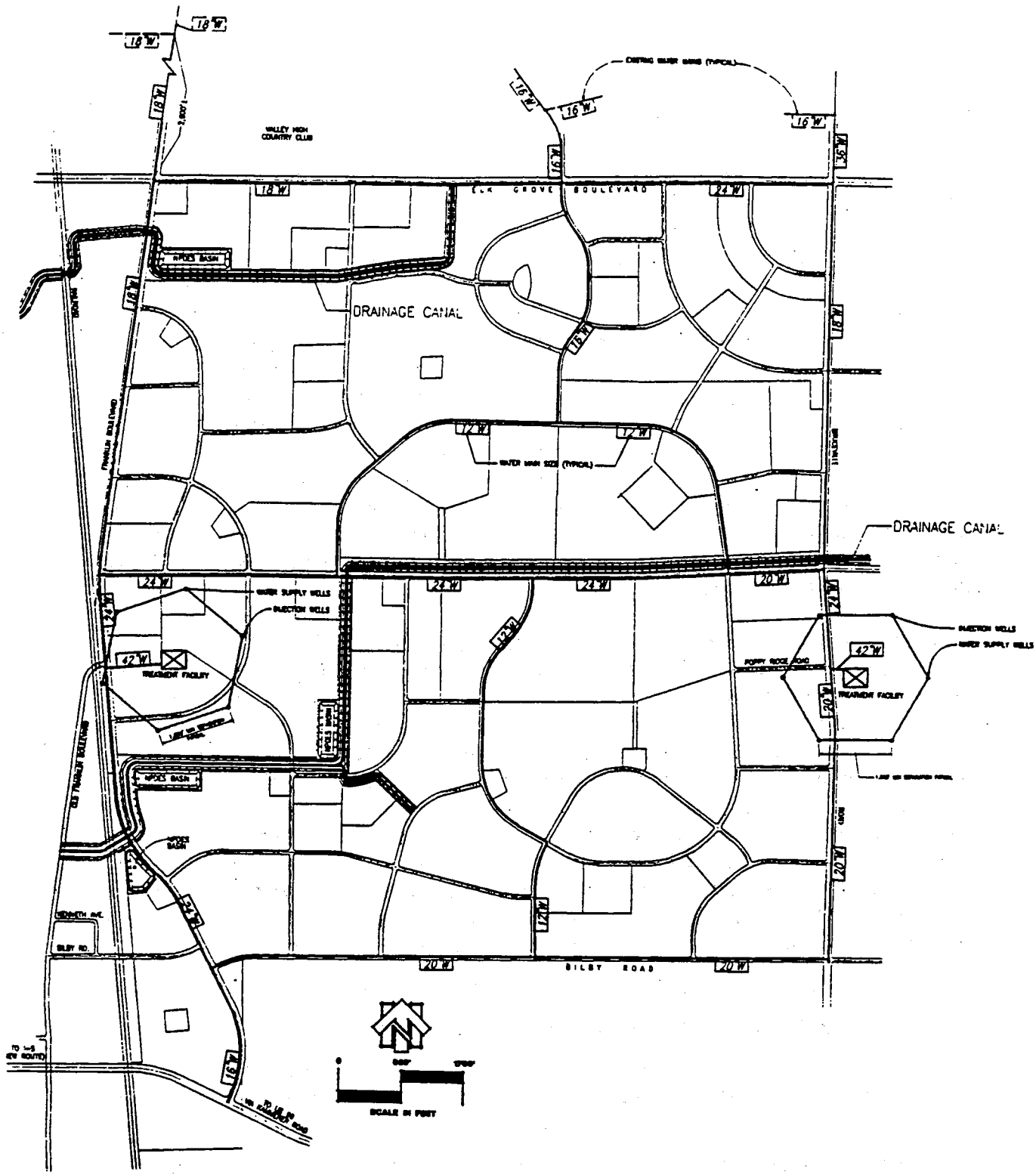
Storage/Treatment Facilities. In order to provide adequate water to the entire anticipated southern expanded Zone 40 area, a total of 10.5 million gallons (mg) of treated water storage will need to be provided. Under the injection well supply alternative (Expanded Master Plan), a total of 18 wells will also be required. The transmission main locations and sizes are based on a computer model developed to analyze a water system which will distribute water to the possible southern Zone 40 expansion area south of Elk Grove Boulevard and west of Highway 99, including the East Franklin Specific Plan area.

To meet the 10.5 mg storage requirement, the Expanded Water Master Plan calls for three 3.5 mg water storage/treatment facilities within the proposed southern expansion area, two of which are shown in Figure 5-4. One of the storage/treatment facilities would serve areas east of Bruceville Road, as well as the Plan area. Each storage/treatment facility is planned to be supplied with water extracted by six wells spaced approximately 1,000 feet apart around the facility. The ground water wells and storage/treatment facilities are intended to supply water for the area during maximum day and peak hour demand periods. Some of the nine wells needed to serve the Plan area will have ground water injection capabilities. The Plan area will require two 3.5 mg storage reservoirs and 21,667 gpm of booster pumping capacity.

Distribution Facilities. The water transmission mains shown in Figure 5-4 have been sized to accept surface water from the existing Laguna Zone 40 system, as well as distribute the water which will be provided at the proposed storage/treatment facilities. In order for development to occur in the Plan area it will be necessary to connect to the existing Zone 40 system at several locations. Because the existing Laguna system will not have production capacity to meet the demands of development south of Elk Grove Boulevard, it will be necessary to build ground water wells, treatment, storage, and booster pumping facilities. Surface water and ground water will be used conjunctively when surface water is available and can be delivered to the southern expansion area. Specific requirements will initially depend on where and to what extent development occurs within Plan area. Ultimately, and likely during the early stages of Plan area development, off-site water line extensions will be required, as follows:

- Franklin Boulevard, ±2,600 lineal feet of 18-inch water line.
- Foulks Ranch Drive, ±1,000 lineal feet of 16-inch water line.
- Bruceville Road, ±5,280 lineal feet of 36-inch water line extended to Laguna Boulevard. Eventually, a 42-inch waterline will also need to be extended within Bruceville Road from Laguna Boulevard to Sheldon Road.
- Elk Grove Boulevard, 18-inch and 24-inch water lines between Franklin Boulevard and Bruceville Road.

Figure 5-4 Water Facilities Master Plan



5.3 SANITARY SEWER

This section describes existing sanitary sewer facilities within and in the vicinity of the Plan area, service standards, and the impact Plan implementation may have on sewer conveyance and treatment systems. Sanitary sewer policies are described in Section 5.6.

5.3.1 Existing Facilities

According to the *East Franklin Specific Plan Sewer Study*, by Murray Smith and Associates, revised December 10, 1996, the East Franklin Specific Plan area contains no sanitary sewer facilities and is not currently within the service area boundary of a sewer service area that is planned to flow into the existing sewer system. Prior to receiving sewer service, the Plan area must be annexed into the Sacramento County Sanitation District No. 1 (CSD-1) and the Sacramento Regional County Sanitation District (SRCSD). These two districts own and operate the Regional Sewage Treatment Plant, as well as the trunk and interceptor sewer systems. Connection to the County sewer system is consistent with General Plan Policy PF-14, which reads as follows:

> *Policy PF-14. Independent community sewer systems shall not be established for new development.*

As shown in Figure 5-5, which depicts the existing sanitary sewer system in the area, the closest sewer line is a 15-inch line in Bruceville Road, approximately 1,000 feet north of Elk Grove Boulevard. This line was designed to be extended south of Elk Grove Boulevard to serve the extreme northeasterly quadrant of the Plan area.

The final report for the *Sacramento Sewerage Expansion Study - 1994 Update*, prepared by Montgomery/Watson, identifies recommended sewer interceptor projects that are intended to serve the East Franklin Specific Plan Area, as well as areas south to Kammerer Road (which is the urban services boundary) and easterly to Highway 99.

5.3.2 Service Standards

The Sacramento County General Plan has established a county-wide policy to provide public sewer service to all new residential developments of densities greater than one dwelling unit per acre. This policy also applies to industrial and commercial developments. As a result of this policy, all land uses proposed in the Plan must be served by a public sanitary sewer system.

The Sacramento County Water Quality Division (SCWQD) requires that, in addition to planning for the sewer service needs of the East Franklin Specific Plan Area, an Overall Master Sewer Plan be prepared which also covers the area south to Kammerer Road and east to Highway 99. This requirement is consistent with General Plan Policy PF-9, which reads as follows:

> *Policy PF-9. Design trunk and interceptor systems to accommodate flows generated by full urban development at urban densities within the ultimate*

service area. This could include phased construction where deferred capital costs are appropriate.

Also, designing the sanitary sewer system to accommodate the demands of the projected land use in the sewer service area is consistent with General Plan Policy LU-60, which reads as follows:

Policy LU-60. Sewer and water treatment and delivery systems shall not provide for greater capacity than that authorized by the General Plan.

The Overall Sewer Study Area is illustrated in Figure 5-6.

