2016 District Services Plan

Fresno Metropolitan Flood Control District

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Table of Contents

CHAPTER 1: INTRODUCTION

The Fresno Metropolitan Flood Control District (District) is a "special act" district, created by the electorate to provide fully coordinated and comprehensive stormwater management and related services on a regional basis through coordination among the Cities of Fresno and Clovis, and the County of Fresno. The legislation that created the District called the Fresno Metropolitan Flood Control Act, can be found in Chapter 73 of the State of California Water Code Appendix and is included as Appendix A with this document. Commonly referred to as The District Act, it was approved by the voters by a five-to-one majority vote (32,030 voting in favor, 5,974 voting in opposition) on June 5, 1956. It was ratified for the purpose of acquiring and constructing facilities for flood control and the drainage of flood, storm and waste waters, and for the conservation of those waters. This services plan presents the mission and general organization of the District, and describes the flood control, urban stormwater drainage, and related programs and services that are provided.

In the following sections the mission, history, and organization of the District are presented, as well as an overview of District services and programs.

PURPOSE OF THE DISTRICT SERVICES PLAN

District staff prepared the 1984 Services Plan in response to a requirement by the Local Agency Formation Commission (LAFCO). Since that time, the District's service objectives have been modified and programs relating to stormwater quality management, rural streams, and wildlife have been added. The stormwater quality management program was developed as a result of federal legislation requiring municipalities to implement National Pollutant Discharge Elimination System (NPDES) permit programs to prevent and reduce pollutants in stormwater. The rural streams program was created in conjunction with the federal Redbank-Fancher Creeks Flood Control Project to preserve the District's natural streams and to convey through those streams the storm flows originating in the foothills and eastern rural areas. The wildlife program was initiated by the District to insure that the District's facilities and programs maximize the protection and enhancement of wildlife resources wherever possible.

This plan presents District goals, program objectives, current program descriptions, and implementation strategies. These comprehensive program descriptions provide reference and orientation information for District staff, Board members, and the public.

The Services Plan also serves as a "project description" of District activities for future California Environmental Quality Act (CEQA) review and documentation. District services, functions, and program plans are defined in the Services Plan to meet the regulatory requirements of a services plan for future LAFCO review and capital improvement program requirements.

GOAL AND MISSION OF THE DISTRICT

The mission of the District is to provide to the citizens living within its boundaries the ability to control and manage the flood, storm, and surface and ground water resources of the area, so as to prevent damage, injury, and inconvenience; to conserve such waters for local, domestic and agricultural use; and to maximize the public use and benefit of the District's programs and infrastructure.

The District is a service agency created by and for the benefit of the community. Its goal is to meet the flood control, drainage, and water resources management needs of its constituency, while adhering to high standards of performance, environmental sensitivity, economic efficiency, and maximization of public benefit.

McKinley and Fairfax 1962

The District works to address stormwater and related water resource problems and needs, while seeking to prevent the creation of new problems. The District strives to achieve these goals within the reasonable time and economic parameters established through collective community discussion and decision-making as entrusted to the District Board of Directors. As a service agency, it is the District's responsibility to respond to the community's needs for technical information, resources conservation, and facility construction, operation, and maintenance.

DISTRICT HISTORY

Downtown 1925

The sequence of events leading up to the formation of the District as a special purpose agency is part of the region's history, which includes overcoming the destruction from repeated flooding events during the first 100 years of development.

It is remarkable to consider how much of our history has been shaped by the benefits and also the destructive power of water. It was the manmade diversion of water from the Kings River into a series of ditches that laid the groundwork for Fresno County to become the nation's leading agricultural region. Water controlled through dams on the Kings and San Joaquin Rivers has provided hydroelectric power to the region. Today, due to expenditures in infrastructure, our community enjoys water for recreation, agriculture, drinking water, industrial purposes, and landscaping.

The history of our region also includes many setbacks from damage caused by winter storms and melting snow overwhelming the banks of local creeks and streams. Big Dry Creek, Redbank Creek, Dog Creek, Pup Creek, and Fancher Creek flow through the landscape that is today home to some 900,000 people. These streams originate in the foothills of the Sierra Nevada Mountains and enter the valley floor with a generally southwestern direction of flow. While these streams are intermittent, in some years producing little or no flow, in other years fast melting snow coupled with heavy rains cause the banks of the natural channel to overtop and water to flow overland, flooding crops, roads, businesses and homes. The damage caused by these recurring events hampered economic development of the area and threatened public health and safety.

The history of flooding is a long one. In 1884, one year before the City of Fresno was incorporated, the business area and nearly all parts of town were submerged by waters from Big Dry Creek, Dog Creek and Fancher Creek forcing travel by boat in the business district.

In March of 1938, the overtopping of Big Dry Creek caused extensive flooding of the Fig Garden area. Waters ranged in depth from one to four feet, damaging homes, eroding top soil from farms, and contaminating drinking water supply wells from overflowing septic tanks. This flood event brought about the construction of a 16,500 acre-foot reservoir on Big Dry Creek by the US Army Corps of Engineers.

During floods in December of 1955, it was Big Dry Creek Reservoir that prevented catastrophic overtopping of Big Dry Creek; however, Fancher Creek, Dog Creek, and Redbank Creek still flowed uncontrolled into the community causing substantial flood damage. Thousands of people were evacuated from homes on Christmas Day 1955. Coincidentally, earlier that year, the State legislature had authorized, subject to approval by local election, the formation of a new agency called the Fresno Metropolitan Flood Control District. In June of 1956, with the memory of recent flooding on the minds of most, the voters approved, by a 5-to-1 margin, the formation of the District, serving then a 54 square mile area, including Fresno and its rapidly growing suburbs.

Until June 5, 1956, the responsibility for stormwater management and related functions was vested individually in the Cities of Fresno and Clovis and the County of Fresno. Until that time, stormwater management generally consisted of independent, site-specific actions intended only to alleviate individual problem locations, failing to create comprehensive solutions. In response to the rapidly increasing number of stormwater management problems and the inability of the three independent jurisdictions to provide an effective, coordinated solution, a citizens' committee formed to explore alternatives.

The purpose of the new District was to acquire, construct, and operate facilities for flood control, stormwater drainage, and water conservation. The original Board of Directors were faced with the challenge of developing a system to manage runoff in a rapidly urbanizing area and dealing with the uncontrolled runoff in streams heading from the eastern foothills.

Since its formation in 1956, the Fresno Metropolitan Flood Control District, under the direction of a citizen Board of Directors, has implemented a master drainage plan and constructed approximately 650 miles of pipeline, purchased and constructed 161 local drainage basins, and helped purchase, operate, and maintain eight (8) flood control reservoirs and detention basins east of our community.

OVERVIEW OF DISTRICT SERVICES AND PROGRAMS

DISTRICT SERVICE AREA

The District is located in the north-central portion of Fresno County between the San Joaquin and Kings rivers. The District is authorized to control stormwaters within an urban and rural foothill watershed of approximately 400 square miles, known as the Fresno County Stream Group. The watershed extends eastward into the Sierra Nevada to an elevation of approximately 4,500 feet above sea level. The District service area includes the Fresno-Clovis metropolitan area (excluding the community of Easton), and unincorporated lands to the east and northeast. Figure 1-1 displays the entire District service area. Figure 1-2 displays the District's Master Plan Map.

Basin D

For the purposes of program planning, structure, service delivery, and financing, a distinction is made between flood control and local drainage services. The flood control program relates to the control, containment, and safe disposal of stormwaters that flow onto the valley floor from the eastern streams. The local drainage program relates to the collection and safe disposal of stormwater runoff generated within the urban and rural watersheds or drainage areas. These and other major District programs are introduced below and described in detail in this plan. All are closely integrated and coordinated to provide efficient, comprehensive services. Collectively, these facilities comprise the "Storm Drainage and Flood Control Master Plan."

Flood Control Program

The District's flood control program consists of a system of facilities and operations which control the flows from several low-elevation streams that drain a part of the west slope of the Sierra Nevada between the San Joaquin and Kings rivers. These streams are collectively referred to as the Fresno County Stream Group. The system is currently composed of ten major flood control facilities and many related streams and channel features. The District is the local sponsor of the U.S. Army Corps of Engineers' (Corps) Redbank-Fancher Creeks Flood Control Project, which consists of five of the system's major facilities. Through its contract with the federal government, the District is responsible for construction cost sharing, land acquisition, operation, and maintenance of the Redbank-Fancher Creeks project. The District is also responsible for construction, operation, and maintenance of additional, non-federal flood control facilities required to control the stream group, and for flood plain management.

Rural Streams Program

Between the easterly boundary of the planned urban stormwater drainage system and the District's eastern boundary, there are approximately 175 miles of streams and channels, many of which are severely obstructed. The District has implemented the rural streams program to preserve, restore, and maintain these channels, and to complete any additional facilities necessary to safely convey storm flows through the rural area and the downstream urban area. The rural streams program includes activities to secure and maintain drainage amenities necessary for rural lands within the watershed.

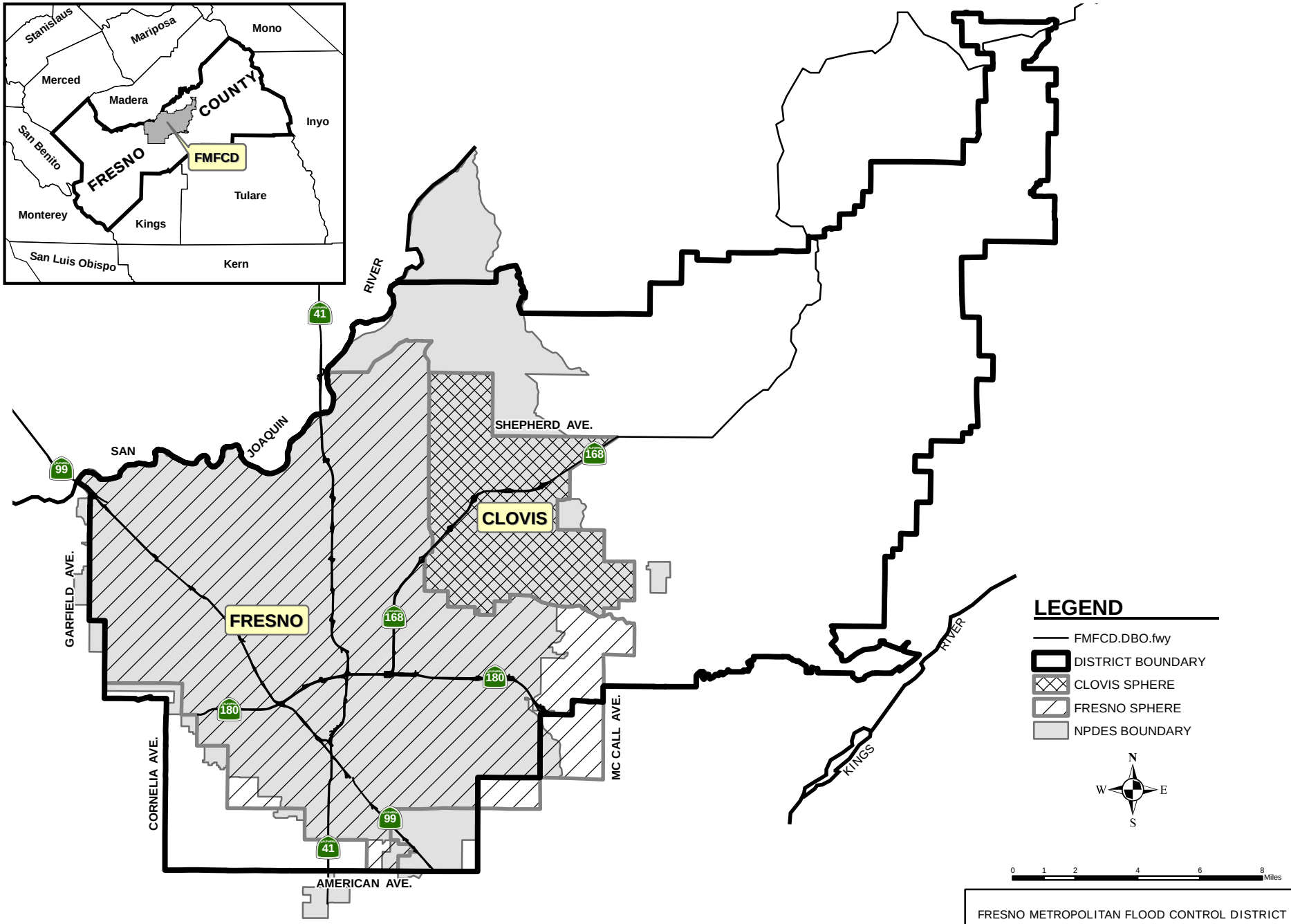
Redbank Creek Reservoir

Local Stormwater Drainage Program

The District's local stormwater drainage system consists of interconnected surface conveyances, storm drains, retention basins, pump stations and outfalls, which discharge to groundwater, irrigation canals, creeks, and the San Joaquin River. The system is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer. The District's Storm Drainage and Flood Control Master Plan includes 164 adopted or proposed drainage areas, each providing service to approximately one to two square miles. All but five of the developed drainage areas are served by a retention or detention facility. Local drainage services include topographic mapping, Master Plan engineering and facility design; system construction, operation, and maintenance; and engineering design services to ensure adequate drainage for new development.

Stormwater Quality Management Program

In compliance with the federal Clean Water Act and implementing stormwater permit regulations, the District and five other local public agencies (County of Fresno, City of Fresno, City of Clovis, CSU Fresno, and Caltrans) developed a stormwater quality management program to be implemented in the Fresno-Clovis metropolitan area. The program proposal was submitted to the Central Valley Regional Water Quality Control Board (RWQCB) as a part of the NPDES municipal stormwater permit process. The RWQCB incorporated into the permit specific program requirements, including



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Prepared By: Kyle Singh
Date: 5/16/2017

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

DISTRICT SERVICE AREA | FIGURE 1-1

NOTE:
The District Board of Directors (Board), pursuant to public testimony at the Public Hearing on December 13, 2017, did not set the exact real property boundaries of Basin "AV". Additional studies will be required before the final location for Basin "AV" is adopted by the Board.

LEGEND

- FUTURE PIPELINES
- EXISTING PIPELINES
- SURFACE WATER FEATURES

DRAINAGE BASINS:

- EXISTING BASIN
- PROPOSED BASIN
- DISTRICT BOUNDARY
- AH DRAINAGE BASIN IDENTIFIER

N
W E
S

0.7 0.35 0 0.7 1.4 2.1 2.8 3.5 Miles

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
SERVICES PLAN

MASTER PLAN MAP | FIGURE 1-2

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Prepared By: Kyle Singh
Date: 1/15/2009

best management practices to prevent and reduce stormwater pollutants. The NPDES permit was issued to the participating agencies in September 1994, and was scheduled expire in September 1999.

In September 2005, the District prepared an application for renewal of the NPDES permit, including assessment of the current program. The permit renewal included four co-permittees: County of Fresno, City of Fresno, City of Clovis, and CSU Fresno. Caltrans was removed from the MS4 permit in the 2001 permit because they were required to get a statewide permit. The new NPDES permit was issued in May 2013 and is scheduled to expire in May 2018.

As owner and operator of the stormwater drainage system serving the metropolitan area, the District has primary responsibility for implementing this mandated program. The stormwater quality management program includes specific pollution prevention and control practices for urban drainage system planning, design, construction, and maintenance. The program also includes public education to prevent stormwater pollution; commercial, industrial, and new development stormwater quality control practices; monitoring to assess stormwater impacts on receiving water and to evaluate the effectiveness of best management practices; and development and implementation of ordinances to effect and enforce stormwater quality controls.

Water Conservation Program

Water conservation benefits are a design objective of the flood control and urban drainage systems, which detain and retain stormwater runoff for groundwater recharge. The District also maintains groundwater recharge contracts with the Fresno Irrigation District (FID) and the Cities of Fresno and Clovis, which provide for dry season delivery of imported surface water into many of the District's local stormwater drainage retention basins. Through cooperative agreements with the Cities, the District continually investigates the feasibility of building additional interties between the surface water channels and basins, and otherwise expanding the system, to increase the system's water conservation capabilities. When practical the District will irrigate with surface water to preserve higher quality water for commercial or industrial use.

Recreation Program

The District includes landscaping of urban basin sites with turf, trees and irrigation systems as part of the improvements in the drainage system. The landscaping stabilizes the soil, adds a green and open space area with aesthetic appeal, and provides the opportunity for recreational activities. Basins in residential areas are designed with depths and slopes that permit large open basin floors to be landscaped and available for passive or active recreational activities. Non-residential basins are designed with depths and slopes that are accommodative to public access. These basins are only landscaped around the top perimeter and are not available for recreational access. The basins in residential areas are made available for recreational use during the dry weather season and are commonly used for public open space, playing fields, and other organized and unorganized recreation. Organized recreation is controlled by the District through facility use agreements. The District has cooperated with the Cities to provide active recreational features, such as baseball fields and playgrounds. The District has improved three sites with recreational features specifically designed for use by physically challenged citizens.

Oso De Oro Park, Basin D

Wildlife Management Program

The District's flood control and urban stormwater drainage programs provide benefits to wildlife. The District's flood control reservoirs and rural streams provide riparian habitat for many birds and other animals. Through implementation of a Memorandum of Understanding (MOU), which serves as a section 1602 Master Streambed Alteration Agreement between the District and the Department of Fish & Wildlife (DFW), authorized rural stream activities, including channel flow capacity restoration, are intended to accomplish long-term net benefits for fish, wildlife, water quality, native plants, and stream habitat. Furthermore, the Master MOU provides for wildlife habitat improvement to be incorporated comprehensively into District stream restoration projects in lieu of imposing incremental requirements on a project-by-project basis, and results in a net benefit to wildlife and habitat.

Canada Geese

The District has also designated three areas at its reservoirs as existing or potential wildlife habitat. Many urban retention basins also provide wildlife benefits. The District has implemented the wildlife program to conserve and enhance habitats in its facilities, and to provide related environmental education and awareness opportunities to the public.

DISTRICT ORGANIZATION

District Board of Directors

A seven member Board of Directors governs the District. The Fresno City Council appoints four members; the Fresno County Board of Supervisors appoints two members; and the Clovis City Council appoints one member. Each director serves a 4-year term and may be re-appointed for consecutive terms. Board meetings normally occur on the second and fourth Wednesday of each month. The Board must approve the District budget, fees and assessments, direct matters of policy and enact ordinances, and perform other responsibilities authorized and required by the District Act.

Assets

The District's physical assets consist of the flood control and local drainage structures and real property, the operations center, and equipment. With completion of the District's system of flood control facilities, the flows of the stream group will be controlled by eight major flood control structures (dams, reservoirs, and detention basins) and other appurtenant facilities. The five major components of the system initially constructed with the Corps as the Redbank-Fancher Creeks Flood Control Project were completed in 1993 at a total cost of approximately $73.6 million.

As of June 30, 2016, the District had invested $365,972,936 building the local stormwater drainage system. This value represents the actual cost at the time of construction, and does not reflect the current value of the system to the community. As of 2017, the system includes 79 completely excavated basins, 74 incomplete basins, 84 pump stations, and approximately 660 miles of pipeline.

Revenue Sources and Financing

The financing program of the District includes five major categories of revenues. These include (1) general property tax; (2) assessments; (3) bonds; (4) fees and service charges; and (5) grants and contributions. In addition to these, the District receives minor miscellaneous revenues such as rents and leases, interest, and gifts. The general authority to receive or

collect such revenues is set forth in the District's enabling legislation, other state legislation under which the District is an eligible participant, and through joint powers relationships in which the District participates.

PROPERTY TAXES AND BENEFIT ASSESSMENT TAXES

PROPERTY TAX

The primary funding mechanism for the District was established by the Fresno Metropolitan Flood Control District Act enacted in 1956 by the State Legislature. The Act established an annual property taxing authority to carry out the objectives of the Act. The annual tax levy created was an "ad valorem" property tax to be based on a percentage of the fair market value of a piece of property. The Act limits the amount of tax levied during any year for all purposes (other than bond principal and interest) to an amount not to exceed twenty cents ($0.20) on each one hundred dollars ($100) of the assessed value of the taxable real property according to a current County property tax assessment roll.

In 1978, Proposition 13 substantially changed property tax assessments in California by capping property tax at one-percent (1%) of the assessed value of the property based on a 1975 valuation date. Additionally, Proposition 13 limits increases in the value used to assess a property to two percent (2%) plus new construction in any one year. For example, if the fair market value of a property increases by 5 percent in one year, the value used for tax assessment would be limited to a growth of two percent in that year.

As a result of Proposition 13, County Assessors would no longer track the fair market value of individual property for tax assessment purposes, thereby eliminating the ability for the District to collect property taxes on an "ad valorem" basis. Instead property taxes were allocated on a formula determined by State law. Beginning in 1983, the District's share of property tax was significantly reduced. In the years following Proposition 13, the District received "bail out" money from the State, however by 1992 those monies were no longer available. Faced with huge State budget deficits in 1992-1993 and 1993-1994, State officials began shifting property taxes from local governments (cities, counties, special districts, and redevelopment agencies) to an Educational Revenue Augmentation Fund (ERAF) in each county. Today, the District's property tax allocation is reduced by approximately 40% to fund ERAF.

Property tax assessments of the District are to be expended for the acquisition and provision of all general benefit services including:

- Area-wide flood control
- Water conservation
- Storm drainage and flood control master planning
- Water pollution controls
- Development review
- Public information
- Engineering data systems
- Administration

FLOOD CONTROL SYSTEM PROJECT ASSESSMENTS - BENEFIT ASSESSMENT TAX

Because of reduced property tax allocations and the need to fund the local cost share of the Redbank-Fancher Creek Flood Control Project, in 1985 the Fresno Metropolitan Flood Control District Act was amended to allow for an alternative method of calculating an annual tax levy. The alternative method authorizes an assessment based upon proportionate benefit to a parcel taking into account the zone in which it is located, its size, and its capacity for being put to use, with respect to all other parcels in the District. The first benefit assessment was authorized by the District Board of Directors on June 29, 1987 after a multi-year and very comprehensive study by a citizen's advisory committee (Resolution 1373).

The committee recommended, and the Board adopted a fee structure that took into consideration land use of a parcel as well as the parcel's zone of benefit.

Land Use Categories include the following:

- Single family residential
- Multi-family residential
- Rural residential
- Commercial/industrial
- Irrigated agricultural
- Non-irrigated agricultural

Zones of Benefit included the following:

- Zone 1 – Flood Plain benefit Zone
- Zone 2 – Water Resource Benefit
- Zone 3 – Indirect Benefit Zone
- Zone 4 – Upland Watershed

The following is a general chronology of changes to the assessment tax since its initial adoption in 1987.

- 1987 – Initial adoption of the Assessment Tax (Resolution 1373).
- 1993 – The assessment tax rate is updated to address property tax loss to the State through ERAF, increased operation and maintenance costs, and to help fund federally mandated stormwater quality programs (Resolution 1703).
- 1997 – Assessment Tax Update (Resolution 97-112).
- 2000 – The rate assessed to properties in Drainage Areas "II" and "RR" were increased to fund infrastructure upgrades including repayment of a 20 year California Infrastructure and Economic Development Bank (CIEDB) Loan. The assessments also included funding for capital projects in those drainage areas. (Resolution 2000-238).
- 2001 – Assessment Tax Update (Resolution 2001-282).
- 2004 – The assessment tax rate for Tracts 1633 and 1645 in Drainage Areas "BH" and "BM" was increased to the maximum amount authorized by the District Act to fund an improved drainage system in cooperation with the County of Fresno. The tax rate is the same as the rate used in the "II" and "RR" drainage zones.

Pre-Paid Drainage Assessments

The District funds construction of planned local drainage facilities and improvements with a local drainage fee. The fees are collected at the time a parcel of land is developed or divided. The fees levied are to pay for all or part of the cost of planned local drainage facilities and improvements identified in the Fresno Metropolitan Flood Control District Flood Control Master Plan. Fees are deposited into a separate trust account to fund exclusively the construction of Master Plan improvements within a planned drainage area.

Each year the fee rates are reviewed by the Board of Directors and updates are made as needed. State law restricts the use of these funds for the purpose for which they were collected. Therefore, these funds are held in a trust account and expenditures are made to fund projects in the drainage area for which they were collected.

Other Sources of Revenue

The District receives revenue from fees, grants, loans, and revenues from the use of District assets (rents from leased land, interest, etc.). The largest sources of revenue in this category are fees generated from the Dirt Permit Program currently set at $0.60 per cubic yard of material.

Organizational Structure and Functions

District Personnel

In fiscal year 2017-2018, the Board of Directors authorized 78 full-time positions. Organizational functions are separated into two primary divisions: administration and engineering. The General Manager-Secretary and management and support staff performs district administration. Major functions include accounting, assessment collection, office management and clerical support, land acquisition, legal services, community relations, and environmental resources management.

District engineering functions include system master planning, design, construction, development review, and facility operations and maintenance. These duties are performed by staff engineering personnel, consultants, and contractors under the direction of the District General Manager-Secretary through the District Engineer.

System operations and maintenance activities involve District field staff that monitor all facility operations, perform pump maintenance and equipment repairs, facilitate water diversions and deliveries, and investigate illegal dumping and nuisance complaints related to the storm drain system. Field staff monitors the performance of vendors providing maintenance services and direct maintenance crews that perform pipeline system cleaning on a contract basis to the District. Field staff also performs inspections of all construction projects to ensure conformance to District design and construction standards.

District staff performs master plan and design engineering for the rural streams system, review and comment on development entitlement applications within the District boundaries, and direct the master planning and design engineering of the urban storm drainage systems performed by the District's consultants. Staff administers the Drainage Fee Ordinance of the three land use entitlement agencies (City of Fresno, County of Fresno, and the City of Clovis) and administers a system of reimbursements for developers who advance facility construction in excess of their drainage fee obligation.

Private Contractors and Consultants

The District contracts with private entities for many administrative, environmental, and engineering services; for most maintenance services; and for all appraisal and construction services. Legal services and legislative review are performed through an agreement with private legal counsel. Community relation’s activities and many environmental resources planning and compliance activities are performed through professional service contracts. Master plan design engineering is performed by private engineering firms under professional service contracts. Maintenance of all dams, reservoirs, basins, pipeline systems, and all construction activity are contracted with private enterprise.

CHAPTER 2: FLOOD CONTROL

The flood control program consists of management of streams and drainage channels throughout the District service area, producing widespread benefits. Citizens owning property, residing, or working within the floodplain of the Fresno County Stream Group receive direct benefits from the flood control services. Citizens relying on the area's groundwater aquifer for domestic, industrial, or agricultural uses benefit from the stormwater conservation and water resources management services derived from the flood control and urban drainage systems. Those relying on the availability and delivery of surface water, benefit from the system's surface water management improvements. The community benefits from the public open space, recreational opportunities, and wildlife habitat created by the system. The system also produces a variety of indirect economic benefits to the properties, businesses, and people of the District.

OBJECTIVES

The District has established the following flood control objectives:

A. Design, develop, and implement a structural flood control system that protects the people and property within the District boundaries from damages, injury and economic loss caused by the flows in the Fresno County Stream Group.

B. Control all streams flowing through the Fresno-Clovis metropolitan area so as to permit the safe routing of flows.

C. Coordinate operation of the flood control, urban storm drainage, and irrigation conveyance systems to maximize flood and stormwater management capacities while protecting the irrigation system and related agricultural land from potential adverse impacts.

D. Discourage structural development and displacement of flows within the primary floodplain (Zone A, 100 year inundation). Encourage flood proofing of all development within secondary floodplains (Zone X, 500 year and 100 year with depths less than 1 foot) to protect such development from the rainfall/runoff event and prevent displacement of flows in such floodplains.

E. Design, construct, and operate the flood control, rural stream, and urban drainage systems to be hydrologically and hydraulically integrated, and automatically monitored and controlled.

F. Publicize floodplain information and provide guidance to land use entitlement agencies regarding floodplain management practices.

G. Maximize the beneficial use of the District's flood control facilities, including recreation, water conservation, and wildlife habitat uses.

PROGRAM DESCRIPTION

The flood control program is a primary responsibility of the District. Program activities include service and facility planning for all lands within or which may be added to the District; local sponsorship of state and federal flood control projects; construction, operation and maintenance of all necessary flood control structures; the preservation and maintenance of all natural streams within the District; and floodplain management.

FLOOD CONTROL FACILITIES

Prior to the construction of the Redbank-Fancher Creeks Flood Control Project, the District managed flood flows through Redbank and Big Dry Creek reservoirs and the coordinated use of irrigation canal systems. Record floods caused millions of dollars of property damage in December 1955, January 1956, and January/February of 1969. Significant street flooding and property damage also occurred in 1978, 1983, 1986, 1991, 1992, 1993, and 1995.

Enterprise Canal 1969

The U.S. Army Corps of Engineers Redbank-Fancher Creeks Project provided for the construction of five major flood control facilities for the Fresno County Stream Group. As the local sponsor of the Project, the District is responsible for local project funding; land acquisition; operation, maintenance, repair, rehabilitation, and replacement of the completed project features; and full assumption of all project liabilities.

The Project provides significant flood damage reduction benefits to the area. The expansion of Big Dry Creek Dam increased flood protection from the former 1.67 percent (60-year, 30-day) event to the Standard Project Flood, 0.43 percent plus or minus (approximately 230-year, 30-day) event. Fancher Creek Dam and the detention basins on Pup Creek, Alluvial Drain, and Redbank Creek each provide control for storm flows of a 0.5 percent (200-year, 30-day) event. The Project significantly reduces downstream peak flows from the major foothill streams. It allows for the controlled release of stored floodwaters and extends flow over a longer time, increasing the potential for water conservation, groundwater recharge, and improved downstream water quality.

Holland Creek Diversion Channel

The major structural elements of the flood control system include: 1) Big Dry Creek Dam and Reservoir; 2) Fancher Creek Dam and Reservoir; 3) Redbank Creek Dam and Reservoir; 4) Pup Creek Detention Basin; 5) Alluvial Drain Detention Basin; 6) Redbank Creek Detention Basin; 7) Fancher Creek Detention Basin; 8) Big Dry Creek Detention Basin; and 9) Holland Creek Re-Diverson Project. Most of the structural elements of the system were completed by January 1994. The Holland Creek Project was completed in December 1999 and Fancher Creek, Big Dry Creek, and Pup Creek/Enterprise Detention Basins are currently under construction. Fancher Creek Detention Basin will provide direct benefits to downstream landowners. Table 2-1 identifies the location of these facilities and lists the structural elements of the District's flood control system.

The District has finalized the design of the Dry Creek Extension Basin located near Brawley and Annadale Avenues. This will be a rural flood control basin located southwest of the City of Fresno. It will provide storage for floodwaters flowing through Fanning and Dry Creek Canals and provide groundwater recharge benefits. The initial design of the basin was for a 20 acre basin site which is fully excavated. The District added an adjacent 23 acre site to provide additional storage. This basin is being constructed by the District and is not part of the Federal Redbank and Fancher Creeks Project.

The Stream Group, man-made channels, and existing impounds are used conjunctively to provide economical flood control. In order to maximize the use of both natural and man-made channels, several flood control structures are

incorporated in the system for diversion and control of flood flows. System design also includes establishing and maintaining specific minimum capacities in certain channels. This is an obligation exacted by the Federal Government as a part of the U.S. Army Corps of Engineers Redbank-Fancher Creeks Project and a necessity to assure the safe routing of flood flows. Lastly, the system includes the preservation of specific existing flood plains and existing surface impoundments that provide storage and attenuation of peak flood flows. Figure 2-1 delineates the location of the flood control facilities and rural streams.

OPERATIONS

Operation of the flood control program is complex. It involves the coordination of flows and facilities with respect to: (1) the natural watercourses, (2) the flood control structures and their discharge; (3) the irrigation canal system; and (4) the urban drainage system. Operational responsibilities include the maintenance of, and adherence to, the explicit operational procedures established by the Corps for any structures constructed under their sponsorship.

Routine storm events require minor oversight of the system. However, larger or successive storm events that significantly fill any flood control or urban drainage feature must be closely monitored to anticipate and determine operational requirements, and to manipulate controls to minimize flooding. To the extent practical, the system will be monitored and controlled through automated telemetry systems being designed and installed by the District.

MAINTENANCE

The maximum operational performance of flood control structures is rarely required. However, events of even modest magnitude exert extreme stress on the facilities. The reliability of the structures is therefore dependent upon routine inspection and maintenance. Maintenance is performed under the direction of the District and supervision of the Corps and the California Division of Safety of Dams. Facilities requiring maintenance involve: 1) structures such as dams, gates, valves, pumps, debris control structures, weirs, spillways, pipelines, and culverts; 2) channels; and 3) basins and reservoirs. The maintenance of structures includes fire hazard reduction, rodent control, debris removal, routine preventative maintenance, and subsidence and groundwater monitoring to ensure continued structural integrity.

Maintenance of channels both upstream and downstream of flood control structures is necessary to ensure conveyance efficiency and in-stream flow discharge capacity. Facilities requiring maintenance may involve restoration of eroded channel banks, removal of silts and sedimentation deposits, the control or removal of vegetation that would obstruct or divert flows, the removal of debris, and protection of the channel from encroachments. Channel maintenance is further discussed in Chapter 3, Rural Streams Program.

Basins and reservoirs require the occasional removal of silt and storm debris to maintain the design storage capacity. Periodic repair of eroded slopes and upkeep of slope protection (cobbles or rip-rap) in the basins and reservoirs are also conducted as needed.