Figure 5-5 Existing Sewer Facilities

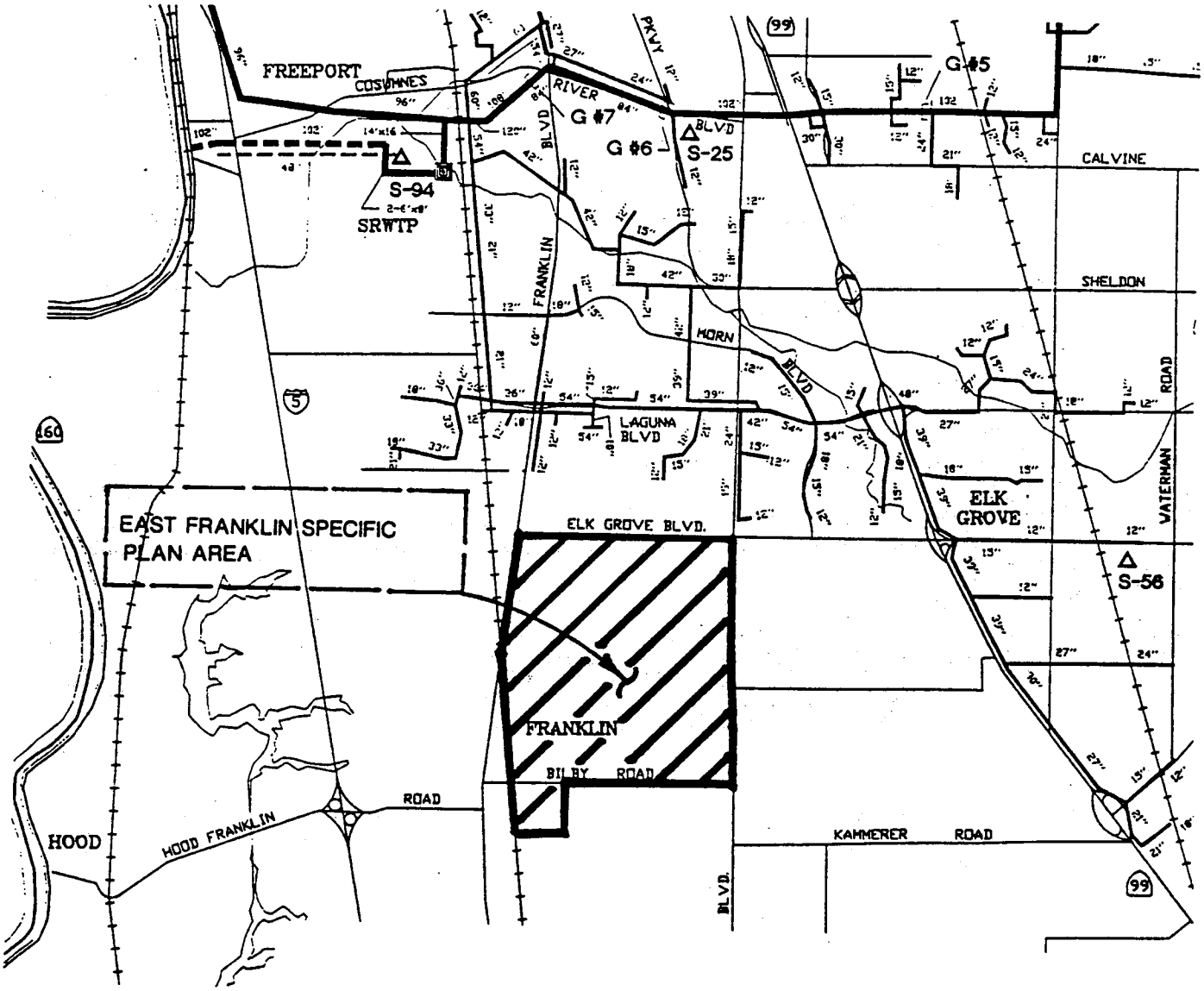
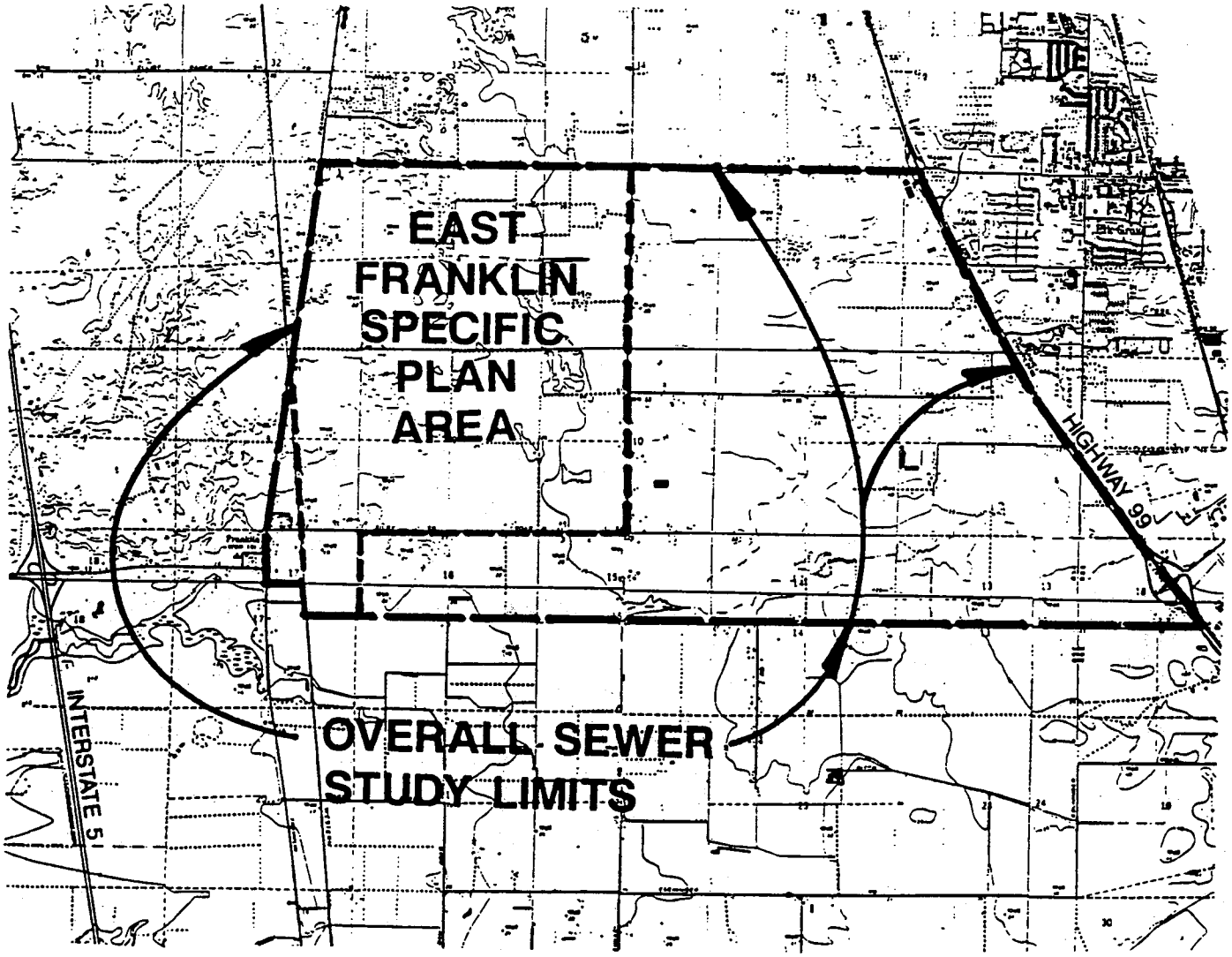


Figure 5-6 Overall Sewer Study Area



5.3.3 Development Impacts/Proposed Facilities

Sewer Flow Design Parameters

The total design sewage flow required to serve the East Franklin Specific Plan was calculated using the following factors: 1) Average daily flow values provided by the Sacramento County Water Quality Division (SCWQD) for each proposed land use designation (see Figure 2-1 in Section 2 Land Use), 2) Application of a factor for peak flows, and 3) Addition of a value which accounts for ground water and storm water infiltration, as recommended in the *Sewerage Expansion Study*.

Table 5-2 shows the values used for calculating average daily sewage flows within the Specific Plan area. At the direction of the SCWQD, a land use designation of RD-6, or six (6) Equivalent Single Family Dwellings (ESDs) per acre, has been used for all areas outside of the Plan area within the overall sewer study limits. Also, to account for ground water and storm water infiltration, a value of 1,200 gpd per acre, was used for all acreage within the sewer study area limits. This acreage includes the areas designated for open space, parks, major streets, and drainage channels.

Table 5-2
Average Daily Sewage Flows

Land Use Designation	ESD/1	GPD/2	GPD per Acre
MFR (Multi-Family Residential)	15	310	4,650
SFR (Single-Family Residential)	6	310	1,860
COM (Commercial)	6	310	1,860
S (Schools)	6	310	1,860
SP (Sports Park)	6	310	1,860
H (Historic Housing)	6	310	1,860

1/ ESD = Equivalent Single Family Dwellings.
2/ GPD = Gallons per day.

Overall Master Sewer Plan

The Overall Master Sewer Plan has been prepared on the basis of area topography, land use designations, potential development timing, and the SCWQD's technical design requirements. As shown in Figure 5-7, three drainage sub-sheds - "A", "B", and "C" - have been created to serve Plan area development.

Following are descriptions of the principal elements in each of the sub-sheds which constitute the Overall Master Sewer Plan, which is depicted in Figure 5-8.

Sub-shed "A". Sub-shed "A" is the northern-most sub-shed, and has been planned to serve the land immediately south of Elk Grove Boulevard between Franklin Boulevard and Highway 99. This will likely be the first portion of the Plan area to develop due to its close proximity to other existing utilities and infrastructure. The 36-inch diameter sewer trunk line proposed to serve this area will be located within the Drainage Parkway planned within the northwest quadrant of the Plan area. This sewer trunk line has been sized to carry a design flow of 7.9 million gallons per day (mgd) upon full build-out of the Sub-shed "A".

Sub-shed "B". In order for land in Sub-shed "B" to develop, it will be necessary to extend a 60-inch sewer trunk line southerly to a point approximately midway through the Plan area. Most of the developing properties within Sub-shed "B" are planned to flow to a proposed 54-inch sewer line shown in the Overall Sewer Master Plan extending easterly within a proposed Drainage Parkway. This interceptor line has been planned to carry a design flow of 16.4 mgd. Upstream of the 54-inch pipe, a 48-inch pipe is proposed to extend southerly between the proposed high school and the sports park, within an area designated as a Parkway. From this point, the sewer system extends easterly to Highway 99 to accept flows east of the Plan area.

Sub-shed "C". Land within Sub-shed "C" is planned to be served by a proposed 36-inch sewer trunk line with a design flow of 5.4 mgd.

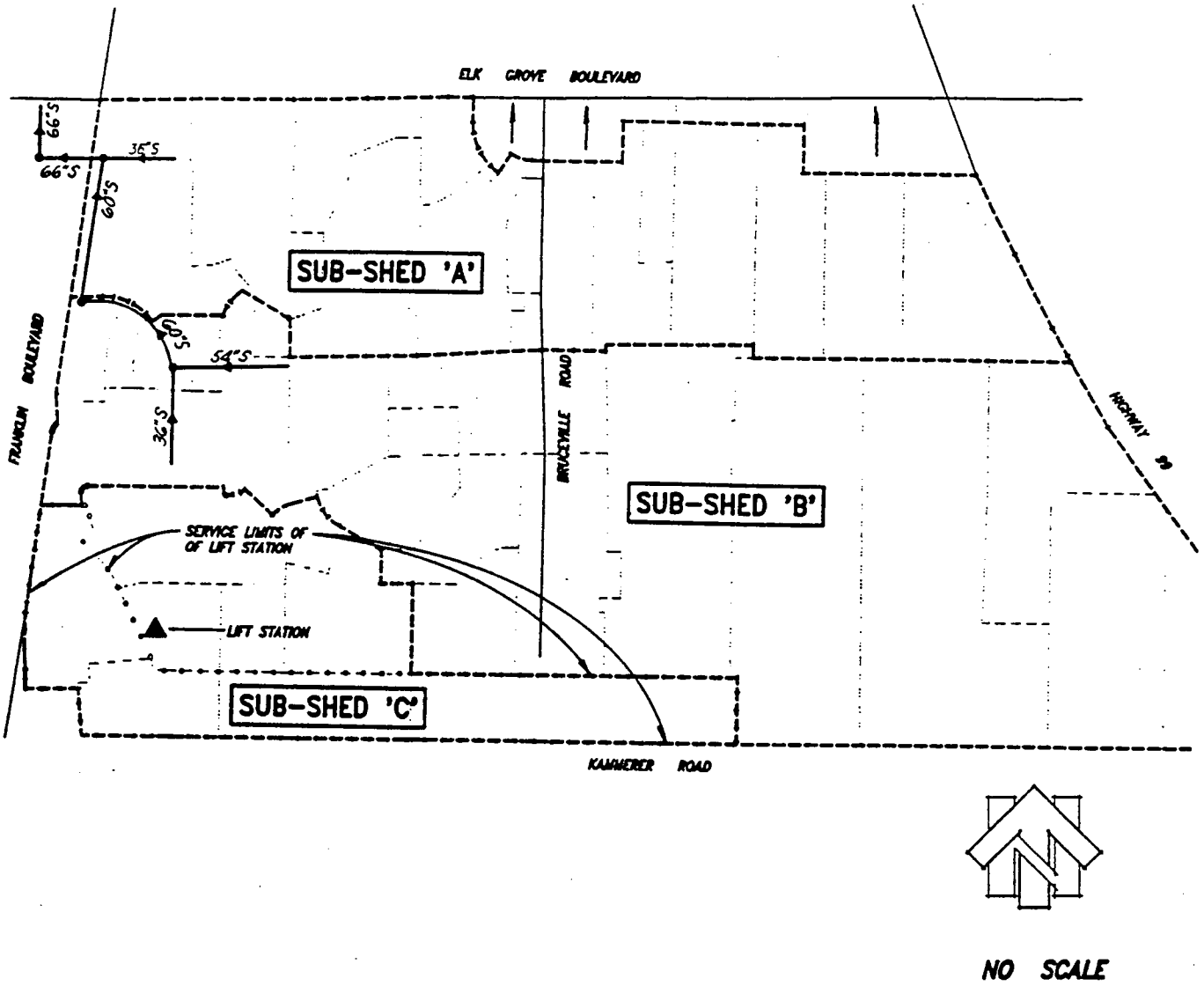
Because much of the land within Sub-shed "C" is at a lower elevation than other portions of the Plan area, it will be necessary for some of the lower areas to be serviced by a sewer lift station. This lift station is proposed to handle 3.5 mgd and will be approximately 23 feet deep.

The precise area that will need to be served by this lift station cannot be accurately determined because detailed topographic information is not available at this time. Also, some areas within Sub-shed "C" may require minor amounts of fill in order to be elevated high enough to obtain gravity service. One of the objectives of the Overall Master Sewer Plan is to minimize the area that will need to be serviced through a sewer lift station. Figure 5-8 shows the approximate service limits of the sewer lift station.

Ultimate Area Sewer Outfall. At a point within Franklin Boulevard approximately 1,400 feet south of Elk Grove Boulevard, the proposed sewer flows from Sub-sheds "A", "B", and "C" will combine and flow into a proposed 78-inch sewer line that will extend westerly under the railroad tracks and northerly along the west side of the railroad tracks to Elk Grove Boulevard. At that point, the *Sewerage Expansion Study* shows a junction where a sewer line is to be installed within Elk Grove Boulevard which will carry a design flow of 2.5 mgd and serve areas to the west. The Laguna Stonelake (i.e. formerly knowed as the Elliott Ranch South) Project sewer study shows a 18-inch diameter pipe sized to handle design flows of 1.7 mgd. SRCSD is currently planning to ultimately extend a 78-inch pipe from that point to carry a peak flow of approximately 32.2 mgd northerly to the Sacramento County Regional Waste Treatment Plant.

Within the East Franklin area, the sewer interceptor trunk line will be located within linear parcels which abut the street right-of-way and are typically 90 feet in width. These parcels will be acquired by SRCSD. The interceptor will be located on the north side of "1" Street and the east side of Franklin Boulevard (northern half). The East Franklin Specific Plan Environmental Impact Report identifies several alternative interceptor alignments for the eastern portion of the plan area.

Figure 5-7 Sewer Sub-shed Boundaries



Shed to Existing Sewer System. The capacity in the existing 15-inch sewer line planned to serve approximately 600 ESD's from an area north of Sub-shed A is no longer available. This area will have to be served by the internal sewer system of East Franklin. The interim sewer facilities will be required until the South interceptor is constructed. A combined effort by all the projects south of Elk Grove Boulevard will be required to provide a minimum of 6.0 million gallons per day (MGD) of interim capacity. The South Interceptor will not be constructed until flows are generated in excess of 6.0 MGD.

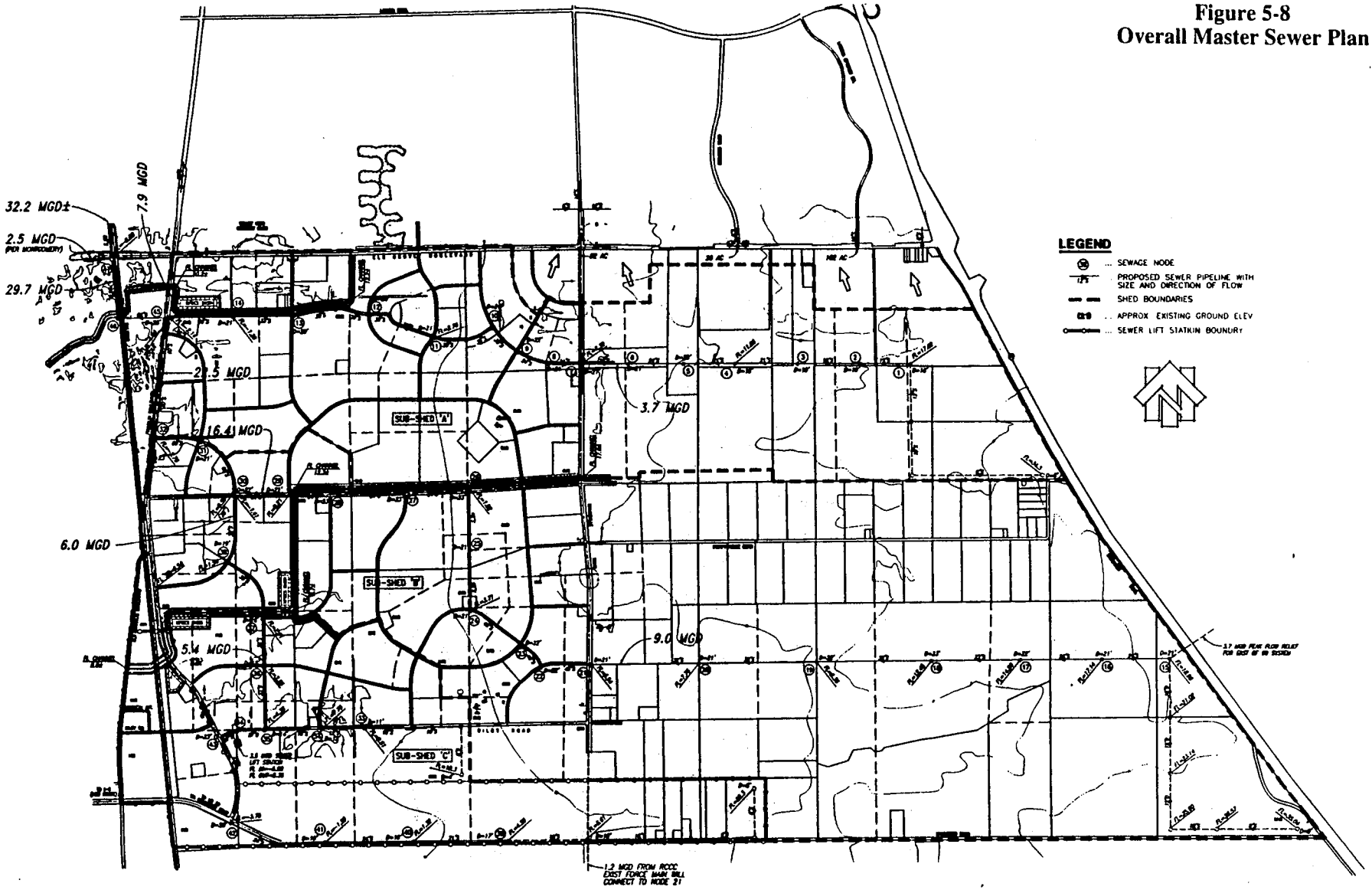
Interim Sewer Outfall - Specific Plan Area. As noted above, SRCSD is planning to ultimately install a 78-inch sewer interceptor line from the East Franklin Specific Plan area to the Sacramento Regional Waste Treatment Plant. Laguna Stonelake, (formely known as the Elliott Ranch South), a recently approved project located south of Elk Grove Boulevard and west of Franklin Boulevard, is currently planning to construct a 1.7 mgd lift station and 12-inch sewer force main from Elk Grove Boulevard along the westerly side of the railroad tracks to an existing 21-inch gravity sewer line (at Sims Road), which presently flows to the Sacramento Regional Waste Treatment Plant.

SRCSD has indicated that the existing 21-inch trunk stub has an additional capacity of approximately 3.0 mgd, which is the design flow generated by approximately 4,000 single-family homes (ESDs). SCWQD requires a joint effort between Laguna Stonelake and East Franklin participants to construct a larger lift station and sewer force main so that the entire 3.0 mgd capacity in the existing 21-inch sewer pipe can be utilized prior to constructing the ultimate 78-inch sewer interceptor. The alignment for the interim 14 and 18-inch force main is shown in Figure 5-9.

SRCSD has indicated that the 78-inch sewer interceptor is currently budgeted for year 2014 construction. However, it will only be constructed development south of Elk Grove Boulevard is producing 6.0 mgd.

As a condition of development approval, the Laguna Stonelake participants are currently working to obtain the necessary sewer easements from the property owners adjacent to the railroad tracks between Elk Grove Boulevard and Laguna Boulevard. The easements will be wide enough to accommodate the 78-inch sewer interceptor construction, as well as the required 14-inch interim sewer force main.