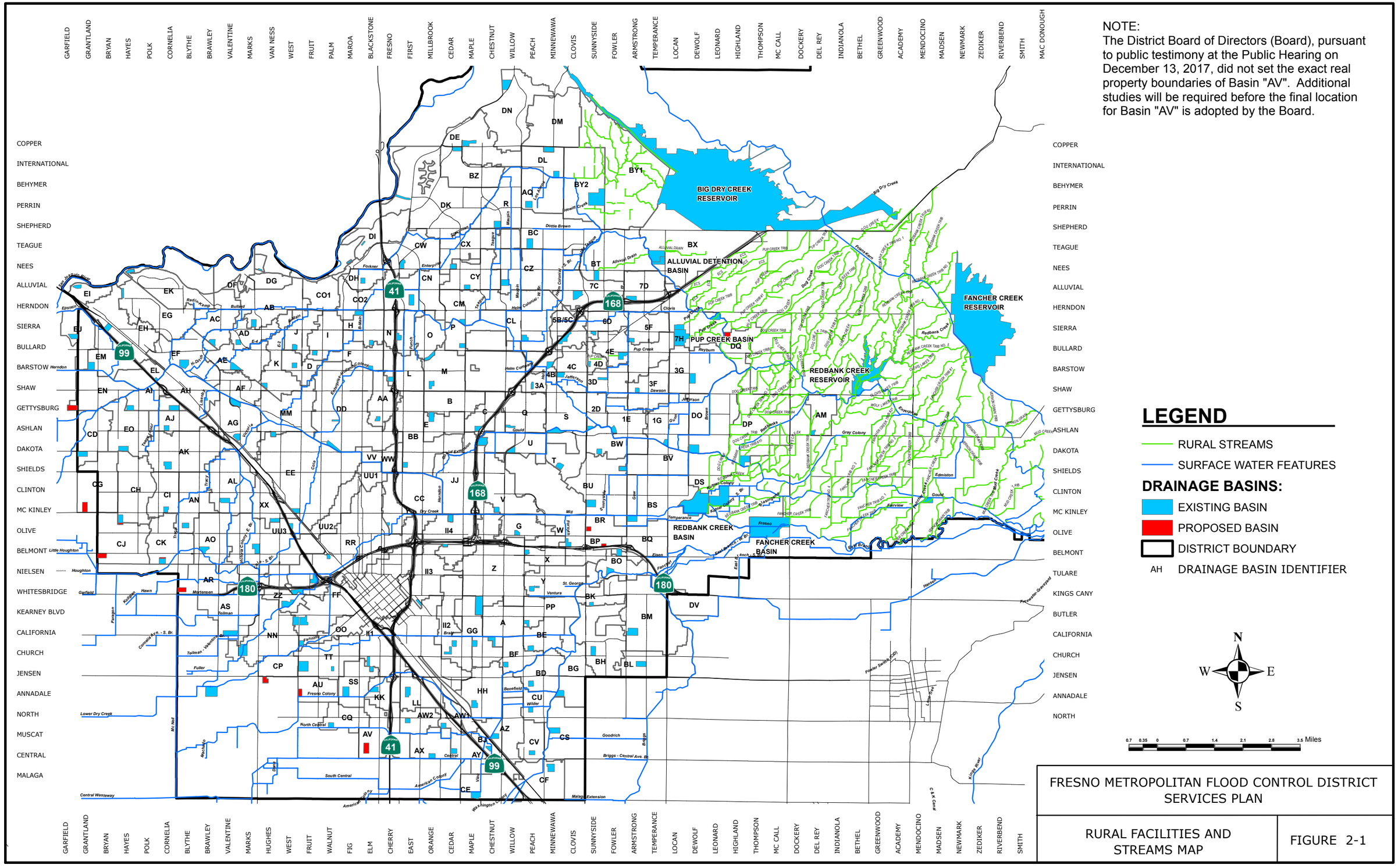
NON-STRUCTURAL FLOOD CONTROL SERVICES

The District serves as a repository of all topographic and hydrologic floodplain data for the lands within its boundaries. District staff reviews all development proposals for flood control-related impacts. Land use proposals are evaluated regarding floodplain proximity, the need for the application of floodplain management requirements, the need for system improvements (e.g., channel construction), the acceptability of proposed facilities and runoff disposal methods, and the need to require dedication of channel easements. Topographic and hydrologic data, floodplain information and maps are made available to other public agencies, landowners, the general public, realtors and developers. District staff also assists in the resolution of localized flood control related problems that periodically arise between individual landowners.

TABLE 2-1: DISTRICT'S MAJOR FLOOD CONTROL FACILITIES

FLOOD CONTROL STRUCTURE	DESCRIPTION
Big Dry Creek Dam and Reservoir	Located on Big Dry Creek; controls Big Dry and Dog creeks; built in 1948 and enlarged in 1993; gross pool capacity of 30,200 acre-feet; controls up to 230-year event flood flows.
Fancher Creek Dam and Reservoir	Located on Fancher Creek; controls Fancher and Hog creeks, and several unnamed tributaries to Redbank Creek; built in 1991; gross pool capacity of 9,700 acre-feet; controls up to 200-year event flood flows.
Alluvial Drain Detention Basin	Located east of Enterprise Canal on Alluvial Drain; controls flows from Alluvial Drain and an unnamed tributary; built in 1993; gross pool capacity of 385 acre-feet; controls up to 200-year event flood flows. Proposed modifications to incorporate the urban Basin "BX" will increase the capacity to 913.5 acre-feet.
Redbank Creek Detention Basin	Located at the confluence of Mill Ditch and Redbank Creek; controls flows from Redbank Creek; built in 1990; gross pool capacity of 940 acre-feet; controls up to 200-year event flood flows.
Pup Creek Detention Basin	Located west of the Enterprise Canal on Pup Creek; controls flows from Pup Creek and from an unnamed tributary; built in 1993; gross pool capacity of 630 acre-feet; controls up to 200-year event flood flows. Proposed modifications to incorporate the urban Basin "7H" will increase the capacity to 785.4 acre-feet.
Redbank Creek Dam and Reservoir	Located north of the Enterprise Canal at the confluence of the major Redbank Creek tributaries; controls the flows of Redbank Creek; built in 1961; gross pool capacity of 1,030 acre-feet; controls up to the 200-year event flood flows.
Fancher Creek Detention Basin	Located south of McKinley Avenue at the divide of Mill Ditch and Fancher Creek; controls the flows of Fancher Creek and Mud Creek watersheds; currently under construction; gross pool capacity will be approximately 1,891 acre-feet; will control up to the 200-year event flood flows. Currently it has the capability to manage the 100-year event flood flows.
Big Dry Creek Detention Basin	Located south of Ashlan Avenue and East of Freeway 168 at the confluence of Big Dry Creek and the Gould Canal; facility shares capacity with Drainage Area "C", CSUF, and Caltrans; controls flows in Big Dry Creek; currently under construction; gross pool capacity will be approximately 259.8 acre-feet; will help manage flows in Big Dry Creek originating from rural streams or urban discharges.
Holland Creek Re-Diversion Project	Located westerly of Trimmer Springs Road and south of the Friant-Kern Canal. This project has the capability to return overland flows from the Holland Creek watershed that previously would have been conveyed uncontrolled into the urban area, to its historic confluence with the Kings River. It has the capability to manage the 200-year storm event flood flows of 2,030 cubic feet per second.
Pup Creek Enterprise Detention Basin	Located southeast of Herndon and DeWolf Avenues; recently purchased; construction will begin in 2017-2018; initial capacity proposed at 50 acre-feet and ultimate capacity of 200 acre-feet; controls flows in Pup Creek.
Dry Creek Extension Basin	Located northwest of Annadale and Brawley Avenues; capable of diverting flood flows from Big Dry Creek and Fanning Ditch; currently under construction on 45 acres with a capacity of 860 acre-feet; improves flood routing throughout urban area.

NOTE:
The District Board of Directors (Board), pursuant to public testimony at the Public Hearing on December 13, 2017, did not set the exact real property boundaries of Basin "AV". Additional studies will be required before the final location for Basin "AV" is adopted by the Board.



LEGEND

- RURAL STREAMS
- SURFACE WATER FEATURES

DRAINAGE BASINS:

- EXISTING BASIN
- PROPOSED BASIN
- DISTRICT BOUNDARY
- AH DRAINAGE BASIN IDENTIFIER

N
W E
S

0.7 0.35 0 0.7 1.4 2.1 2.8 3.5 Miles

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
SERVICES PLAN

RURAL FACILITIES AND STREAMS MAP

FIGURE 2-1

Prepared By: Kyles
File: N:\GIS\projects\ENVIRON\services plan\2-1.mxd
Date: 12/19/2017

PROGRAM PLANNING

The flood control systems' dams, basins, and reservoirs will greatly improve the management of flood waters within the Fresno County Stream Group and will provide flood protection levels equal to or exceeding the District's minimum design standards. However, the system also requires a variety of additional improvements within the watershed. Many of these are mandated by the federal government to ensure that the Redbank-Fancher Creeks Flood Control Project functions in accordance with its design and operational specifications. Typical improvements to be addressed by the District, in accord with the Local Cooperation Agreement, are described below.

FLOOD DETENTION BASINS

The physical facilities of the flood control system consist of three reservoirs, five regional flood detention basins, urban basins used for regulating flows, outlet structures, and natural and constructed channels.

Four of the five flood detention basins are located on major foothill streams and adjoining canals in or near the urban area. The basins are designed to detain and control flood flows of the major creeks and unnamed tributaries. The District's system also controls flood flows within the local canal system, which ultimately discharges into the San Joaquin River or the FID Fancher and Big Dry Systems.

Rural detention basins are designed to control up to a 200-year flood flow event with the urban detention basins assisting in meeting the objectives of rural flood flow controls. The size of each rural basin depends on the watershed it serves and its operational function. Outlet gates regulate the amount of flow released from basins. Regulation of outflow from detention basins is designed to ensure adequate storm runoff conveyance capacity in the canal system through the metropolitan area. In general, rural detention basin depths range from 5 to 15 feet, and have side slopes no steeper than 6:1.

Rural detention basins are fenced for public safety reasons and are currently closed to the public. Basins could be used during the dry season for recreational purposes.

RESTORING STREAM CHANNEL FLOW CAPACITIES

Restoration activities would reestablish flow capacity within channel beds and banks, restore hydrology, improve water quality, and improve conditions for native habitat. Typical activities that would be performed include: restoring and preserving flow paths and capacities by securing easements, widening channels or creating parallel high-flow channels where necessary, removing and maintaining channels free of obstructions such as small culverts, debris, and invasive vegetation, and reestablishing obstructed channels within historic alignments where possible. To restore the flow capacities of altered channels, all undersized facilities (e.g., inadequate culverts) would be removed, as necessary, in addition to removing restrictive encroachments.

Activities would include, but not be limited to, grading, excavation, implementation of erosion controls, and culvert installation or modification. Culvert modifications that could affect County roadways would be coordinated with the County of Fresno Public Works and Development Services Department. Downstream channels would be restored to provide sufficient capacity prior to upstream improvements.

In some areas where a channel has been completely eradicated due to development or grading, it may not be practical to restore the historic flow path. In those cases, a new alternative conveyance route may be constructed. Stream channels that have been entirely or partially blocked by intersecting canals overflow into the canals at these intersections, contributing to regional flooding and damage to properties and the canal system itself. Installing new siphons or enlarging existing siphons under the canals would restore downstream channel flows.

Diverting Stream Flood Flows from Canals into Restored Channels

In order to re-divert stream flood flows that enter canals back into streams, where desirable, diversion structures at canal/stream intersections would be constructed or enlarged. Diversion structures, including gates, flumes, and siphons, would typically consist of reinforced concrete with openings that direct flows.

Improving Operational Capabilities and Routing Flexibility

Flood management capabilities would be improved by: increasing the diversion capacity of existing culverts, gates, siphons, and other control structures through either rebuilding or replacing the structures on streams; installing weirs and gages to measure water flow and depth; improving the ability to control the velocity of flow through the structures by either manual, remotely automated, or set-in-concrete means; and developing multi-function retention and detention basins in the metropolitan area with enhanced flood storage capacities, and relief pump and pipeline connections to the canal system.

Filling and Grading Properties Adjacent to Creeks

Filling and grading properties adjacent to creeks would reduce the risk of flooding, improve the use of adjoining streets and land, and secure design flow capacities in the creeks. Grading should not deposit fill within the bed or banks of the creek, and would not create adverse displacement of surface water flows that would result in increased risk of flooding relative to adopted floodplain maps and federal flood control project standards.

Representative flood control and rural streams projects include: reconstructing and enlarging existing control structures in the Gould Canal to route additional flows into Redbank Creek; restoring the flow capacities of Redbank and Fancher creeks through channel restoration; and constructing control structures to divert flows in excess of design flows from the Enterprise Canal to Fancher and Big Dry Creeks.

In 1996, the 100-year floodplain maps prepared for the Federal Flood Insurance Program were updated to reflect the Redbank-Fancher Creeks Flood Control Project improvements. The Federal Emergency Management Agency (FEMA) and the local land use entitlement agencies approved the revised maps.

PERTINENT REGULATIONS AND AGREEMENTS

The flood control program is guided by the District Act and related elements of the California Water Code, the Local Cooperation Agreement with the Corps, general plan policies of the Cities of Fresno and Clovis and County of Fresno, and the National Flood Insurance Program (NFIP). The requirements and policies of these regulations most relevant to flood control are discussed below. The referenced documents and local ordinance codes include more detailed standards and requirements not itemized herein.

District Act

Flood control is one of the services mandated by the District Act as stated in the objects and purposes (Section 73-7):

> *...the District shall provide for (1) the control of flood, storm, and other waste waters of or within the District, including waters which arise outside the District and which flow or drain into or through the District...*

California Water Code, Cobey-Alquist Act

The Cobey-Alquist Flood Plain Management Act of the State of California establishes mandatory flood plain management objectives, prohibiting inappropriate development that may endanger life or significantly restrict the carrying capacity of

the designated floodway. The Act states the primary responsibility for planning, adoption, and enforcement of land use regulations to accomplish flood plain management rests with local levels of government. It is the policy of the State to encourage government to accomplish and provide the State assistance and guidance for flood plain management. The Cities and County have developed flood plain management ordinances that comply with the regulations set forth in Section 8411 of the Act. The District adopted and has implemented the flood plain policies developed by the local jurisdictions.

Local Cooperation Agreement

The Local Cooperation Agreement between the District and the Corps identifies the responsibilities of the agencies involved in the Redbank-Fancher Creeks Project. The agreement requires the District to operate, maintain, inspect, rehabilitate and replace the project features in accordance with federal criteria. The District is obligated to ensure that the Project may be successfully operated as designed. It requires the District to maintain capacities of channels as identified in the Water Control Manual and the General Design Memorandum, and enforce regulations to prevent obstruction or encroachment that would impair the effectiveness of the Project. The agreement requires the District to adjust all claims regarding water rights. It requires the District to publicize floodplain information and to provide information to land use agencies for use in floodplain management. The agreement requires the District to indemnify the federal government as to all project liability.

Local General Plans

The Cities of Fresno and Clovis and the County of Fresno general plans have flood-control related objectives. In general, the flood control objectives of the County and the Cities support the District's objectives and activities, and encourage coordination of flood control system planning and construction with land use planning and development.

City of Fresno

NS-3. OBJECTIVE: *Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.*

NS-3--a. Policy: Storm Drainage and Flood Control Master Plan. *Support the full implementation of the Fresno Metropolitan Flood Control District (FMFCD) Storm Drainage and Flood Control Master Plan, the completion of planned flood control and drainage system facilities, and the continued maintenance of the stormwater and floodwater retention and conveyance facilities and capacities. Work with the FMFCD to make sure that its Storm Drainage and Flood Control Master Plan is consistent with the General Plan.*

NS-3-b. Policy: Curb and Gutter Installation. *Coordinate with FMFCD to install curbing, gutters, and other drainage facilities with priority to existing neighborhoods with the greatest deficiencies and consistent with the Storm Drainage and Flood Control Master Plan.*

NS-3-c. Policy: Dual Use Facilities. *Support multiple uses of flood control and drainage facilities as follows:*

- *Use, wherever practical, FMFCD facilities for groundwater management and recharge: and*
- *Promote recreational development of ponding basin facilities located within or near residential areas, compatible with the stormwater and groundwater recharge functions.*

NS-3-d. Policy: Landscaped Buffer. *City will support the development of FMFCD ponding basins including the landscaping and irrigation for the top one third of the side sloped areas consistent with the FMFCD Basin Design Criteria.*

NS-3-e. Policy: Pollutants. *Work with FMFCD to prevent and reduce the existence of urban stormwater pollutants pursuant to the requirements of the National Pollution Discharge Elimination Systems Act.*

NS-3-f. Policy: Flooding Emergency Response Plans. *Work with responsible agencies to update emergency dam failure inundation plans, evacuation plans and other emergency response plans for designated flood-prone areas, including the San Joaquin riverbottom.*

NS-3-g. Policy: Essential Facilities Siting Outside of Floodplains. *Avoid siting emergency response and essential public facilities, such as fire and police stations, within a 100-year floodplain, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.*

NS-3-h. Policy: Runoff Controls. *Implement grading regulations and related development policies that protect area residents from flooding caused by urban runoff produced from events that exceed the capacity of the Storm Drainage and Flood Control Master Plan system of facilities. Place all structures and/or flood-proofing in a manner that does not cause floodwaters to be diverted onto adjacent property, increase flood hazards to other property, or otherwise adversely affect other property.*

NS-3-i. Policy: New Development Must Mitigate Impact. *Require new development to not significantly impact the existing storm drainage and flood control system by imposing conditions of approval as project mitigation, as authorized by law. As part of this process, closely coordinate and consult with FMFCD to identify appropriate conditions that will result in mitigation acceptable and preferred by FMFCD for each project.*

Commentary: The City recognizes the expertise and significant role of the FMFCD, and will give the highest deference to its recommendations for mitigation measures, consistent with applicable law.

NS-3-j. Policy: National Flood Insurance Program. *Continue to participate in the National Flood Insurance Program (NFIP) by ensuring compliance with applicable requirements. Review NFIP maps periodically to determine if areas subject to flooding have been added or removed and make adjustments to the Land Use Diagram Figure LU-1.*

NS-3-k. Policy: 100-Year Floodplain Policy. *Require developers of residential subdivisions to preserve those portions of development sites as open space that may be subject to 100-year flood events, unless the flood hazard can be substantially mitigated by development project design.*

NS-3-l. Policy: 200-Year Floodplain Protection. *Promote flood control measures that maintain natural conditions within the 200-year floodplain of rivers and streams and, to the extent possible, combine flood control, recreation, water quality, and open space functions. Discourage construction of permanent improvements that would be adversely affected by periodic floods within the 200-year floodplain, particularly in the San Joaquin riverbottom.*

NS-3-m. Policy: Flood Risk Public Awareness. *Continue public awareness programs to inform the general public and potentially affected property owners of flood hazards and potential dam failure inundation. Remind households and businesses located in flood-prone areas of opportunities to purchase flood insurance.*

NS-3-n. Policy: Precipitation Changes. *Work with FMFCD to evaluate the planned and existing stormwater conveyance system in light of possible changes to precipitation patterns in the future.*

CITY OF CLOVIS

S Goal 1: *Minimized risk of injury, loss of life, property damage, and economic and social disruption caused by natural hazards.*

Policy 1.1: Flood zone. *Prohibit development within the 100-year flood zone and dam inundation areas unless adequate mitigation is provided against flood hazards. Participate in the National Flood Insurance Program.*

Policy 1.5: Critical and public facilities. *Locate and design critical and public facilities to minimize their exposure and susceptibility to flooding, seismic and geological effects, fire, and explosions. Ensure critical use facilities (e.g., hospital, police, and fire facilities) can remain operational during an emergency.*

Policy 1.6: Public information and emergency preparedness. *Provide the public with accurate and reliable information regarding natural hazards to prevent and mitigate potential risks and exposure for life and property. Continue to maintain a local hazard mitigation plan and conduct programs to inform the general public of the City's emergency preparedness and disaster response procedures.*

COUNTY OF FRESNO

Goal PF-E: *To provide efficient, cost-effective, and environmentally sound storm drainage and flood control facilities that protect both life and property and to divert and retain stormwater runoff for groundwater replenishment.*

Policy PF-E.1: *The County shall coordinate with the agencies responsible for flood control or storm drainage to assure that construction and acquisition of flood control and drainage facilities are adequate for future urban growth authorized by the County General Plan and city general plans.*

Policy PF-E.2: *The County shall encourage the agencies responsible for flood control of storm drainage to coordinate the multiple use of flood control and drainage facilities with other public agencies.*

Policy PF-E.3: *The County shall encourage the Fresno Metropolitan Flood Control District to spread the cost of construction and acquisition of flood control and drainage facilities in the most equitable manner consistent with the growth and needs of this area.*

Policy PF-E.4: *The County shall encourage the local agencies responsible for flood control or storm drainage to require that storm drainage systems be developed and expanded to meet the needs of existing and planned development.*

Policy PF-E.5: *The County shall only approve land use-related projects that will not render inoperative any existing canal, encroach upon natural channels, and/or restrict natural channels in such a way as to increase potential flooding damage.*

Policy PF-E.6: *The County shall require that drainage facilities be installed concurrently with and as a condition of development activity to ensure the protection of the new improvements as well as existing development that might exist within the watershed.*

Policy PF-E.7: *The County shall require new development to pay its fair share of the costs of Fresno County storm drainage and flood control improvements within unincorporated areas.*

Policy PF-E.8: *The County shall encourage the local agencies responsible for flood control or storm drainage to precisely locate drainage facilities well in advance of anticipated construction, thereby facilitating timely installation and encouraging multiple construction projects to be combined, reducing the incidence of disruption of existing facilities.*

Policy PF-E.9: *The County shall require new development to provide protection from the 100-year flood as a minimum.*

Policy PF-E.10: *In growth areas within the jurisdiction of a local agency responsible for flood control or storm drainage, the County shall encourage that agency to design drainage facilities as if the entire areas of service were developed to the pattern reflected in the adopted General Plans to assure that the facilities will be adequate as the land use intensifies.*

Policy PF-E.11: *The County shall encourage project designs that minimize drainage concentrations and maintain, to the extent feasible, natural site drainage patterns.*

Policy PF-E.12: *The County shall coordinate with the local agencies responsible for flood control or storm drainage to ensure that future drainage system discharges comply with applicable State and Federal pollutant discharge requirements.*

Policy PF-E.13: *The County shall encourage the use of natural stormwater drainage systems to preserve and enhance natural drainage features.*

Policy PF-E.14: *The County shall encourage the use of retention-recharge basins for the conservation of water and the recharging of the groundwater supply.*

Policy PF-E.15: *The County should require that retention-recharge basins be suitably landscaped to complement adjacent areas and should, wherever possible, be made available to the community to augment open space and recreation needs.*

Policy PF-E.16: *The County shall minimize sedimentation and erosion through control of grading, cutting of trees, removal of vegetation, placement of roads and bridges, and use of off-road vehicles. The County shall discourage grading activities during the rainy season, unless adequately mitigated, to avoid sedimentation of creeks and damage to riparian habitat.*

Policy PF-E.17: *The County shall encourage the local agencies responsible for flood control or storm drainage retention-recharge basins located in soil strata strongly conductive to groundwater recharge to develop and operate those basins in such a way as to facilitate year-round groundwater recharge.*

Policy PF-E.18: *The County shall encourage the local agencies responsible for flood control or storm drainage to plan retention-recharge basins on the principle that the minimum number will be the most economical to acquire, develop, operate, and maintain.*

Policy PF-E.19: *In areas where urbanization or drainage conditions preclude the acquisition and use of retention-recharge basins, the County shall encourage the local agencies responsible for flood control or stormwater drainage to discharge storm or drainage water into major canals and other natural watercourses subject to the following conditions:*

- *The volume of discharge is within the limits of the capacity of the canal or natural watercourse to carry the water.*
- *The discharge complies with the requirements of applicable state and federal regulations (e.g., National Pollution Discharge Elimination System).*
- *The agency responsible for ownership, operation, or maintenance of the canal or natural watercourse approves of the discharge.*

Policy PF-E.20: *The County shall require new development of facilities near rivers, creeks, reservoirs, or substantial aquifer recharge areas to mitigate any potential impacts of release of pollutants in flood waters, flowing rivers, streams, creeks, or reservoir waters.*

Policy PF-E.21: *The County shall require the use of feasible and practical best management practices (BMPs) to protect streams from the adverse effects of construction activities, and shall encourage the urban storm drainage systems and agricultural activities to use BMPs.*

Policy PF-E.22: *The County shall encourage the local agencies responsible for flood control or storm drainage to control obnoxious odors or mosquito breeding conditions connected with any agency facility by appropriate measures.*

NATIONAL FLOOD INSURANCE PROGRAM

The NFIP, created by the National Flood Insurance Act of 1968, provides a non-structural approach to reducing flood damage by discouraging or regulating development, which would be subject to flood damage. Concurrently, the Act provides property owners in flood-prone areas with affordable flood insurance. Each participating community must adopt and implement local regulations and ordinances that satisfy NFIP floodplain management requirements.

Additionally, communities may apply to the Community Rating System (CRS). Flood insurance premium credits are available to communities based on their CRS classification. There are ten classification levels, with Class 1 having the greatest premium credit and Class 10 having no premium credit. Each classification level provides another five percent insurance premium credit for private property owners in communities participating in the program. The awarding of community credits is based on the implementation of: (1) public information activities, (2) mapping and regulatory activities, (3) flood damage reduction activities, and (4) flood preparedness activities. Each of the activities implemented by a community is evaluated, rated, and given a certain number of points. The point total of all activities is then used to determine the classification level. Credit ratings can be changed based on periodic evaluations by the Federal Emergency Management Agency and the Federal Insurance Agency.

The Cities of Fresno and Clovis and the County of Fresno all participate in the NFIP. Many functions performed by the District in conjunction with these entities, such as flood control facility maintenance, public information, mapping, and other flood damage reduction activities, make them eligible to apply to the CRS. The City of Fresno and County of Fresno participate in the CRS and both have CRS classifications of 8. The City of Clovis did not apply to the CRS program.

As discussed previously, the District has completed major improvements to the flood control system. In accord with the NFIP, post-improvement conditions will be re-mapped for FEMA approval, thus reducing NFIP mandates on District lands.

PROGRAM IMPLEMENTATION

The following activities shall be performed by the District to implement the flood control program:

1. Prioritize improvements necessary to satisfy the Redbank-Fancher Creeks Flood Control Project Local Cooperation Agreement, as further defined in the Water Control Manual and General Design Memoranda. Schedule financing, design, and construction accordingly.

2. Finance the completion of the system through the District's voter-authorized benefit assessment taxes.

3. Perform analyses and develop methods to coordinate flows with respect to natural channels, flood control structures, the canal system, and the urban drainage system. Establish a telemetry system to monitor rainfall, flows, storage, and operational status of the system, to operate the system during storm events, and for surface water management.

4. Conduct preventative maintenance of structures, basins, reservoirs, and other system features to ensure continuing structural and operational integrity.

5. Work closely with land use regulatory agencies (the cities and the county) to ensure implementation of the District's Storm Drainage and Flood Control Master Plan and secure conformance with floodplain protection policies. Provide appropriate technical recommendations and comments to the agencies for public and private projects.

6. Obtain new maps representing the post-improvement floodplain, secure Federal Emergency Management Agency and local land use entitlement agency approval, and secure distribution of revised flood insurance rate maps.

7. Provide agencies, landowners, developers, and other interested parties with technical data and materials necessary to communicate the objectives and requirements of the District's Storm Drainage and Flood Control Master Plan and floodplain management policies.

8. Work with the cities and the county to maximize the benefits of the District's flood control program and systems, relative to their participation in the National Flood Insurance Program and the Community Rating System.

9. Complete construction of Fancher Creek Detention Basin.

CHAPTER 3: RURAL STREAMS

The District initiated the rural streams program to preserve, restore and maintain the streams and channels that drain the rural lands lying to the east of the metropolitan area. Prior to the District's annexation of these lands in April 1985, governmental agencies had limited authority to manage or maintain the streams or channels to protect their storm flow conveyance capacities.

Over the years, landowners have altered many of the stream segments and agricultural practices have redirected flows through artificial channels. These alterations interrupt the streams' hydrologic continuity and alter natural hydro-geologic processes, which sort in-channel gravels and streamside soils and clear delicate vegetation. These natural processes are generally considered essential to the maintenance of riparian ecosystems.

Redbank Creek near DeWolf

The impaired flows and soils of altered streams tend to support late-successional stage vegetation, thereby reducing overall ecosystem diversity. Vegetation that encroaches within the isolated remaining stream segments poses an obstruction when flows resume. Such encroachments cause backwatering, channel scour, and the introduction of significant quantities of sediment to the system from lateral bank erosion and head cutting. The encroachment of vegetation that has resulted from artificial stream segment isolation is not considered high-quality permanent habitat.

Natural ephemeral stream channels present a constantly changing mixture of vegetative successional stages that cycle over a long period of time. Vegetation ranges from mature trees to marshland, grassland and brushlands, and supports diverse wildlife. The natural condition therefore does not necessarily favor the mature tree growth that is apparent along many stream segments in the rural residential and agricultural areas of the District. Natural vegetative succession happens gradually, and changes at any single site are slow to progress.

The long-term benefits of channel flow capacity restoration and recovering a dynamic steady state of soils and vegetation are important facets of the rural streams program. The District's program will help to alleviate flooding problems through restoration and routine maintenance of stream channels, so that flood flows pass safely through the rural and metropolitan communities.

The District's role in implementing and enforcing the rural streams program is partially mandated by the provisions of the Local Cooperation Agreement (LCA) with the U.S. Army Corps of Engineers (Corps) on the Redbank-Fancher Creeks Flood Control Project. The District's responsibility for ensuring safe passage of flood flows is also part of the District's Legislative Act under the "Objects and Purposes" section.

OBJECTIVES

The following objectives have been established for the rural streams program:

A. Remediate flooding caused by portions of the local natural streams system, which have been restricted, encroached upon, or obliterated, by identifying, mapping, and reestablishing appropriate channels.

B. Influence land use practices to minimize the need for private property owner's access across the channels to prevent crossings that may cause flooding from undersized crossings and avoid hazardous crossings or loss of access.

C. Fully reestablish the 160-acre or more watercourse, with a right-of-way and capacity not less than the 10-year, 24-hour (10 percent) event.

D. Facilitate routine maintenance to ensure the 10-year, 24-hour (10 percent) capacity.

E. Maintain and operate the Redbank-Fancher Creeks Flood Control Project to maximize the benefits of flood protection and water resource management.

F. Create a stormwater management system that is automatically and hydraulically controlled to maximize benefits and reduce manual operations.

G. Improve and restore the system in an orderly manner by remediating downstream channel constrictions prior to addressing upstream channel constrictions.

H. Meet the flood control safety standards of the District while encouraging design and management practices that enhance and protect the stream values, including riparian and wetland habitats.

I. Include enhancement of water quality in stream and channel design considerations by adding natural vegetation.

J. When possible preserve the stream's natural shaping or geomorphic processes when designing flood control or drainage uses.

K. Preserve and restore natural and historic drainages, restoring obstructed drainages along historic alignments where possible and re-establishing flow capacities.

L. Coordinate with local planning agencies on land use decisions affecting rural streams.

M. Protect rural stream conveyance capabilities, water quality, and ecological values from the effects of new development by adopting appropriate development guidelines.

N. Implement public and property owner involvement, and education programs to build support for stream restoration and preservation.

O. Restore wildlife habitat along streams to the extent it can be accomplished within available easements and flood control criteria.

PROGRAM DESCRIPTION

Historically, runoff from large storm events within the watershed of the Fresno County Stream Group flowed from the foothills, terminating on the valley floor in the area of present-day Fresno. As the Fresno metropolitan area developed, natural flow paths were altered and encroached upon by agricultural practices and urban development. Natural streams and creeks were modified to convey irrigation water, and flow pathways were either re-routed along property lines or road rights-of-way, or obliterated completely. Natural vegetation, no longer "managed" by periodic high discharge events, has now encroached into stream channels in a manner that unnaturally impedes floodwater events, magnifying damage

to adjacent properties. Over time, these changes to the waterways have resulted in a series of streams and channels that are not capable of handling large storm event flows. The Fresno-Clovis area has experienced serious flooding problems in the rural and urban areas. Record floods caused millions of dollars of damage in December 1955, January 1956 and January/February 1969. Significant flooding also occurred in 1978, 1983, 1986, 1993, and 1995.

Rural Streams Storm and Flood Conveyance System

The rural streams program area of the District is generally defined as including the natural water courses of the Fresno Stream Group identified as the Big Dry Creek Reservoir Diversion Channel to Little Dry Creek, Big Dry Creek, Dog Creek, Pup Creek, Alluvial Drain, Redbank Creek, Fancher Creek, Mud Creek, Holland Creek, other named and unnamed creeks and their tributaries lying between the Kings and San Joaquin Rivers. The District has identified and mapped approximately 175 miles of streams and channels within this area. Figure 2-1 shows the streams and channels of the rural area of the District. The District has worked toward reconstruction of significant portions of Big Dry Creek, Alluvial Drain, Redbank Creek, and Fancher Creek.

Redbank Creek at DeWolf

Program Components

The District developed the rural streams program to preserve natural stream courses, restore previously eradicated channels, and to maintain all such channels to ensure their ability to safely attenuate and pass design flood flows. The program involves four components, including: (1) analysis and modeling of watershed hydrology; (2) construction of flood control structures; (3) restoration and maintenance of the flow capacities of the streams and channels in the area; and (4) management of vegetation to provide wildlife habitat in a form that does not create or compound flood control problems. Each program component is described below.

Watershed Modeling

The first part of the District's rural streams program involves analysis of the basin's hydrologic, flooding, and drainage characteristics.

Several hydrologic studies have been conducted for the District's watershed. The hydrology study prepared for the Corps' Redbank-Fancher Creeks Project is the most comprehensive study to date. The Corps began modeling the Redbank-Fancher Creeks Project area watershed in the early 1970s. As the project progressed, the model was modified to reflect major design changes. The District has continually refined the Corps' model producing what is commonly referred to as the Rural Watershed Model.

The two major elements of the Corps' model include the Big Dry Creek Reservoir watershed and the Redbank-Fancher Creeks Reservoir watershed. Each of these watershed elements is divided into many smaller components. The Corps analyzed the Big Dry Creek area for the standard project flood, defined in the model as a 230-year event. The Redbank-Fancher Creeks watershed was modeled for a 200-year event. The computer program HEC-1, "Flood Hydrograph Package" was used to model the complex interrelationships of the creeks, canals, dams, and basins, and the runoff conditions expected in the project area during the selected flood events. These basin models were used to route flood flows through the project features. These routings generated the design values necessary for channel sizing relative to the Corps' project.

Using Corps data, Soil Conservation Service (SCS) data, updated field data, and the Federal Emergency Management Agency (FEMA) Flood Insurance Study data, the District further refined the Corps' model to better define the channel improvement needs of smaller drainage areas within the primary watersheds. The work included consideration of the most current development and zoning information and review of topographical maps and aerial photographs taken after flood events.

The District considers watershed drainage patterns in all of their routine maintenance and construction work. The effects of any individual project or activity on flow patterns upstream and downstream are considered prior to project initiation. When necessary, additional steps are taken to minimize or eliminate any potential for flooding.

Flood Control Project Construction

The second component of the program entails construction of a comprehensive system of flood control structures in accord with the hydrology model. The District has identified four primary groups of construction projects: (1) the Redbank-Fancher Creeks Flood Control Project; (2) District LCA enhancement projects; (3) new development projects; and (4) other routine District maintenance and construction projects.

Redbank-Fancher Creeks Flood Control Project

The Corps' Redbank-Fancher Creeks Project, completed in the summer of 1993, provides the points of control for the flows that will pass through the rural streams storm and flood conveyance system. The project components are described in Chapter 2, Flood Control and shown on Figure 2-1.

District LCA Projects

Under the LCA with the Corps, the District is obligated to ensure proper functioning of the Redbank-Fancher Creeks Project components. Through implementation of the rural streams program, the District will improve conveyance capacities of existing channels where necessary, restore obstructed and eradicated channels, and once adequate capacity is achieved, maintain appropriate project conveyance capabilities. These efforts will involve close coordination with private property owners and developers to obtain necessary channel easement dedications. These dedications preserve flooding right-of-ways and allow District access to the stream channels for operation and maintenance. The "Program Planning" section of this chapter describes the projects planned to control and route flood waters in a manner consistent with the LCA and operating criteria identified by the Corps in the design of the Redbank and Fancher Creeks Project.

New Development Projects

As future development needs warrant, local drainage facilities will be added to augment the flood control facilities. The District will review new development plans to ensure appropriate design of channels according to the Rural Streams Design Manual, which is currently being developed by the District.

District Maintenance and Construction

Other routine District activities include construction, repair, and maintenance of flood control structures throughout the rural streams/flood control system.

Channel Restoration and Preservation

The third part of the program, channel restoration and preservation, occurs concurrently with construction of flood control structures. Restored conveyance capability of identified rural streams and channels will:

1. Ensure the Redbank-Fancher Creeks Project functions as designed.
2. Alleviate urban and rural flooding.
3. Restore riparian habitat in the ephemeral stream system.
4. Manage vegetation to provide riparian habitat in a configuration which will not impede flows.

Elements of this program component include a stream channel maintenance program, private property owner channel maintenance assistance, and land use entitlement review.

District Stream Channel Restoration and Maintenance Program

Restoration refers to the improvement of disturbed streams so their form and behavior emulate those of undisturbed or natural streams as much as possible. Natural streams are typically characterized by irregular cross section, alignment, vegetative cover, and bottom and side materials; usually stream velocity is low and there is an over bank storage capacity. The District's restoration efforts will result in projects modeled after natural stream systems. The use of natural and restored channels is consistent with the rural streams program objectives of the District to preserve, as much as possible, the riparian wildlife habitat, and aesthetic values, as well as to prevent flooding.

Construction of Holland Creek Diversion Channel Arch Culvert

As the District completes new flood control structures, impacted channels are restored and maintained at flow capacities required by the post-project condition. Restoration efforts begin at the downstream end of a channel at the control facility and progress upstream. This ensures that the increased capacity of the restored channel does not pass water into an unimproved channel that could result in flooding.

To restore the flow capacities of altered channels, the District must remove all restrictive encroachments and undersized facilities. As in urban drainage areas, this work is coordinated with other public works construction. The District and Fresno County Public Works are working towards eliminating existing culvert restrictions by upsizing road culverts consistent with District rural streams design. This will involve removal of non-riparian vegetation that has encroached due to altered flows, but which will gradually be replaced by streamside vegetation that is more flood-compatible.

Most of the culverts, which pass flows under the irrigation canal system, are undersized and need to be enlarged. Increasing the size of the culverts under the canals will pass additional water downstream to flood control facilities. Before this can happen, however, the channels downstream of the canals need to be restored. During past floods, undersized culverts have caused floodwaters to spill into the canal system and be diverted to other locations.

In some areas where a channel has been obliterated, it may be impractical to restore the historic flow path. The District may elect to construct an alternative conveyance route, preferably located adjacent to roads or other man-made structures. The final location will be determined during restoration planning for each segment.

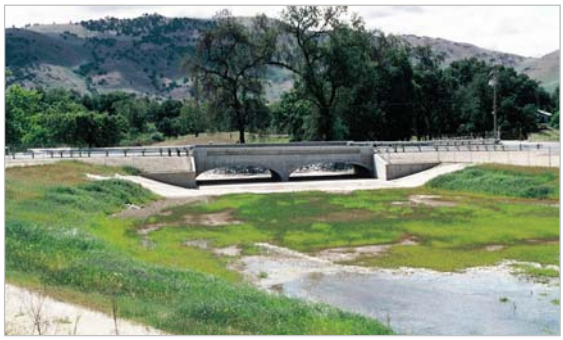
Although the ultimate channel design is intended to improve habitat conditions, while maintaining sufficient flood flow capacity, the interim activities may affect or disrupt vegetation and wildlife habitat within and along the stream channels and banks. Rural streams activities, procedures, and performance standards (e.g., erosion control, vegetation removal and control, and channel improvements) are described in a Memorandum of Understanding (MOU) jointly developed and executed by the Department of Fish and Wildlife (DFW) and the District. The MOU, which serves as a Section 1602 Master Streambed Alteration Agreement, authorizes maintenance and restoration activities that are intended to accomplish long-term net benefits for fish, wildlife, water quality, native plants, and stream habitats. Notwithstanding these long term benefits, the DFW and the District agreed to provide for the mitigation of temporary effects through the preservation of riparian habitat created by the District at Fancher Creek Reservoir. The District is preserving approximately 50 acres of created riparian habitat for a period of five years beyond the completion of any maintenance activities authorized by the MOU.

Wetlands permits from the Corps may be required for some projects. Mitigation for temporary impacts of the initial reconfiguration phases on riparian habitats and wildlife can be accomplished by the following collective efforts:

- Habitat preservation and enhancement at District reservoirs;
- Appropriate District involvement in development controls; and
- District public involvement and information efforts.

The District is developing a Rural Streams Design Manual that will include general design guidelines, as well as additional technical information. The guidelines will promote the preservation of existing natural channels and swales, and the use of natural materials in maintenance, restoration, and new construction activities. They will provide water quality benefits and enhance wildlife habitat. District restoration activities will incorporate the guidelines on a site-by-site basis as appropriate and feasible. Any measure that can be incorporated into the restoration process will become part of the plan for that site.

PRIVATE PROPERTY-OWNER CHANNEL MAINTENANCE



Holland Creek Bridge

Currently, it is the District's position that property owners are responsible for the maintenance of channels on their property that do not meet the Master Plan Channel criteria. Smaller channels can be difficult for the District to maintain if access to the property is not available. The District requests encroachment agreements for any improvement or work within a channel. The District is authorized to request such agreements based on its statutory authorities relative to channels and flood control objectives. Upon application for a development entitlement or encroachment agreement, the District requests dedication of a channel easement. The requested width of the easement will allow for sufficient capacity to carry the design flow rate based on either the Corps' model flow rates on the main channels or the computed SCS 10-year, 24-hour flow rate on other channels. Property owners are required to comply with the County Floodplain Management ordinance and the District's floodplain policies for land within primary (Zone A, 100 year inundation) and secondary (Zone X, 500 year and 100 year with depths less than 1 foot) floodplains. Through encroachment agreements, the District documents the property owner's responsibility to maintain the channels and the District's right to do the work and bill the owner if the channel is not maintained properly. The District also secures access rights to the channel and requires removal of, or prohibits, any improvements that might obstruct the channel flow. The Department of Fish and Wildlife and the District will cooperate in a program to inform owners of the values and management options regarding riparian habitats and attendant wildlife.

Land Use Entitlement Review

The District reviews and comments on all new development projects within its boundaries. Because of the ephemeral nature of the channels, obliterations that cause flooding and flood damages during large rainfall events are not always obvious. The District requests that the Cities of Fresno and Clovis and Fresno County planning departments forward land use entitlement applications to the District for review and comments. When necessary, the District recommends requirements to mitigate flooding be imposed by the entity granting the entitlement. When subdivision or other land use entitlements are issued, the developer is requested to dedicate to the District all necessary right-of-ways for channels, and the public right to operate and maintain them.

The District recommends to the land use entitlement agencies that developers and property owners proposing land use modifications that may affect rural stream drainages be required to follow certain criteria in the design or alteration of natural stream channels, be restricted by specific construction controls, and be required to protect the quality of the water and habitat. The District recommends the agencies impose appropriate design measures or restrictions upon land development projects to protect water quality and habitat values of rural streams and channels.

The District recommends that design measures allow for moderate vegetative growth in channels including preservation and protection of native trees where appropriate. Utilization of natural features, such as channel shaping and alignment, are encouraged for new designs. All development must be designed to pass existing flows without increasing flow rate or volume, and must avoid flooding impacts on surrounding properties. Other restrictions are recommended for projects that may affect jurisdictional wetlands, riparian habitats, or water quality.

When reviewing land use entitlements which have the potential to affect habitat and water resources, the District recommends construction controls to prohibit the use or degradation of stream water, require re-vegetation of areas disturbed during construction, and restrict replacement of structures or other impediments within the 10-year channel.

All streambed alterations and other projects proposed by developers that may impact areas of significant ecological value are referred to DFW.

Encroachment Agreements and Easement Dedications

Many natural stream flow paths and associated flood plains in the rural area have been adversely affected by agricultural activities, development, or other encroachments. These encroachments alter the flow capacities of the channels resulting in serious flooding problems and elimination of riparian wildlife habitat. The District must improve and maintain channel capacities in the rural area to ensure proper functioning of the Redbank-Fancher Creeks Project as specified in the Local Cooperation Agreement (LCA). As necessary the District requests encroachment agreements and easement dedications between the District and the property owner. Agreements and dedications benefit the property owner by reducing potential flooding liability. An agreement between the District and property owner typically requires the property owner to notify the District prior to any construction, alteration, or relocation of the channel; assigns all costs of proposed construction and alteration to the property owner; restricts the use of prohibited herbicides and placement of asphalt materials in the channel; and sets a minimum unrestricted flow capacity for the channel. The agreement may also require an easement dedication for flood control purposes. In general, the District requires easement dedications on channels to ensure compliance with the LCA.

It is the general policy of the District that encroachments involving any form of land surface modification or the storage of waters within the stormwater storage space of the District's reservoirs will not be permitted. This policy generally prohibits excavation and fill activities within the flood storage pool of the reservoirs. The District will consider exceptions to this policy when the situation is unique and causes significant adverse economic, health, safety, or welfare impact on the applicant. However, the granting of a permit/agreement must not affect the District's ability to ensure the protection of the public health, safety, and welfare, and must not expose the District to extensive administration or enforcement

duties. The types of exceptions to the general rule must also be unique and not lend to setting a precedent affecting future District decisions on encroachment requests.

Since early 1992, the District has been working to reduce the occurrence of encroachment violation problems by developing and implementing policies and procedures related to Master Plan channel size, stream crossing design, and development within floodplains. These three policies are described below.

All rural streams and channels draining watersheds of 160 or more acres have been defined as a Master Plan Channel. The District has identified certain major streams and channels that would be maintained by the District. All other channels would be maintained by others (predominantly the property owner). The District seeks easements on these channels through the entitlement process. Drainage from areas less than the minimum sub-basin size is to be managed by the County of Fresno and private property owners. The District provides assistance to the County or property owners to identify appropriate drainage practices for all watersheds within the District boundaries.

The Rural Design Standards Stream Crossing Policy parallels the County of Fresno criteria, but also makes specific provisions for safe on-site attenuation under controlled conditions. The District regulations prevent any obstruction or encroachment that would impair the flood control effectiveness of the natural stream channels or stormwater conveyance and control facilities. All private and public driveway and roadway stream crossings are to be designed with adequate capacity to convey design flows without causing flooding beyond the inundation area that existed prior to the driveway or roadway installation. Streams or channels are to be designed and constructed so that drainage will be conveyed under the driveway or roadway for the greater flow rate generated by the 10-year design storm and the 100-year storm without significantly changing the natural inundation occurring on any upstream property. The District requires all driveways or roadways with flows directed over the road surface to have the downstream and the upstream embankment fully armored for erosion protection. The policy sets forth provisions for attenuating flows in the channel and sets a minimum pipeline or culvert size.

The District has adopted the Flood Plain Policy concerning development in primary (Zone A, 100 year inundation) and secondary (Zone X, 500 year and 100 year with depths less than 1 foot) floodplains to assist in implementing the rural streams flood control objectives and to reduce future encroachments. Development located in primary flood plains (Zone A, 100 year inundation) is subject to substantial risk both to itself and to others as a result of the potential for blockage and diversion of floodwaters. The policy recommends all development within a flood plain be subjected to a detailed hydrological flood hazard investigation to determine the relationship of the proposed development to the primary and the secondary floodplain. Additionally, the District requires identification of the estimated high-water elevation of the 100-year flood event. The policy recommends development and/or permanent improvement activity located within the primary floodway should not be permitted, which may unduly impede, retard, or change the direction of flow of water either, by itself, or by catching or collecting other debris, or development placed where the flow of water would carry such obstruction downstream to damage or detriment either life or property.

Development in secondary floodplains is generally acceptable when the area proposed for development is located within a secondary as opposed to a primary floodplain. The development must be properly flood proofed below the estimated high water elevation of the 100-year flood event and must be accomplished in such a way as to prohibit the displacement of any and all floodwaters from that portion of the floodplain to be developed.

The District works with Fresno County grading engineers to identify problem areas and control development so that conditions are not aggravated. In general, the County relies on its grading ordinance to resolve development-related drainage issues. The ordinance precludes any grading that will cause flooding or increase flooding on another's property.

Other plans to reduce future encroachment violations include development and adoption of policies for the following issues: channel easement dedication for all developments, channel relocation policy, channel design standards, rural lake preservation, protection, and modifications, and encroachment violation correction enforcement.

OPERATIONS

Operation of the rural streams program is part of the complex flood control function of the District and involves coordination of the flow of waters from natural watercourses (rural streams) through flood control structures into the downstream irrigation canal and urban drainage system. The District intends for the physical operation of the entire flood control system to eventually involve gravity flow and hydraulic mechanisms to automatically control flow thereby reducing the amount of fieldwork effort in opening gates and valves. Once an automated program is implemented, rural flood operations will include visual monitoring and manual operation only as necessary (i.e., placement of portable pumps, sand bags, etc. in preparation for, or during a flood).

The District would also like to establish a program to allow water to pass through the channels provided the Cities of Fresno and Clovis and Fresno Irrigation District agree. This program would enhance the channels which are normally dry most of the year and help to keep the channels free of debris that collect in the dry channel beds.

PUBLIC INVOLVEMENT AND EDUCATION

The District has developed and distributed public information materials to increase public awareness and understanding of various issues including: stream and habitat values, flood water conveyance, water quality, and the adverse effects of human activities such as illegal dumping. The information includes an explanation of the potential damage to wildlife and public health from improper waste disposal.

The District also plans to provide educational materials for private property owners, whose lands include or are adjacent to rural streams or channels to recommend ways for them to maintain their channel frontage, stabilize banks, remove undesirable vegetation, replant native vegetation, and control grazing.

MAINTENANCE

The Master MOU delineates and defines routine maintenance activities in unimproved and disturbed natural channels. All District maintenance personnel are properly trained to implement the MOU. The MOU authorizes specific vegetation and debris removal activities and herbicide use in designated channels.

MONITORING

The District is responsible for monitoring the progress and success of channel maintenance and restoration activities. Monitoring activities include inspection of channel banks and beds before and after the rain season for erosion control and bank stabilization. The District also monitors the natural colonization of vegetation within channels and along banks to evaluate the success of re-vegetation plantings, need for removal of non-native vegetation and to determine the need for any modifications.

PROGRAM PLANNING

The District plans to construct improvements to control routing as necessary to achieve Redbank-Fancher Creeks Project and Master Plan design flows on several rural streams and un-named tributaries in the Fresno County Stream Group. The creeks that will be affected include: Big Dry, Dog, Pup, Redbank, Fancher, Mud, Holland, Greys, Hog, Sand, Little Dry Creek, and the Alluvial Drain. The types of LCA improvements to be addressed by the District are described in Chapter 2, Flood Control.

PERTINENT REGULATIONS AND AGREEMENTS

The streams of the Fresno County Stream Group serve several purposes including flood flow conveyance, riparian and wildlife habitat, and aesthetic value. District flow management, maintenance, and operation functions within the stream courses are affected by several regulations. The District Act and the LCA require the operation and maintenance of the foothill streams to ensure the safe passage of flood flows. Local general plan policies encourage the preservation and protection of natural stream habitats. District activities affecting the stream courses or associated habitat must also comply with provisions of various state and federal regulations.

DISTRICT ACT

The control of the waters of the Fresno County Stream Group is part of the flood control program mandated by the District Act. Through the development and implementation of the rural streams program, the District will conserve the flood flow conveyance capacities of the natural stream systems while protecting riparian vegetation and associated wildlife habitat.

LOCAL COOPERATION AGREEMENT

The LCA requires the District to complete, operate, and maintain the Redbank-Fancher Creeks Project pursuant to the Water Control Manual. The District is obligated to ensure the project will be operated as designed. Several projects to re-route or control stormwaters from rural stream watersheds must be constructed by the District to satisfy the agreement.

LOCAL GENERAL PLANS

The City of Fresno, City of Clovis and County of Fresno have general plan policies related to rural stream/riparian habitat protection.

CITY OF FRESNO

POSS-5. OBJECTIVE: *Provide for long-term preservation, enhancement, and enjoyment of plant, wildlife, and aquatic habitat.*

POSS-5-a. Policy: Habitat Area Acquisition. *Support federal, State, and local programs to acquire significant habitat areas for permanent protection and/or conjunctive educational and recreational use.*

POS-5-b. Policy: Habitat Conservation Plans. *Participate in cooperative, multi-jurisdictional approaches for area-wide habitat conservation plans to preserve and protect rare, threatened, and endangered species.*

POSS-5-c. Policy: Buffers for Natural Areas. *Require development projects, where appropriate and warrented, to incorporate natural features (such as ponds, hedgerows, and wooded strips) to serve as buffers for adjacent natural areas with high ecological value.*

POSS-5-d. Policy: *Guidelines for Habitat Conservation. Establish guidelines for habitat conservation and mitigation programs, including:*

- *Protocols for the evaluation of a site's environmental setting and proposed design and operating parameters of proposed mitigation measures.*
- *Methodology for the analysis depiction of land to be acquired or set aside for mitigation activities.*

- *Parameters for specification of the types and sources of plant material used for any re-vegetation, irrigation requirements, and post-planting maintenance and other operational measures to ensure successful mitigation.*

- *Monitoring at an appropriate frequency by qualified personnel and reporting of data collected to permitting agencies.*

POSS-5-e. Policy: *Pursue development of conjunctive habitat and recreational trail uses in flood control and drainage projects.*

Commentary: *Establishment of wildlife and aquatic habitat is unsuitable along primary conveyance systems to existing and future water treatment facilities. Certain waterways may be excluded from habitat development for this reason.*

POSS-5-f. Policy: Regional Mitigation and Habitat Restoration. *Coordinate habitat restoration programs with responsible agencies to take advantage of opportunities for a coordinated regional mitigation program.*

POSS-5-g. Policy: Assistance in Valley Arboretum Master Planning. *Assist community organization that have raised grant funds to pursue the preparation of a Valley Arboretum Master Plan and Implementation Program, including funding, to be coordinated with community groups, as well as related plans and policies for established neighborhoods and other areas with park deficiencies.*

Commentary: *It is anticipated that when completed, the Valley Arboretum Master Plan will be presented to the City Council for consideration as an amendment to the General Plan.*

CITY OF CLOVIS

OS Goal 2: *Natural, agricultural, and historic resources that are preserved and promoted as key features for civic pride and identity.*

Policy 2.1: Stewardship. *Promote responsible planning and management of land and resources among property owners.*

Policy 2.2: New development. *Encourage new development to incorporate on-site natural resources and low impact development techniques.*

Policy 2.3: Visual resources. *Maintain public views of open spaces, parks, and natural features. Enhance views along roadways and trails. Preserve Clovis' viewshed of the surrounding foothills and orient new development to capitalize on views of the Sierra Nevada.*

COUNTY OF FRESNO

Goal OS-E: *To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels.*

Policy OS-E.1: *The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function, and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the US Fish and Wildlife Service and the California Department of Fish and Game to ensure that appropriate mitigation measures and the concerns of these agencies are*

adequately addressed. Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

Policy OS-E.3: *The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.*

Policy OS-E.4: *The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.*

Policy OS-E.5: *The County shall support preservation of habitats of rare, threatened, endangered, and/or other special-status species including fisheries. The County shall consider developing a formal Habitat Conservation Plan in consultation with Federal and State agencies, as well as other resource conservation organizations. Such a plan should provide a mechanism for the acquisition and management of lands that support special-status species.*

Policy OS-E.6: *The County shall ensure the conservation of large, continuous expanses of native vegetation to provide suitable habitat for maintaining abundant and diverse wildlife populations, as long as this preservation does not threaten the economic wellbeing of the county.*

Policy OS-E.9: *Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.*

Policy OS-E.10: *The County shall support State and Federal programs to acquire significant fish and wildlife habitat areas for permanent protection and/or passive recreation use.*

Policy OS-E. 11: *The County shall protect significant aquatic habitats against excessive water withdrawals that could endanger special-status fish and wildlife or would interrupt normal migratory patterns.*

Policy OS-E.12: *The County shall ensure the protection of fish and wildlife habitats from environmentally degrading effluents originating from mining and construction activities that are adjacent to aquatic habitats.*

Policy OS-E.13: *The County should protect to the maximum extent practicable wetlands, riparian habitat, and meadows since they are recognized as essential habitats for birds and wildlife.*

Policy OS-E.14: *The County shall require a minimum 200-foot-wide wildlife corridor along particular stretches of the San Joaquin River and Kings River, whenever possible. The exact locations for the corridors should be determined based on the results of biological evaluations of these watercourses. Exceptions may be necessary where the minimum width is infeasible due to topography or other physical constraints. In these instances, an offsetting expansion on the opposite side of the river should be considered.*

Policy OS-E.16: *Areas that have unusually high value for fish and wildlife propagation should be preserved in a natural state to the maximum possible extent.*

Policy OS-E.17: *The County should preserve, to the maximum possible extent, areas defined as habitats for rare or endangered animal and plant species in a natural state consistent with State and Federal endangered species laws.*

Policy OS-E.18: *The County should preserve areas identified as habitats for rare or endangered plant and animal species primarily through the use of open space easements and appropriate zoning that restrict development in these sensitive areas.*

STREAMBED ALTERATION AGREEMENTS AND WETLAND MITIGATION BANKING

The DFW receives its regulatory authority through the Fish and Game Code, which includes consultation provisions to conserve fish and wildlife resources of the State of California. Agencies or public utilities proposing projects that may affect streambed habitat are required pursuant to Section 1600 et. seq. to notify the DFW prior to project construction or operation. DFW reviews plans to determine the potential for an adverse effect on fish or wildlife. Depending upon the nature of the activity DFW may make recommendations implemented through a streambed alteration agreement.

Any restoration activity planned within jurisdictional stream channels will trigger a Streambed Alteration Notification to DFW followed by agreed upon protective measures. Routine maintenance activities may be conducted under an MOA between the involved parties and DFW.

In the past, the District has entered into Section 1602 agreements with DFW for routine maintenance and other channel-related activity. The Master MOU covers most District stream-related restoration and maintenance activities. Site-specific 1602 notifications or consultations are required in some instances. See the "Program Implementation" section below.

The Sacramento-San Joaquin Valley Wetlands Mitigation Bank Act of 1993 (Section 1775-1796 of the Fish and Game Code) establishes a regulatory framework for wetland mitigation banking in the Central Valley region. This law, to be administered by DFW, provides an alternative form of off-site wetland mitigation. As discussed under "Program Implementation," the District will consult with DFW in developing appropriate mitigation measures for program impacts on wetlands.

PROGRAM IMPLEMENTATION

The following tasks and activities shall be performed by the District to implement the rural streams program:

1. Comply with the terms and provisions of the Master MOU to cover maintenance and channel flow capacity restoration activities.
2. Erosion control and siltation reduction.
3. Channels shall be designed to accommodate moderate vegetative growth in a configuration that is compatible with the flood control objectives.
4. Maintenance shall be overseen to guarantee habitat preservation and channel function.
5. Projects shall be designed and planned to avoid the removal of mature native vegetation, and provide for the protection and the continuance of the existing fish or wildlife resources as applicable.
6. Valuable habitats shall be protected to the maximum extent practical by phasing rural stream maintenance and restoration projects.

7. Prepare and adopt stream preservation ordinances. These ordinances shall include provisions for the protection of historic channels and habitat.

8. Develop and implement a developer guidelines manual. The guidelines will be made available for all developers proposing projects potentially affecting rural stream channels. The guidelines will also be applied to District maintenance and construction activity.

9. Develop and implement a Rural Streams Design Manual. The manual shall include:

    A. Classifications/definitions to identify streams and channels in the rural streams program area.

    B. Channel design policies shall include engineering dimensions, standards for preservation, and methods of restoration.

10. Develop and adopt policies to reduce encroachment violations including the following issues: channel easement dedication for all developments, channel relocation policy, channel design standards, rural lake preservation, protection and modifications, property owner education, and encroachment violation correction/enforcement procedures.

11. Coordinate with the City of Clovis, City of Fresno and County of Fresno to facilitate achievement of mutual rural streams planning goals and policies.

CHAPTER 4: LOCAL STORMWATER DRAINAGE

The local stormwater drainage program provides control and safe disposal of stormwater runoff generated by local land uses. The metropolitan portion of the District is divided into local drainage areas of approximately one to two square miles. These drainage areas are identified and established through the on-going revision of the District Storm Drainage and Flood Control Master Plan, incorporated herein by reference. Within the drainage areas, the District operates and maintains a complex system of surface conveyances, storm drains, pump stations and retention basins that capture and recharge stormwater to the groundwater aquifer. The system is designed to move water from a basin and discharge to other District facilities, or to irrigation canals, creeks, and the San Joaquin River.

OBJECTIVES

The following objectives have been established for the local stormwater drainage program:

A. Provide stormwater drainage service to all developing and developed land uses within the District.

B. Design, develop, and implement a local stormwater drainage system with a collection system capacity to collect surface flows at the peak rates of runoff from an event equal to or less than the two year (50 percent) event, and basin storage of not less than 60 percent of average annual runoff, and a method to discharge flows out of the local stormwater system.

C. Ensure that the building pads of all buildings constructed in the District are elevated safely above the anticipated high water elevation from a major storm, emphasizing surface storage away from structures and surface flow outlets.

D. Between storm events, discharge water from the basins to enhance capacity available to receive water from future storm events.

E. Provide preventative and operational maintenance, repair and rehabilitation adequate to ensure that the system operates as designed.

F. Maximize the cost efficiency of the local stormwater drainage system by utilizing, where practical, natural landscape features such as stream channels and natural surface grades.

G. Maximize the beneficial use of the local drainage system, including its use for recreation, open space, water conservation, and incidental wildlife habitat purposes.

H. Reexamine and refine system design concepts to maximize performance and minimize costs.

I. Manage stormwater retention facilities to ensure that runoff-borne pollutants will not pose risks to public health or the environment, and to ensure compliance with the District's National Pollutant Discharge Elimination Stormwater Discharge Permit and relevant environmental statutes.

PROGRAM DESCRIPTION

It is the statutory responsibility of the District to meet the drainage service needs of the metropolitan area within the District, including the Cities of Fresno and Clovis and the unincorporated Fresno County urban areas. The District's

objective, and original statutory intent, is a comprehensive, regionally coordinated local drainage program that ensures consistent design and performance, the elimination of duplication within the watershed shared by the Cities and the County, and assurance of equity in the distribution of costs. Economy is also achieved by consolidating in the District the administrative, operations and maintenance functions that would otherwise be duplicated by the Cities and the County.

THE LOCAL DRAINAGE SYSTEM

The local stormwater drainage system consists of interconnected surface conveyances, storm drains, retention basins, pump stations, and outfalls which discharge to groundwater, irrigation canals, creeks, and the San Joaquin River. The system is designed to retain and infiltrate as much runoff as possible into the underlying groundwater aquifer. At present, the local drainage service area is subdivided into 165 relatively small drainage areas (approximately one to two square miles each). The vast majority of these areas drain to a retention basin. Drainage areas, basins, and major outfalls to receiving waters are shown on Figures 4-1, Urban Drainage Systems.

The District Master Plan storm drainage pipeline system is designed to accept the peak flow rate of runoff from a two-year intensity storm event (a storm which has a 50% probability of occurring in any given year).

When storm events occur which exceed the two-year intensity, ponding begins to occur in the streets until the pipeline system can remove the water. If the storm is sufficiently intense to generate more water than the street can store, the water will continue to rise until it reaches a topographic outlet where it can escape down gradient. This escape route is a feature of the major storm routing system that protects properties from damage in rainfall/runoff events that exceed system design capacities.

Basin D

The District requires development proposals to consider the flow path and potential flooding resulting from major storms. The developer must elevate building pads so that finished floor levels are above the anticipated high water elevation and establish an outlet flow path for the runoff of major storms through the use of street improvements, easements, or other public right-of-ways. These major storm flow paths are to be on the surface whenever possible. All drainage paths and local depressions that are drained by inlets into the storm drainage system must be reviewed to ensure the presence of an outlet for the major storm. The maximum water surface elevation for the major storm and the rate and depth of flow must be determined. Detention is required when the discharge of runoff from one development may cause damage to buildings or other improvements on another property.

The District updated its basin capacity criteria and design standards in June 1982. The basin capacity criteria is the storage volume of not less than 60% of the average annual rainfall. Unless necessary to meet operational criteria for subsequent storms stormwater is not discharged from retention basins and the majority of the stormwater percolates to groundwater. The District usually discharges into the Fresno Irrigation District system so the water can be used for agricultural purposes.

Five drainage areas discharge directly, without benefit of any basin storage, through a pumping station to the river or irrigation canal. Two of these drainage areas currently discharge directly to the San Joaquin River, without prior storage. Six drainage areas discharge to the river, upon release from stormwater quality detention facilities. There are another 34 that discharge to other basins and 61 that discharge to canals and other channels. Table 4-1 shows the basin discharges.

CONSTRUCTION

The District directs and sets the standards for all construction of master plan and other storm drain facilities to be operated and maintained by the District. Such construction occurs through direct District contracts, developer contracts pursuant to local ordinances, and contracts with other municipal agencies in coordination with the District.

Upon acquisition, basin sites remain in their existing land use until the agencies controlling land use (i.e., the Cities or the County) decide property protection, or water conservation needs of the community warrant construction of the basins.

TABLE 4.1: BASIN DISCHARGES

Basin	Location	Discharges To	Discharge Type
A	California and Sierra Vista	Braley #14	Canal/Channel
B/E	Gettysburg & First	Storm Drain Relief to Basin “BB”	Basin
C	Ashlan and Barton	Storm Drain Relief to Big Dry Det. Basin	Basin
D	Forkner and Barstow	Storm Drain Relief to Basin “J”	Basin
F	Del Mar and Barstow	Enterprise-Holland Colony #122	Canal/Channel
G	Winery Avenue south of Floradora	Mill Ditch #36	Canal/Channel
H	Mesa & Del Mar	Storm Drain Relief to Basin “F”	Basin
I	Bullard and Teilman	Storm Drain Relief to Basin “J”	Basin
J	Bullard & Forkner	Bullard Canal	Canal/Channel
K	Shaw and Santa Fe	E-2 To Herndon #39	Canal/Channel
L	Blackstone and San Jose	Enterprise-Holland Colony	Canal/Channel
M	San Jose e/o First	Storm Drain Relief to Basin “B/E”	Basin
N	Fresno and Escalon	Enterprise-Holland Colony #122	Canal/Channel
O	First & Bullard	Storm Drain Relief to Basin “L”	Basin
P	West side of Cedar North of Barstow	Storm Drain Relief to Basin “CM”	Basin
Q	Winery and Euclid	Gould Canal #97	Canal/Channel
R	Shepherd and Chestnut	Teague Ditch	Canal/Channel
S	Ashlan and Peach	Gould Canal	Canal/Channel
T	Shields Diagonal	Storm Drain Relief to Basin “BU”	Basin
U	Chestnut & Dakota	Storm Drain Relief to Basin “T”	Basin
V	Sierra Vista and McKinley	Mill Ditch #36	Canal/Channel
W	Minnewawa and 180	Storm Drain Relief to Basin "W"	Basin
X	Belmont & Willow	Storm Drain Relief to Basin “Z”	Basin
Y	South Adler and Kings Canyon	Storm Drain Relief to Basin “Z”	Basin
Z	Butler and Maple at Fairgrounds	Storm Drain Relief to Basin “A”	Basin
AA	Holland and Blackstone	Storm Drain Relief to Basin “DD_2”	Basin
BB	Fresno and Shields	Herndon #39	Canal/Channel
CC	Clark and Fedora	Dry Creek Canal #75	Canal/Channel
DD_1	Holland & Thorne	Storm Drain Relief to Basin “DD_2”	Basin
DD_2	Palm and Dakota	Herndon #39	Canal/Channel

Basin	Location	Discharges To	Discharge Type
EE	West and McKinley	Storm Drain Relief to Basin "XX"	Basin
FF	Kerney and West	Storm Drain Relief to Basin "OO"	Basin
JJ	Eighth and Floradora	Mill Ditch #36	Canal/Channel
MM	West and Ashlan	Herndon #39	Canal/Channel
OO	West & Lorena	Fanning Ditch	Canal/Channel
RR_1	Nielson and Teilman	Dry Creek Canal	Canal/Channel
RR_{1-2}	Thorne and Nielson	Dry Creek Canal	Canal/Channel
RR_2	Belmont Circle	Storm Drain Relief to Basin "RR_1"	Basin
RR_2	Fulton and La Sierra	Dry Creek Canal	Canal/Channel
RR_2	Belmont and Yosemite	Dry Creek Canal	Canal/Channel
SS	Annadale e/o Walnut	Fresno Colony Canal	Canal/Channel
UU_1	N/A	Houghton Canal	Canal/Channel
UU_3	Marks & Dudley	Houghton Canal	Canal/Channel
VV	Maroa and Dakota	Herndon #30	Canal/Channel
WW	Shields and Blackstone	Herndon #30	Canal/Channel
XX	Hughes and McKinley	Storm Drain Relief to Basin "UU_3"	Basin
YY	Ferger and Arroyo	Dry Creek Canal #75	Canal/Channel
ZZ	Dry Creek & Crystal	Dry Creek Canal	Canal/Channel
AB	Alluvial and Sequoia	Forkner Ditch	Canal/Channel
AB	Palo Alto and Marks	Storm Drain Relief to Basin "AD"	Basin
AC	Stanford and Calimyrna	Storm Drain Relief to Basin "AE"	Basin
AD	Figarden Loop	E-4 Canal	Canal/Channel
AE	Barstow & Santa Fe	E-4 Canal	Canal/Channel
AF	Marty south of Shaw on the Herndon Canal	Herndon Canal #39	Canal/Channel
AG	Ashlan and Valentine	Victoria Canal	Canal/Channel
AJ	Ashlan West of Cornelia	Storm Drain Relief to Basin "AK"	Basin
AL	Brawley & Clinton	Victoria Canal	Canal/Channel
AM	Ashlan and Dockery	Redbank Creek	Creek
AN	Cornelia & Olive	Tracy Ditch	Canal/Channel
AO	Belmont & Blythe	Houghton Canal	Canal/Channel
AW_1	Cedar and North	Central Canal	Canal/Channel
AW_2	North & Cherry	North Central Canal	Canal/Channel
AZ	Chestnut and Muscat	Central Canal	Canal/Channel
BC	Teague and Willow	Maupin Ditch	Canal/Channel
BF	Chestnut & Byrd	Central Canal	Canal/Channel
BH	Clovis and Church	Fancher Creek	Creek
BM	Fowler & California align.	Storm Drain Relief to Basin "BH"	Basin

Basin	Location	Discharges To	Discharge Type
BO	Fowler and Tulare	Fancher Creek	Creek
BS	McKinley and Fowler	Mill Ditch	Canal/Channel
BT	Nees and Marion	Big Dry Creek	Creek
BU	Clovis, s/o Clinton	Mill Ditch	Canal/Channel
BV	Fowler and Shields	Tarpey Ditch	Canal/Channel
BW	Judy and Bernadine	Gould Canal	Canal/Channel
BX	Temperance and Nees	Alluvial Drain	Creek
BZ	Cedar and Copper	Storm Drain Relief to Basin "DK"	Basin
CL	Willow and Escalon	Helm Canal	Canal/Channel
CM	Cedar and Sierra	Helm Canal	Canal/Channel
CN	Herndon and Fresno	Enterprise-Holland Colony Canal	Canal/Channel
CO_1	N/A	San Joaquin River	River
CO_2	Herndon and Maroa	B-Main #126 to Bullard #124	Canal/Channel
CS	s/o North e/o Peach	Washington Canal	Canal/Channel
CV	Willow & Central	Storm Drain Relief to Basin "AZ"	Basin
CW	Fresno and Nees	Basin DH_2 (San Joaquin River)	Basin
CX	Nees and N. Millbrook	Storm Drain Relief to Basin "CY"	Basin
CY	Alluvial and Barton	Storm Drain Relief to Basin "CM"	Basin
CZ	Chestnut and Alluvial	Maupin Ditch	Canal/Channel
DE	Copper and Cedar	Storm Drain Relief to Basin "BZ"	Basin
DF	N/A	San Joaquin River	River
DG	Boy Scout and Rivers Edge	San Joaquin River	River
DH_1	Ingram and Nees	Basin DH_2 (San Joaquin River)	Basin
DH_2	Cromwell and Maroa	San Joaquin River	River
DI	Bluff and Riverview	San Joaquin River	River
DK	Friant and Champlain	San Joaquin River	River
DO	Locan @ Dakota alignment	Gould Canal	Canal/Channel
EF	Cornelia & Browning	Herndon Canal	Canal/Channel
EG	Sandrini and Minarets	San Joaquin River	River
EI	Garfield & Alluvial	San Joaquin River	River
EK	Bluff and Santa Fe	San Joaquin River	River
EL	99 & Herndon Canal	Herndon Canal	Canal/Channel
EM	Barstow, w/o Grantland	Herndon Canal	Canal/Channel
1E	Ashlan and Stanford	Gould Canal	Canal/Channel
1G	Temperance and Ashlan	Gould Canal	Canal/Channel
2D	Clovis and Ashlan	Gould Canal #97	Canal/Channel
3A	Shaw and Helm	Big Dry Creek	Creek

Basin	Location	Discharges To	Discharge Type
3D	Hobblit and Cole	Jefferson Canal	Canal/Channel
3F	Shaw and Laverne	Dawson Canal	Canal/Channel
3G	Barstow and Locan	Storm Drain Relief to Basin “DO”	Basin
4B	Dry Creek and Villa	Big Dry Creek	Creek
4C	Villa and Barstow	Pup Creek	Creek
$4D_1$	Fairbrook and Easterbrook	Pup Creek	Creek
$4D_2$	East of Brookfield and Brookside	Pup Creek	Creek
4E	Bullard and Fowler	Pup Creek	Creek
5B/ 5C	Minnewawa and south of Herndon	Big Dry Creek	Creek
5B/ 5C	Minnewawa and Third	Big Dry Creek	Creek
5F	Fowler and Vartikian	Pup Creek	Creek
6D	Clovis and Sierra	Storm Drain Relief to Basin “5B/5C”	Basin
7C	Alluvial and Clovis	Big Dry Creek	Creek
7D	s/o Alluvial e/o Fowler	Clovis Ditch	Canal/Channel
7H	Temperance & Sierra	Pup Creek Detention Basin	Basin

Basins are normally excavated by private parties and agencies needing fill material. Any individual may apply for a "Removal of Borrow Material Permit" provided they are adequately insured and equipped to properly excavate and grade a basin. The District reviews the permit application and collects a service charge based on the amount of material to be removed. The permittee must meet certain conditions in removing the material and must excavate and grade the basin to design specifications. The District oversees the work to ensure conformance with the permit.