Figure 5-8
Overall Master Sewer Plan



OVERALL MASTER SEWER PLAN

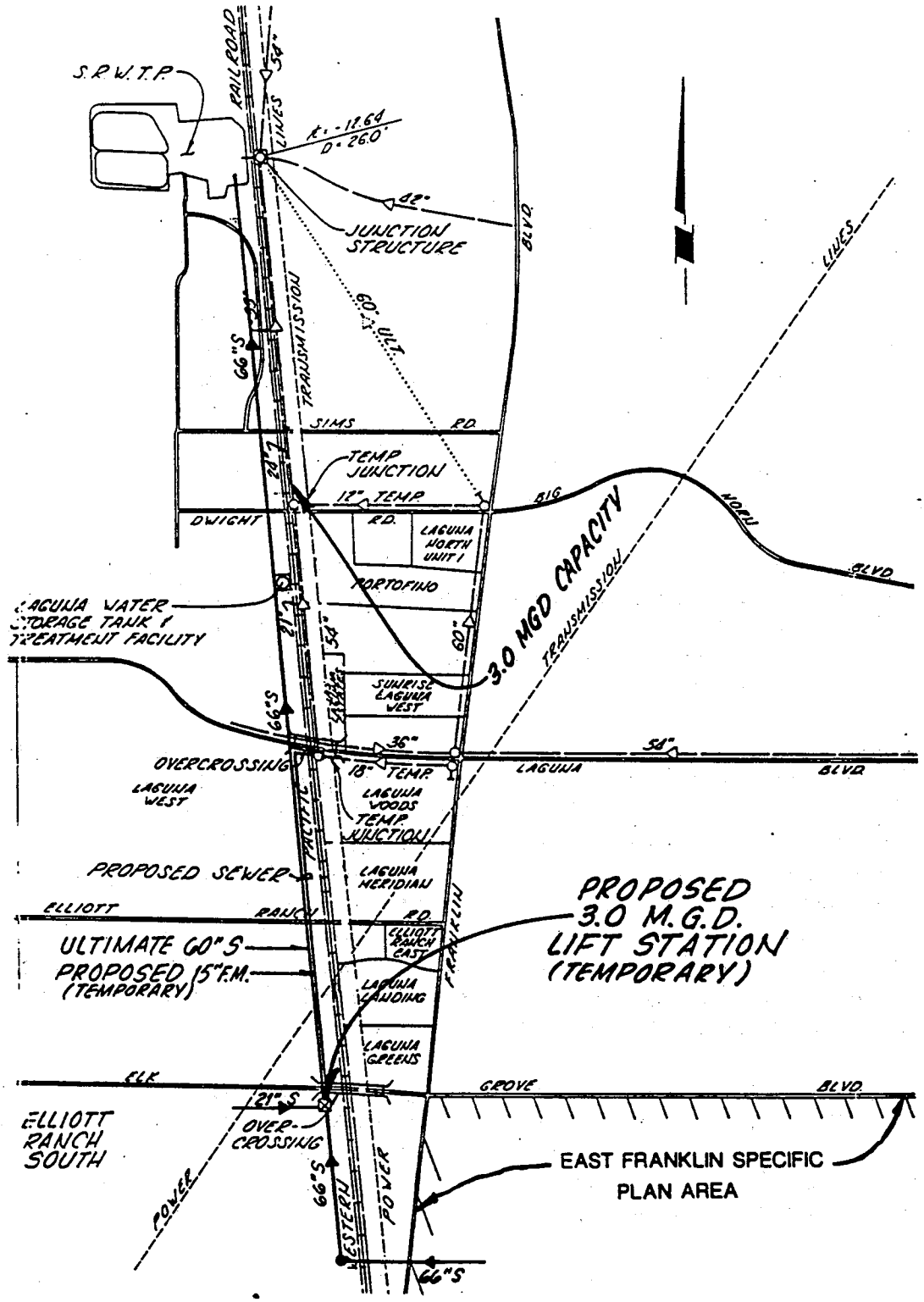
SACRAMENTO COUNTY, CALIFORNIA DECEMBER, 1994

East Franklin

Murray Smith

DOWN C REINERS INC

Figure 5-9 Interim Sewer Outfall



5.4 STORM DRAINAGE

This section describes existing storm drainage facilities in the vicinity, service standards, and the impact Plan implementation may have on storm drainage facilities within and beyond the Plan area. Storm drainage policies are described in Section 5.6.

5.4.1 Existing Facilities

As described in the *East Franklin Specific Plan Drainage Study*, dated October 3, 1996, by Murray Smith and Associates, the Plan area is located within a large drainage basin which flows from Highway 99 in the east to Interstate 5 in the west. This basin is separated into three artificially created sub-basins from north to south, each of which drain directly into the Beach/Stone Lakes area, but do so at three distinctly different points under Interstate 5. The northern drainage basin contains approximately 4,291 acres, the central basin contains 2,665 acres, and the southern basin contains 8,411 acres.

The Plan area slopes to the west at a very slight gradient of 0.15 percent. Surface water drains to a point located immediately east of the Union Pacific Railroad tracks, approximately 2,000 feet north of Bilby Road.

The natural drainage patterns and alignments of the three main drainage courses have been extensively altered by agricultural activities in most cases, including agricultural and roadside ditches. Storm water runoff frequently overtops the banks of these drainageways. The watercourses become natural again west of Franklin Boulevard, where there have been no agricultural activities.

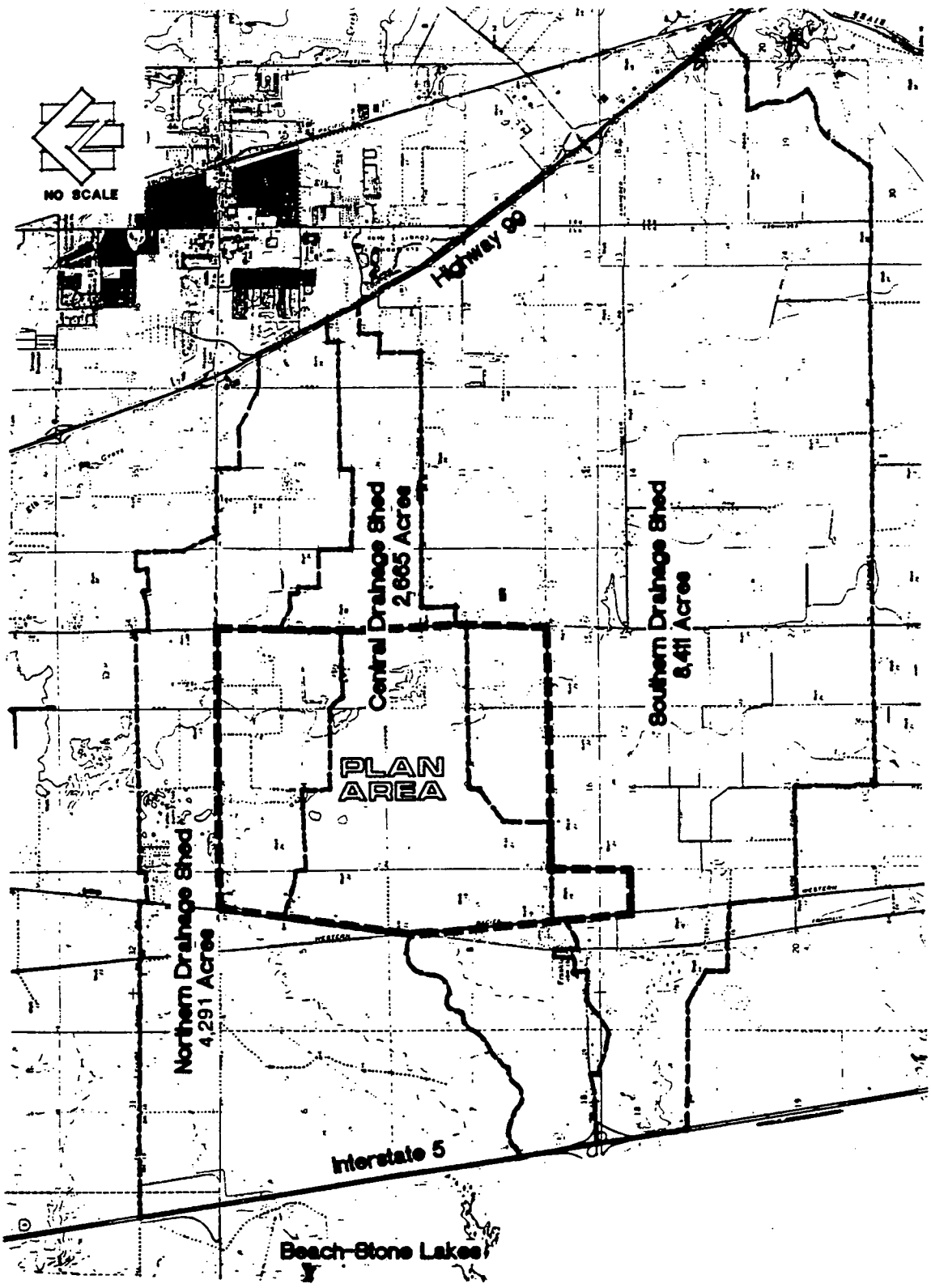
An analysis of existing conditions shows that the existing drainage conveyance systems within the Plan area are inadequate to serve the proposed development. One major drainage channel improvement - the Laguna South Drainage Channel - was constructed on the north edge of the Plan area within the northern watershed for the Foulks Ranch development, which is located just north of the Plan area. This channel conveys drainage from 468 acres of developed residential and commercial land located north of Elk Grove Boulevard. Drainage from an additional 131 acres of the Valley Hi Country Club joins this channel just east of Franklin Boulevard, and drainage from a 151-acre residential development joins the flow west of Franklin Boulevard. The watercourse from this drainage shed eventually flows under Interstate 5 and into North Stone Lake.

The Laguna South Drainage Channel was designed and constructed before the Urban Services Boundary was extended south from Elk Grove Boulevard to Kammerer Road. The channel currently experiences hydraulic constrictions at a number of locations, which create excessive backwater elevations. Additionally, the channel construction was never completed downstream of the Union Pacific Railroad.

The southern half of the Plan area has no developed drainage system other than the existing agricultural ditches. These agricultural ditches are not capable of efficiently carrying the drainage runoff from the existing agricultural land use.

Following is a summary of the three existing drainage sheds affecting the Plan area. These are graphically depicted in Figure 5-10. Additional information is contained in Section 1.4.3, under Surface Hydrology.

Figure 5-10 Sub-shed Boundary Map



Northern Drainage Shed

- 4,291 acres in size.
- Includes approximately 728 acres of the northern portion of the Plan area.
- Roughly 709 acres of agricultural drainage enter the Plan area from east.
- 599 acres of drainage from developed lands enter the Plan area from north of Elk Grove Boulevard.
- The remaining 2,255 acres of drainage runoff is contributed downstream of Franklin Road, outside the Plan area.
- During heavy runoff periods, a backflow condition overtops Bruceville Road.
- Flows within the Plan area are conveyed in agricultural channels and roadside ditches a distance of 1.3 miles to the confluence with Laguna South Channel, where a trapezoidal channel conveys water to just west of Franklin Boulevard.

Central Drainage Shed

- 2,665 acres in size.
- Includes approximately 1,321 acres of the central portion of the Plan area.
- Includes three sub-basins, as follows:

  - the northern sub-basin contains 633 acres and receives 698 acres of agricultural drainage from the east.

  - the central sub-basin contains 579 acres.

  - the southern sub-basin contains 109 acres.

- The remaining 646 acres is contributed from downstream of the Union Pacific Railroad tracks, outside of the Plan area.
- Drainage is conveyed in a series of agricultural ditches for a distance of approximately 2.4 miles.

Southern Drainage Shed

- 8,411 acres in size.
- Includes approximately 460 acres of the southern portion of the Plan area.

- Includes two sub-basins, as follows:

  - The east sub-basin contains 380 acres and receives 59 acres of agricultural drainage runoff from the east. Consists of three further sub-basins divisions:
    - The east sub-basin contains 171 acres and combines with 59 acres of agricultural drainage runoff from the east.
    - The west sub-basin contains 193 acres.
    - The central sub-basin contains 209 acres.
  - The west sub-basin contains 80 acres and receives no off-site flows.