OPERATIONS

The storm drainage system pipelines operate by gravity. Runoff flows enter the pipeline system at drainage inlets and are transmitted by gravity to the downstream terminus. That terminus may be a retention basin, a pump station or the San Joaquin River.

System operations require the monitoring of basin storage capacity and the activation and regulation of relief discharges to other drainage areas, canals, or streams.

Emergency relief for the local drainage systems must share capacity in the canal systems that also receive controlled flows from natural streams. Because the streams and canals must accommodate foothill runoff flows, careful monitoring and balancing of local drainage discharges and stream flows is an integral part of the District's operations. The initial collection of runoff into the local drainage system occurs automatically. Balancing storage and disposal of runoff, once collected, requires constant monitoring and management by the District to ensure the protection and safety of the property and people within both the rural and urban areas of the District.

The Fresno Irrigation District's canals traverse much of the District. The irrigation system utilizes many historical streams that have been modified for irrigation uses. During the rainy season, the system carries the flows of those streams. In addition, the irrigation system receives and carries discharges from the local storm drainage system. Stream flows are conveyed by the irrigation district pursuant to historic right-of-flowage. Local drainage discharges occur through a master

discharge agreement among the District, Fresno Irrigation District, Cities of Fresno and Clovis, and County of Fresno. These agencies also share in the expenses that occur for any damages from storm flows.

Basins are operated to maintain sufficient capacity to accommodate subsequent storm events. Pumps, gates, and valves are operated to move water within, or discharge water from the system to achieve requisite storage capacity. Portable pumps are often used to provide relief where permanent pumps have not been installed to augment the permanent pumps when necessary.

MAINTENANCE

Basin N

The District is responsible for maintenance of all elements of the Storm Drainage and Flood Control Master Plan system. Many of the maintenance duties are performed by municipalities or private vendors under contract. The Fresno Irrigation District is responsible for maintenance of the irrigation canal system.

The District responds immediately to unauthorized discharges of non-stormwater into the storm drain system. The District pursues or directs any necessary cleanup in consultation with the County Department of Community Health and the Regional Water Quality Control Board. The District also responds to and resolves as promptly as possible reports of nuisances, such as odors, relating to District facilities.

PIPELINES AND INLETS

Pipelines are designed to carry runoff at velocities sufficient to accomplish self-cleaning. Debris and sediment are cleaned from storm drain inlets and pipelines as needed to prevent obstructions.

Previously, District pipelines, pump stations, and inlets located in the City of Fresno and in the unincorporated metropolitan area have been cleaned by the City of Fresno through a maintenance agreement. Currently the City of Fresno and the City of Clovis maintain the pipelines, pump stations and inlets on individual work authorizations. The District also uses private maintenance contractors.

BASINS

The District owns 162 of the 175 planned basins. The maintenance schedule for each basin varies depending on its use and stage of development. Basins that are not developed or soon to be developed are typically leased back to the original owner and remain in their existing land use.

Basin maintenance includes landscape maintenance, rodent control, pest control, weed control, removal of pollutants and silt, clean up of trash and debris, and repair of fences and structures. Consolidated and Fresno Mosquito Abatement Districts assist in mosquito control through biological and chemical means.

Maintenance of basins which are not landscaped consists of discing, or flail mowing if the site has substantial grasses established, three times per year. Litter and debris are removed once a month. Landscaped basins are mowed approximately twenty times per year. At these times sprinkler systems are inspected, litter and debris removed, and street frontages swept and cleaned. In addition to these routine activities, all excavated basin sites are inspected monthly for debris, litter, broken fences, and other nuisances. Sediment removal for pollutant management is described in Chapter 5, Stormwater Quality Management; Chapter 6, Water Conservation; and Chapter 7, Recreation.


Gambusia affinis

The District is responsible for maintenance of the flood control facilities in a manner that reduces the potential for mosquito breeding habitat. Many basins are stocked with Gambusia affinis or "mosquito fish" that devour several hundred-mosquito larvae per day. The mosquito abatement districts are notified when the basins are being drained or filled to allow for harvesting and restocking of mosquito fish. Efforts made to help control mosquito populations include: basins maintenance to remove cattails, tulles and other vegetation; upgrading of the storm drain collection system to eliminate older sewer connections, cross drains and drywells; sloping the floor of drop inlets to eliminate standing water; identifying when temporary ponds can be abandoned; coordination for proper design of grassy swales or bio-filters; referral and coordination of public complaints involving mosquitoes at District facilities; and reporting of dead birds found on District property so that testing for West Nile Virus can be done. The District will work with Consolidated and Fresno Mosquito Abatement Districts to identify and effectively control mosquito breeding in basins. This includes prompt mitigation of problems identified by the Mosquito Abatement Districts.

The District has agreements with the Cities of Fresno and Clovis to provide active recreation at basin parks. The arrangement requires the Cities to provide the amenities for active recreation. The District mows all basins and the City of Fresno pays for the water bills for active recreational sites with minor exceptions. The District retains the storm drainage use and related maintenance.

PUMP STATIONS

The District owns and operates 80 pump stations that are maintained by District staff and private vendors according to a preventative maintenance schedule. The pump stations set to turn on automatically are scheduled for routine servicing and are fully serviced each year prior to the storm season when the pump motor and electrical system are checked to ensure proper function. During the fall, pump only stations are de-watered and debris is removed. The District also checks each pump during storm events to clear any debris carried into the system and to ensure proper operation.

PROGRAM PLANNING

Local storm drainage Master Plan engineering is achieved by analyzing the topography, planned land use, climatology, and geology to produce a detailed drainage hydrology for each local drainage area. Following these analyses, drainage area boundaries are identified, runoff flows based on planned land uses are computed, retention basin size and location is determined, and preliminary pipeline or alternative conveyance system plans are completed. System relief facilities for use in major storm events are also addressed during the planning stage. The coordination of local relief flows with flood control flows, which may be occurring simultaneously in the streams and canals, must be considered. All parcels of land potentially required to build the storm drainage system are assessed to ensure that there is no evidence of hazardous material or waste contamination. Site-specific environmental studies are also conducted in compliance with the California Environmental Quality Act (CEQA).

District staff performs several vital drainage planning activities including:

- Coordinating drainage system plans and designs with local land use planning;
- Establishing street grades necessary to accomplish drainage of the runoff from the point of origin to the nearest collection facility;
- Reviewing and evaluating development proposals for conformance with the Storm Drainage and Flood Control Master Plan;

- Preparing, maintaining, and distributing topographical and hydrological data for all planned local drainage areas; and
- Determining and levying development fees to fund the planned local drainage facilities.

Planning and implementation of the local drainage program involves continuing coordination with land use planning authorities. The District evaluates the drainage impacts of all development proposals and establishes conditions of approval to be imposed by the Cities and County through their development entitlement procedures.

Drainage service for new development is funded through development fees paid upon approval of the development. Ideally, drainage services are provided concurrent with construction of the development project. However, system construction may occasionally be delayed due to insufficient fee revenue to fund all facilities required by a development project. The provision of service can also be delayed by the lack of street improvements necessary to convey runoff from the development to the collection points. Unless the developer or the District can advance funds to cover the necessary facilities or street improvements, the developer must provide temporary on-site storage of the project's runoff until permanent service is available.

Basin excavation is often prolonged if the demand for fill material is low. Incomplete basins are most typically found in areas that are not fully developed. In recent years, the construction of state highways has resulted in a high demand for fill and has hastened the full excavation of some basins.

PERTINENT REGULATIONS AND AGREEMENTS

Regulations and agreements affecting implementation of the local stormwater drainage program include the District Act, Local Cooperation Agreement (LCA) between the District and the federal government, State of California Government Code, general plan policies of the Cities of Fresno and Clovis and the County of Fresno, and the Master Discharge Agreement. The referenced documents and local ordinance codes include more detailed standards and requirements not itemized herein.

DISTRICT ACT

The District Act mandates the provision of urban stormwater drainage services and the protection of property from flood, storm and other water flows, as stated in Section 73-7:

> *(a) The objects and purposes of this act and of the District shall be to provide for (1) the control of flood, storm, and other waste waters of or within the District, including waters which arise outside the District and which flow or drain into or through the District; (2) the protection from damage by flood, storm, or waste waters of private property and of public highways and other public property within the District; and (3) the conservation of flood, storm, waste, and other surface waters for beneficial and useful purposes by spreading, storing, retaining, or causing those waters, or any part thereof, to percolate into the soil within or without the District or the saving and conservation in any manner of any or all of those waters.*

LOCAL COOPERATION AGREEMENT

As part of the Local Cooperation Agreement (LCA), the District must operate, maintain, inspect, replace and rehabilitate the Redbank-Fancher Creeks Project. The Project involves several flood control structures on upstream reaches of streams and channels that flow into and through the District (see Chapter 2, Flood Control). Relief discharges from local drainage facilities must be controlled and coordinated with flood control system flows in order that both may pass safely through the District.

STATE OF CALIFORNIA GOVERNMENT CODE

Section 65300 et sq. of the Government Code requires cities and counties to prepare General Plans and authorizes such plans to include stormwater drainage elements.

MASTER DISCHARGE AGREEMENT

The District, County of Fresno, City of Fresno, and City of Clovis maintain a Master Discharge Agreement with the Fresno Irrigation District (FID) (January 7, 1972). Under the terms of the agreement the District may discharge stormwater into designated FID canals to prevent flooding. The District's discharges are permissible as long as they do not overtax canal capacity, cause damage, endanger personal property, deposit poor quality water, or interfere with the primary use of the FID system, which is to transport and distribute irrigation water.

PROGRAM IMPLEMENTATION

The following activities shall be performed by the District to implement the urban stormwater drainage program:

1. Complete Master Plan engineering, environmental review and adoption processes for potentially developing areas to ensure adequate storm drainage services and to effect conservation of surface water resources of these areas. Prioritize basin acquisition accordingly.

2. Ensure compliance with the Storm Drainage and Flood Control Master Plan by all development and effect construction of the Master Plan facilities concurrently and in conjunction with development.

3. Install and operate a telemetry system to provide automated monitoring of rainfall, runoff, stage, flow, system operational status and controls throughout the entire District system.

4. Prioritize basin improvements, including basin capacity and completion needs, and direct excavation activity wherever possible to high priority sites.

5. Operate the storm drainage system to effect the safe control, routing, and disposal of all stormwater flows within the District.

CHAPTER 5: STORMWATER QUALITY MANAGEMENT

In 1991, six agencies including the District, City of Fresno, City of Clovis, County of Fresno, California State University, Fresno (CSUF), and California Department of Transportation (Caltrans) joined together to form the Fresno-Clovis Metropolitan Stormwater Quality Management Program, as required by the federal Clean Water Act. The objective of this effort is to implement a regional stormwater quality management program in compliance with the federal stormwater regulations declared by the U.S. Environmental Protection Agency (EPA) in November 1990. The participating agencies are required to obtain a National Pollutant Discharge Elimination System (NPDES) municipal stormwater discharge permit. The District, as the lead agency, and the five co-applicants submitted the required Part 1 and Part 2 NPDES permit applications to the Central Valley Regional Water Quality Control Board (RWQCB). Part 1 was approved by the RWQCB in October 1992 and part 2 was submitted to the RWQCB on May 17, 1993. The permit was issued on September 16, 1993. The participating agencies, excluding Caltrans that now has a separate permit, prepared and submitted an application for renewal of the existing permit to the RWQCB. The second NPDES permit was issued in March 2001 and was administratively extended in March 2006. The third NPDES permit was issued in May 2013 and is scheduled to expire in May 2018.

The permit area for the stormwater quality management program is defined by the District's Storm Drainage and Flood Control Master Plan local drainage area boundaries, and the County's Copper-Friant Study Area which adjoins the District's northern boundary and lies between the San Joaquin River and the Friant-Kern Canal. The Copper-Friant Study Area is an area primarily designated for agricultural purposes that is being evaluated for more intensive uses. It is included in the permit area due to its potential to influence river water quality. The permit area will also include future urban drainage service areas as they are established by the participating agencies. The Fresno-Clovis Stormwater Quality Management Program permit boundary is shown on Figure 5-1.

OBJECTIVES

The following objectives have been established for the Fresno-Clovis Stormwater Quality Management Program:

A. Protect water resources from degradation by urban runoff and the habitat those resources provide. Resources in the Fresno Metropolitan Area include:

   1. Regional Groundwater Aquifer--municipal, industrial, and agricultural water supply.

   2. San Joaquin River and Tributary Streams--wetland, riparian, and in-stream ecosystems; recreation; municipal, industrial, and agricultural water supply; and groundwater recharge.

   3. District Retention Basins--storm drainage and flood control, recreation, groundwater recharge, and incidental wildlife habitat.

   4. Fresno Irrigation District Canals--freshwater conveyance for municipal, agricultural, and habitat uses, as well as storm drainage and flood control.

   5. Artificial Lakes--aesthetics and recreation, aquatic resources, and storm drainage and flood control.

B. Identify those pollutants present in urban runoff that pose a significant threat to these resources and beneficial uses.

C. Identify and control those sources of pollutants which pose the greatest threat to these resources and beneficial uses.

D. Comply with the federal NPDES mandate to eliminate or control, to the maximum extent practicable, the discharge of pollutants from urban runoff associated with the metropolitan storm drainage system.

E. Seek cost effective alternative solutions where prevention is not a practical solution for a significant problem.

F. Cooperate with other local environmental regulatory programs to ensure a coordinated effort to control pollutants of common concern and to facilitate implementation of control measures.

PROGRAM DESCRIPTION

The Fresno-Clovis metropolitan area, through the programs of the District, has a long history of stormwater quality management activities. This has arisen from the role of the District's system in surface water conservation and groundwater recharge, and the need to protect the quality of the aquifer that is currently the area's primary source of domestic water supply.

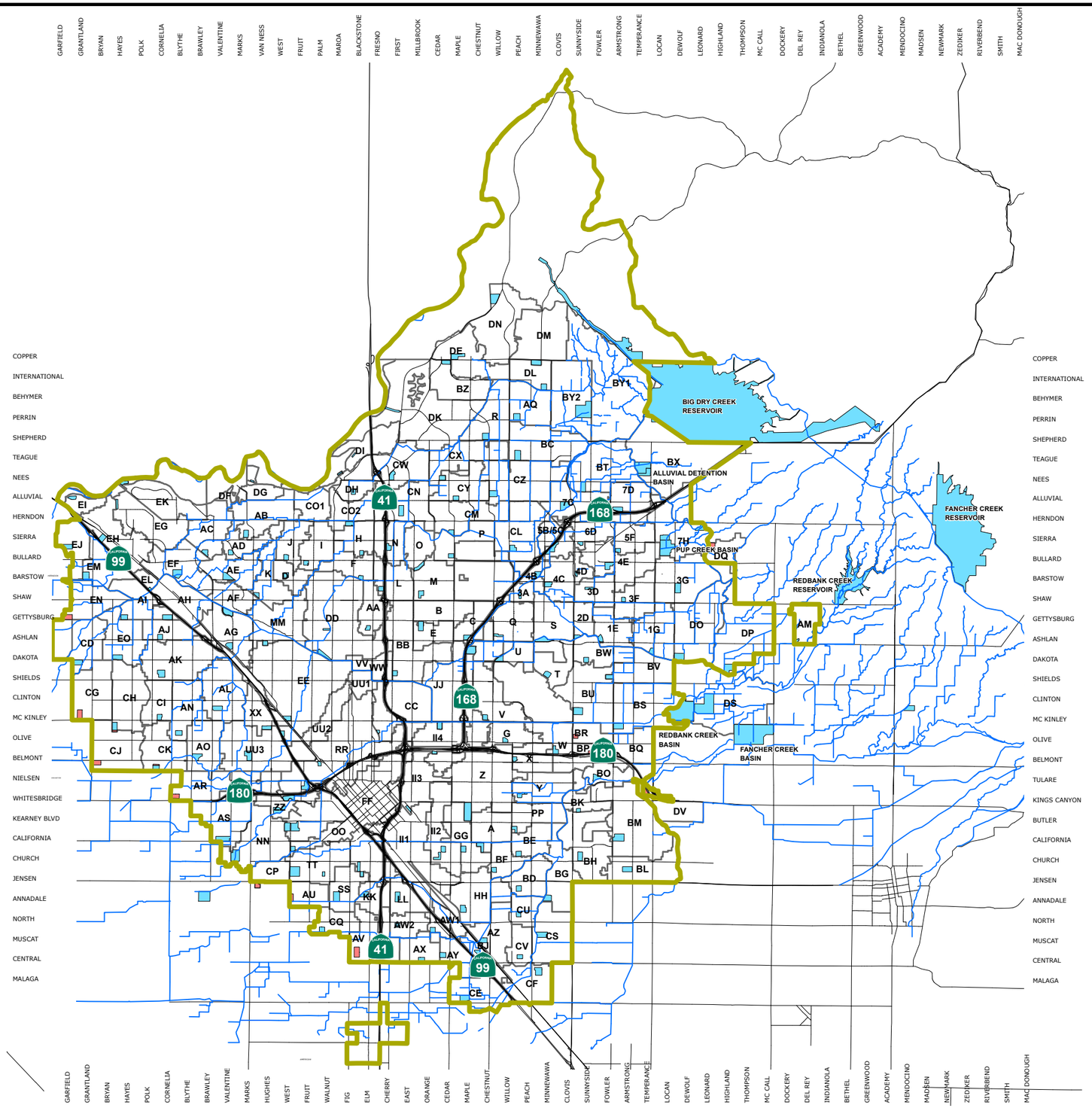
The Fresno Nationwide Urban Runoff Program (NURP) project was conducted between 1981 and 1983 in conjunction with the U.S. Environmental Protection Agency's national effort. The program's goal was to determine the extent to which urban runoff contributes to water quality problems and to evaluate various management practices for controlling urban runoff quality. This program included sampling and analyses to assess pollutant loads in the atmosphere, dry deposition, rainfall, runoff, retention basin soils, and groundwater. The results indicated that runoff contains significant levels of many contaminants, including most of the heavy metals and some organic compounds.

Present information indicates that stormwater discharges in the area have had very little known impact on receiving water quality. However, heavy metals may be present in area runoff at elevated concentrations. While the area's receiving waters have not been found to be adversely affected by urban runoff, continued development is increasing the volume of runoff, and will increase pollutant loads discharged to stormwater basins and receiving waters if not controlled.

The District and participating agencies conduct many programs which serve directly and indirectly to improve stormwater quality. The primary stormwater quality control element employed in the permit area is the District's system of interconnected storm drains and retention basins. The basins collect and retain runoff, percolating the water to groundwater or releasing the water to irrigation canals, creeks, and the San Joaquin River. Runoff-borne pollutants are trapped in the basin sediments for subsequent removal. All new basins are constructed in accord with District design standards that facilitate pollutant entrapment and management. Standard design basin capacity typically provides for retention of runoff from up to six inches of rainfall. In areas served by full-capacity basins, all runoff from a typical storm event is fully retained. Discharges from such basins may occur during major storm events or successive events and for basin maintenance.

Even when discharges from basins occur, significant pollutant removal is accomplished during the detention period within the basin. The District operates the basins to maximize holding times prior to discharging, thereby maximizing pollutant settling.

NOTE:
The District Board of Directors (Board), pursuant to public testimony at the Public Hearing on December 13, 2017, did not set the exact real property boundaries of Basin "AV". Additional studies will be required before the final location for Basin "AV" is adopted by the Board.



LEGEND

- NPDES BOUNDARY
- SURFACE WATER FEATURES

DRAINAGE BASINS:

- EXISTING BASIN
- PROPOSED BASIN
- AH DRAINAGE BASIN IDENTIFIER

N
W E
S

1 0.5 0 1 2 3 4 5 Miles

FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
SERVICES PLAN

STORM WATER QUALITY MANAGEMENT PLAN	FIGURE 5-1

Prepared By: Kyles
File: N:\GIS\projects\ENVIRON\services plan\5-1.mxd
Date: 12/19/2017

The District has adopted special policies to protect the San Joaquin River from stormwater borne pollutants. In cooperation with the City of Fresno, land uses which drain to the river are limited to open space and residential. Commercial land uses may be approved provided runoff is treated on site through grassy swales or on-site retention. Since 1987, all new Master Plan drainage areas that drain to the river are served by detention facilities which provide for significant settling of stormwater borne sediments and adsorbed pollutants; these facilities also include velocity dissipaters to control erosion, and aerators to restore oxygen prior to discharge.

Basins in residential areas have both upper and lower basin floors. The upper floor can be used for recreation during the dry months. The first storm of the season often carries a higher concentration of pollutants than subsequent storms. Low-flow areas effectively contain this "first flush" of pollutants washed into the drainage system. Since many pollutants of concern settle out of stormwater near the point of discharge to the basin, the basin low-flow areas contain the primary outfall, further facilitating entrapment of pollutants conveyed to the basin. Sediments are removed from low-flow areas through a routine monitoring and maintenance program as described below.

Basin Y

The District has implemented a basin sediment monitoring and management program called the Standard Operating Procedures for Monitoring, Maintenance, and Disposal of Stormwater Basin Sediment (SOP) to protect public health, groundwater quality, and the environment, and to ensure compliance with existing federal and state waste disposal and hazardous waste laws and regulations. The objectives of the SOP are to establish standard practices for basin sediment monitoring, maintenance, and disposal activities. The District SOP addresses: sampling frequency, location, collection and handling practices, chemical analyses, quality assurance and quality control, sediment removal, removal frequency and method, disposal of removed sediments as non-hazardous material, and monitoring and maintenance documentation.

Studies conducted by the District have shown that lead will most likely accumulate in basin sediments to levels regulated by state and federal waste regulations before other stormwater pollutants will reach regulatory thresholds. In order to be sure standards are met, and to provide an additional margin of safety, the District routinely tests basin soils with the goal of maintaining the mean concentration of total recoverable lead in basin sediments well below the current waste disposal standards. By adhering to this policy, the District can ensure that accumulated basin sediments are disposed of properly, and will not approach or exceed the lead waste disposal or hazardous waste standards.

To prevent accumulation and leaching of lead and other pollutants, and to maintain groundwater recharge efficiencies, the District must periodically remove basin sediments. Providing that sediments meet the regulatory definition of inert materials, and are not contaminated to levels exceeding waste disposal standards, they may be used as ordinary fill material.

Basins exempt from these requirements are: basin sites that have not been excavated, excavated or partially excavated basin sites that do not receive stormwater runoff, and basin sites that are under active excavation and for which soil has been removed from the area receiving runoff within the current SOP sediment removal requirements.

The SOP is reviewed and updated as necessary to ensure that the most efficient and effective monitoring, maintenance and disposal procedures are in place. The SOP is available at the District office for more information on these procedures.

PROGRAM PLANNING

A Program Coordinating Committee (PCC) guided preparation of both permit applications and associated Stormwater Quality Management programs. Representatives of the participating agencies, industries, construction, and citizen and environmental organizations served on the committee. Two subcommittees, the Construction and Development Committee and the Public Involvement and Educational Committee, assisted in the development of the associated control programs. The committees selected and prioritized best management practices to be implemented to achieve regulatory compliance.

Routine meetings of the PCC provides a forum for implementing the NPDES permit in a manner which capitalizes on existing programs, rationally builds new programs, and is sensitive to the needs and concerns of the participating agencies, regulated businesses, and the public. Though the program is directed by the District as lead agency and guided by advice of the PCC, each agency has the autonomy and responsibility to ensure its compliance with permit requirements specific to the agency, including funding and accomplishing Program tasks assigned to the agency.

PERTINENT REGULATIONS

The District Act, local general plans, the federal Clean Water Act and implementing NPDES stormwater regulations, the state Toxic Pits Clean Up Act, the Central Valley Regional Water Quality Control Board Tulare Lake Basin Plan, and State Water Resources Control Board Inland Surface Waters Plan contain elements relevant to the stormwater quality program. The referenced documents and local ordinance codes include more detailed standards and requirements.

DISTRICT ACT

The District Act does not specifically mandate management of stormwater quality as a District purpose. However, management of the quality of stormwater and mitigation of potential pollutant-related impacts is considered essential to carrying out the mandated flood control, drainage, water conservation and recharge activities.

LOCAL GENERAL PLANS

CITY OF FRESNO:

> ***PU-8. OBJECTIVE:*** *Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe, economical, and reliable water supply for existing customers and planned urban development and economic diversification.*
>
> ***PU-8-a. Policy: Forecast Need.*** *Use available and innovative tools, such as computerized flow modeling to determine system capacity, as necessary to forecast demand on water production and distribution system by urban development, and to determine appropriate facility needs.*
>
> ***PU-8-b. Policy: Potable Water Supply and Cost Recovery.*** *Prepare for provision of increased potable water capacity (including surface water treatment capacity) in a timely manner to facilitate planned urban development consistent with the General Plan. Accommodate increase in water demand from the existing community with the capital costs and benefits allocated equitably and fairly between existing users and new users, as authorized by law, and recognized the differences in terms of quantity, quality and reliability of the various types of water in the City's portfolio.*
>
> ***Commentary:*** *Consistent with fiscal management policies and strategies in the Economic Development and Fiscal Sustainability Element, new users will be obligated to pay for the cost of being attached to the potable water supply and distribution system and surface water treatment through connection fees, including the cost of any incremental burden that they may place on the entire system in terms of both*

infrastructure and water resources, and pay for the full operational costs of extraordinary facilities, as authorized by law.

PU-8-c. Policy: Conditions of Approval. *Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.*

PU-8-d. Policy: CIP Update. *Continue to evaluate Capital Improvements Programs and update them, as appropriate, to meet the demands of both existing and planned development consistent with the General Plan.*

PU-8-e. Policy: Repairs. *Continue to evaluate existing water production and distribution systems and plan for necessary repair or enhancement of damaged or antiquated facilities.*

PU-8-f. Policy: Water Quality. *Continue to evaluate and implement measures determined to be appropriate and consistent with water system policies, including prioritizing the use of groundwater, installing wellhead treatment facilities, constructing above-ground storage and surface water treatment facilities, and enhancing transmission grid mains to promote adequate water quality and quantity.*

PU-8-g. Policy: Review Project Impact on Supply. *Mitigate the effects of development and capital improvement projects on the long-range water budget to ensure an adequate water supply for current and future uses.*

CITY OF CLOVIS:

OS Goal 3: *A built environment that conserves and protects the use and quality of water and energy resources.*

Policy 3.1: Stormwater management. *Encourage the use of low impact development techniques that retain or mimic natural features for stormwater management.*

Policy 3.2: Stormwater pollution. *Minimize the use of non-point source pollutants and stormwater runoff.*

COUNTY OF FRESNO:

Goal LU-C: *To preserve and enhance the value of the river environment as a multiple use, open space resource; maintain the environmental and aesthetic qualities of the area; protect the quality and quantity of the surface and groundwater resources; provide for long term preservation of productive agricultural land; conserve and enhance natural wildlife habitat; and maintain the flood-carrying capacity of the channel at a level equal to the one (1) percent flood event (100-year flood).*

Policy LU-C.1: *The County shall regulate land use along the Kings River in accordance with policies of the Kings River Regional Plan.*

Policy LU-C.2: *Within the San Joaquin River Corridor Overlay, the County shall accommodate agricultural activities with incidental home sites, recreational uses, sand and gravel extraction, and wildlife habitat and open space areas. (See Figure LU-2)*

Policy LU-C.3: *The County may allow by discretionary permit commercial activities needed to serve San Joaquin River Parkway visitors, such as sales of food and beverages, camper's grocery items, books, guides, and educational materials, consistent with the objectives and policies of the San Joaquin River Parkway Master Plan.*

Policy LU-C.4: *The policies of the Friant Community Plan shall remain applicable in the Friant Community Plan area.*

Policy LU-C.5: *The County may allow the extraction of rock, sand, and gravel resources along the Kings River consistent with the Kings River Regional Plan policies and Section OS-C, Minerals Resources, of the Open Space and Conservation Element. (See Policy OS-C.11)*

Policy LU-C.6: *The County may allow the extraction of rock, sand, and gravel resources along the San Joaquin River consistent with the Minerals Resources section policies of the Open Space and Conservation Element.*

Policy LU-C.7: *The County, in approving recreational facilities in the San Joaquin River Parkway adjacent to residential uses, shall require a buffer of at least 150 feet and screening vegetation as necessary to address land use compatibility issues.*

Policy LU-C.8: *Fresno County shall take into consideration the presence of the regulatory floodway or other designated floodway, the FEMA-designated 100-year floodplain, estimated 250-year floodplain, the Standard Project Flood, and the FMFCD Riverine Floodplain Policy in determining the location of future development within the San Joaquin River Parkway area. Any development sited in a designated 100-year floodplain shall comply with regulatory requirements at a minimum and with the FMFCD Riverine Floodplain Policy criteria, or requirements of other agencies having jurisdiction, where applicable.*

Policy LU-C.9: *The County shall administer its land use regulations in the San Joaquin River Corridor Overlay to preserve and protect identified wildlife corridors along the San Joaquin River. The County shall administer these regulations in consultation with the San Joaquin River Conservancy.*

Policy LU-C.10: *The County shall administer its land use regulations in the San Joaquin River Corridor Overlay to protect natural reserve areas in the San Joaquin River Parkway, principally in those areas adjoining the wildlife corridor along the river where the largest acreage's of highest quality habitat exist. The County shall administer these regulations in consultation with the San Joaquin River Conservancy.*

Clean Water Act and Implementing Regulations

The federal Clean Water Act, as amended by the 1987 Water Quality Act, requires the EPA to impose stormwater discharge permits under the NPDES program for municipal stormwater drainage systems (Section 402(p) of the Clean Water Act). The permit program is being administered and enforced in California by the State Water Resources Control Board and the Regional Water Quality Control Boards. The law requires that stormwater management agencies implement Best Management Practices (BMPs) to reduce stormwater pollutants to the "maximum extent practicable."

The EPA regulations require all municipal stormwater systems that serve populations over 100,000 to obtain a stormwater discharge permit. The Fresno metropolitan area is cited in the regulations as required to secure a permit.

The permit required a two-part application: Part 1 described the current drainage system, operations, and maintenance, legal authorities of the participating agencies, and existing pollution prevention programs. The Part 2 application was composed of three elements: the stormwater quality control element, legal authority element, and source identification and monitoring element. Part 2 set forth the BMPs to be implemented by the agencies to prevent and reduce stormwater pollutants, a plan for developing and adopting a master stormwater quality ordinance to enforce the local program, and the drainage system and receiving water monitoring to be performed.

As part of the permit renewal process, the District and its co-permittees revised the Stormwater Quality Management program as developed in 1993. Under the revised plan the District will continue to be the lead agency for the NPDES permit. The District is also responsible for major elements of the program, including funding and implementing the Storm

Drainage and Flood Control Master Plan, public involvement and education, construction and industrial outreach, monitoring and illicit discharges elimination.

TOXIC PITS CLEAN UP ACT

The Toxic Pits Clean Up Act of 1984 states that discharges of liquid hazardous wastes or hazardous wastes containing free liquids, into lined or unlined ponds, pits and lagoons pose a serious threat to the quality of the waters of the state (California Health & Safety Code 25208.1(a)). The Act established a continuing program that ensures that existing surface impoundments are either made safe or are closed, so that they do not contaminate the air or waters of the state, and, so that the health, property and resources of the people of the state are protected. The District monitors and maintains the soils and sediments in basins to ensure that pollutants do not accumulate to levels that may pose risks to public health and the environment.

BASIN PLANS AND INLAND SURFACE WATER PLAN

As required by the federal Clean Water Act, the State Water Resources Control Board and RWQCB have adopted the San Joaquin River Basin Plan, Tulare Lake Basin Plan, and Inland Surface Waters Plan, which designate beneficial uses, water quality objectives, and receiving water limitations for all surface receiving waters within the District. Through its NPDES permit for municipal stormwater discharges the District is required to "reduce the discharge of pollutants to the maximum extent practicable" through implementation of the Stormwater Quality Management Program to assure compliance with receiving water limitations.

PROGRAM IMPLEMENTATION

A comprehensive Stormwater Quality Management Program is being implemented by the participating agencies to prevent and reduce stormwater pollutants to the maximum extent practicable. The complete program is presented in the draft Fresno-Clovis Stormwater Quality Management Plan, September 2005. This document is incorporated herein by reference.

The following summarizes the major tasks and activities to be conducted by the District to implement stormwater quality management in the District service area:

1. Implement the stormwater quality control program defined in the Stormwater Quality Management Plan, and summarized in Table 5-1.

2. Implement source identification and monitoring activities including:

    a. Perform wet-weather visual inspections in industrial and commercial areas and construction sites;

    b. Perform stormwater quality sampling and analyses to evaluate the effectiveness of structural control BMPs;

    c. Collect samples from the San Joaquin River to determine if stormwater is impairing its beneficial uses, and if water quality objectives are being achieved.

3. Implement a master stormwater quality ordinance and related memorandum of understanding among the participating agencies to accomplish the following:

    a. Address all regulatory requirements, including water course protection, control of improper dumping of non-stormwater discharges, grease control, and outdoor material storage;

b. Provide right-of-entry on private property for agency personnel;

c. Impose and enforce local requirements related to the storm drain system; and

d. Define the roles and responsibilities of the participating agencies, and facilitate any necessary transfer of authority.

4. Continue the basin sediment removal program described in this plan. As sediment and contaminant accumulation data becomes available, reassess cleaning frequencies and methods. Monitor state and federal health and safety standards to ensure contaminants are removed in conformance with current state and federal laws and standards.

5. Coordinate program implementation activities of the participating agencies and ensure the active participation of the Program Coordinating Committee.

6. Coordinate, collect and compile into appropriate reports all program implementation data from the participating agencies, and submit the reports annually to the RWQCB as required.

TABLE 5-1: STORM WATER QUALITY MANAGEMENT PLAN PROGRAM GOALS

PROGRAM ELEMENT	GOALS
Program Management	To provide a framework for effective focused management of the stormwater program.
Construction Program	To control stormwater pollution originating from land development during construction.
Industrial and Commercial Program	To control stormwater pollution originating from land development during construction
Municipal Operations Program	To evaluate and modify where necessary existing maintenance practices for the District's storm drain system to enhance pollutant removal; and to improve other public maintenance practices to minimize the potential for stormwater pollution.
Illicit Connection and Discharge Program	To eliminate prohibited non-stormwater discharges, including those associated with illicit connections and illegal dumping to the municipal storm drain system.
Public Involvement and Education Program	To educate the public to understand and participate in the control of urban runoff pollution and to solicit support for the program.
Planning and Land Development Program	To control sources of stormwater pollution associated with land development (after construction). To ensure that the District's practice of building and utilizing stormwater basins for stormwater management protects receiving waters from impacts related to stormwater quality.
Storm Water Quality Monitoring Program	To implement effective monitoring strategies to enhance the understanding of MS4 water quality and to refine the SWQMP to reduce pollutant loadings and protect and enhance the beneficial uses of the receiving waters in the Fresno Urbanized Area.

CHAPTER 6: WATER CONSERVATION

One of the District's purposes is to conserve water resources. This is accomplished through: 1) retaining stormwater runoff in basins within the watershed, facilitating stormwater percolation to the underlying aquifer; and 2) cooperating with the Cities of Fresno and Clovis to direct imported surface water entitlements from the Kings River to District facilities for percolation. At this time groundwater recharge is accomplished using water from the Kings River directed to District basins. In the future, the District may propose to utilize Big Dry Creek, Redbank Creek and Fancher Creek reservoirs, which will increase the amount of water recharged to the groundwater aquifer. The community's aquifer has historically been overdrawn creating a groundwater overdraft in the eastern San Joaquin Valley. Groundwater extraction is only partially replaced by the natural percolation of stream flows and rainfall. Supplemental artificial recharge, including the percolation of irrigation water, canal seepage, and surface water recharge through basins is necessary to mitigate the impact of groundwater pumping.

OBJECTIVES

The following objectives have been established for implementation of the water conservation program.

A. Maximize the retention and detention of stormwater runoff to maximize percolation to groundwater without compromising flood protection.

B. Connect all District reservoirs and basins that have good recharge characteristics to the surface water delivery system to maximize recharge of the area's surface water resources.

C. During the dry season, make designated District facilities available to all area water purveyors for surface water storage and groundwater recharge.

D. Use supplemental capacity of District reservoirs and basins when available for surface water storage and groundwater recharge during the rainy season.

E. Use surface water and reclaimed effluent from tertiary treatment for irrigation when appropriate.

PROGRAM DESCRIPTION

Stormwater runoff and surface water entitlements are vital community resources and are essential to meeting the long-term water supply needs of the metropolitan area. It is the District's mandate to conserve water resources and to recharge the aquifer, and the District's policy to accomplish this mandate through the maximized multiple use of District facilities. Multiple use of the facilities minimizes the capital and operational costs of providing these essential public and environmental services to the community.

SERVICES AND FACILITIES

STORMWATER RECHARGE

The District’s retention and detention basins are designed and operated to retain as much stormwater as possible, minimizing discharges to receiving waters and maximizing percolation to groundwater. The system design standard provides for the retention of runoff generated by six inches of rainfall at a two-year intensity. Once captured in a basin, stormwater is allowed to percolate to groundwater, unless the capacity remaining in the basin is less than that needed to

store runoff. If additional storage capacity is needed, stormwater is discharged to other basins, canals, creeks, and the San Joaquin River. For more information refer to Chapter 4, Local Stormwater Drainage.

The District estimates that on the average, approximately 17,000 acre-feet of stormwater is recharged in the local storm drainage system each year. This volume varies greatly depending on the amount of rainfall in a season and the distribution of storm events over time. Further, as urbanization continues and more elements of the District's system become operational, the volume of stormwater captured and recharged increases.

District flood control reservoirs and basins in the rural areas are currently operated primarily as detention facilities to reduce peak flows. Congress has also authorized the use of these facilities for recharge to enhance the groundwater aquifer. This purpose can be achieved through: 1) percolation at the reservoir or basin site; 2) through slowly releasing water into downstream channels, allowing water to infiltrate along the streambeds; and 3) diverting captured waters to other recharge facilities. The District has a joint water rights application with the Cities of Fresno and Clovis on file with the State Water Resources Control Board that would secure the right to retain storm flows for recharge. Water rights, the integrity of the facilities' flood control function, potential downstream impacts, and other issues must be addressed before the District modifies its operations to accommodate such recharge activities.

SURFACE WATER RECHARGE

The Cities of Fresno and Clovis allot a portion of their surface water entitlements to the San Joaquin and Kings Rivers for delivery through Fresno Irrigation District canals to District basins for recharge purposes. Throughout the metropolitan area FID has an extensive canal system for the delivery of such entitlements from the Kings River. The District's system of flood control reservoirs and local drainage basins provides water storage and percolation capabilities totaling thousands of acre-feet of capacity.

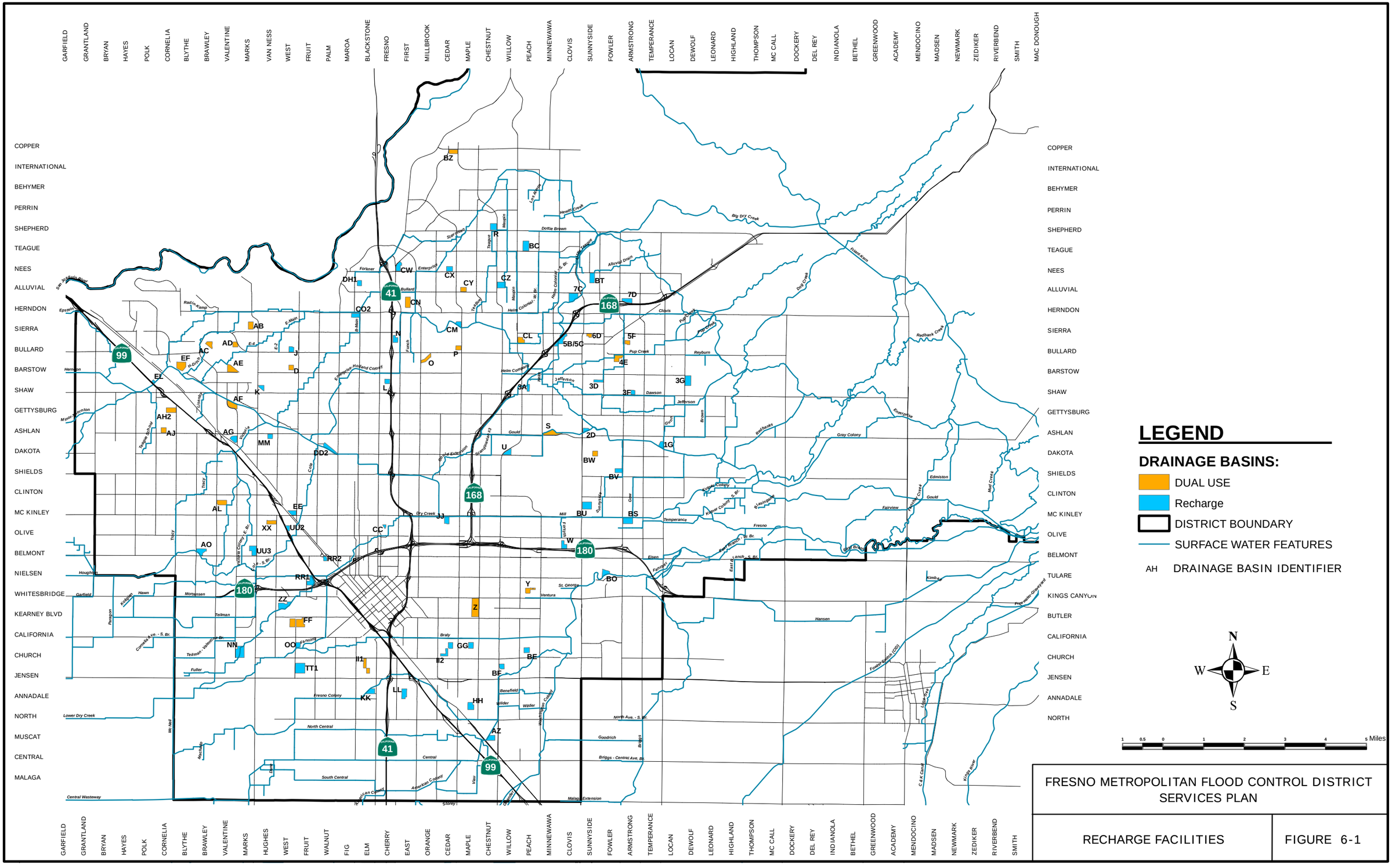
Beginning in 1965, the District and FID entered into an agreement for the use of District basins to receive and recharge surface water conveyed in FID's system. Subsequently, contracts between the District and the Cities were executed providing for the delivery and recharge of the surface water supplies of the agencies in District facilities. The District will work with FID and the Cities to continue these agreements when they come up for renewal.

The Cities of Fresno and Clovis have separate, single purpose recharge facilities in addition to contracted capacity in the District facilities. However, the combined facilities of the Cities, the FID, and District basins that are currently connected to the surface water delivery system are insufficient to recharge all of the Cities' surface water entitlements. Additional facilities connecting basins to canals, called "interties," are constructed each year. In 1984, surface water was delivered for recharge to 27 District basins. As of 2017, 87 were intertied to the canal system and are available to accept recharge deliveries. These basin sites are shown on Figure 6-1.

The combined estimated entitlements of the Cities are 219,544 acre-feet per year[1]. This amount of surface water will be available in normal rainfall years in the upper San Joaquin and Kings River watersheds. Lesser amounts are available during relatively dry years and larger amounts are available in relatively wet years.

Deliveries to District basins under recharge contracts typically occur March through October. However, deliveries may occur during any prolonged dry weather period. Delivery is sometimes permitted if less than normal rainfall occurs. Recharge deliveries may be interrupted during any rainy period; the District maintains as its first operational priority the protection of people and property from flood damage.

[1] FID average surface water entitlements from the Kings River is 500,000 acre-feet each year. In 2010 the City of Fresno was allocated 132,541 acre-feet and the City of Clovis was allocated 25,628 acre-feet. Additionally the City of Fresno received 61,375 acre-feet of water from Millerton Lake in 2010.



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In 1980, the District began monitoring and recording surface water entitlement deliveries to District basins. These deliveries have fluctuated considerably over the years (Figure 6-2) with the average for the past 5 years (2012-2016) totaling approximately 24,893 acre-feet per year. This number has reduced considerably because of the drought.

Operations and Maintenance

The District provides maintenance, monitors water deliveries and storage, and coordinates FID's surface water deliveries to intertied basins. Some basins have facilities to operate automatically during the rainy season. These automated systems are turned off or reset during the recharge delivery periods to avoid discharging water that is intended to be recharged.

Basins that are scheduled for maintenance are dried out and maintained before recharge deliveries start. Pumps are used to accelerate dewatering so that maintenance can be completed quickly and the basin can be returned to recharge as soon as possible. The District determined during the 1984 Fresno Nationwide Urban Runoff Program (NURP) study that stormwater-borne contaminants are trapped in basin soils and do not readily migrate to groundwater.

Nonetheless, basin floors would accumulate contaminated sediments over extended periods of time if the sediments were not routinely removed. In order to ensure long-term protection of recharge program basins and the underlying aquifer, sediment is removed according to the District's Standard Operating Procedures. Soil samples and analyses for total lead (used as an indicator contaminant) are conducted by a state approved analytical laboratory after basin cleaning to ensure cleaning effectiveness. For more information refer to Chapter 5, Stormwater Quality Management.

Service charges are levied on the surface water entitlement agencies to partially recover recharge operation and maintenance costs. To date, the District General Fund has funded the portion of the costs not recovered. The costs to remove sediments are partially caused by the stormwater quality program.

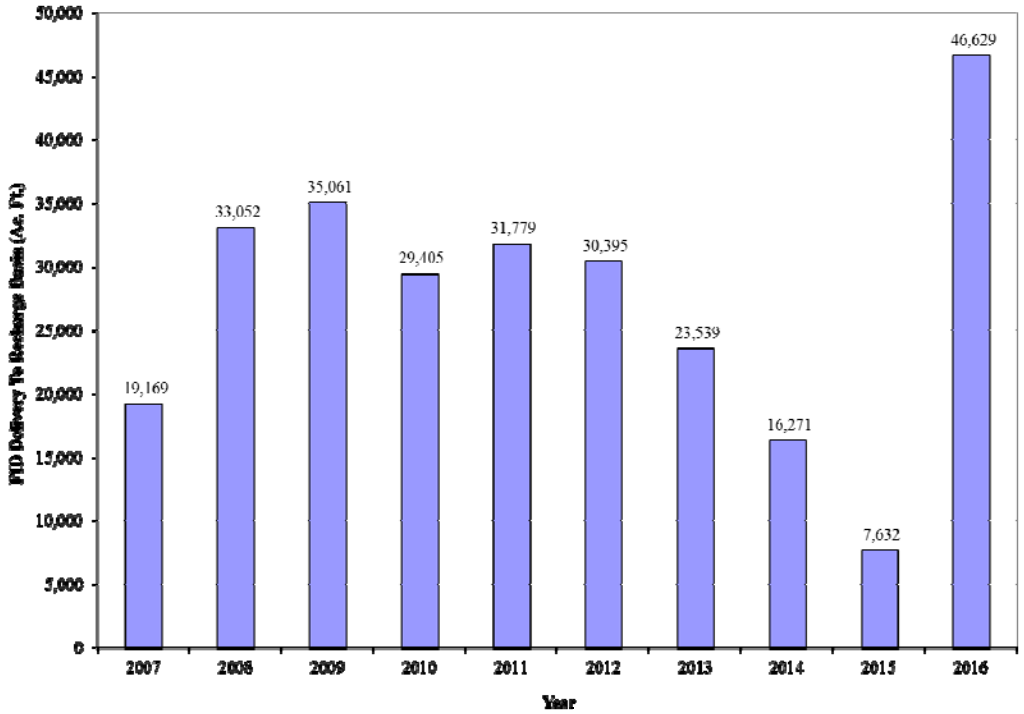


FIGURE 6-2: FMFCD BASIN RECHARGE

PROGRAM PLANNING

Both the Cities and FID are encouraged by the District to use its reservoirs and basins for surface water entitlement storage and groundwater recharge. The District currently has three reservoirs, five regional flood control detention basins planned, and 165 local basins under construction or in planning that may be used in the future for recharge. As the District system grows, the recharge capabilities will increase.

District basins are constructed based on two standard designs, residential or non-residential. Residential basins have upper and lower floors, and can be used for recharge or recreation. The upper floor can be used for recreation if the basin is landscaped, but once the basin is landscaped, it will not be used for recharge. Non-residential basins have steeper slopes and are not available for recreation. By default, they become recharge basins.

The District balances the need for secondary uses of basins for either recharge or recreation. The Cities and the District cooperate to select the most promising sites for recharge or recreational use. The most effective and beneficial sites have relatively permeable underlying soils, locations up gradient from city wells and close proximity to canals. The Cities must fund the extra costs for interties not required for the storm drain system. However, the District may occasionally advance funds or contract for construction of these facilities under an agreement for subsequent reimbursement.

The Cities of Fresno and Clovis, County of Fresno, the District and FID participated in a metropolitan area water resources management plan to evaluate alternative methods for meeting the water demands of the future. The Cities had elected to include treatment of surface water sources for a water supply. Both the City of Fresno and the City of Clovis have each constructed its own surface water treatment facility. Such facilities reduce the burden on the ground water recharge program and may allow the District more flexibility in balancing recharge and recreation. In the event that fewer recharge basins are necessary, the District may convert the basins no longer required for surface water entitlement recharge to recreational use.

PERTINENT REGULATIONS AND AGREEMENTS

Water conservation is one of the primary objectives of the District's enabling legislation. The recharge program is also encouraged by local general plan policies. The program is affected by recharge agreements with the Cities of Fresno and Clovis and the U.S. Environmental Protection Agency (EPA) Sole Source Aquifer designation. The referenced documents and local ordinance codes include more detailed standards and requirements.

DISTRICT ACT

Water conservation services, including surface water impoundment, storage and recharge are mandated and authorized in Section 73-7 of the District Act:

> *(3) the conservation of flood, storm, waste, and other surface waters for beneficial and useful purposes by spreading, storing, retaining, or causing those waters, or any part thereof, to percolate into the soil within or without the District or the saving and conservation in any manner of any or all of those waters.*

LOCAL GENERAL PLANS

The Cities of Fresno and Clovis and the County of Fresno have policies encouraging the secondary use of flood control and drainage facilities for water conservation.

CITY OF FRESNO:

> ***PU-8. OBJECTIVE:*** *Manage and develop the City's water facilities on a strategic timeline basis that recognizes the long life cycle of the assets and the duration of the resources, to ensure a safe,*

economical, and reliable water supply for existing customers and planned urban development and economic diversification.

PU-8-a. Policy: Forecast Need. *Use available and innovative tools, such as computerized flow modeling to determine system capacity, as necessary to forecast demand on water production and distribution system by urban development, and to determine appropriate facility needs.*

PU-8-b. Policy: Potable Water Supply and Cost Recovery. *Prepare for provision of increased potable water capacity (including surface water treatment capacity) in a timely manner to facilitate planned urban development consistent with the General Plan. Accommodate increase in water demand from the existing community with the capital costs and benefits allocated equitably and fairly between existing users and new users, as authorized by law, and recognized the differences in terms of quantity, quality and reliability of the various types of water in the City's portfolio.*

Commentary: *Consistent with fiscal management policies and strategies in the Economic Development and Fiscal Sustainability Element, new users will be obligated to pay for the cost of being attached to the potable water supply and distribution system and surface water treatment through connection fees, including the cost of any incremental burden that they may place on the entire system in terms of both infrastructure and water resources, and pay for the full operational costs of extraordinary facilities, as authorized by law.*

PU-8-c. Policy: Conditions of Approval. *Set appropriate conditions of approval for each new development proposal to ensure that the necessary potable water production and supply facilities and water resources are in place prior to occupancy.*

PU-8-d. Policy: CIP Update. *Continue to evaluate Capital Improvements Programs and update them, as appropriate, to meet the demands of both existing and planned development consistent with the General Plan.*

PU-8-e. Policy: Repairs. *Continue to evaluate existing water production and distribution systems and plan for necessary repair or enhancement of damaged or antiquated facilities.*

PU-8-f. Policy: Water Quality. *Continue to evaluate and implement measures determined to be appropriate and consistent with water system policies, including prioritizing the use of groundwater, installing wellhead treatment facilities, constructing above-ground storage and surface water treatment facilities, and enhancing transmission grid mains to promote adequate water quality and quantity.*

PU-8-g. Policy: Review Project Impact on Supply. *Mitigate the effects of development and capital improvement projects on the long-range water budget to ensure an adequate water supply for current and future uses.*

CITY OF CLOVIS:

PF Goal 1: *Reliable and cost-effective infrastructure systems that permit the city to sustainably manage its diverse water resources and needs.*

Policy 1.2: Water supply. *Require new development demonstrate contractual and actual sustainable water supplies adequate for the new development's demands.*

Policy 1.3: Annexation. *Prior to annexation, the city must find that adequate water supply and service and wastewater treatment and disposal capacity can be provided for the proposed annexation. Existing water supplies must remain with the land and be transferred to the City upon annexation approval.*

Policy 1.5: Recycled water. *Use recycled water to reduce the demands for new water supplies. Support the expansion of recycled water infrastructure throughout Clovis and require new development to install recycled water infrastructure where feasible.*

Policy 1.7: Groundwater. *Stabilize groundwater levels by requiring that new development water demands not exceed the sustainable groundwater supply.*

OS Goal 3: *A built environment that conserves and protects the use and quality of water and energy resources.*

Policy 3.4: Drought-tolerant landscaping. *Promote water conservation through the use of drought-tolerant landscaping on existing and new residential properties. Require drought-tolerant landscaping for all new commercial and industrial development and city-maintained landscaping, unless used for recreation purposes.*

Policy 3.5: Energy and water conservation. *Encourage new development and substantial rehabilitation projects to exceed energy and water conservation and reduction standards set in the California Building Code.*

COUNTY OF FRESNO:

Goal OS-A: *To protect and enhance the water quality and quantity in Fresno County's streams, creeks, and groundwater basins.*

General

Policy OS-A.1: *The County shall develop, implement, and maintain a plan for achieving water resource sustainability, including a strategy to address overdraft and the needs of anticipated growth.*

Policy OS-A.2: *The County shall provide active leadership in the regional coordination of water resource management efforts affecting Fresno County and shall continue to monitor and participate in, as appropriate, regional activities affecting water resources, groundwater, and water quality.*

Policy OS-A.3: *The County shall provide active leadership in efforts to protect, enhance, monitor, and manage groundwater resources within its boundaries.*

Policy OS-A.4: *The County shall update, implement, and maintain its Groundwater Management Plan.*

Policy OS-A.5: *The Fresno County Water Advisory Committee shall provide advice to the Board of Supervisors on water resource management issues.*

Policy OS-A.6: *The County shall support efforts to create additional water storage that benefits Fresno County, and is economically, environmentally, and technically feasible.*

Policy OS-A.7: *The County shall develop a repository for the collection of County water resource information and shall establish and maintain a centralized water resource database. The database shall incorporate surface and groundwater data and provide for the public dissemination of water resource information.*

Policy OS-A.8: *The County shall develop and maintain a water budget (i.e., an accounting of all inflows and outflows of water into a specified area) for the County to aid in the determination of existing and future water resource needs. The water budget shall be incorporated into the County Geographic Information System (GIS) and included in the water resource database.*

Policy OS-A.9: *The County shall develop, implement, and maintain a program for monitoring groundwater quantity and quality within its boundaries. The results of the program shall be reported annually and shall be included in the water resource database.*

Policy OS-A.10: *The County shall develop and maintain an inventory of sites within the county that are suitable for groundwater recharge. The sites shall be incorporated into the County GIS and included in the water resource database.*

Policy OS-A.11: *The County shall develop and implement public education programs designed to increase public participation in water conservation and water quality awareness.*

Policy OS-A.12: *The County shall promote preservation and enhancement of water quality by encouraging landowners to follow the "Fresno County Voluntary Rangeland and Foothill Water Quality Guidelines."*

Groundwater Recharge

Policy OS-A.13: *The County shall encourage, where economically, environmentally, and technically feasible, efforts aimed at directly or indirectly recharging the county's groundwater.*

Policy OS-A.14: *The County shall support and/or engage in water banking (i.e., recharge and subsequent extraction for direct and/or indirect use on lands away from the recharge area) based on the following criteria:*

- *The amount of extracted water will never exceed the amount recharged,*
- *The water-banking program will result in no net loss of water resources within Fresno County,*
- *The water-banking program will not have a negative impact on other water users within Fresno County,*
- *The water-banking program will not create, increase, or spread groundwater contamination,*
- *The water-banking program includes sponsorship, monitoring, and reporting by a local public agency,*
- *The groundwater banking program will not cause or increase land subsidence,*
- *The water-banking program will not have a negative impact on agriculture within Fresno County, and*
- *The water-banking program will provide a net benefit to Fresno County.*

Policy OS-A.15: *The County shall, to the maximum extent possible, maintain local groundwater management authority and pursue the elimination of unwarranted institutional, regulatory, permitting, and policy barriers to groundwater recharge within Fresno County.*

Policy OS-A.16: *The County shall permit and encourage, where economically, environmentally, and technically feasible, over-irrigation of surface water as a means to maximize groundwater recharge.*

Policy OS-A.17: *The County shall directly and/or indirectly participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the county. The program shall make use of flood and other waters to offset existing and future groundwater pumping.*

MASTER RECHARGE AGREEMENTS

The District maintains master recharge agreements with the Cities of Fresno and Clovis and FID. Under the terms of the agreements, FID and the Cities each have the right to discharge water for the purpose of groundwater recharge into designated facilities owned by the District. The Cities pay the District for this service and FID is responsible for operating and maintaining the canal system that delivers the water. The District designates the basins or portions of basins available for the discharge of water and identifies the maximum water surface elevation for any particular time. The District's use of the facilities for collection and disposal of stormwaters has priority over all other uses. Each City is responsible for construction of the connections or facilities necessary to convey water to the District facility. The Cities also pay a fee to the District for the performance of necessary recharge facility maintenance.

SOLE SOURCE AQUIFER

The Fresno groundwater basin has been designated as a Sole Source Aquifer as authorized by Section 14246 of the Federal Safe Drinking Water Act of 1974. The designation, made by EPA in 1978, basically means the Fresno metropolitan area is dependent on a single source of groundwater and that source must be protected from potential contamination. It also prohibits federal financial assistance for any projects in the area EPA determines may deteriorate the quality of the groundwater supply.

PROGRAM IMPLEMENTATION

The following activities shall be performed by the District to implement the water conservation program:

1. Continue to work closely with the Cities to efficiently expand recharge capabilities through aggressive delivery schedules and construction of additional interties to District facilities.

2. Work with FID to coordinate system for delivery schedules.

3. Continue to monitor and record recharge deliveries, including installation of a telemetry system to accurately measure deliveries and infiltration rates to facilitate system operation. Perform sediment removal from the basin floors, and confirm effectiveness with follow-up sampling and analyses and to conform to the Standard Operating Procedures.

4. Continue to develop retention basins to maximize the conservation through recharge of stormwater runoff and to maximize the potential for use of such sites to receive and recharge other surface waters.

5. Conduct activities necessary to accommodate water conservation and recharge at District flood control reservoirs to the maximum extent permitted by Congressional authorization.

6. Continue to pursue water rights for storage and recharge of Fresno County Stream Group flows in conjunction with the Cities of Fresno and Clovis and FID.

CHAPTER 7: RECREATION

To the maximum extent possible, District stormwater and flood control facilities are designed and developed to facilitate secondary public uses. In addition to stormwater management, flood control and ground water recharge, facilities are designed for public open space and recreation uses.

OBJECTIVES

The following objectives have been established for the District's recreation program:

A. Develop all District facilities in residential areas for open space and passive recreational uses, provided such facilities are designated for recreation.

B. Recreational design will include a low flow area to capture nuisance flows, a relief system to remove excess water and an upper floor with trees, pedestrian access, automatic irrigation system and gentler slopes.

C. Some recreational design basins will include soccer goal posts to be used by soccer leagues during the dry season. Leagues can sign an agreement with the District to reserve the sites for practice and games.

D. Accommodate more active recreational uses (i.e., softball, playgrounds, etc.) in all designated residential basins by allowing the transfer of any such basin to a public parks and recreation agencies for the development and operation of recreational facilities and programs, with the District retaining the stormwater management operations and maintenance responsibilities.

E. Coordinate District facility design and development with the parks and open space planning programs of the local land use and recreation planning agencies.

PROGRAM DESCRIPTION

Several of the District's stormwater retention basins are landscaped and used by the public as open space and recreational facilities when they are not being utilized for stormwater drainage and flood control management. Drainage fees include the cost of landscaping the basins. Most basins located in residential areas are designed to accommodate passive recreational activities. No fees are charged for the use of the recreational facilities. These basins are constructed without significant additional costs or land requirements, thus providing supplemental park resources for the public at little cost, while still ensuring flood control and stormwater quality management. The public parks and recreation agencies can easily convert any of these sites to a more active recreation park if the site fits into their open space planning programs.

FACILITIES

The municipal stormwater drainage system provides two types of recreational facilities. The first type includes passive, open space facilities, which contain open, turfed playing areas, landscaping, automatic sprinklers, trees, sidewalks and pedestrian access. The second type includes facilities for more active sports such as baseball diamonds, playgrounds, basketball courts, and picnic areas.

In the development of a basin open space park, the District purchases the basin site, directs facility planning and construction, and installs the improvements such as perimeter fences and gates, automatic sprinklers, lawn and trees, sidewalks, curbs and gutters, street lights and passive recreation facilities.

Once the District develops a basin open space park for passive recreation, the public parks and recreation agencies have the option of accepting transfer of park operations to construct additional improvements such as ball fields, restroom facilities, play apparatus, off street parking, and additional interior fencing. The agency accepting such a transfer performs all maintenance related to recreation uses.

Twenty-three of the District's facilities currently provide recreational services. Figure 7-1 presents the locations and types of existing recreational facilities within the District's system.

Oso de Oro Park at Basin "D", Trolley Creek Park at Basin “Y” and Basin “FF” are designed to provide unique opportunities for families with disabled children. The parks include a specially designed playground. Basin “D” includes a smooth surface basketball court, picnic area, arts and crafts pavilion, maze, open play area, stream, and permanent lake with riparian habitat and observation decks. Basin “Y” includes a smooth surface play area, picnic pavilions, trolley car, water tower, a replica of the Meux Mansion and a children’s birthday area. Consistent with District policy, the design and development of the parks involved broad community participation.

OPERATIONS AND MAINTENANCE

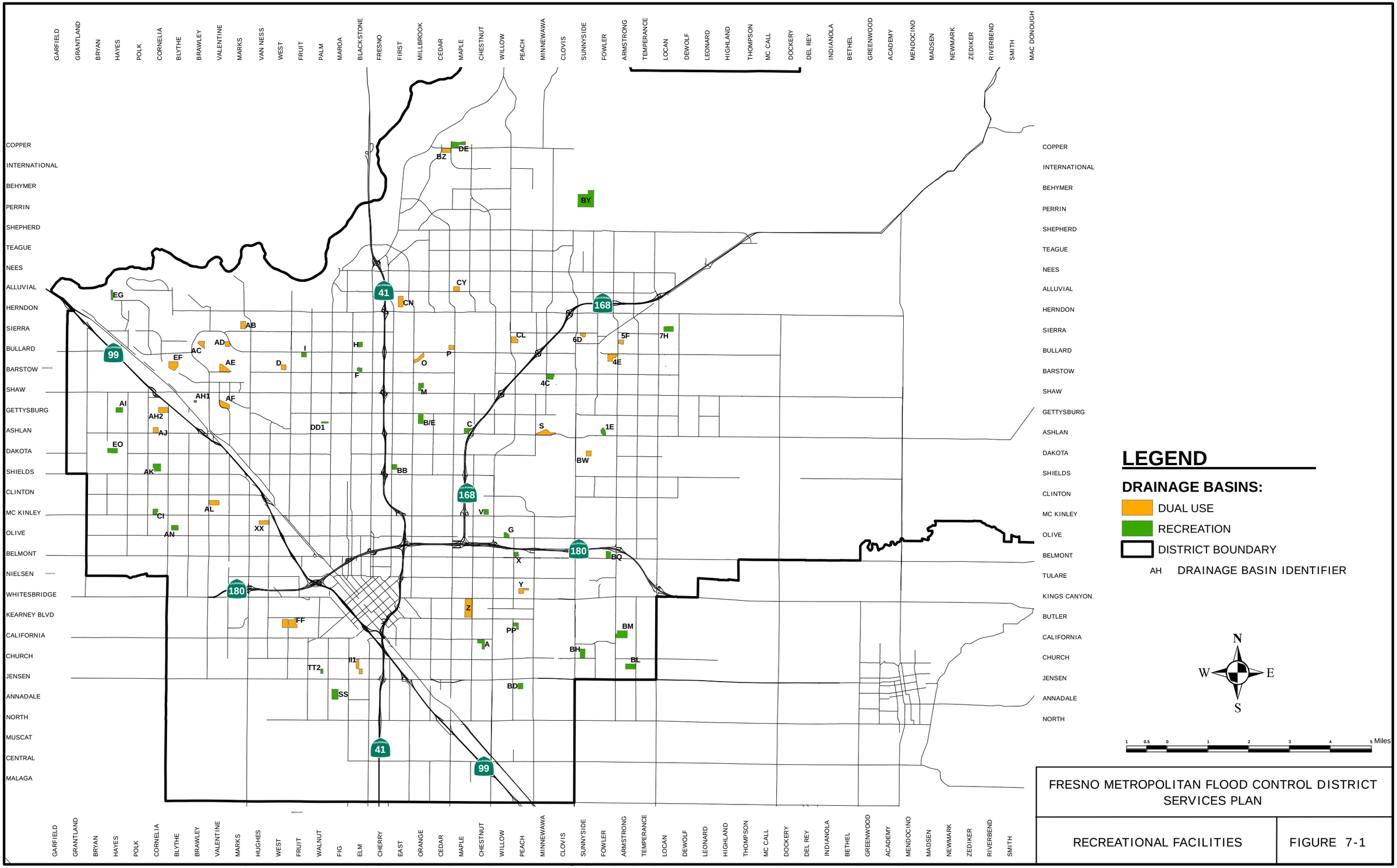
Recreation activities in the basins are typically limited to spring, summer, and fall months (dry weather season) when the volume of required stormwater storage capacity is minimal. Basin parks are normally open from April 1 through October 31. During the wet weather months, typically October 31st through April 1st, and periods of construction and maintenance, the recreational basins are closed to the public.