- Drainage is conveyed in a series of agricultural ditches.

Additional existing surface hydrology information is contained in Section 1.4.3.

Hydrologic and Hydraulic Parameters

The storm water runoff within the Plan area was analyzed using the County's new hydrology standards manual including SACPRE and HEC-1. For the purposes of analyzing 10-year and 100-year peak flow impacts, 6-hour, 12-hour and 24-hour storm durations were used. For analyzing volumetric impacts, 36-hour and 5-day storm durations for a 100-year event were used.

Utilizing HEC-2, hydraulic models were created for the proposed drainage channels within the Plan area. The models begin downstream of Interstate 5 within the Beach-Stone Lakes and continue upstream through the Plan area. Beginning water surface elevations downstream of Interstate 5 are 11.0 feet for the 10-year storm event and 16.0 feet for the 100-year event. These beginning water surface elevations were defined by the Sacramento County Water Resources Division (Division).

5.4.2 Service Standards

The SCWRD is required to follow specific guidelines in the maintenance and construction of drainage facilities. The Division must ensure that all structures are protected from the 100-year (i.e., 1 percent) flood event, and must ensure that roads are protected from the 10-year (i.e., 10 percent) flood event, as set forth in General Plan policies SA-16 and SA-17, as follows:

> *Policy SA-16. For residential zoning, the area outside the 100-year floodplain must be contiguous or reasonably situated to provide buildable area for a residence and associated structures. Examples of structures include swimming pools, sheds, barns, detached garages, and other outbuildings that are normally associated with residential development.*

Policy SA-17. Vehicular access to the buildable area of newly created parcels must be at or above the 10-year flood elevation. Exceptions may be made when the existing public street from which access is obtained is below the 10-year flood elevation.

The Division is also responsible for implementing a program to mitigate stormwater quality impacts of urban development. Drainage facility construction requirements are found in the Sacramento County Water Agency Drainage Ordinance and the Sacramento County Improvement Standards.

5.4.3 Development Impacts/Proposed Facilities

The proposed Storm Drainage plan for the East Franklin Specific Plan area consists of the following eight primary components:

- Drainage Shed Diversions
- Peak Flow Calculations
- Drainage Channel Improvements
- Bridge and Culvert Improvements
- Storm Water Quality Facilities
- Trunk Drainage Pipeline System
- Storm Water Detention (tentative)
- Wetland Considerations

Each of the storm drainage components are summarized in this section. As previously noted, the *East Franklin Specific Plan Drainage Study* should be consulted for additional information. Preparation of a comprehensive storm drainage plan fulfills General Plan Policy SA-5, shown below, except for determining the extent of the 100-year flood zone, which is an area-wide study being conducted by the County.

Policy SA-5. A comprehensive drainage plan shall be prepared for urbanizing streams and their tributaries prior to any development within the 100-year floodplain defined by full watershed development without channel modifications. The plan shall:

a. Determine the future 100-year flood elevations associated with planned and full development of the watershed;

b. Determine the future 100-year floodplain boundaries for both flood elevations (planned and full development) based on minimum 2-foot contour intervals;

c. Assess the feasibility of gravity drainage into the existing flowline of the stream;

d. Assess the feasibility of alternative means of drainage into the stream;

e. Identify potential locations for sedimentation ponds and other stormwater treatment facilities;

f.. Determine the minimum lowering of the stream bottom necessary and develop a channel design consistent with General Plan policies;

g. Determine the location and extent of marsh, vernal pool and riparian habitat; and

h. Develop measures for protecting and mitigating natural habitat.

i. Develop measures to ensure vector abatement control.

This policy is not applicable to downstream portions of urbanizing creeks identified as infill areas in Public Works Department policies for which the County does not intend to prepare master drainage plans.

Preparation of the Plan area storm drainage plan also relates to Policy SA-16, shown in the Service Standards section. As noted above and in the Surface Hydrology discussion contained in Section 1.4.3, while the County has commissioned a study to determine the ultimate 100-year flood zone in the area, the zone, as currently identified, affects only 78 acres of the Plan area. The proposed shed diversions and channel improvements will eliminate the majority of the 100-year flood plain within the Plan area.

The Storm Drainage Master Plan is depicted in Figure 5-11.

Drainage Shed Diversions

As a result of constriction and resulting head loss at the railroad undercrossing downstream of Franklin Boulevard, the Northern Drainage Shed storm water runoff will be diverted to the Central Shed upstream of Bruceville Road.

In order to avoid the construction of significant off-site drainage outfalls through existing agricultural lands which would disrupt existing farming activities, all of the Southern Drainage Shed storm water runoff developed within the Plan area will be diverted to the Central Drainage Shed. This diversion will also eliminate the need for construction of a second railroad bridge structure and the creation of a fifth storm water quality basin. This diversion consists of approximately 460 acres of the 8,411-acre Southern Drainage Shed.

Drainage Shed diversions are depicted in Figure 5-12, and are summarized in the following narrative:

Proposed Drainage Shed "A". Proposed Shed "A" remains virtually the same as the existing Northern Shed, with the exception of the shed diversion upstream of Bruceville Road. The 709 acres upstream of Bruceville Road, which currently drains through this

shed, will now be diverted to the new Drainage Shed "B". The key features of this shed are as follows:

- 3,292 acres in area.
- Includes approximately 673 acres of the northern portion of the Plan area.
- No drainage will enter the Plan from the east.
- 599 acres of drainage from developed lands enter the Plan area from north of Elk Grove Boulevard.
- The remaining 2,020 acres of drainage runoff is contributed downstream of Franklin Boulevard, outside the Plan area.
- The existing Laguna South channel will be deepened, widened, and constructed to appear more natural.

Proposed Drainage Shed "B". The proposed Drainage Shed "B" will accept the shed diversion from Shed "A". The key features of this shed are as follows:

- 4,030 acres in area.
- Includes approximately 1,748 acres of the central portion of the Plan area.
- Roughly 1,434 acres of future developed drainage will enter the Plan area from the east.
- The remaining 848 acres is contributed from downstream of the railroad tracks, outside the Plan area.

Peak Flow Calculations

Peak storm water runoff flows for both 10-year and 100-year storm events were developed for both the Northern (Shed "A") and the Central (Shed "B") drainage sheds. For modeling purposes, a conceptual drainage channel alignment plan was developed for the area upstream of Bruceville Road. This plan was utilized in developing the HEC-1 models for the "developed" Drainage Shed "B".

Drainage Shed "A". The existing and developed land use condition peak flows were computed for Drainage Shed "A", and are based on the assumption that all approved land uses are fully developed. This includes the Elliott Ranch South and Lakeside subdivisions, as well as all lands north of Elk Grove Boulevard.

The 709-acre drainage shed diversion upstream of Bruceville Road to Drainage Shed "B" has resulted in limiting the 100-year peak flow increase to approximately 12 percent and

the 10-year peak flow increase to 10 percent at the existing Union Pacific Railroad bridge structure.

Drainage Shed "B". The flows increased significantly at all points of interest. The flows increased approximately four times from existing to developed conditions at Bruceville Road. This large flow increase is partially due to the 709-acre shed diversion from Shed "A". The flows increased approximately two and one-half times at the Union Pacific Railroad crossing. This increase is due to the diversion of 460 acres from the Southern Shed to Shed "B" in addition to the 709-acre diversion from Drainage Shed "A" upstream of Bruceville Road.

Figure 5-11
Storm Drainage Master Plan

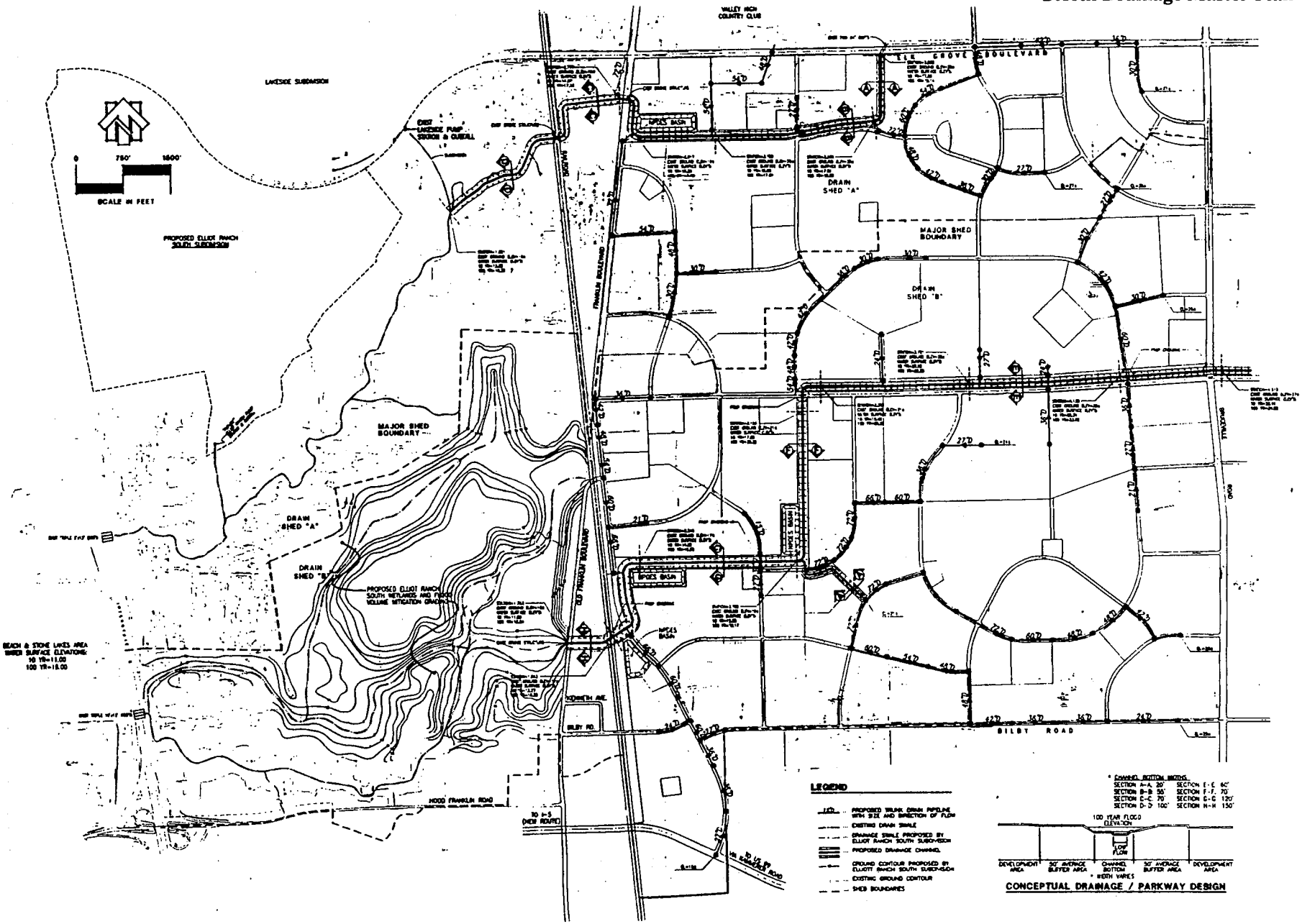
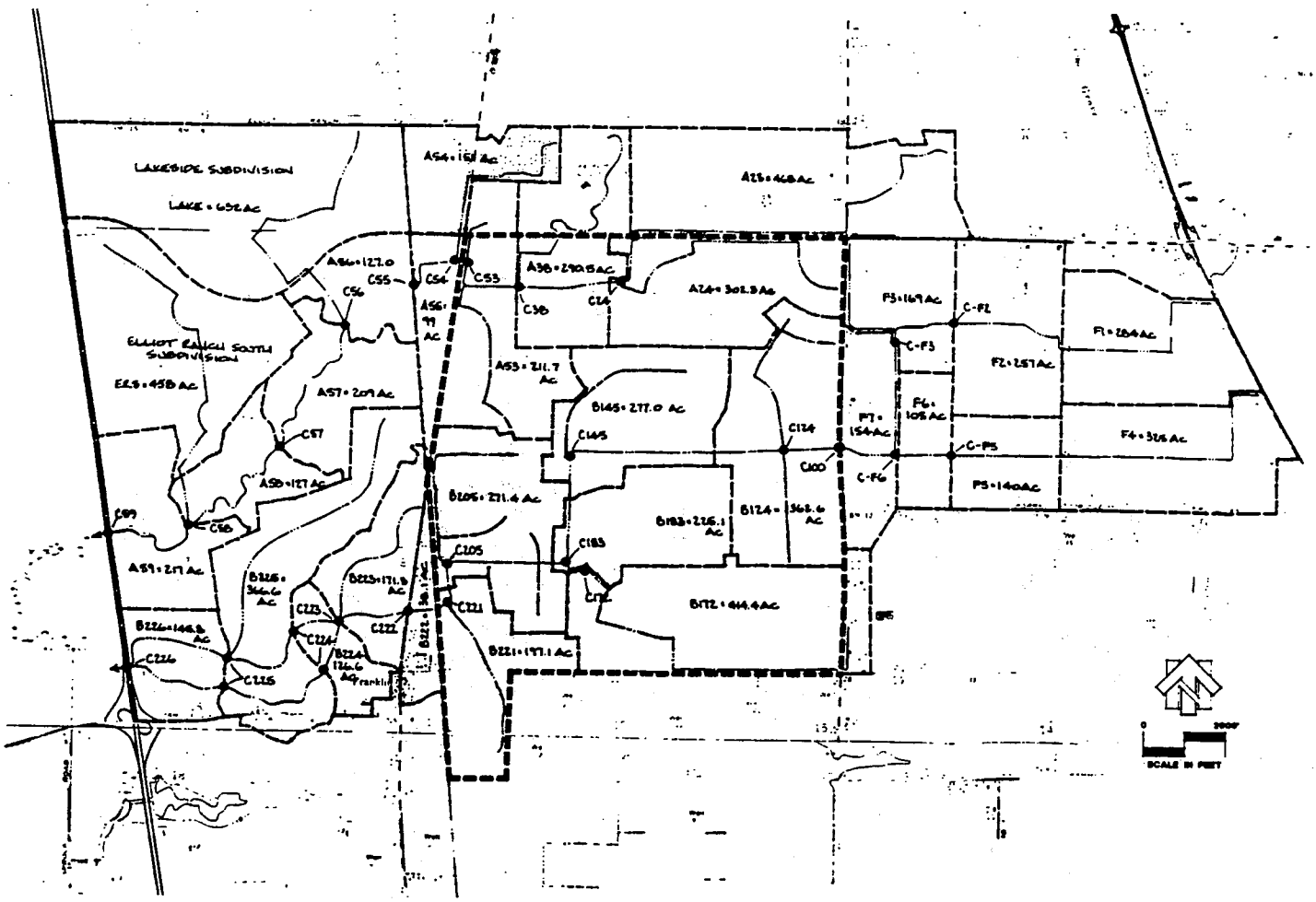


Figure 5-12 Proposed Drainage Shed Diversions



Drainage Channel Improvements

The following describes the functional (i.e., stormwater conveyance) characteristics of the new drainage channels within proposed Drainage Parkways. Other characteristics, including recreation, are described in Section 2.4 of this Plan.

Figure 5-13 provides an illustration of the basic storm drainage channel concept that will be used in the Plan. The proposed naturalized channel concept is consistent with General Plan policies CO-126, CO-110 and CO-111, shown below:

> *Policy CO-110. Channel modifications shall not prevent minimum water flows necessary to protect and enhance fish habitats, native riparian vegetation, water quality, or ground water recharge.*

The planned drainage system increases the amount of land devoted to drainage. The Drainage Parkways are designed with meandering low flow channels, and riparian vegetation which will be an improvement to fish habitat. These areas, and the proposed water quality basins, will also provide habitat for mammals and birds. Ground water recharge may occur within drainage channels and in the water quality basins, but has not been specifically designed into the drainage system.

> *Policy CO-111. Improvements in watercourses in currently undeveloped areas will be designed for low maintenance. Appropriate Manning's "n" values will be used in design of the watercourses to reflect future vegetative growth (including mitigation plantings) associated with the low maintenance concept.*

All hydraulic models prepared for the proposed channels utilized a channel roughness coefficient of 0.060. This roughness coefficient is the adopted standard for all new channel construction within Sacramento County, according to the County Water Resources Division.

> *Policy CO-126. Maintain streams to allow natural vegetation in and along streams, commensurate with flood control and public acceptance, to assist in removal of nutrients, pollutants, and silt.*

As required by General Plan Policy CO-111, the new drainage channels are to remain as natural as possible. It is assumed during the design process that maintenance activities within the channels will be limited by using a roughness coefficient of 0.060. This roughness coefficient takes limited channel maintenance into consideration.

As set forth in Policy CO-124, which follows, drainage channels must be accessible for maintenance:

> *Policy CO-124. Development projects adjacent to the Urban Stream Corridor shall provide unencumbered maintenance access to the stream as necessary and consistent with policies of this plan.*

In compliance with Policy CO-124, a continuous 10-foot wide maintenance road/Class I bicycle/pedestrian path is provided within Drainage Parkways, adjacent to one side of all drainage channels. Access will be provided at street crossings shown on the Land Use Diagram. This is illustrated in Figure 5-13 and further described in Section 2.4.2 of this Plan.

Drainage channels will be designed in compliance with all County ordinances and policies, including General Plan Policy CO-151, which follows:

> *Policy CO-151. Provide unobstructed water flows throughout the network of natural waterways by prohibiting blockage, tunneling, or obstruction of contiguous stream channels.*

The drainage channel system has been designed, and will be constructed, to facilitate the efficient conveyance of storm drainage with minimal flow disruption. No channel blockage, tunneling, or placement of obstructions is proposed. Dedication of channels to the County will ensure that proper supervision and maintenance of these facilities occurs.

Plan area roadway improvements are consistent with General Plan Policy CO-119, which limits construction within stream corridors, as follows:

> *Policy CO-119. Roads, parking, and associated fill slopes shall be located outside of the Urban Stream Corridor, except at stream crossings. Crossings shall be minimized and be aesthetically compatible with naturalistic values of the stream channel.*

As previously addressed in Section 2.4.2, crossings of the Drainage Parkways are limited to the major roadways shown on the Specific Plan Land Use Diagram and certain pedestrian crossing structures. No other structural improvements will encroach into the Drainage Parkway. All site development of lands adjacent to Drainage Parkways will be required to adhere to General Plan Policy CO-119 and to Specific Plan policies which are intended to protect the Drainage Parkways (see Section 2.4.2).

Drainage Shed "A". The only significant drainage channel in the Plan area is the Laguna South Drainage Channel, which was constructed as part of the urban development immediately north of the Plan area. Aside from the Laguna South Drainage Channel, the existing drainage system in the area consists of a poorly-defined system of agricultural and roadside ditches, which frequently are overtopped during heavy rains.

The Drainage Study prepared for this plan has determined that efficient conveyance of storm drainage will require construction of a new drainage channel system. A component of this drainage plan includes increasing the depth of the Laguna South Drainage Channel to accommodate increased flows from on- and off-site. This design decision was made in consideration of Policy CO-109, which follows:

Policy CO-109. Channel lowering shall occur after consideration of alternatives and only when it is necessary to accommodate the gravity drainage of storm runoff and/or accommodate floodflows under existing bridge structures.

The most efficient method of providing storm drainage for land within this shed is to modify the existing Laguna South Drainage Channel. By creating a meandering low flow channel within the existing channel, the Laguna South Drainage Channel becomes more natural in appearance and will comply with General Plan policies CO-107 and C0-108, which read as follows:

Policy CO-107. To the maximum extent practical retain topographic diversity and variation when channels are realigned or modified, including maintaining meandering characteristics, varied berm width, naturalized side slope, and varied channel bottom elevation.

Policy CO-108. Natural appearance channels will be encouraged for watercourses in newly developing areas (outside of identified in-fill areas).

The proposed outfall channel construction will begin approximately 1,900 feet downstream of the railroad, which is the outfall point for the Lakeside Subdivision drainage. The proposed channel between this point and the railroad bridge will be constructed as a large meandering wetland with no defined channel banks.

The channel crossing at the railroad bridge was designed and constructed prior to the change in Urban Services Boundary. By diverting the drainage upstream of Bruceville Road to the south, the constriction caused by this bridge structure can be reduced. The existing structure will remain, but the side slopes will be modified from their current two-to-one (2:1) slope to vertical. The vertical slopes will be protected with reinforced concrete to prevent erosion and slope failure during periods of heavy flow. This modification will provide for increased flow through the structure, with reduced head loss.

The channel upstream of the railroad tracks is the existing Laguna South Channel. This section between the railroad and Franklin Boulevard will be widened from 40 to 70 feet, and a meandering low flow channel will be constructed.

Immediately downstream of Franklin Boulevard, a dam was constructed as part of the Laguna South Channel project. The intent of the dam was to create a backwater on upstream properties that would preserve the remaining wetlands. The structure does not function as intended, and the wetlands have become degraded. The dam will be removed to improve the hydraulic capacity of the channel. The loss of wetlands will be mitigated off-site, as described in Section 2.4.5 of this Specific Plan and the Wetlands Mitigation Plan prepared by Gibson and Skordal.

Drainage Shed "B". A new trapezoidal channel will be constructed within Drainage Shed "B" to replace the existing agricultural drainage ditches. Because of the large shed diversion upstream of Bruceville Road, the peak flows require a much larger channel cross section. The proposed channel will also be constructed with habitat benches and a meandering low flow channel.