The District maintains all facilities for flood control and urban drainage. Maintenance of open space recreation basins owned by the District includes: mowing of turfed areas, maintenance of trees, reconstructing and repairing damage caused by storm or flood waters, repairing fences and gates, and picking up litter or other debris. Mowing, sprinkler maintenance and litter pick-up in landscaped basins owned by the District are conducted by a contractor of the District approximately 20 times per year. At some basin parks containing active recreational facilities, the Cities of Fresno and Clovis maintain the play areas and equipment including backstops and playgrounds, landscaping, and restrooms.

Low flow areas located in all recreational facilities effectively receive and contain the "first flush" flows of each storm event and all nuisance flows reaching the drainage system. Many pollutants in stormwater settle near the point of discharge into the basin. The low flow areas contain the primary outfall, thereby trapping most of the pollutants conveyed to the facility.

Soil sediments are tested and removed from low flow areas according to the SOP practices at all recreational basin sites to ensure that pollutants do not accumulate to levels that may pose risks to public health and the environment. For more information regarding maintenance activities refer to Chapter 5, Stormwater Quality Management.

During recreational activities, contact with basin soils and stormwater-borne contaminants can occur. It was determined in the 2004 District Services Plan Master Environmental Impact Report (EIR) (2006), that two primary contaminants could adversely impact public health and safety in recreational basins, lead and chlordane. The principal potential pathway of these contaminants is through ingestion and inhalation. The EIR concluded that the potential for significant inhalation or ingestion of hazardous concentrations of lead or chlordane is remote due to the District's policies and procedures for soil sampling and removal, installing turf at recreational areas, and the use of low flow areas to collect the first flush flows.



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Date: 5/16/2017

The low flow areas are fenced to prohibit public access and are not used for recreational purposes. Further, regulatory prohibitions on the use of lead and chlordane are causing concentrations of these two contaminants to decrease. These and other contaminants found in urban runoff will decrease even further through implementation of the District's stormwater quality management program. For more information refer to Chapter 5, Stormwater Quality Management.

Special facility use agreements are used to allow organizations and groups, such as public agencies and non-profit community-based organizations, the priority to use basin facilities for scheduled activities. District policy establishes conditions for such uses.

The District prohibits through ordinance the use of controlled substances at its facilities (i.e. alcoholic beverages and narcotics). It also prohibits high risk activities including golfing, fishing, horseback riding, swimming, archery, flying motor driven model airplanes, boating and all other activities that are illegal and/or hazardous to public health and safety. Exhibiting or using firearms, air guns, slingshots, firecrackers, fireworks or other like items is also prohibited.

PLANNING

The District plans specifically for passive recreational uses in residential area stormwater retention facilities. Open space recreation design features are included in the District's basin design standards for residential areas. The development of facilities for more active types of recreation results from community interest and action by local parks and recreation interests, agencies or sport leagues.

Park and recreation officials, private interests and athletic leagues provide input regarding the design and development of the recreational basins. Features such as pedestrian access, parking, landscaping, and irrigation is considered while designing a basin for flood control and stormwater retention purposes. District design standards for residential area basins include shallow depths (approximately fifteen feet), gentle side slopes (a ratio of 6:1 at the access frontage), turf, trees, automatic sprinklers, and occasionally off-street parking.

The District designs all recreational basins with upper and lower flow areas. The low flow area collects first flush flows and nuisance flows consisting of irrigation runoff, excess lawn and landscaping irrigation, runoff from firefighting, car wash water, etc. The large upper level floors are designed to accommodate softball and soccer fields, should these facilities be developed. Some residential area basins are large enough to accommodate both recreation and recharge uses through surface water deliveries to the low flow areas.

PERTINENT REGULATIONS AND AGREEMENTS

The recreation program is affected by the District Act, local general plans, the District parks and recreation use ordinance, city master agreements, and facility use agreements. The referenced documents and local ordinance codes include more detailed requirements.

DISTRICT ACT

The District Act was amended in 1969 to include the following provisions (Section 73-8, subsection 11):

> *To develop property for recreational uses and purposes in connection with the use thereof for control or conservation of waters or to lease to or contract with individuals or public or private agencies for use or for development and use thereof for the recreational purposes.*

LOCAL GENERAL PLANS

The County of Fresno and the Cities of Fresno and Clovis encourage the secondary use of flood control and drainage facilities for parks and recreation.

CITY OF FRESNO:

POSS-3. OBJECTIVE: *Ensure that park and recreational facilities make the most efficient use of land; that they are designed and managed to provide for the entire Fresno community; and that they represent positive examples of design and energy conservation.*

POSS-3-a. Policy: Centralized Park Locations. *Site parks central and accessible to the population served, while preserving the integrity of the surrounding neighborhood.*

POSS-3-b. Policy:Park Location and Walking Distance. *Site Pocket and Neighborhood Parks within a half-mile walking distance of new residential development.*

POSS-3-c. Policy: Link Parks with Walkways. *Link public open space to adjacent, schools, and residential uses and Activity Centers through a series of landscaped linear walkways and bikeways that enhance and encourage pedestrian use.*

POSS-3-d. Policy: Sidewalks to Connect Neighborhoods. *Sidewalks should be designed for internal neighborhood circulation, and to connect neighborhoods to other residential areas, parks, community trails, shopping, and major streets.*

POSS-3-e. Policy: Minimum Park Size for Active Recreation. *Minimize City acquisition or acceptance of dedication of park sites less than two acres in size for active recreational uses, except where maintenance costs are secured through a CFD, HOA, or other such mechanism.*

POSS-3-f. Policy: Park Design Guidelines. *Create, maintain, and apply park design guidelines, with provisions for appropriate amentities for each park type, which may include:*

- *Minimum and maximum shade.*
- *Protections from shading by adjacent buildings.*
- *Accessibility to persons with disabilities.*
- *Street trees and landscaped median strips in adjacent arterial roads.*
- *Art and points of attraction.*
- *Landscape and hardscape features.*
- *Street furniture, signage, and lighting.*
- *Food sales and entertainment.*
- *Restroom facilities, play structures, and picnic shelters.*
- *Landscape design synthesis and input from civil engineers and hydrologists, educators and daycare providers, fitness trainers and coaches, police officers and experts in crime prevention through environmental design, as appropriate.*
- *Solar panels, new LED lighting, and water efficiency improvements. Sports field areas designed to allow periodic changes in field locations to minimize wear areas and provide sufficient fields to host regional, state, or national tournaments.*
- *Using topography to create interesting and visually appealing spaces and forms.*
- *Use of waterways as a key design influence, a focus of restoration, and an opportunity to provide for public enjoyment of views.*

- *Reflecting the agricultural and horticultural heritage of the site or area.*
- *Connecting with surrounding areas in a way that encourages expanded pedestrian activity.*
- *Creating individual places within a park that respond to the needs of a board range of park users, from youth to the elderly.*
- *Creating places of delight that engage the senses.*
- *Creating places that engage the mind, by relating park features as opportunities for interpretation and questioning.*
- *Using sustainable design practices, and highlighting these as opportunities for learning.*

POSS-3-g. Policy: Park Security and Design. *Promote safety, attractiveness, and compatibility between parks and adjacent residential areas through design, maintenance, and enforcement of park regulations.*

- *Require the installation of security lighting for parking, points of access, and building areas at all public recreation and park sites.*
- *Keep neighborhood eyes on parks to increase security.*

POSS-3-h. Policy: Coordination with School Districts. *Continue to coordinate with school districts to explore opportunities for joint use of both outdoor and indoor recreation facilities, such as playgrounds, play fields, and gymnasiums, for City recreational programs.*

POSS-3-i. Policy: Joint Use with Drainage Facilities. *Continue to seek joint use agreements for use of FMFCD stormwater drainage facilities.*

Commentary: *Proposals to use ponding basins (or parts of ponding basins) for recreation will need to be approved by the Department of Public Utilities to ensure minimal loss of capacity for groundwater recharge.*

CITY OF CLOVIS:

OS Goal 1: *Park and recreation facilities that are environmentally and fiscally sustainable and meet the needs of existing and future residents.*

Policies 1.1: Parkland standard. *Provide a minimum of 4 acres of public parkland for every 1,000 residents.*

Policy 1.4: Multipurpose open space. *Design public facilities as multipurpose open space and recreation to serve the community's infrastructure needs while preserving and enhancing open space and water features. Prioritize the use of existing basins for existing areas, and for future areas prioritize the development of separate park facilities available year round.*

Policy 1.6: Linkages. *Link open space, parks and recreation facilities by incorporating flood control channels into the city's bicycle and trail system.*

COUNTY OF FRESNO:

Goal OS-H: *To designate land for and promote the development and expansion of public and private recreational facilities to serve the needs of residents and visitors.*

Policy OS-H.1: *The County shall promote the continued and expanded use of national forest, national park, and other recreational areas to meet the recreational needs of County residents.*

Policy OS-H.2: *The County shall strive to maintain a standard of five (5) to eight (8) acres of County-owned improved parkland per one thousand (1,000) residents in the unincorporated areas.*

Policy OS-H.3: *The County shall require the dedication of land and/or payment of fees, in accordance with local authority and State law (e.g., Quimby Act), to ensure funding for the acquisition and development of public recreation facilities. The fees are to be set and adjusted, as necessary, to provide for a level of funding that meets the actual cost to provide for all the public parkland and park development needs generated by new development.*

Policy OS-H.4: *The County shall consider the use of existing entities or the creation of assessment districts, County service areas, community facilities districts, or other types of districts to generate funds for the acquisition and development of parkland and/or historical properties as development occurs in the county.*

Policy OS-H.5: *The County shall encourage Federal, State, and local agencies currently providing recreation facilities to maintain, at a minimum, and improve, if possible, their current levels of service.*

Policy OS-H.6: *The County shall encourage the development of parks near public facilities such as schools, community halls, libraries, museums, prehistoric sites, and open space areas and shall encourage joint-use agreements whenever possible.*

Policy OS-H.7: *The County shall encourage the development of public and private campgrounds and recreational vehicle parks where environmentally appropriate. The intensity of such development should not exceed the environmental carrying capacity of the site and its surroundings.*

Policy OS-H.8: *The County shall encourage development of private recreation facilities to reduce demands on public agencies.*

Policy OS-H.9: *The County shall plan for the further development of the Friant-Millerton area as a recreation corridor. (See Policy LU-H.8, Administration)*

Policy OS-H.10: *The County shall develop a recreation plan for the Kings River as a part of the update to the Kings River Regional Plan. (See Policy OS-C.11 and Program LU-C.A)*

Policy OS-H.11: *The County shall support the policies of the San Joaquin River Parkway Master Plan to protect the San Joaquin River as an aquatic habitat, recreational amenity, aesthetic resource, and water source.*

Policy OS-H.12: *The County shall in conjunction with the San Joaquin River Conservancy rehabilitate and improve existing recreation areas and facilities along the San Joaquin River at the earliest possible time, particularly Lost Lake and Skaggs Bridge Regional Parks.*

Policy OS-H.13: *The County shall require that structures and amenities associated with the San Joaquin River Parkway be designed and sited to ensure that such features do not obstruct flood flows, do not create a public safety hazard, or result in a substantial increase in off-site water surface elevations, and that they conform to the requirements of other agencies having jurisdiction. For permanent structures, such as bridge over crossings, the minimum level of flood design protection shall be the greater of the Standard Project Flood (which is roughly equivalent to a 250-year event) or the riverine requirements of other agencies having jurisdiction to ensure flood flows are not dammed and to prevent flooding on surrounding properties.*

Policy OS-H.14: *The County shall encourage the development of recreation facilities in western Fresno County.*

Policy OS-H.15: *The County shall utilize retention-recharge basins as open space areas for parks and recreation purposes.*

District Parks and Recreation Use Ordinance

The District Ordinance regulates recreational use of District facilities in order to ensure their continued safe use, to prevent the creation of potential nuisances, and protect the integrity of the system for stormwater and flood control. The Ordinance covers prohibitions, facility use agreement conditions, and unauthorized activities.

City Master Agreements

The District has agreements with the City of Fresno and City of Clovis Parks and Recreation Departments. The agreements provide for city construction and maintenance of recreational facilities for more active uses or sports within specified District basins.

Oso De Oro Park

Recreational Facility Use Agreements

Several private groups, organizations, individuals and public agencies have facility use agreements with the District. The agreements require that the user provide evidence of adequate insurance, maintain equipment appropriately, and remove and properly disposed of all trash, nuisances and debris after each use.

PROGRAM IMPLEMENTATION

The following tasks and activities shall be performed by the District to implement the recreation program:

1. Continue to provide for potential recreation use in basins located in residential areas.
2. Continue to work closely with local municipalities to accommodate active recreational uses of District basins in response to site-specific needs and proposals.
3. Secure community support and funding for the construction of special recreational facilities in District basins, when warranted by specific needs and circumstances.
4. Consider and pursue where appropriate opportunities to develop recreational uses of regional flood control facilities.
5. Cooperate with regional trail planning efforts to establish biking, pedestrian, equestrian, and wildlife access where feasible.

CHAPTER 8: WILDLIFE MANAGEMENT

The District's flood control, rural streams program, and local drainage responsibilities provide incidental benefits to wildlife. The intent of the District's wildlife program is to manage the facilities and stream projects in a manner that recognizes potential wildlife benefits, conserves and enhances habitats where possible, and protects wildlife from potential harm from stormwater-borne contaminants.

OBJECTIVES

The District has identified the following wildlife management objectives:

A. Develop and operate the local stormwater drainage and regional flood control systems in a manner that provides managed incidental wildlife habitat benefits.

B. Preserve, develop and manage rural streams systems in a manner that facilitates the restoration of intermittent stream flows, encourages compatible riparian habitat, and produces long term net benefits for fish, wildlife, and native plants.

C. Maintain flood control function capabilities, while providing wildlife conservation benefits on District-owned lands.

D. Encourage and provide opportunities for public involvement and education in wildlife conservation, promoting the appreciation and understanding of environmental principles and values.

PROGRAM DESCRIPTION

WILDLIFE HABITAT AREAS

The District owns or manages several areas that currently provide, or may support in the future, valuable wildlife habitat. The most important of these are: Fancher Creek Reservoir, Big Dry Creek Reservoir, and Redbank Creek Reservoir. In addition, the rural streams maintained by the District offer important riparian habitats, which must be conserved. Many local drainage basins provide lesser incidental benefits to wildlife.

American Coot

The entire gross pool area of Fancher Creek Reservoir and a major portion of the gross pool area of Big Dry Creek Reservoir are owned by the District in fee title. Both are detention reservoirs, where flood waters are detained and released slowly but are not permanently stored. In normal and wet years both reservoirs provide extensive seasonal wetland habitats attractive to migratory waterfowl.

Big Dry Creek Reservoir has been in existence since 1948 and contains a variety of riparian, wetland, and upland habitats suitable for seasonal waterfowl, riparian species, and raptors. In normal to wet years, a small pool is formed near the dam and provides habitat suitable for waterfowl breeding.

Fancher Creek Reservoir was completed in 1992. Waterfowl first used the reservoir in the winter of 1992-93 even though wetland habitat was not well developed. The reservoir occasionally has temporary seasonal water and continues to attract waterfowl to the area.

The 276.40 acre gross pool area of Redbank Creek Reservoir is privately owned but is secured against development encroachments through flooding easements owned by the District. The District owns a small 40.40-acre area near the dam in fee. The reservoir area provides riparian and upland habitats incidental to the agricultural and residential uses of the privately owned lands.

The District will allow natural growth at rural basins and reservoirs. Upon completion of construction of rural stormwater facilities, the District will plant native grasses, trees and shrubs whenever possible.

In some locations, periodic standing water present in the local storm drainage system provides temporary wetland habitat. These incidental habitats are temporary due to the limited rain season, the discontinuance of recharge deliveries in late summer, and the need to periodically remove stormwater borne sediments. Nonetheless, urban basins provide opportunities for the community to regularly observe waterfowl and other wildlife that would not otherwise frequent urban environments.

Operations and Maintenance

The District's operations and maintenance practices for the flood control system and along streams and channels are designed to recognize, preserve and where appropriate, enhance habitat resources. The reservoirs are capable of supporting riparian and vegetation without restricting their flood control capabilities. However, natural debris that may threaten the function of gates, spillways or dams must be removed. In general, reservoir maintenance involves minimal disturbance to habitats.

During stream channel maintenance, the District leaves in place vegetation that does not block the main conveyance area of a stream or channel, nor threaten its structural integrity. If vegetation removal is necessary, the District will minimize disturbance to the surrounding vegetation and channel bed. For more information refer to Chapter 3, Rural Streams.

As previously identified, management of the local drainage system requires periodic removal of accumulated stormwater-borne contaminants from basin floors. For more information regarding these practices, refer to Chapter 5, Stormwater Quality Management. While the sediment removal process periodically and temporarily disrupts incidental wildlife habitats at the basins, this activity is necessary to ensure that public health and safety, and the environment are protected.

Program Planning

In December 1998, the District and Department of Fish and Wildlife (DFW) executed a Memorandum of Understanding (MOU) for routine maintenance activities in unimproved and disturbed natural channels. The MOU serves as a Streambed Alteration Agreement and is renewed every twelve years. The MOU authorizes rural stream activities, including channel flow capacity restoration, and is intended to accomplish long term net benefits for fish, wildlife, water quality, native plants and stream habitat. The MOU provides for comprehensive wildlife habitat improvement in lieu of imposing incremental requirements on a project-by-project basis.

Great White Heron

The MOU serves as a foundation for establishing long-term improvements to habitats through the rural streams program (see Chapter 3) and for evaluating stream restoration and other District activities' impacts at a long-term, regional, and programmatic level,

rather than a short-term, incremental level. Through the MOU, broad, goal-driven wildlife habitat features are incorporated into District projects, rather than simply protecting lesser quality, isolated habitat or replacing such impacted habitat on an incremental basis. The plan evaluates the long-term wildlife benefits of the rural streams restoration activities of the District and provides for mitigation of the short-term, temporary impacts of these activities through wildlife conservation areas established at District-owned land at Fancher Creek Reservoir.

Burrowing Owls

The MOU benefits both agencies by setting up easy to follow standards, which allow maintenance on the channels to prevent flooding and protects native habitat and wildlife without the staff time that would be required to complete the permit process for each project. Since most maintenance activities are similar, the standards apply to almost all projects the District plans for the year. Any projects that are not covered in the MOU will need an individual permit. As part of the Master MOU, the District is required to prepare an annual report and conduct pre- and post-project biological assessments to assure long-term net benefits to wildlife and habitat recovery.

PERTINENT REGULATIONS

The Cities of Clovis and Fresno and the County of Fresno have general plan policies encouraging the protection of wildlife. District activities that affect riparian, wetland, or other wildlife habitat areas may fall under the jurisdiction of the Federal Clean Water Act Section 404 Permit Process; State Fish and Game Code Section 1602; and the State and Federal Endangered Species Acts.

LOCAL GENERAL PLANS

CITY OF FRESNO

POSS-5. OBJECTIVE: *Provide for long-term preservation, enhancement, and enjoyment of plant, wildlife, and aquatic habitat.*

POSS-5-a. Policy: Habitat Areas Acquisition. *Support federal, State, and local programs to acquire significant habitat areas for permanent protection and/or conjunctive educational and recreational use.*

POSS-5-b. Policy: Habitat Conservation Plans. *Participate in cooperative, multi-jurisdictional approaches for area-wide habitat conservation plans to preserve and protect rare, threatened, and endangered species.*

POSS-5-c. Policy: Buffers for Natural Areas. *Require development projects, where appropriate and warranted, to incorporate natural features (such as ponds, hedgerows, and wooded strips) to serve as buffers for adjacent natural areas with high ecological value.*

POSS-5-d. Policy: *Guidelines for Habitat Conservation. Establish guidelines for habitat conservation and mitigation programs, including:*

- *Protocols for the evaluation of the site's environmental setting and proposed design and operating parameters of proposed mitigation measures.*
- *Methodology for the analysis depiction of land to be acquired or set aside for mitigation activities.*

- *Parameters for specification of the types and sources of plant material used for any re-vegetation, irrigation requirements, and post-planting maintenance and other operational measures to ensure successful mitigation.*

- *Monitoring at appropriate frequency by qualified personnel and reporting of data collected to permitting agencies.*

POSS-5-e. Policy: *Pursue development of conjunctive habitat and recreational trail uses in flood control and drainage projects.*

Commentary: *Establishment of wildlife and aquatic habitat is unsuitable along primary conveyance systems to existing and future water treatment facilities. Certain waterways may be excluded from habitat development for this reason.*

POSS-5-f. Policy: Regional Mitigation and Habitat Restoration. *Coordinate habitat restoration programs with responsible agencies to take advantage of opportunities for a coordinated regional mitigation program.*

POSS-5-g. Policy: *Assistance in Valley Arboretum Master Planning. Assist community organizations that have raised grant funds to pursue the preparation of the Valley Arboretum Master Plan and Implementation Program, including funding, to be coordinated with community groups, as well as related plans and policies for established neighborhoods and other areas with park deficiencies.*

Commentary: *It is anticipated that when completed, the Valley Arboretum Master Plan will be presented to the City Council for consideration as an amendment to the General Plan.*

CITY OF CLOVIS

OS Goal 2: *Natural, agricultural, and historic resources that are preserved and promoted as key features for civic pride and identity.*

Policy 2.3: Visual resources. *Maintain public views of open spaces, parks, and natural features. Enhance views along roadways and trails. Preserve Clovis' viewshed of the surrounding foothills and orient new development to capitalize on views of the Sierra Nevada.*

Policy 2.6: Biological resources. *Support the protection of biological resouces through the conservation of high quality habitat area.*

Policy 2.7: Native plants. *Encourage the use of native and climate-appropriate plant species and prohibit the use of plant species known to be invasive.*

Policy 2.3: Urban forest. *Maintain and enhance a diverse and healthy urban forest on public and private lands.*

COUNTY OF FRESNO

Goal OS-E: *To help protect, restore, and enhance habitats in Fresno County that support fish and wildlife species so that populations are maintained at viable levels.*

Policy OS-E.1: *The County shall support efforts to avoid the "net" loss of important wildlife habitat where practicable. In cases where habitat loss cannot be avoided, the County shall impose adequate mitigation for the loss of wildlife habitat that is critical to supporting special-status species and/or other valuable or unique wildlife resources. Mitigation shall be at sufficient ratios to replace the function, and value of the habitat that was removed or degraded. Mitigation may be achieved through any combination of creation, restoration, conservation easements, and/or mitigation banking. Conservation*

easements should include provisions for maintenance and management in perpetuity. The County shall recommend coordination with the US Fish and Wildlife Service and the California Department of Fish and Game to ensure that appropriate mitigation measures and the concerns of these agencies are adequately addressed. Important habitat and habitat components include nesting, breeding, and foraging areas, important spawning grounds, migratory routes, migratory stopover areas, oak woodlands, vernal pools, wildlife movement corridors, and other unique wildlife habitats (e.g., alkali scrub) critical to protecting and sustaining wildlife populations.

Policy OS-E.2: *The County shall require adequate buffer zones between construction activities and significant wildlife resources, including both onsite habitats that are purposely avoided and significant habitats that are adjacent to the project site, in order to avoid the degradation and disruption of critical life cycle activities such as breeding and feeding. The width of the buffer zone should vary depending on the location, species, etc. A final determination shall be made based on informal consultation with the US Fish and Wildlife Service and/or the California Department of Fish and Game.*

Policy OS-E.3: *The County shall require development in areas known to have particular value for wildlife to be carefully planned and, where possible, located so that the value of the habitat for wildlife is maintained.*

Policy OS-E.4: *The County shall encourage private landowners to adopt sound wildlife habitat management practices, as recommended by the California Department of Fish and Game officials and the U.S. Fish and Wildlife Service.*

Policy OS-E.5: *The County shall support preservation of habitats of rare, threatened, endangered, and/or other special-status species including fisheries. The County shall consider developing a formal Habitat Conservation Plan in consultation with Federal and State agencies, as well as other resource conservation organizations. Such a plan should provide a mechanism for the acquisition and management of lands that support special-status species.*

Policy OS-E.6: *The County shall ensure the conservation of large, continuous expanses of native vegetation to provide suitable habitat for maintaining abundant and diverse wildlife populations, as long as this preservation does not threaten the economic well being of the county.*

Policy OS-E.7: *The County shall continue to closely monitor pesticide use in areas adjacent to habitats of special-status plants and animals.*

Policy OS-E.8: *The County shall promote effective methods of pest (e.g., ground squirrel) control on croplands bordering sensitive habitat that do not place special¬ status species at risk, such as the San Joaquin kit fox.*

Policy OS-E.9: *Prior to approval of discretionary development permits, the County shall require, as part of any required environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based upon field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant resources and/or special-status plants or animals. Such evaluation will consider the potential for significant impact on these resources and will either identify feasible mitigation measures or indicate why mitigation is not feasible.*

Policy OS-E.10: *The County shall support State and Federal programs to acquire significant fish and wildlife habitat areas for permanent protection and/or passive recreation use.*

Policy OS-E.11: *The County shall protect significant aquatic habitats against excessive water withdrawals that could endanger special-status fish and wildlife or would interrupt normal migratory patterns.*

Policy OS-E.12: *The County shall ensure the protection of fish and wildlife habitats from environmentally degrading effluents originating from mining and construction activities that are adjacent to aquatic habitats.*

Policy OS-E.13: *The County should protect to the maximum extent practicable wetlands, riparian habitat, and meadows since they are recognized as essential habitats for birds and wildlife.*

Policy OS-E.14: *The County shall require a minimum 200-foot-wide wildlife corridor along particular stretches of the San Joaquin River and Kings River, whenever possible. The exact locations for the corridors should be determined based on the results of biological evaluations of these watercourses. Exceptions may be necessary where the minimum width is infeasible due to topography or other physical constraints. In these instances, an offsetting expansion on the opposite side of the river should be considered.*

Policy OS-E.15: *The County should preserve, to the maximum extent practicable, significant wildlife migration routes such as the North Kings Deer Herd migration corridors and fawn production areas.*

Policy OS-E.16: *Areas that have unusually high value for fish and wildlife propagation should be preserved in a natural state to the maximum possible extent.*

Policy OS-E.17: *The County should preserve, to the maximum possible extent, areas defined as habitats for rare or endangered animal and plant species in a natural state consistent with State and Federal endangered species laws.*

Policy OS-E.18: *The County should preserve areas identified as habitats for rare or endangered plant and animal species primarily through the use of open space easements and appropriate zoning that restrict development in these sensitive areas.*

Goal OS-F: *To preserve and protect the valuable vegetation resources of Fresno County.*

Policy OS-F.1: *The County shall encourage landowners and developers to preserve the integrity of existing terrain and natural vegetation in visually-sensitive areas such as hillsides and ridges, and along important transportation corridors, consistent with fire hazard and property line clearing requirements.*

Policy OS-F.2: *The County shall require developers to use native and compatible non-native plant species, especially drought-resistant species, to the extent possible, in fulfilling landscaping requirements imposed as conditions of discretionary permit approval or for project mitigation.*

Policy OS-F.3: *The County shall support the preservation of significant areas of natural vegetation, including, but not limited to, oak woodlands, riparian areas, and vernal pools.*

Policy OS-F.4: *The County shall ensure that landmark trees are preserved and protected whenever possible.*

Policy OS-F.5: *The County shall establish procedures for identifying and preserving rare, threatened, and endangered plant species that may be adversely affected by public or private development projects. As part of this process, the County shall require, as part of the environmental review process, a biological resources evaluation of the project site by a qualified biologist. The evaluation shall be based on field reconnaissance performed at the appropriate time of year to determine the presence or absence of significant plant resources and/or special-status plant species. Such evaluation shall consider the potential for significant impact on these resources and shall either identify feasible mitigation measures or indicate why mitigation is not feasible.*

Policy OS-F.6: *The County shall require that development on hillsides be limited to maintain valuable natural vegetation, especially forests and open grasslands, and to control erosion.*

Policy OS-F.7: *The County shall require developers to take into account a site's natural topography with respect to the design and sitting of all physical improvements in order to minimize grading.*

Policy OS-F.8: *The County should encourage landowners to maintain natural vegetation or plant suitable vegetation along fence lines, drainage and irrigation ditches and on unused or marginal land for the benefit of wildlife.*

Policy OS-F.9: *The County shall support the continued use of prescribed burning to mimic the effects of natural fires to reduce fuel volumes and associated fire hazards to human residents and to enhance the health of biotic communities.*

Policy OS-F.10: *The County shall require that new developments preserve natural woodlands to the maximum extent possible.*

Policy OS-F.11: *The County shall promote the preservation and management of oak woodlands by encouraging landowners to follow the Fresno County Oak Management Guidelines shown below and to prepare an Oak Management Plan for their property.*

Streambed Alteration Agreements

The DFW receives its regulatory jurisdiction through Sections 1601, 1602, and 1603 of the Fish and Game Code. Under Section 1602 agencies or public utilities proposing projects that may affect streambed habitat are to consult with DFW prior to project construction or operation. Depending upon the nature of the activity, and the potential for an adverse effect on fish or wildlife, a Streambed Alteration Agreement 1602 permit may be required. The District has a Memorandum of Understanding Agreement with the DFW that covers most of the maintenance activities in streambeds.

US Army Corp of Engineers CWA Section 404 Permits

In accordance with Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers is authorized to issue permits for the discharge of dredged or fill materials into the waters of the United States with oversight from the U.S. EPA. Such discharges to jurisdictional wetlands usually require mitigation. Wetlands that occur at routinely maintained flood control and drainage facilities do not typically fall under Section 404 jurisdiction. District activities that may impact non-jurisdictional wetlands are not required to secure wetlands permits.

State and Federal Endangered Species Acts

The California Endangered Species Act, enacted in 1984, provides protection for those species of animals that are listed as threatened or endangered by the State Fish and Game Commission. The Act, in Section 2080, contains a prohibition against the "take" of listed species, which has been interpreted by the DFW to include potential takings that are "incidental" to other lawful activities, such as adverse modification of habitat. The Act, in Section 2081, provides for the Department to authorize take of listed species for scientific, educational and/or management purposes. The Department has broadly interpreted "management" to include incidental taking if the result produces net benefits to the listed species. Assurance of such "net benefit" generally requires extensive mitigation, often including replacement of the altered habitat at off-site locations, in acreage ratios greater than 1:1.

State Lead Agencies, under the California Environmental Quality Act (CEQA), may, through Sections 2090-2091, consult with the DFW to obtain the Department's determinations of: 1) whether the proposed action will result in direct taking of a listed species, and 2) whether the proposed action will result in adverse modifications of habitat essential to the listed species' continued survival. If the Department determines that one of these two forms of jeopardy would result, the Department must recommend necessary, reasonable and prudent conditions to avoid such jeopardy. State agencies who either cannot or do not incorporate the Department's recommendations are required to make specific findings, and may be subject to legal challenge.

Threatened and/or endangered species of plants do not have the same level of protection as animal species. Section 2080 specifically defers to Fish and Game Code Section 1900, the Native Plant Protection Act, which requires ten days notice to the Department, to enable salvage of material, before taking of the species incidentally to most kinds of land use and development. Protection for plants is also reduced under the federal Endangered Species Act (ESA), which prohibits taking only on federal lands or in projects directly or indirectly involving the federal government.

The federal Endangered Species Act of 1973 (50 CFR 17) provides legal protection, and requires definition of critical habitat and development of recovery plans, for plant and animal species in danger of extinction. It also establishes the status of plant and animal species as endangered, threatened, or in the case of plants, rare. The federal Endangered Species Act requires federal agencies to make a finding on all federal actions, including the approval by an agency of a public or private action, such as the issuance of a 404 permit, as to the potential to jeopardize the continued existence of any listed species.

PROGRAM IMPLEMENTATION

The following activities shall be performed by the District to implement the wildlife management program:

1. Investigate the feasibility of managing grazing and fire prevention activities on District lands within Fancher Creek Reservoir and Big Dry Creek Reservoir to provide for waterfowl breeding cover.

2. Where and when feasible retain pools within reservoirs and extended stream flows within stream channels.

3. Evaluate water retention and detention enhancements at Fancher Creek and Big Dry Creek Reservoirs as such uses enhance the presence of wildlife.

4. Pursue outside funding sources (grants, incentive programs) to finance projects to preserve, restore, or enhance wildlife habitat on District facilities.

5. Identify areas within District authority that could potentially be designated, developed, and managed as wildlife enhancement areas.

6. Develop and implement maintenance procedures and channel restoration design and implementation that will maximize preservation of habitat and related wildlife and support attainment of the habitat goals as provided in the District-DFW MOU.

7. Develop a public information program that encourages public appreciation of wildlife and habitat values in the flood control and drainage system.

8. Upon completion of construction of rural and regional stormwater facilities, re-vegetate the works area using native and naturalized grasses, trees, and shrubs wherever possible.

APPENDIX A

FRESNO METROPOLITAN FLOOD CONTROL ACT

CHAPTER 73

WATER CODE APPENDIX

STATE OF CALIFORNIA

CHAPTER 73. FRESNO METROPOLITAN FLOOD CONTROL ACT

Section

73-41. Majority vote; resolution declaring annexation or exclusion; description of altered boundaries.
73-42. Entry of resolution in minutes; filing certified copies.
73-43. Payment of debts and obligations as condition of exclusion; further liability.
73-44. Payment by owners of land as condition precedent to annexation.
73-45. Effect of change of boundaries.
73-46. Drainage areas and zones.

CHAPTER 73. FRESNO METROPOLITAN FLOOD CONTROL ACT

An Act to be known as Fresno Metropolitan Flood Control Act creating a district subject to the approval of the voters within the district, to be known as Fresno Metropolitan Flood Control District, for the purpose of acquiring and constructing facilities for flood control and the drainage of flood, storm and waste waters and the conservation of any thereof, and providing for the government and powers of said District. (Stats. 1955. c. 503, p. 971.)

§ 73-1. Creation; name; short title

Section. 1. A Flood Control District is hereby created, subject to vote of the voters therein as hereinafter provided, to be called Fresno Metropolitan Flood Control District (hereinafter in this act sometimes referred to as "District"). This act may be designated and referred to as the "Fresno Metropolitan Flood Control Act" and any reference thereto by such designation shall be deemed sufficient for all purposes. (Stats.1955, c. 503, p. 971, § 1.)

73-2. Boundaries

Section. 2. Said District shall consist of that territory in the County of Fresno, California, lying within exterior boundaries generally described as follows:

Commencing at the southeast corner of Section 24, Township 14 South, Range 20 East, Mount Diablo Base and Meridian;

Thence west along the south boundary of said Section 24 and the south boundary of Sections 23, 22 and 21 to the southwest corner of said Section 21;

Thence north along the west boundary of said Section 21 to the southeast corner of Section 17;

Thence west along the south boundary of Section 17 and the south boundary of Section 18 to the southeast corner of said Section 18;

Thence north along the west boundary of Section 18 and the west boundary of Sections 7 and 6, Township 14 South, Range 20 East, and the west boundary of Sections 31, 30, 19, 18, 7 and 6, Township 13 South, Range 20 East, Mount Diablo Base and Meridian, to the west quarter corner of said Section 6, which is the east quarter corner of Section 1, Township 13 South, Range 19 East;

Thence west along the east and west centerline of Section 1 to the west boundary of the east half of the east half of said Section 1;

Thence north along said west boundary of the east half of the east half of said Section 1 to the north boundary of said Section 1, which is the south boundary of Section 36, Township 12 South, Range 19 East, Mount Diablo Base and Meridian;

Thence east along the south boundary of said Section 36 to the south quarter corner of said Section 36;

Thence north along the north and south centerline of said Section 36 to the north boundary of the south half of the south half of said Section 36;

Thence east along said north boundary of the south half of the south half of said Section 36 and the north boundary of the south half of the south half of Section 31, Township 12 South, Range 20 East, Mount Diablo Base and Meridian, to the centerline of Van Ness Avenue;

Thence south along said centerline of Van Ness Avenue to the north boundary of Section 6, Township 13 South, Range 20 East, Mount Diablo Base and Meridian;

Thence east along the north boundary of said Section 6 and the north boundary of Sections 5, 4, 3, 2 and 1, Township 13 South, Range 20 East, Mount Diablo Base and Meridian, to the northeast corner of said Section 1;

Thence south along the east boundary of said Section 1 to the southeast corner of said Section 1, which is the northwest corner of Section 7, Township 13 South, Range 21 East, Mount Diablo Base and Meridian;

Thence east along the north boundary of said Section 7 to the north quarter corner of said Section 7;

Thence south along the north and south centerline of said Section 7 to the south boundary of said Section 7, which is the north boundary of Section 18, Township 13 South, Range 21 East, Mount Diablo Base and Meridian;

Thence east along said north boundary of said Section 18 and the north boundary of Section 17, Township 13 South, Range 21 East, Mount Diablo Base and Meridian, to the intersection with the westerly boundary of the right-of-way of the Helm Canal;

Thence southerly and easterly along said right-of-way of the Helm Canal to the intersection with a line parallel with and 50 feet west of the east boundary of said Section 17;

Thence south along said line parallel with and 50 feet west of the east boundary of said Section 17 to the centerline of the right-of-way of the Gould Canal;

Thence easterly and southerly along said centerline of the right-of-way of said Gould Canal across said Section 17 and across Sections 16 and 21, Township 13 South, Range 21 East, Mount Diablo Base and Meridian, to the east boundary of said Section 21;

Thence south along said east boundary of said Section 21 to the southeast corner of said Section 21;

Thence west along the south boundary of said Section 21 and the south boundary of Section 20, Township 13 South, Range 21 East, Mount Diablo Base and Meridian, to the intersection with a line parallel with and 30 feet west of the east boundary of said Section 20;

Thence south along said line parallel with and 30 feet west of the east boundary of said Section 20 and Sections 29 and 32, Township 13 South, Range 21 East, Mount Diablo Base and Meridian, to the intersection with the south boundary of the northeast quarter of the northeast quarter of said Section 32; thence south 4º 32' west a distance of 381.2 feet to a point 60 feet west of the east boundary of said Section 32;

Thence south along a line parallel with and 60 feet west from the east boundary of said Section 32, to a point 225 feet north from the south boundary of the northeast quarter of said Section 32; thence south 10º 05' east a distance of 228.5 feet to a point on the south boundary of the northeast quarter of said Section 32, 20 feet west of the east one quarter corner of said Section 32;

Thence south along a line parallel with and 20 feet west of the east boundary of said Section 32 in Township 13 South, Range 21 East, and Section 5 in Township 14 South, Range 21 East, to the south boundary of the northeast quarter of the northeast quarter of said Section 5;

Thence east 20 feet to the east boundary of said Section 5;

Thence south along the east boundary of said Section 5 to the intersection with the centerline of the right-of-way of the Fancher Creek Canal;

Thence southwesterly along the centerline of said right-of-way across said Section 5 and across Section 8, Township 14 South, Range 21 East, Mount Diablo Base and Meridian, to the intersection with the northerly boundary of the Southern Pacific Railroad Company right-of-way;

Thence westerly along the northerly boundary of said right-of-way across said Section 8 and across Section 7, Township 14 South, Range 21 East, Mount Diablo Base and Meridian, to the intersection with the north and south centerline of said Section 7;

Thence south along said north and south centerline of said Section 7 to the south quarter corner of said Section 7;

Thence west along the south boundary of said Section 7 to the southwest corner of said Section 7, which is the northeast corner of Section 13, Township 14 South, Range 20 East, Mount Diablo Base and Meridian;

Thence south along the east boundary of said Section 13 and the east boundary of Section 24, Township 14 South, Range 20 East, Mount Diablo Base and Meridian, to the southeast corner of said Section 24, the point of beginning. (Stats.1955, C. 503, p. 971, § 2. Amended by Stats.1967, c. 575, § 1.)

§ 73-3. Organization Election

Section. 3. The Board of Supervisors of Fresno County shall not earlier than 30 days after this act takes effect, and not later than one year from the effective date of this act (unless postponed for the purpose of consolidating said District election with a state-wide primary or general election to be held within 18 months from the effective date of this act), give notice of an election to be held in such proposed District for the purpose of determining whether or not the same shall be organized under the provisions of this act. Such notice need not describe the boundaries of the proposed District, but shall refer to this act for a particular description of such boundaries. The notice shall state the date of the election, the hours the polls will be open, and shall designate the election precincts, the polling place within each precinct and the names of the election officers, one inspector, one judge and two clerks, appointed for each precinct. The precincts shall consist of the regular election precincts established in the county for state and county elections or consolidations thereof (not exceeding six regular election precincts in any one consolidated precinct thereof). Any territory which comprises less than an entire regular election precinct may be consolidated with any regular election precinct or precincts for the purpose of said election. The polls at said election shall be opened at 7 o'clock a.m. the day of said election and kept open until 7 o'clock p.m. of the same day. Only qualified voters residing within the District shall be entitled to vote at said election. The Board of Supervisors shall by Resolution provide for said notice. Said notice shall be published in the District pursuant to Section 6063 of the Government Code, the first publication to be at least 21-days prior to the date of election.

Said election may be consolidated with any city election, county election or statewide primary or general election under the provisions of the Elections Code relating to the consolidation of elections, and in case of consolidation the notice herein provided for may be modified as provided in Section 10058 of the Elections Code. (Stats. 1955, c. 503, p. 973, § 3 Amended by Stats.1957, c. 357, p. 1159, § 304.)

§ 73-4. Organization Election; Ballot; Effect of Favorable Vote; Organization Order; Unfavorable Vote; Resubmission

Section. 4. Upon the ballot to be used at said election shall be printed substantially the following measure or proposition:

"Shall the proposed Fresno Metropolitan Flood Control District be organized as provided in the act of the Legislature known as the Fresno Metropolitan Flood Control District Act?" The ballot shall be substantially in the form used for county elections upon measures, and shall contain substantially the instructions for voting upon a proposition or measure which are contained in the Elections Code relating to state or county elections. In all particulars not provided in this act such election shall be held and conducted and the returns thereof canvassed and declared in the manner provided in the Elections Code for state or county general elections as held in the County of Fresno. Absentee ballots may be cast in the manner provided for county elections in the County of Fresno. If a majority of the voters voting upon the proposition of the organization of said District are in favor of the organization thereof, then said District shall be deemed to be and shall be created with all the rights, powers and duties prescribed in this act and the Board of Directors of said District shall organize and carry out the purposes of this act. Immediately upon the canvass of the vote the Board of Supervisors of Fresno County must file with the Secretary of State of the State of California a certificate to the effect that the proposal to organize said District was adopted, and from the date of such filing the District shall be deemed created. A certified copy of the order or declaration of the Board of Supervisors declaring the District organized shall be recorded in the Office of the County Recorder of Fresno County. The order of the Board of Supervisors declaring the result of such election and declaring the proposal to create the District duly adopted (if it shall be adopted) shall be conclusive evidence that all steps necessary for the creation and organization of said District have been duly performed, and that said District has been duly organized and created.

In the event a majority of the votes cast upon the proposition are not in favor of the organization of the District, the Board of Supervisors may again submit the proposition at an election to be held at any time within two years from the date of

the election at which it failed to carry. Any such election shall be called, held and conducted substantially as provided in Sections 3 and 4 hereof.

Before any assessment tax may be levied for such District the filings with the State Board of Equalization and the county assessor required by Chapter 8, Part 1, Division 2, Title 5 of the Government Code (54900 et. seq.) shall be made substantially as provided in said chapter. (Stats.1995, c. 503, p. 973, § 4.)

§ 73-5. Governing Board; Members

Section. 5. The governing Board of the District shall consist of a Board of Directors of seven members. The legislative body of the City of Fresno shall appoint four members to the Board, none of whom shall be public officials of the city. The Board of Supervisors of the County of Fresno shall appoint two members to the Board, none of who shall be public officials of the county. The legislative body of the City of Clovis shall appoint one member to the Board, who shall not be a public official of the City of Clovis. The appointing body may remove any member of the Board appointed by it at any time by a majority vote of the whole number of members of such body. All members of the Board of Directors shall reside within the District. The County Assessor, County Tax Collector, County Auditor and County Treasurer of the County of Fresno, and their successors in office, shall be ex officio officers of the District, and their assistants, deputies, clerks and employees shall be ex officio assistants, deputies, clerks and employees, respectively, of the District, and those ex officio officers shall respectively perform, unless otherwise provided by the Board of Directors, without additional compensation, the same various duties for the District as for the County of Fresno, in order to carry out the provisions of this act. The secretary of the Board of Directors shall be appoint by the Board. The Board may also appoint such attorneys, engineers and other employees as it may see fit. (Added by Stats.1982, c. 661, p. 2681, § 3.)

§ 73-6. Directors; Organization Meeting; Chairperson; Secretary; Terms; Quorum; Meetings; Vacancies; Seal

Section. 6. (a) Within 30-days after creation of the District, the members of the Board of Directors shall be appointed by the appointing bodies, respectively, and all of the Directors shall qualify by taking and filing with the County Clerk of Fresno County the oath of office provided for public officials. The oath of office may be administered by the appointing bodies or the Secretary of the Board. The Directors shall, as soon as convenient, meet and organize by the selection of one of their number as Chairperson of the Board. They shall also select the Secretary of the Board. The Director appointed by the City of Clovis, one Director appointed by the Board of Supervisors, and two of the Directors appointed by the City of Fresno shall hold terms of office, which shall initially expire on August 3, 1958. One Director appointed by the Board of Supervisors and two of the Directors appointed by the City of Fresno shall hold terms of office, which shall initially expire on August 3, 1960. Following the initial expiration dates, all Directors shall be appointed and hold office for four years. Directors for whom the term of office has expired shall continue to serve as a member of the Board of Directors until the respective appointing body shall reappoint that director to a new term of office or shall appoint a new Director.

(b) The Chairman of the Board shall hold office for a term of two years from the date of his election as Chairman. The Secretary of the Board shall hold office at the pleasure of the Board. Four members of the Board shall constitute a quorum, and the decision of a majority of all of the members of the Board shall be necessary to take any action, unless otherwise in this act provided; provided, however, that if a meeting is not attended by a majority of the members of the Board, a lesser number may adjourn the meeting to a specified time and any meeting may be adjourned by the vote of a majority of the members present.

(c) The Board shall by resolution fix a regular time and place of meeting, and no notice of regular meetings need be given. The Board shall also provide the method of calling special meetings and of giving notice thereof, but no special meeting shall be called upon less than 24 hours notice, except that in an emergency a special meeting may be called upon not less than three hours notice or may be held pursuant to a waiver of notice signed by all members of the Board and filed with the minutes of the meeting. Any such emergency call or waiver shall set forth a general statement of the facts determined to create the emergency. No defect in such statement shall invalidate the special meeting. If any vacancy occurs in any appointive office of the Board of Directors, the vacancy shall be filled within 60 days from the date it occurs in the same manner as the original appointment was made. If any Director is absent from three consecutive meetings of the Board of Directors, the Secretary of the Board shall report the absence to the appointing body. The Board shall adopt a seal. It may also provide rules and regulations for the conduct of its meetings and may change such rules and regulations from time to

time. (Stats.1955, c. 503, p. 975, § 6. Amended by Stats.1965, c. 1854, p. 4291, §1; Stats.1982, c. 661, p. 2681, § 4; Stats.1989, c. 573, § 1.)

§ 73-7. Objects and Purposes; Conclusive Presumption of Benefit

Section. 7. (a) The objects and purposes of this act and of the District shall be to provide for (1) the control of flood, storm, and other waste waters of or within the District, including waters which arise outside the District and which flow or drain into or through the District; (2) the protection from damage by flood, storm, or waste waters of private property and of public highways and other public property within the District; and (3) the conservation of flood, storm, waste, and other surface waters for beneficial and useful purposes by spreading, storing, retaining, or causing those waters, or any part thereof, to percolate into the soil within or without the District or the saving and conservation in any manner of any or all of those waters.

(b) The land within the District, and each drainage area and zone thereof, shall be conclusively presumed to benefit from the continued operation and maintenance of the District (1) in relation to the value of the land and the improvements thereon or (2), in the alternative, in relation to the use to which the land may be put and the services and benefits provided, and shall be subject to assessment as provided by this act. Nothing in this subdivision shall abrogate the findings required by Sections 31 and 38 of this act. (Stats.1955, c. 503, p. 976, § 7. Amended by Stats.1982, c. 661, p. 2682, § 5; Stats.1985, c. 1229, § 4, eff. Sept. 30, 1985.)

§ 73-8. Public Corporation; Powers

Section. 8. The District shall be and constitute a public corporation, and as such has the powers enumerated in this act, all powers necessarily or reasonably implied therefrom, and all powers necessarily or reasonably implied from the creation and existence of the District. The powers include the following:

1. To have perpetual succession.
2. To sue and be sued in the name of the District in all actions and proceedings in all courts and tribunals of competent jurisdiction.
3. To have and exercise the power of eminent domain.
4. To take by grant, exchange, purchase, including for cash, promissory note secured by purchase money deed of trust, assumption of existing indebtedness, or any combination thereof, gift, lease, devise, or otherwise and to hold, use, and enjoy real or personal property of every kind within or without the District necessary to or convenient for the full exercise of its powers.
5. To acquire lands, rights-of-way, easements, privileges, and property of every kind and nature, to construct, maintain, and operate any or all works or improvements within or without the District necessary or proper to carry out any of the objects or purposes of this act, and to complete, extend, add to, repair, or otherwise improve any works or improvements acquired by it as herein authorized, or, pursuant to a contract authorized by paragraph 10 of this section, any works or improvements owned or constructed by the City of Fresno, the City of Clovis, the County of Fresno, Fresno Irrigation District, or any other public agency, or any two or more thereof, and used in whole or in part for flood control, storm drainage, or water conservation purposes.
6. To levy or cause to be levied an assessment tax for the purpose of providing funds for the District and for paying any obligations thereof to carry out any of the objects and purposes of this act, all of which are of benefit to the lands and improvements of the District.
7. To levy or cause to be levied assessments or benefit assessments as provided by the Water Code, the Revenue and Taxation Code, the Government Code, or the Streets and Highways Code.
8. To incur indebtedness and to issue notes, bonds, or other evidence of that indebtedness in the manner herein provided.
9. To make contracts and to employ appraisers, consultants, attorneys, engineers, and other technical advisers and all employees necessary or convenient for the administration of the District, the maintenance and operation of any works under its jurisdiction, and the planning of any works or construction under this act.
10. To contract with the City of Fresno, County of Fresno, Fresno Irrigation District, or any other public agency or any public utility for the use of any rights-of-way, easements, lands, works, or property owned by any

thereof which are necessary, convenient, or useful to the District, or necessary or convenient for the construction or operation of any flood control works or storm drain works proposed to be financed by the Flood Control District; to contract with any of such public agencies for the acquisition or construction by such public agency of any flood control or storm drain works financed by the District, or the maintenance and operation thereof, or for any or all of the foregoing, and the Flood Control District may carry out any or all of its powers either separately or in conjunction with one or more of the public agencies, and may make any contract or lease or accept any conveyance of property necessary or convenient for the accomplishment of the purposes of the Flood Control District. The powers granted by this subparagraph shall be liberally construed.

11. To develop property for recreational uses and purposes in connection with the use thereof for control or conservation of waters or to lease to or contract with individuals or public or private agencies for use or for development and use thereof for the recreational purposes.
12. To sell or dispose of real property, rights to surface or groundwaters, or any interest therein or part thereof whenever, in the judgment of two-thirds of the Board of Directors, the real property, water rights, or interest therein or part thereof is no longer required for the purposes of the District and to pay any compensation received therefore into the general fund of the District and use the same for the purposes of this act. To lease or let real property or rights to surface or groundwaters and sell, dispose of, lease, or let personal property, or any interest therein or part thereof, whenever, in the judgment of a majority of all the members of the Board of Directors, the real or personal property, or interest therein or part thereof is no longer required for the purposes of the District or may be leased or let for any purpose without interfering with the use thereof for the purposes of the District, and to pay any compensation received therefore into the general fund of the District and use the same for the purposes of this act.
13. To acquire for the objects and purposes of this act and the District by grant, purchase, gift, lease, devise, permit, or otherwise and to hold, use, and enjoy the rights to surface and groundwaters and to undertake those acts necessary to the beneficial use of those waters.
14. To levy fees and charges for the services, supplies, or material provided by District, the fees and charges, duly adopted by resolution of the District, not to exceed the actual cost of the services, supplies, or material.
15. To enact and enforce ordinances determined necessary and convenient to the exercise of the authority and powers of the District and to the accomplishment of the objects and purposes thereof.

(Added by Stats.1982, c. 661, § 7. Amended by Stats.1985, c. 1229, § 5, eff. Sept. 30, 1985; Stats.1989, c. 573, § 2.)

§ 73-9. Contracts with United States, State, County, etc.

Section. 9. The District may enter into contracts and do any and all acts necessary or proper for the performance of any agreement with the United States or the State of California or the County of Fresno, the City of Fresno, the City of Clovis, or the Fresno Irrigation District, or any public or private corporation, association, firm or individual, or any number of them for the joint acquisition, construction, leasing, ownership, disposition, use, management, maintenance, repair or operation of any levees, works, canals or other property of any kind which might lawfully be acquired or owned by the District, and may acquire the right to carry water through any artificial watercourse, canal, ditch or conduit not owned or controlled by the District, and may grant to any owner or lessee of any such canal, ditch or conduit (including any artificial watercourse used in part for irrigation purposes) the right to the use of any water carried through any such artificial watercourse, canal, ditch or conduit, or any canal, ditch or conduit of the District. Said District may also agree to indemnify the United States of America, the State of California, or any county, city, or irrigation District which manages, controls, or operates works constructed by or for or used by the Flood Control District for flood control, drainage or water conservation purposes. (Stats.1955, c. 503, p. 977, §9. Amended by Stats.1982, c. 661, p. 2684, § 8.)

§ 73-10. Reimbursement of Organization Expenses; Rental for Quarters; Contracts for Engineering or Legal Services

Section. 10. The District shall reimburse the County of Fresno and the City of Fresno for any expenses incurred by them in the formation of said District. The District shall also pay to the County of Fresno or to the City of Fresno reasonable compensation for any quarters rented therefrom by the District or any services rendered to the District by any officers or employees of such County or City; provided, however, that no compensation shall be paid the city or the county for the service of any public official of such City or County as a member of the Board of Directors of the District. The Board may

also contract with the City or with the County for the furnishing by such City or County of engineering or legal services and the reasonable compensation to be paid such City or County for such service. (Stats.1955, c. 503, p. 977, § 10.)

§ 73-11. Compensation of Directors; Expenses

Section. 11. Each member of the Board of Directors shall receive not to exceed one hundred dollars ($100) for each day's attendance at meetings of the Board or committees thereof or for each day engaged in other official business under order of the Board, except that the Directors shall not be compensated for more than the maximum number of days permitted by Section 20202 of the Water Code, or six days, whichever is greater. The Board of Directors shall establish the maximum number of days for which compensation shall be provided, not to exceed the limit set forth in this section, and may increase the amount received per meeting in accordance with Section 20202 of the Water Code. Each member of the Board of Directors shall receive, in addition to these amounts, all actual and necessary expenses while engaged in official business under the order of the Board. (Added by Stats.1982, c. 661, p. 2685, § 10. Amended by Stats.1989, c. 573, § 3.)

§ 73-11.5 Claims for Money or Damages

Section. 11.5. All claims for money or damages against the District are governed by Part 3 (commencing with Section 900) and Part 4 (commencing with Section 940) of Division 3.6 of Title 1 of the Government Code except as provided therein, or by other statutes or regulations expressly applicable thereto. (Added Stats.1959, c. 1728, p. 4172, § 77. Amended by Stats.1963, c. 1715, p. 3412, § 104.)

§ 73-12 Unauthorized Indebtedness

Section. 12. The Board of Directors shall have no power to incur any debt or liability whatever in excess of the express provisions of this act, and any debt or liability incurred in excess of said provisions shall be and remain void. (Stats.1955, c. 503, p. 978, § 12.)

§ 73-13 Contracts for Materials, Supplies, and Construction, Repair, Maintenance and Operation of Works or Improvements

Section. 13. All contracts for materials, supplies, or for the construction or repair of works or improvements that has a contract price exceeding ten thousand dollars ($10,000) shall be let to the lowest responsible bidder after notice inviting bids is published in the District pursuant to Section 6061 of the Government Code, the publication to be not less than 10 days prior to the date set for the opening of bids. The contracts may be let by the Board without public bidding where (1) they are entered into with any other public agency for governmental entity, (2) the contract price does not exceed ten thousand dollars ($10,000), or (3) an emergency threatening the public health, safety, and welfare has been declared by the Board. Contracts for the maintenance or operation of District works or improvements may be negotiated when determined by Board to be in the public interest. (Added by Stats.1982, c. 661, p. 2685, § 12. Amended by Stats.1998, c. 142 (S.B. 1860) § 18.)

§ 73-14. Borrowing; Ordinary Expenses; Payment of Employees; Emergency Expenses for Improvements

Section. 14. (a) The District may borrow money and incur indebtedness for its ordinary expenses and to pay engineers, attorneys, and other employees of the District. Each borrowing shall be authorized by a resolution of the Board of Directors and shall be evidenced by a note. The total amount borrowed may not at any time exceed the amount which could be raised by a ten cent ($0.10) tax levy upon all taxable real property that is subject to levy in the District as shown by the last equalized assessment roll. If the borrowing comes before an assessment roll for the District has been equalized, the county auditor shall estimate the assessed value of the real property that is subject to levy in the District and furnish his or her certificate of that estimate to the Board of Directors of the District. The Board of Directors may borrow an amount not to exceed the sum that could be raised by a ten cent ($0.10) levy upon the estimated value of real property that is subject to levy. For the purpose of borrowing the certificate of valuation of the county auditor shall be final and conclusive. Any moneys so borrowed with interest thereon shall be repaid from the proceeds of the next succeeding tax levy or earlier if funds become available for that purpose.

(b) The District may borrow money and incur indebtedness to construct, repair, operate, or maintain improvements required as a result of declared emergencies or disasters. Each borrowing shall be authorized by resolution of the Board of Directors. The total amount borrowed shall not exceed the sum, which could be raised by a ten cent ($0.10) tax levy upon the taxable real property of the District. If borrowed funds are provided through a designated emergency or disaster program, the District may repay that loan in accordance with the provisions of the program. The District may also borrow from the State of California or the United States moneys provided by those units of government for the performance of local work or responsibilities in conjunction with State or Federal programs relating to flood control, drainage, water conservation, or water quality. If no repayment term is specified in the special loan programs relating to declared emergencies, disasters, or State or Federal programs, the loans shall be repaid within a period not to exceed 40 years. (Added by Stats.1982, c. 661, p. 2686, § 14. Amended by Stats.2000, c. 1078 (S.B. 1571), § 14.)

§ 73-15. Bonds; Authorization; Election Call

Section. 15. The District may incur a bonded indebtedness for the acquisition and construction of flood control works, including the acquisition of easements and property, to provide for (a) the control of flood, storm, or other waste waters of or within the District, including waters which arise outside the District and which flow or drain into or through the District; (b) the protection from damage by flood, storm, or waste waters of highways and private and public property within the District; and (c) the conservation of flood, storm, waste, and other surface waters for beneficial and useful purposes. The election therefore shall be called by resolution, and the resolution shall state the amount of principal of the indebtedness proposed to be incurred for these purposes, the maximum rate of interest to be paid on the indebtedness which shall not exceed the maximum legal rate at the time of such election, the manner of holding such election of voting for or against the incurring of such indebtedness. (Added by Stats.1982, c. 661, p. 2686, § 16.)

§ 73-16. Bond Election; Publication of Resolution; Vote Required

Section. 16. The resolution shall be published in such District pursuant to Section 6066 of the Government Code. No other notice of such election need be given. It shall require the votes of a majority of all the voters voting on the proposition to authorize the issuance of the bonds. (Stats.1955, c. 503, p. 979, § 16. Amended by Stats. 1957, c. 357, p. 1160, § 306.)

§ 73-17. Bonds; Form and Contents

Section. 17. Subject to the provisions of this act the Board of Directors shall prescribe the form of the bonds to be issued by the District, and of the interest coupons to be attached thereto. The Board shall fix the date of the bonds, and may in its discretion divide the aggregate principal amount of any authorized issue into two or more series and fix different dates for each separate series. In the event any authorized issue is divided into two or more series the bonds of each series may be made payable at such time or times as may be fixed by the Board separate and distinct from the time or times of payment of bonds of any other series of the same issue; provided, that the maturity or maturities of each separate series shall in each case comply with the provisions of this act. No bond shall run more than 40 years from the date of its issue. (Stats.1955, c. 503, p. 979, § 17. Amended by Stats.1959, c. 83, p. 1940, § 1.)

§ 73-18. Bonds; Denominations; Signatures

Section. 18. The bonds shall be issued in such denominations as the Board may determine, except that no bonds shall be of a smaller denomination than one thousand dollars ($1,000) nor a greater denomination than one hundred thousand dollars ($100,000), and shall be payable on the date and at the place or places stated in such bonds, and with interest at the rate specified in the bonds, payable annually for the first year and thereafter semiannually. Said bonds shall be signed by the chairman of the Board, by his printed, lithographed or engraved facsimile signature, or may be so signed by such other officer as the Board shall by resolution authorize and designate for that purpose, and also signed by the secretary of said Board. The coupons of said bonds shall be numbered consecutively and signed by the secretary by his printed, lithographed or engraved facsimile signature. In case any of such officers whose signatures appear on the bonds or coupons shall cease to be such officer before the delivery of such bonds to the purchaser such signature shall nevertheless be valid for all purposes the same as if they had remained in office until the delivery of the bonds. (Stats.1955, c. 503, p. 979, § 18.)

§ 73-19. Callable Bonds

Section. 19. The Board may in its discretion provide that all or any part of the bonds issued may at the option of the Board be called and redeemed prior to maturity, with such premiums, if any, as said Board in the resolution providing for the issuance thereof may determine. In the event any bond is redeemable prior to its maturity a statement substantially to that effect shall be contained in the bond. (Stats.1955, c. 503, p. 980, § 19.)

§ 73-19.5 Refunding Bonds; Issuance without Election; Purpose; Authorization; Sale; Disposition of Proceeds; Tax for Payment of Bonds

Section. 19.5. The Board, in the manner provided in this section, may incur a bonded indebtedness by the issuance of refunding bonds without calling and holding an election and without the authorization of the voters of said District. Sections 15 and 16 shall not be applicable to any bonded indebtedness evidenced by refunding bonds. Refunding bonds shall be issued only for the purpose of paying the principal of and premium on any outstanding bonds of the District which by their terms are, at the time of issuance of refunding bonds, subject to call and redemption prior to maturity. Refunding bonds shall not be issued unless the total amount of interest payable on the issue of refunding bonds from the date thereof to their respective maturity dates plus the total amount of premiums payable upon the call and redemption of the outstanding bonds to be called and redeemed with the proceeds of the sale of refunding bonds is less than the total amount of interest payable on the bonds to be called and redeemed from the date of redemption thereof to their respective maturity dates. The final maturity date of the refunding bonds to be issued shall not be later than the final maturity date of the bonds to be called and redeemed. The aggregate principal amount of the refunding bonds to be issued shall not exceed the aggregate principal amount of the bonds to be called and redeemed plus the amount of the premiums payable upon the call and redemption thereof. All interest payable upon the call and redemption of the bonds to be called and redeemed shall be paid from available funds of the District other than the proceeds of the sale of refunding bonds.

Each issue of refunding bonds shall be authorized by a resolution of the Board and shall be sold pursuant to the provisions and subject to the limitations of Section 20. The proceeds of the sale of each issue of refunding bonds shall be placed in the Treasury of the County of Fresno to the credit of the District. All premiums and accrued interest received upon such sale shall be placed in the fund to be used for the payment of principal of and interest on the refunding bonds, and the remainder of the proceeds of the sale of the refunding bonds shall be applied to the extent required to pay the principal of and premium on the outstanding bonds of the District which were called and redeemed upon the issuance of the refunding bonds. Any surplus remaining after the redemption of the outstanding bonds shall be deposited in the fund to be used for the payment of the principal of and interest on the refunding bonds and used only for that purpose.

When any refunding bonds shall have been issued, taxes shall be levied and collected to pay the principal of and interest on the refunding bonds in the manner provided in Section 21. All of the provisions of Section 21 are applicable to refunding bonds to the same extent as to the outstanding bonds called and redeemed by the refunding bonds. (Added Stats.1959, c. 82, p. 1939, § 1.)

§ 73-20. Bonds; Issuance and Sale

Section. 20. The bonds may be issued and sold as the Board determines, but for not less than par. Before selling the bonds, or any part thereof, the Board shall give notice inviting sealed bids in such manner as the Board may prescribe. If satisfactory bids are received the bonds shall be sold to the highest responsible bidder. If no bids are received, or if the Board determines that the bids received are not satisfactory as to price or responsibility of the bidders, the Board may reject all bids received, if any, and either re-advertise or sell the bonds at private sale. The proceeds of the sale shall be placed in the treasury of the County of Fresno to the credit of said District. All premiums and accrued interest received shall be placed in the fund to be used for the payment of principal of and interest on the bonds, and the remainder of the proceeds of the bonds shall be placed to the credit of the construction fund of the District and applied exclusively to the purposes recited in the resolution calling the election; provided, however, that when said purposes have been accomplished any moneys remaining in such construction fund shall be transferred to the fund to be used for the payment of principal of and interest on the bonds. When such purposes have been accomplished and all principal of and

interest on the bonds have been paid any balance of money then remaining shall be transferred to the general fund of the District. (Stats.1955, c. 503, p. 980, § 20.)

§ 73-21. Bonds; Tax for Principal and Interest Payments

Section. 21. The Board of Supervisors shall at the time of fixing the general tax levy and in the manner for such general tax levy provided, levy and collect annually each year until said bonds are paid or until there shall be a sum in the treasury of the county to the credit of said District and set apart for that purpose sufficient to meet all sums coming due for principal and interest on said bonds, an assessment tax upon all taxable real property in the District sufficient to pay the interest on such bonds as the same becomes due, and also such part of the principal thereof as shall become due before the proceeds of an assessment tax levied at the time for making the next general tax levy can be made available for the payment of such principal. The assessment taxes herein required to be levied and collected shall be in addition to all other assessment taxes levied for District purposes and shall be levied and collected at the time and in the same manner as other District assessment taxes are levied and collected and be used for no other purpose than the payment of said bonds and accruing interest thereon. (Stats.1955, c. 503, p. 980, § 21.)

§ 73-22. Estimate of Money Needed

Section. 22. The Board of Directors shall, not later than the beginning of each fiscal year, prepare an estimate in writing of the amount of money needed for the objects and purposes of the District for that fiscal year. The estimate shall include the estimated amount required to pay the expenses of the District, the cost of maintenance and operation of any works maintained or operated by the District or under its authority, the amount of any indebtedness (other than bonded debt) of the District currently due or to become due in such fiscal year with interest, if any, payable thereon, the amount deemed necessary by the Board of Directors for a reserve fund to meet the expenses of the District during the first six months of the next subsequent fiscal year, and the estimated amount necessary for the payment of the costs of any action or proceeding which may be taken by the District, including the cost of employment of attorneys and engineers. The estimate may for convenience be called the "annual budget". A copy of the estimate shall be filed with the Board of Supervisors of the County of Fresno and the auditor thereof not later than the tenth day of July of such fiscal year. There shall be added to the estimate the amount required to provide for the payment of principal and interest of outstanding bonds of the District and the payment of principal and interest of bonds authorized but not sold but which the Board of Directors believes will be sold during the first six months of such fiscal year. (Stats.1955, c. 503, p. 981, § 22. Amended by Stats.1985, c. 1229, § 6, eff. Sept. 30, 1985.)