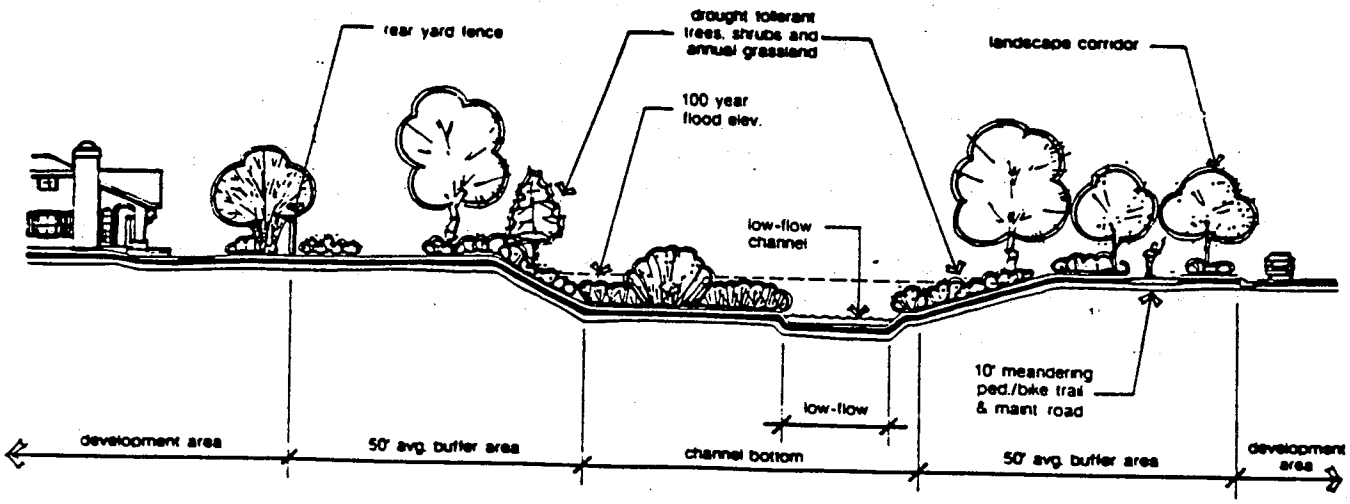
The area downstream of Franklin Boulevard within Drainage Shed "B" is a wetlands mitigation and flood volume replacement area for the Elliott Ranch South project. The Elliott Ranch South project has obtained a permit from the Army Corps of Engineers (Permit No. 199200550) to allow for proposed mitigation. During the initial design of that project, an outfall channel was created for the proposed East Franklin Specific Plan area. That plan was further refined as it continued through the permit process. The Corps of Engineers permit is transferable. Therefore, in the event the Elliott Ranch South project does not move forward with its mitigation plan prior to development of this drainage outfall, there is an ability to construct the drain outfall within the existing wetland area.

The hydraulics downstream of Franklin Boulevard have been designed so that low flows will continue within the existing wetlands swale adjacent to Hood Franklin Road. Higher flows, including flood flows, will be diverted to the bypass channel further north.

At "old" Franklin Boulevard, the channel upstream becomes more trapezoidal. The new channel from "old" Franklin Boulevard to "new" Franklin Boulevard will be constructed with a 150-foot wide bottom and a meandering low flow channel. This new bottom width will require construction of new bridge facilities at the "old" Franklin Boulevard at the Union Pacific Railroad crossing and at the "new" Franklin Boulevard crossing locations.

The channel bottom width is reduced to 120 feet from "new" Franklin Boulevard for a distance of approximately 3,900 feet upstream. At this point, the channel splits north and southeast. The southeast channel narrows to a 20-foot bottom width to drain the southern 416 acres of the Plan area. The channel section to the north is narrowed to 70 feet and ultimately down to a 60-foot width as the channel construction ends upstream of Bruceville Road.

Figure 5-13 Naturalized Channel Concept



Bridge and Culvert Improvements

There are seven roadway crossings (bridge or culvert) proposed upstream of "new" Franklin Boulevard, including the crossing at Bruceville Road. These crossings are located on the following streets:

- Laguna South Channel at "6" Street
- "Old" Franklin Boulevard
- "New" Franklin Boulevard
- "26" Street
- "1" Street
- "16" Street
- Bruceville Road

All of the proposed street crossings, except the Laguna South Channel at "6" Street, occur in new Drainage Shed "B". These crossings could be constructed as flat slab bridges on piers or multiple reinforced box culverts. Each crossing should be designed on a case-by-case basis during final channel design to balance the level of hydraulic efficiency required with the facility construction costs.

Minor modifications will be required at the existing Franklin Boulevard bridge over the Laguna South Channel. The existing structure will ultimately be widened to 110 feet to allow for the future traffic volumes. The existing crossing has good hydraulic efficiency, passing the ultimate 100-year flows with a head loss of approximately 0.25 feet.

In addition to the new roadway crossings, one new bridge structure will be required to support the railroad track crossing of the new channel in Drainage Shed "B"

Consistent with General Plan Policy SA-17 (see Service Standards), County Development Standards require that the grate elevation for drainage drop inlets be constructed 6 inches above the 10-year water surface elevation. The Development Standards also require that all public streets be constructed above the 10-year flood zone. The improvement plans for projects within the Plan area will adhere to the requirements of this policy.

Storm Water Quality Facilities

The County General Plan addresses water quality issues associated with stormwater runoff in policies CO-9 and SA-12, which follow:

> *Policy CO-9. Community and specific plans shall specify urban runoff control strategies and requirements, consistent with Master Drainage Plans and Public Work's urban runoff management program, for development in newly urbanizing areas and identify sites where retention and treatment are warranted consistent with discharge permit requirement and county-wide runoff measures.*

Policy CO-10. Development within newly urbanizing areas shall incorporate runoff control measures in their design or participate in an areawide runoff control management effort consistent with the urban runoff management program developed by the Public Works Department.

Sacramento County's National Pollutant Discharge Elimination System (NPDES) Municipal Permit requires that pollutants found in urban storm water runoff be reduced to the maximum extent practical. Utilizing the County's hydrology standards, storm water runoff treatment facilities have been defined for new drainage basins "A" and "B", described in this section.

As part of the Specific Plan drainage analysis, NPDES, or Water Quality, basin locations were determined based on the new County drainage manual, which requires that water quality basins (i.e., NPDES pond) be constructed for drainage shed areas of approximately 640 acres. The storm water runoff from the Plan area is to be treated immediately prior to exiting the Plan area and flowing through the wetlands to the west.

Figure 5-14 provides an illustration of the water quality basin (NPDES) concept proposed for use in the Plan.

The County has determined that stormwater detention facilities are not required in the Plan area. With the exception of financing considerations, which are contained in Section 6.0, the Plan addresses and satisfies General Plan Policy SA-12, which reads as follows:

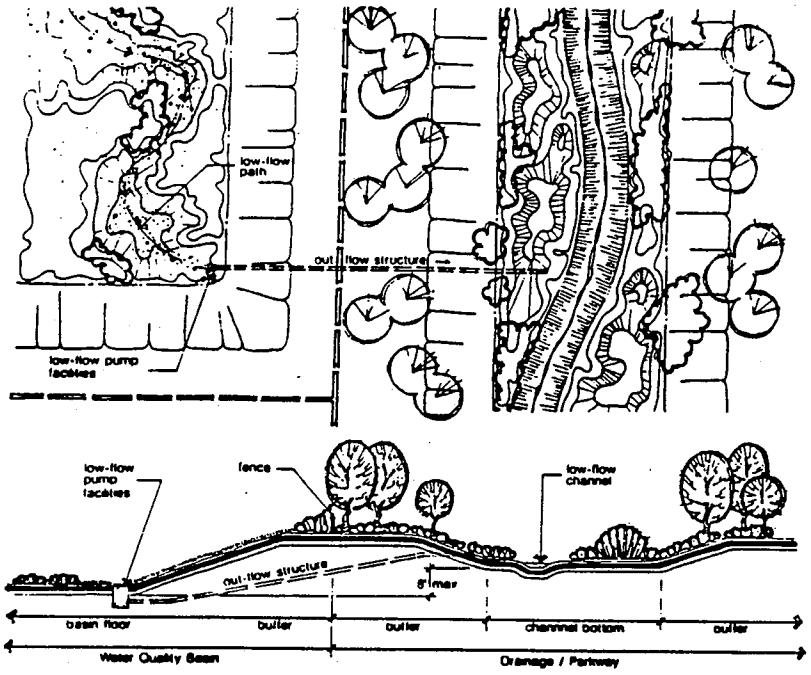
Policy SA-12. The County shall require all new urban development projects to incorporate runoff control measures to minimize peak flows of runoff and/or assist in financing or otherwise implementing Comprehensive Drainage Plans.

Drainage Shed "A". This shed contains approximately 673 acres of proposed development within the Plan area, and exceeds the 640-acre County guideline. The option to construct two smaller NPDES basins or one larger basin was discussed with the County Water Resources Division. It was County staff's recommendation that one large basin be constructed at the most down-stream location to reduce future maintenance costs and to reduce the land requirement for public facilities.

On the basis of the size and imperviousness of the drainage basin, a NPDES basin with a storage volume of 26.5 acre feet is required. The land requirement for this basin is approximately 6.4 acres, using a depth of storage of eight feet below the adjacent channel bottom.

Drainage Shed "B". This shed contains approximately 1,748 acres of proposed development within the Plan area. Using the County's 640-acre guideline and an assumed maximum 8-foot storage volume depth, three NPDES basins are required for this basin. The first basin would serve a drainage shed area of 640 acres and would require 5.1 acres. The second basin would serve a drainage shed area of 342 acres and would require 5.6 acres. The third basin would serve 347 acres and would require 4.1 acres.

Figure 5-14 Water Quality Basin Concept



Trunk Drainage Pipeline System

The SCWRD defines trunk drainage as drainage facilities that serve shed areas in excess of 30 acres. Construction of these trunk drainage facilities are reimbursable through development fees collected by the County. Zone 11 was established as a mechanism for collection and distribution of monies for the construction of trunk facilities.

The East Franklin Specific Plan area is currently outside the County of Sacramento Water Resources Zone 11 boundaries, but is being considered for inclusion in this zone by the Water Resources Division.

Utilizing the County's draft hydrology manual, conceptual drainage pipeline systems were designed for the Plan area, as shown in Figure 5-11. This pipeline system design is based on proposed street alignment, existing ground topography, new County hydrology, pipeline hydraulics, and new channel hydraulics. This layout is conceptual only; adjustments will be required to meet the needs of individual development proposals while keeping the overall concept in mind.

5.5 PUBLIC UTILITIES

This section describes existing public utilities in the vicinity of the Plan area, including electricity, natural gas, and telecommunications (i.e., telephone and cable television), service standards, and Plan implementation impacts on those systems. Policies are described in Section 5.6

5.5.1 Existing Facilities

Electricity

Sacramento Municipal Utility District (SMUD) currently owns and operates overhead 69 kilovolt (kv) powerlines along the north side of Elk Grove Boulevard, along the east side of Franklin Boulevard, and along the north side of Bilby Road. These lines provide the main service to the electrical substation within the Franklin community. SMUD also maintains overhead 12 kv powerlines within Bilby Road, Bruceville Road, and Franklin Boulevard. This electrical grid supplies power to the existing homes and farms located within the Plan area.

Natural Gas

Pacific Gas and Electric Company (PG&E) has two existing underground 6-inch high pressure gas lines that terminate at the north boundary of the Plan area, near the Elk Grove Boulevard/Bruceville Road and Elk Grove Boulevard/Franklin Boulevard intersections. These two lines are currently connected by a number of smaller gas lines within Elk Grove Boulevard that serve the Laguna area to the north. In addition, there is a 16-inch diameter gas main within the Union Pacific railroad easement adjacent to the southwesterly Plan area boundary. This large diameter pipeline serves the Franklin community. No gas service extends into the Plan area presently with the exception of some small residential services.

Telecommunications

Citizens Utilities Company of California has existing underground telephone service at the Elk Grove Boulevard/Franklin Boulevard and Elk Grove Boulevard/Bruceville Road intersections. Additionally, the company maintains existing overhead telephone lines along Franklin Boulevard, Bruceville Road, and Bilby Road. These overhead telephone lines currently provide service to the homes and farms within the Plan area.

Sacramento Cable Television Company facilities have been extended south in Bruceville Road to Elk Grove Boulevard and within Franklin Boulevard south to Elk Grove Boulevard. No cable underground television service currently exists within the Plan area.

Also, Sprint, Pacific Telephone, and MCI underground fiber optic cables are located within easements west of the Plan area boundary. Sprint and Pacific Telephone cables lie within the railroad easement, and the MCI cable is located within the street right-of-way on the west side of Franklin Boulevard.

5.5.2 Service Standards

The service standards for each of these utility providers are established and administered by the California Public Utilities Commission.

5.5.3 Development Impacts/Proposed Facilities

Each of the utility service providers listed in Section 5.5.1 have indicated that adequate in-place infrastructure exists with which to provide initial service to the East Franklin Specific Plan area.

It is anticipated that development within the Plan area will commence in the northeast quadrant, adjacent to Elk Grove Boulevard, and extend to the south. All major existing public utility infrastructure, including electrical, natural gas, telephone, and cable television, is located north of Elk Grove Boulevard and will be extended south as development occurs.

Electrical

SMUD currently operates a small substation immediately north of Bilby Road and approximately 400 feet east of Franklin Boulevard outside the Plan area. SMUD anticipates that this facility will be phased out over time and ultimately replaced by a more modern substation facility on either Bilby or Bruceville roads, somewhere within the southeast quadrant of the Plan area.

SMUD is currently reviewing the Preferred Land Use Plan Diagram to determine if a second substation will be required. The preferred location of this substation site is along Elk Grove Boulevard in the northwest quadrant of the Plan area.

In order to provide adequate electrical service for the entire Plan area, the current electrical grid will be reinforced by placing overhead 69 kv lines down Bruceville Road from Elk Grove Boulevard to Bilby Road. SMUD staff has requested the placement of a new overhead 69 kv electrical line to be constructed along the west side of Bruceville Road from Elk Grove Boulevard to Bilby Road.

With the exception of substations, transformers, service points, and the new lines on Bruceville and Bilby roads, all new electrical facilities within the Plan area will be located underground.

Natural Gas

PG&E anticipates creating a grid of underground 6-inch natural gas lines to serve the Plan area. The 6-inch lines would be located within the public rights-of-way of Franklin Boulevard, Bruceville Road, Elk Grove Boulevard, and Bilby Road. A 6-inch line would also be constructed through the center of the Plan area within the new "1" Street to further strengthen the grid. Smaller underground pipelines would feed from these 6-inch

pipelines to provide service for the individual homes and businesses proposed within the Plan area.

Telecommunications

Citizens Utilities Company of California (CUCC) anticipates that construction of an additional central switching office will be required to provide telephone service to the entire Plan area. These facilities are typically one residential lot in size and are unmanned. This new facility would be tied to the Laguna Central Office with fiber optic cable.

Initial telephone service for the Plan area is available through CUCC's existing conduit and conductor system located at Elk Grove Boulevard and Franklin Boulevard and at Elk Grove Boulevard and Bruceville Road. The existing Laguna Central Office has existing switching capacity to serve a large number of users in the Plan area.

All future telephone service requirements can be met by the extension of the existing underground facilities and construction of new underground remote stations. Remote stations are typically underground vault systems which encumber an area of less than 30 feet by 30 feet.

Sacramento Cable Television Company will provide underground service within the joint trench system to serve the future homes and businesses within the Plan area.

5.6INFRASTRUCTURE POLICIES

5.6.1 General Infrastructure Policies

1. Building permits and improvement plans for proposed projects shall not be approved until a Public Facilities/Financing Plan has been adopted for the Plan area.

2. All development projects shall participate in the cost of constructing master infrastructure facilities. Determination of fair share costs, timing, and funding mechanisms for master infrastructure facilities shall be determined by the adoption of a Financing Plan for this Specific Plan area.

3. Public infrastructure, such as electrical substations, water wells, and sewer lift stations, shall be designed, located and maintained so that safety and nuisance factors, such as noise, light glare, and odors, will not impact nearby land uses.

4. No rezone shall be approved until a Public Facilities Financing Plan for the East Franklin Specific Plan area has been approved by the Board of Supervisors and no final map shall be recorded until the financing mechanisms identified in the Public Facilities Financing Plan have been implemented.

5. All development of the property within the Specific Plan area shall be subject to the payment of fees in accordance with the East Franklin Specific Plan Financing Plan and its implementation, including any authorized adjustments thereto as provided within such Plan, and any other fees adopted by the County in accordance with the requirements of Chapter 5 (commencing with Section 66000) of Division 1 of Title 7 of the Government Code or pursuant to any other enabling law.

6. The Specific Plan and/or the Public Facilities Financing Plan shall be revised to include provisions to allow fees to be collected from project proponents to implement measures to reduce the risk of downstream flooding damage that may occur as a result of project-generated increases in 100-year flood depths. Measures could include, but are not limited to, the following:

   - Providing flood insurance for downstream landowners at locations subject to measurable increases in 100-year water surface elevations as a result of the proposed project;

   - Establishing contingency funds for buying-out or otherwise providing fair-market compensation to property owners of affected structures for flood damages resulting from increased 100-year water surface elevations caused by the project;

   - Flood-proofing of existing structures in downstream locations subject to measurable increases in 100-year water surface elevations as a result of the proposed project. Flood-proofing methods could include, but are not limited to, raising the existing structure above the base flood elevation (BFE), building a

new foundation, reconstructing the structure on fill, or surrounding it with a ring levee;

- Flood-proofing groups of structures (rather than individually) subject to measurable increases in 100-year water surface elevations as a result of the proposed project. Structural protection such as earthen levees, floodwalls, detention basins, or equally effective measures could be constructed to protect downstream locations subject to increased flood depths;

- Implementing a Beach-Stone Lakes Flood Control Plan, or a portion thereof, as ultimately approved by the Sacramento County Board of Supervisors.

(This mitigation has been implemented as a fee component of Zone 11A fee program of the Sacramento County Water Agency)

5.6.2 Water Supply Policies

1. Insure a reliable supply of water to the planning area through the implementation of programs identified in the Zone 40 Master Plan.

2. Install and maintain public fire hydrants with adequate flow to serve the fire protection needs of all residents.

3. Entitlements for urban development within the EFSP area (i.e., subdivision maps, parcel maps, use permits, building permits, etc.) shall not be granted until agreements and financing for supplemental water supplies are in place, consistent with General Plan Policy CO-20. In compliance with this measure, entitlements may only be granted for:

   - areas known to have been subject to prolonged agricultural irrigation;
   - areas for which historic well production data and/or other supporting documentation are provided to the SCWA which satisfactorily demonstrate prolonged irrigated agricultural land uses; or
   - areas for which units are available under the CO-20 development cap restriction imposed by the Board of Supervisors and the Board of Directors of the SCWA based upon progress made toward the acquisition of supplemental water supplies.

4. The water supply master plan for the EFSP shall contain provisions for securing and delivering adequate fire flows to the satisfaction of the Elk Grove Community Services District Fire Department.

5.6.3 Sanitary Sewer Policies

1. Annex developing portions of the planning area into the Sacramento County Sanitation District No. 1 and the Sacramento Regional County Sanitation District, prior to recordation of any final maps or approved improvements plans.

2. Prior to approval of any subdivision map in the EFSP, a detailed pre-design report on sewer facilities shall be approved by the CSD-1.

3. Implementation of off-site sewer facility improvements shall not occur until the following items have been submitted to the Sacramento County Board of Supervisors for review and approval:

   a) A wetland delineation for the improvement area verified by the U S Army Corps of Engineers.

   b) A detailed mitigation plan for wetlands to be impacted by the proposed improvements which specifically describes the measures which will be implemented to achieve no net loss in wetland habitat acreage and values.

   c) Determinate surveys of the improvement area for potentially occurring special status species.

   d) Detailed mitigation plan, developed in cooperation with the regulatory resource agencies (US Corps of Engineers, U S Fish and Wildlife Service, and California Department of Fish and Game), that is designed to reduce impacts of the proposed sewer improvements on any special status species identified in the determinate surveys to a less than significant level.

4. Implementation of off-site sewer facility improvements shall not occur until all necessary permits and/or agreements for the proposed improvements have been obtained from the U S Army Corps of Engineers, U S Fish and Wildlife Service, and California Department of Fish and Game.

5. The Sacramento Regional County Sanitation District shall acquire fee ownership of the 90' interceptor sewer corridor and maintain it until permanent landscaping is in place after the interceptor sewer is constructed. Maintenance shall be *coordinated between SRCSD and* EGCSD.

6. The alternative selected for the interceptor extension into the southeastern portion of the EFSP (Plate SS-G) shall minimize impacts to the planned park and school facilities in this area to the extent feasible.

5.6.4 Storm Drainage Policies

1. Water Quality Basins shall be designed to ensure public safety and shall be visually unobtrusive. Basins shall comply with the guidelines set forth in this Plan.

2. Prior to approval of final design and construction plans for off-site drainage facility improvements, all necessary permits and/or agreements for the proposed improvements must be obtained from the US Army Corps of Engineers, US Fish and Wildlife Service, and California Department of Fish and Game; and the following

items must be submitted to the Sacramento County Board of Supervisors for review and approval:

- Wetlands delineation for the affected area as verified by the US Army Corps of Engineers.
- Detailed mitigation plan for wetlands to be impacted by the proposed improvements which specifically describes the measures that will be implemented to achieve no net loss in wetland habitat acreage and values.
- Determinate surveys for potentially occurring special status species in the affected areas.
- Detailed mitigation plan developed in cooperation with the regulatory resource agencies (US Corps of Engineers, US Fish and Wildlife Service, and California Department of Fish and Game) that is designed to reduce impacts to any special status species identified in the determinate surveys to a less than significant level.

5.6.5 Public Utility Policies

1. All new electrical and telecommunication facilities shall be installed underground, excluding primary transmission lines and substations. Undergrounding of existing overhead facilities should be promoted.