§ 73-22(a). Reduction of Assessment in Drainage Area or Zone

Section. 22(a). If the Board of Directors determines that the money needed by the District for acquisition and construction of land and improvements has been reduced by reason of the completion of works of improvement in a drainage area or zone with defined boundaries, the Board may proportionately reduce the amount to be assessed upon the taxable real property in that drainage area or zone for the fiscal year, so that the property owners in the drainage area or zone will not be assessed for costs of acquisitions and improvements outside of the drainage area or zone not of benefit to the property owners, and the Board of Directors may request that the Board of Supervisors determine the rate of assessment tax separately for the drainage area or zone. (Added by Stats. 1963, c. 301, p. 1073, §1. Amended by Stats. 1965, c. 1854, p. 4292, §2; Stats.1982, c. 661, p. 2687, § 17; Stats.1985, c. 1229, § 7, eff. Sept. 30, 1985.)

§ 73-23. Annual Tax Levy

Section. 23. The Board of Supervisors shall annually, not later than the first Monday in September, levy an assessment tax upon the taxable real property in the District sufficient to carry out any of the objects and purposes of this act, all of which are of benefit to those lands and the improvements thereon, and to raise the amount stated in the annual budget, and also an assessment tax sufficient to raise the amount required for payment of principal and interest of bonds of the District. The Board of Supervisors shall determine the rate of each such assessment tax in the District and separately in any drainage area or zone with defined boundaries if so requested by the Board of Directors of the District pursuant to Section 22(a) by deducting 10 percent for the anticipated delinquencies from the total assessed value of the taxable real property in the District as it appears on any assessment roll or system of the county maintained for the purpose of levying ad valorem taxes or ad valorem assessments and then dividing the sum to be raised by the remainder of such total

assessed value in the District and separately in any drainage area or zone with defined boundaries which is the subject of a request pursuant to Section 22(a); provided, that if a fraction of a cent occurs on a valuation of one hundred dollars ($100) it shall be taken as a full cent. The assessment tax levied during any year for all purposes other than bond principal and interest shall not exceed twenty cents ($0.20) on each one hundred dollars ($100) of the assessed value of the taxable real property in the District according to the last equalized county assessment roll; provided, that such maximum permissible rate of assessment tax may be increased by the qualified voters of the District. The assessment tax shall be extended and collected in the same manner and by the same officers and with the same penalties and interest as general county taxes, and when collected shall be paid into the treasury of the county and credited to the District. (Stats. 1955, c. 503, p. 981, § 23. Amended by Stats. 1963, c. 301, p. 1073, § 2; Stats. 1965, c. 1854, p. 4292, § 3; 1985, c. 1229, § 8, eff. Sept. 30, 1985.)

§ 73-23.5 Annual Tax Levy; Alternative Basis

Section. 23.5. (a) The Legislature hereby finds and declares that a County may face substantial expense in maintaining a roll or system that reflects both current values of property for the purpose of ad valorem assessments as provided by this act and the property values for general taxation mandated by Article XIII A of the California Constitution. The Legislature further finds and declares that a fair and proper assessment for District objects and purposes may be imposed on the alternative basis of the use to which the benefited land may be put and the services and benefits provided.

(b) The Board of Supervisors of the County and the Board of Directors of the District may evaluate the costs of maintaining a system to determine benefits according to assessed valuation of land and improvements thereon pursuant to Section 23 and the cost of determining benefits pursuant to use and services and benefits provided pursuant to this section. Pursuant to that determination, the Board of Supervisors and the Board of Directors may elect to impose an assessment as set forth in Section 23 or this section sufficient to raise the amount or amounts represented annually by the District.

(c) The assessment authorized to be imposed on each parcel under this section shall be based upon the parcel's proportionate benefit, taking into account the zone in which it is located, its size, and its capacity for being put to use, with respect to all other parcels in the District. The aggregate of all the assessments shall not exceed the maximum limit set forth in Section 23, except as that limit is increased by the qualified voters of the District.

(d) Prior to July 10th of each year, the District shall transmit to the Board of Supervisors the zones of benefit and land use categories required to impose the assessment authorized by this section.

(e) Prior to March 1st of any year, landowners in the District may petition the Board of Directors to review, or the Board of Directors may elect to review on its own motion, the zones of benefit or land use categories determined by the District and submitted to the Board of Supervisors pursuant to this section. The petition shall be signed by at least one percent of the landowners within the District. The Board of Directors shall set a time and place for hearing upon the petition and shall give notice of the hearing by publishing the notice twice in a publication of general circulation at least 20 days prior to the hearing. The Board of Directors may, by resolution at the conclusion of the hearing, modify the zones of benefit or the land use categories as, in its judgment, is required and that modification shall become effective the next tax year, but in no event later than the next tax year following the next March 1st.

(f) If the Board of Supervisors of the County and the Board of Directors of the District elect to use the alternative assessment basis provided in this section, the County and the District may recover their reasonable costs of preparing, imposing, and collecting the assessments. The District shall pay to the County from the proceeds of the assessments the county's portion of the costs. (Added by Stats.1985, c. 1229, § 9, eff. Sept. 30, 1985. Amended by Stats.1993, c. 290 (A.B.1976), § 1, eff. Aug. 2, 1993; Stats.1994, c. 146 (A.B. 3601), § 233.)

§ 73-24 Construction of Works; Special Assessment; Applicability of Improvement Acts; Definitions; Exemption from Special Assessment, Investigation, Limitation and Majority Protest Act

Section. 24. The Board may order the construction of flood control works, storm drains and appurtenances and appurtenant work in the whole or any portion of any of the streets, highways or public places (including state highways, after obtaining a permit therefore pursuant to Article 2 (commencing with Section 670), Chapter 3, Division 1 of the

Streets and Highways Code) within the District or in any property or rights-of-way owned by the District, and the cost thereof may be assessed upon the lands benefited, all in the manner provided in the Improvement Act of 1911 (commencing with Section 5000 of the Streets and Highways Code), the Municipal Improvement Act of 1913 (commencing with Section 10000 of the Streets and Highways Code), and the Improvement Bond Act of 1915 (commencing with Section 8500 of the Streets and Highways Code), all of which said acts are applicable to this District. In proceedings initiated under any of the foregoing acts, the District may reimburse itself for the cost of any acquisition of lands or improvements paid for from its general fund. Such reimbursements shall be charged as an incidental expense under the particular improvement act under which proceedings are had. The powers and duties conferred by such acts upon legislative bodies, officers and agents of cities or counties shall be exercised by the respective Board, officers and agents of the District shall exercise officers and agents of cities or counties. In the application of such acts to proceedings under this act the terms used in said acts shall have the following meanings:

(a) "Legislative body", "City Council" or "Council" shall mean "Board of Directors" of the District";

(b) "City", "municipality" or "County" shall mean "District";

(c) "Clerk" and "City Clerk" mean "Secretary of the District";

(d) "Superintendent of streets", "Street Superintendent" and "City Engineer" mean the "Engineer of the District" or any other person appointed to perform such duties;

(e) "Tax collector" means "County Tax Collector";

(f) "Treasurer" and "City Treasurer" means "County Treasurer as ex-officio Treasurer of the District".

Any assessment levied by the District under this section shall be recorded in the office of the Director of Public Works of the County of Fresno.

The Special Assessment Investigation, Limitation and Majority Protest Act of 1931 (commencing with Section 2800 of the Streets and Highways Code) shall not apply to proceedings taken under the authority of this section. (Stats.1955, c. 503, p. 982, § 24. Amended by Stats.1961, c. 52, p. 990, § 1, effective March 30, 1961.)

§ 73-25. Additional Bonds

Section. 25. After the first issue of bonds of the District additional bonds may be issued as authorized by the voters of the District. Whenever the Board of Directors shall by resolution determine that the public interest or necessity demands the issuance by said District of additional bonds said Board might submit the question of issuing such bonds to the qualified voters of said District in the manner provided in this act. Such bonds, if authorized, shall be issued and sold in the manner provided in this act. Should any proposition of issuing bonds submitted at any election under this act fail to receive the requisite number of votes of the qualified voters voting at such election to incur the indebtedness for the purposes specified, the Board of Directors of said District shall have no power and authority until the expiration of six months after such election to call or order another election for incurring indebtedness and issuing bonds under this act. (Stats.1955, c. 503, p. 983, § 25.)

§ 73-26. Eminent Domain

Section. 26. The power of eminent domain vested in the Board of Directors of the District shall be exercised pursuant to the California Eminent Domain Law (commencing with Section 1230.010 of the Code of Civil Procedure). (Added by Stats.1982, c. 661, p. 2687, § 19.)

§ 73-27. Right-of-Way Upon Public Lands

Section. 27. There is hereby granted to the District the right of way for the location, construction and maintenance of flood control channels, ditches, waterways, conduits, canals, storm dikes, embankments, and protective works in, over and across public lands of the State of California, not otherwise disposed of or in use, not in any case exceeding in length or width that which is necessary for the construction of such works and adjuncts or for the protection thereof. Whenever

any selection of a right of way for such works or adjuncts thereto is made by the District the Board thereof must transmit to the State Lands Commission, the Controller of the State and the Recorder of the County in which the selected lands are situated, a plat of the lands so selected, giving the extent thereof and the uses for which the same is claimed or desired, duly verified to be correct. If the State Lands Commission shall approve the selections so made it shall endorse its approval upon the plat and issue to the District a permit to use such right of way and lands. Whenever any of the proposed improvements are to be located in state highways a permit shall be obtained therefore pursuant to Article 2, Chapter 3, Division 1 of the Streets and Highways Code § 670 et seq. Said District is also granted such right as the State of California may have to use any watercourse within or without the boundaries of the District for the purposes of said District. (Stats.1955, c. 503, p. 983, § 27.)

§ 73-28. Definitions

Section. 28. The words hereinafter defined shall be given the meaning stated in this section, unless the context of the word as used at a particular place in the act indicates a different meaning at such place.

1. As used in this act:

(a) "District" means "Fresno Metropolitan Flood Control District";

(b) "Board" means "Board of Directors of that District";

(c) "County" means "County of Fresno";

(d) "City" means "City of Fresno" when the land and works are within the City of Fresno and the "City of Clovis" when the land or works are within that city;

(e) "Irrigation District" means "Fresno Irrigation District";

(f) "Board of Supervisors" means "Board of Supervisors of the County of Fresno".

2. As used in this act, the words "flood control works" include dams, reservoirs, canals, ditches, drains, the improvement of natural or artificial watercourses, and the acquisition and construction of any and all improvements appurtenant to or necessary for any flood control, drainage, or water conservation work or works, and include the acquisition of any land, easements, property, or rights necessary for the flood control, drainage, or water conservation works.

3. As used in this act, the term "Public Official" means all elected officials and officers, including employees, of the City of Fresno, the City of Clovis, and the County of Fresno.

4. Wherever in this act the term "assessment tax" is used, the terms shall not be deemed or construed as referring to a tax in the technical sense of the term, but shall be deemed to refer to assessments based on benefits. (Stats. 1955, c. 503, p. 984, § 28. Amended by Stats.1982, c. 661, p. 2687, § 20; Stats.1985, c. 1229, § 10, eff. Sept. 30, 1985.)

§ 73-29. Liberal Construction

Section. 29. This act and every part thereof shall be liberally construed to promote the objects and purposes thereof and to carry out its intents and purposes. (Stats.1955, c. 503, p. 984, § 29.)

§ 73-30. Partial Invalidity

Section. 30. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconstitutional, such decision shall not affect the validity of the remaining portions of this act. The Legislature hereby declares that it would have passed this act, and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more other sections, subsections, sentences, clauses or phrases be declared unconstitutional. (Stats.1955, c. 503, p. 984, § 30.)

§ 73-31. Annexation and Exclusion of Land; Initiation of Proceedings

Section. 31. Any parcel of land may be annexed to the District, when such land shall have been found by the Board of Directors to benefit, and any parcel of land may be excluded from the District, when such land shall have been found by the Board of Directors not to benefit, pursuant to this section.

The Board of Directors of the District may initiate annexation or exclusion proceedings by the adoption of a resolution of intention, or such action may be commenced by the filing of a petition. (Added by Stats.1982, c. 661, p. 2688, § 22.)

§ 73-32. Filing Petition; Owner Defined

Section. 32. A petition for annexation or exclusion shall be filed by not less than 25 percent in number of the owners of land owning not less than 25 percent of the total surface acreage proposed to be annexed or excluded, and shall be addressed to and filed with the Board.

"Owner" shall be defined as a holder of title or holder of a portion of title identified on the last equalized assessment roll of the County of Fresno. In all matters in this section, the last equalized assessment roll of the County of Fresno shall be prima facie evidence as to the ownership of real property, the names and number of persons who are the holders of title or portion of title. Executors, administrators, trustees or guardians may sign for a named holder of title when such signature is supported by written authorization to so represent the name holder of title. (Added by Stats. 1957, c. 830, p. 2052, § 2. Amended by Stats.1982, c. 661, p. 2688, § 23.)

§ 73-33. Contents of Petition

Section. 33. The petition shall contain:

1. The reason for annexation or exclusion of the land,

2. A description of the boundaries of the land, and

3. The assents of petitioners to the annexation or exclusion.

(Added Stats.1957, c. 830, p. 2052, § 3.)

§ 73-34. Time and Place for Hearing; Notice; Publication

Section. 34. Upon filing of the petition, or upon initiation of annexation or exclusion proceedings by the Board, the Board shall fix a time and place for a hearing, which hearing shall be not less than 30-days subsequent to such filing or to the adoption of such resolution of intention, and shall cause notice of such filing, or adoption of resolution of intention, and of the time and place of the hearing, to be published by publication of notice thereof not less than once a week for three weeks in a newspaper of general circulation, printed and published within the District.

At least 20-days before the date set for the hearing, the secretary of the Board of Directors shall mail said notice, postage prepaid, to all persons owning real property within the boundaries of the land proposed to be annexed or excluded whose names and addresses appear on the last equalized assessment roll or who are known to the secretary. The failure of the secretary to mail the notice to any property owner, or the failure of any property owner to receive the notice, shall not affect the validity of the annexation or exclusion proceeding. (Added Stats.1957, c. 830, p. 2052, § 4. Amended by Stats.1967, c. 575, § 3.)

§ 73-35. Contents of Notice

Section. 35. The notice shall state:

1. The date on which the petition was filed, or the date of adoption of the resolution of intention;

2. The petitioners' names, if any;

3. The location and boundaries of land described in the petition or resolution of intention;

4. The prayer of the petition, if any;

5. The time and place fixed for hearing the petition;

6. If determined by the Board of Directors, a statement of the payment to be required pursuant to Section 44, and

7. That all persons interested in or affected by such change in the District boundaries may appear and show cause why the change should not be made;

8. That each holder of title or each joint holder of title may submit a signed written protest identifying the name of the protesting holder of title, the street address or other description sufficient to identify the protesting owner's property on the last equalized assessment roll, and that the signed written protest of any joint holder of title shall constitute a protest of an owner of land, and that executors, administrators, trustees, and guardians may sign such protest for a holder or joint holder of title when such signature is accompanied by written authorization to so represent the named holder of title;

9. The name and telephone number of the District representative from whom additional information regarding the annexation can be obtained; and

10. The date by which written protests are to have been received by the secretary of the District.

(Added by Stats.1957, c. 830, p. 2052, § 5. Amended by Stats.1982, c. 661, p. 2688, § 24.)

§ 73-36. Hearing Evidence

Section. 36. At the hearing, the Board shall hear all relevant evidence for and against the petition or resolution of intention. (Added Stats.1957, c. 830, p. 2053, § 6.)

§ 73-37. Failure to Show Cause as Assent to Boundary Changes

Section. 37. Failure to show cause by any person interested in or affected by the change is deemed his assent to any change the Board makes in the District boundaries. (Added Stats.1957, c. 830, p. 2053, § 7.)

§ 73-38. Resolution of Annexation or Exclusion; Declaration of Altered Boundaries

Section. 38. If the Board deems the annexation or exclusion of all or part of the land for the best interest of the District and if protests are not received from more than fifty percent in number of the owners of the land to be annexed or excluded, the Board shall by Resolution annex or exclude all or part of the land described in the petition and shall declare the District boundaries changed. (Added by Stats.1957, c. 830, p. 2053, § 8. Amended by Stats.1982, c. 661, p. 2689, § 25.)

§ 73-39. Protest; Form and Requisites; Calling Election; Termination of Proceedings

Section. 39. If a majority of the owners of lands within the territory proposed to be annexed or excluded protest, in writing, such annexation or exclusion to the Board, the Board shall (1) call, an election within the area proposed to be annexed or excluded to decide whether the proposed annexation or exclusion shall occur, or (2) terminate the annexation or exclusion proceedings. (Added by Stats.1957, c. 830, p. 2053, § 9. Amended by Stats.1982, c. 661, p. 2689, § 26.)

§ 73-40. Resolution Calling Election; Form and Contents; Notice; Publication

Section. 40. Upon determining that an election shall be called, the Board shall adopt a Resolution calling such election, which resolution shall describe the boundaries of the land to be annexed or excluded, the date of the election, whether the election shall be held at the polls or by mailed ballot, and if at the polls the hours which the polls shall be kept open, which need not exceed seven consecutive hours, the polling place, and shall state the proposition:

"Shall the territory described in the resolution adopted by the Board of Directors on _____, be (annexed to) (excluded from) the Fresno Metropolitan Flood Control District"?

Notice of election shall be given by publishing the resolution at least once a week for two consecutive weeks in a newspaper of general circulation, printed and circulated within the District, in which case no other notice of election need be given, or notice may be given as otherwise provided by law. (Added by Stats.1957, c. 830, p. 2053, § 10. Amended by Stats. 1982, c. 661, p. 2689, § 27.)

§ 73-41. Majority Vote; Resolution Declaring Annexation or Exclusion; Description of Altered Boundaries

Section. 41. If a majority of the votes cast at the election within the area proposed to be annexed or excluded favors such annexation or exclusion, the Board shall by resolution declare the territory annexed or excluded to describe the altered District boundaries. (Added Stats.1957, c. 830, p. 2053, § 11.)

§ 73-42. Entry of Resolution in Minutes; Filing Certified Copies

Section. 42. The resolution declaring the changed boundaries shall be entered in the minutes of the Board. A certified copy of the resolution shall be filed in the Office of the County Recorder of the County of Fresno, with the Secretary of State of the State of California, with the Assessor of the County of Fresno, and with the State Board of Equalization. (Added Stats.1957, c. 830, p. 2054, § 12.)

§ 73-43. Payment of Debts and Obligations as Condition of Exclusion; Further Liability

Section. 43. Exclusion of territory pursuant to Board Resolution, whether or not an election was held, shall not become effective until all debts and obligations existing pursuant to this act, including loans from the general fund of the District, have been fully paid. However, subsequent to the adoption of such resolution of exclusion, the territory shall not be subjected to any further debts or obligations pursuant to this act. (Added by Stats. 1957, c. 830, p. 2054, §13. Amended by Stats.1982, c. 661, p. 2690, § 28.)

§ 73-44. Payment by Owners of Land as Condition Precedent to Annexation

Section. 44. As a condition precedent to annexation the Board may require that the owners of annexed land shall pay a sum equal to the amount of the taxes or assessments which the owners or their grantors would have been required to pay if the annexed land had been included in the District when it was formed. (Added Stats.1957, c. 830, p. 2054, ' 14.)

§ 73-45. Effect of Change of Boundaries

Section. 45. No change in the boundaries of the District shall impair or affect its organization or its rights in or to property or any of its rights or privileges of whatsoever kind or nature, or shall affect, impair or discharge any contract, obligation, lien or charge for or upon any lands in the District or for which the District was or might become liable or chargeable had such changes of boundaries not been made. (Added Stats.1957, c. 830, p. 2054, § 15.)

§ 73-46. Drainage Areas and Zones

Section. 46. (a) Division of District. The District may be divided into as many local drainage areas or zones as may be deemed convenient for the objects and purposes of the District, and each local drainage area or zone shall be composed of and include all of the lands which in the opinion of the Board of Directors will be benefited in like manner. Each local drainage area or zone shall be designated on a map or plat of the District filed in the office of the Board of Directors, and the designation shall show the separate boundaries of each local drainage area or zone and a statement of the total cost or revenue or percentage thereof to be raised from each area or zone.

(b) Modification of zones. If, in the opinion of the Board of Directors, modification of the zones is appropriate in order to better reflect the benefits as then received by lands within the District from the maintenance, operations, extension, or repair of works or improvements of the District, the District shall prepare a new map showing the proposed new zone boundaries with a statement of the new total cost or revenue or percentage to be raised from each zone. Upon the filing of the map showing proposed new zone boundaries, the Board of Directors shall give notice to all persons interested in

the District by publication in a newspaper of general circulation published in the District, once a week for two successive weeks, which notice shall designate the time and place of hearing by the Board of Directors, at which time and place any person interested in the District may appear and object to the zones into which the District is divided, or the total cost or revenue or percentages to be raised from each of the zones. All objections shall be in writing, signed by the person or persons making the objection, and filed with the Board of Directors on or before the date fixed for the hearing. Upon hearing, the Board of Directors may change or modify any of the zones or the percentages of the cost or revenue to be raised therefrom. The hearing may be continued from time to time by the Board of Directors by an order entered on its minutes. The location and extent of the zones within the District and the total cost or revenue or percentages to be raised therefrom shall be finally established and determined by the Board of Directors and shall prevail for all purposes until any obligation of the District incurred on behalf of the zones shall have been fully discharged and until further modified pursuant to this section. The findings and determinations of the Board of Directors as to the extent and boundaries of the zones and the percentages of the cost or revenue to be raised therefrom shall be final and conclusive.

(c) Institution of projects. The Board may institute projects for single local drainage areas and zones and joint projects for two or more local areas or zones, for the financing, constructing, maintaining, operating, extending, repairing, or otherwise improving any work or improvement authorized by this act and of common benefit to the area or zone or participating areas and zones.

(d) Tax or assessment levies; bond authorization. The Board may levy assessments, assessment taxes, benefit assessments, or taxes, as provided in this act, or incur bonded indebtedness to pay the cost of any work or improvement or the operating, maintaining, repairing, or extending any work or improvement within those local drainage areas or zones.

(e) Authority to proceed with project; Resolution; notice; hearing. For the purpose of acquiring authority to proceed with a project or projects within and for the benefit of any local drainage areas or zones and to be financed under the bonding authority of this section, the Board shall adopt a Resolution specifying its intention to undertake such a project. The resolution will include engineering estimates of costs to be borne by the participating local drainage areas or zones, and shall fix a time and place for public hearing and shall refer to a map or maps showing project construction and location. Notice of the hearing shall be given by publication in a newspaper of general circulation within the District pursuant to Section 6056 of the Government Code. The notice shall designate a public place within the District where a copy of the maps may be seen during the two week period prior to the hearing.

At the time and place fixed for the hearing, or the continued portion thereof, the Board shall consider all oral and written testimony. Upon the conclusion of the hearing the Board may abandon the proposed project or proceed, unless, prior to the time set for receiving protests, a written protest against the project signed by holders of title to real property or assessable interests therein representing more than a majority of all holders of title within the participating drainage areas or zones is filed with the Board and not withdrawn. In that event the proceedings shall be terminated and the project or projects shall not be reinstated in the same drainage areas or zones for a period of six months.

In all matters referred to in this subdivision, the last equalized assessment roll of the County of Fresno shall be prima facie evidence as to the ownership of real property and the names and numbers of the holders of title. The Board shall be entitled to inquire and take evidence for purposes of identifying any person claiming the right to file a written protest. Unless satisfactory evidence is furnished, the right to sign and file a protest may be denied.

(f) Bond authorization procedure. The procedure for authorizing bonds shall be as follows:

(1) Whenever the Board determines that a bonded indebtedness should be incurred to pay the cost of any work or improvement in any local drainage areas or zones, the Board may by resolution determine and declare the respective amounts of bonds necessary to be issued in each local drainage area or zone in order to raise the amount of money necessary for each work or improvement and the denomination and the maximum rate of interest of the bonds. The Board shall cause a copy of the resolution, duly certified by the secretary, to be filed for record in the office of the Recorder of Fresno County within five days after its issuance. From and after the filing of the copy of the resolution, the Board shall be deemed vested with the authority to proceed with the bond election.

(2) After the filing for record of the resolution specified in paragraph (1), the Board may call a special bond election in the local drainage area or zone or participating local drainage areas or zones at which shall be submitted to the qualified electors of the local drainage area or zone or participating local drainage areas or zones the question whether or not bonds shall be issued in the amount or amounts determined in the resolution and for the purpose or purposes therein stated. The bonds and the interest thereon shall be paid from revenue derived from annual assessment taxes levied as provided in this act.

(3) The Board shall call such special bond election by resolution and submit to the qualified electors of the local drainage area or zone or participating local drainage areas or zones the proposition of incurring a bonded debt in the local drainage area or zone or participating local drainage areas or zones in the amount and for the purposes stated in the Resolution and shall recite therein the objects and purposes for which the indebtedness is proposed to be incurred; provided, that it shall be sufficient to give a brief, general description of such objects and purposes, and refer to the recorded copy of the resolution specified in paragraph (1), and on file for particulars; and the Resolution shall also state the estimated cost of the proposed work and improvements, the amount of the principal of the indebtedness to be incurred therefore, and the maximum rate of interest to be paid on that indebtedness, and shall fix the date on which such special election shall be held, and the form and contents of the ballot to be used. The rate of interest to be paid on such indebtedness shall not exceed the maximum rate permitted by law. For the purposes of that election, the Board shall provide in the resolution for such election by mailed ballot or shall in the resolution establish special bond election precincts within the boundaries of each local drainage area or zone and participating local drainage area or zone and may form election precincts by consolidating the precincts established for general elections in the District to a number not exceeding six general precincts for each such special bond election precinct, and shall designate a polling place and appoint one inspector, one judge and one clerk for each of such special bond election precincts.

The Board shall cause a map or maps to be prepared covering a general description of the work to be done, which said map shall show the location of the proposed works and improvements and shall cause the map to be posted in a prominent place in the county courthouse for public inspection for at least 30 days before the date fixed for such election.

The Resolution calling for such special bond election shall, prior to the date set for such election, be published in a newspaper of general circulation circulated in each local drainage area or zone and participating local drainage area or zone affected for six consecutive times, if published in a daily newspaper of general circulation, or two times, if published in a weekly newspaper of general circulation. The last publication of such resolution shall be at least 14 days before the election, and if there be no such newspaper, then such resolution shall be posted in five public places, designated by the Board, in each local drainage area or zone and participating local drainage area or zone for at least 30 days before the date fixed for such election. No other notice of such election need be given nor polling place cards be issued.

Any defect or irregularity in the proceedings prior to the calling of such special bond election shall not affect the validity of the bonds authorized by the election. Where a project affects a single local drainage area or zone only, if at such election a majority of the votes cast in the local drainage area or zone on the proposition of incurring a bonded indebtedness are in favor thereof, then bonds for the local drainage area or zone for the amount stated in such proceedings shall be issued and sold as in this act provided. Where the incurring of bonded indebtedness by participating local drainage zones is to be determined at such election, no bonds for any of such participating local drainage zones shall be issued or sold unless a majority of the votes cast on the proposition in each such participating local drainage area or zone are in favor of incurring the bonded indebtedness to be undertaken by the local drainage area or zone.

(g) Form, contents, denomination, etc., of bonds. The Board shall, subject to the provisions of this act, prescribe by Resolution the form of the bonds, which shall include a designation of the local drainage area or zone or participating local drainage area or zone affected, and of the interest coupons attached thereto. The bonds shall be payable, annually or semiannually at the discretion of the Board, each and every year on a day and date, and at a place, to be fixed by the Board and designated in such bonds, together with the interest on all sums unpaid on such date until the whole of the indebtedness shall have been paid.

The Board may divide the principal amount of any issue into two or more series and fix different dates for the bonds of each series. The bonds of one series may be made payable at different times from those of any other series. The maturity of each series shall comply with this section. The Board may fix a date, not more than two years from the date of issuance

for the earliest maturity of each issue or series of bonds. The final maturity date shall not exceed 40 years from the time of incurring the indebtedness evidenced by each issue or series.

The bonds shall be issued in such denomination as the Board may determine, except that no bonds shall be of a less denomination than one hundred dollars ($100), nor of a greater denomination than ten thousand dollars ($10,000), and shall be payable on the days and at the place fixed in said bonds, and with interest at the rate specified in such bonds, which rate shall not be in excess of the maximum rate allowed by law, and shall be made payable annually or semiannually, and said bonds shall be numbered consecutively and shall be signed by the chairman of the Board, and countersigned by the secretary of said District, and the seal of said District shall be affixed thereto by said secretary. Either or both of such signatures may be printed, engraved or lithographed. The interest coupons of said bonds shall be numbered consecutively and signed by the said secretary by his printed, engraved or lithographed signature. In case any such officers whose signatures or countersignatures appear on the bonds or coupons shall cease to be such officers before the delivery of such bonds to the purchaser, such bonds and coupons, and signatures or countersignatures shall nevertheless be valid and sufficient for all purposes the same as if such officers had remained in office until the delivery of the bonds.

(h) Issue and sale of bonds. The Board may issue and sell the bonds of the local drainage areas or zones authorized as hereinbefore provided above or below par value, and the proceeds of the sale of such bonds shall be placed in the treasury of the County of Fresno to the credit of the District and the respective participating local drainage zones thereof, for the use and purposes of the local drainage zone or zones voting said bonds; and the proper record of such transactions shall be placed upon the books of said county treasurer, and the respective local drainage area or zone funds shall be applied exclusively to the purposes and objects mentioned in the resolution calling for such special bond election as aforesaid, subject to the provisions in this act contained. Payments from the local drainage area or zone funds shall be made upon demands prepared, presented, allowed and audited in the same manner as demands upon the funds of the County of Fresno.

(i) Payment of bonds. Any bonds issued under the provisions of this act, and the interest thereon, shall be paid by revenue derived from the levy of an annual assessment tax on all taxable real property within a local drainage area or zone or participating local drainage areas or zones, including both land and improvements thereon.

(j) Tax to pay bonds. The Board shall levy an assessment tax each year sufficient to pay the interest and such portion of the principal of said bonds as is due or to become due before the time for making the next general levy. Such assessment taxes shall be levied and collected in the respective local drainage areas or zones of issuance together with and not separately from taxes for county purposes, and when collected shall be paid into the county treasury of Fresno County to the credit of the local drainage area or zone of issuance, and to be used for the payment of the principal and interest on said bonds and for no other purpose. The principal and interest on said bonds shall be paid by the county treasurer of said Fresno County in the manner provided by law for the payment of principal and interest on bonds of the County.

(k) Taxation; law applicable. The provisions of law of this State, prescribing the time and manner of levying, assessing, equalizing and collecting County property taxes, including the sale of property for delinquency and the redemption from such sale, and the duties of the several County officers with respect thereto, are, so far as they are applicable, and not in conflict with the specific provisions of this act, hereby adopted and made a part hereof.

(l) Bonds are legal investments. The bonds of the District issued for any local drainage area or zone thereof pursuant to this act, shall be legal investments for all trust funds, and for the funds of all insurance companies, banks, both commercial and savings, and trust companies, and for the state school funds, and whenever any money or funds may by law now or hereafter enacted be invested in bonds of Cities, Cities and Counties, Counties, School Districts or Municipalities in the State of California, such money or funds may be invested in the bonds of the District, issued in accordance with the provisions of this act, and whenever bonds of Cities, Cities and Counties, Counties, School Districts or Municipalities, may by any law now or hereafter enacted be used as security for the performance of any act, such bonds of the District may be so used.

This section is intended to be and shall be considered the latest enactment with respect to the matters herein contained and any and all acts or parts of acts in conflict with the provisions hereof are hereby repealed.

(m) Tax exemption of bonds. All bonds issued by the District under the provisions of this act shall be free and exempt from all taxation within the State of California. It is hereby declared that the District organized by this act is a legal government within the meaning of Section 26 of Article XIII of the Constitution of this state.

(n) Repeals or amendments; effect on obligations. The repeal or amendment of this act shall not in any way affect or release any of the property in the District or any local drainage area or zone thereof from the obligations of any outstanding bonds or indebtedness until all such bonds and outstanding indebtedness have been fully paid and discharged.

(o) Temporary investment of bond proceeds. Notwithstanding any provisions of this act to the contrary, in the event the proceeds from the sale of bonds of any local drainage area or zone are invested temporarily in United States bonds, notes, or certificates of indebtedness, or in other legal investments pending the expenditure of the funds for the purpose or purposes for which the indebtedness was incurred, any revenue or interest received or accruing therefrom may be used to pay the annual or semiannual installments of principal or interest on the bonds as the same becomes due. (Added by Stats.1982, c. 661, p. 2690, § 30. Amended by Stats.1985, c. 1229, § 11, eff. Sept. 30, 1985.)

APPENDIX B

2004 DISTRICT SERVICES PLAN MASTER ENVIRONMENTAL IMPACT REPORT UPDATES

The 2004 District Services Plan Master Environmental Impact Report (State Clearinghouse No. 1999111132) was adopted on November 14, 2007. Since the 2004 District Services Plan was adopted CEQA analysis was completed on projects on an individual basis. Listed below are the projects with a Notice of Exemption, Negative Declaration or Mitigated Negative Declaration adopted after the 2004 District Services Plan.

Project #	Title	Date Completed
1	Basin "BS" Expansion Negative Declaration	March 8, 2006
2	Acquisition and Construction of a Stormwater Retention Basin Near Annadale and Minnewawa (Basin "BG") Negative Declaration	May 10, 2006
3	Rehabilitation of Oso de Oro Lake Park, Basin "D" Notice of Exemption	May 17, 2007
4	FCC-16, Gilliam and Winchester Channel Crossing Replacement Project Notice of Exemption	August 15, 2007
5	Alluvial Drain Culvert Replacement at Sunnyside Avenue Notice of Exemption	October 29, 2007
6	Replacement of Undersized Culverts in Fancher Creek at McKinley Avenue Mitigated Negative Declaration" (SCH #2007091047)	December 12, 2007
7	FCC-16, Lerner Channel Crossing Replacement Project Notice of Exemption	July 30, 2008
8	Master Plan Amendment – Drainage Area "BO" & "Y" Notice of Exemption	August 28, 2008
9	FCC-16, Joneson Channel Crossing Replacement Project Notice of Exemption	October 15, 2008
10	Basin "AE" Expansion Negative Declaration	December 17, 2008
11	Basin "EL" Expansion Negative Declaration (SCH #2009051008)	June 10, 2009
12	Urban Basin Soil Sampling Plan	July 28, 2009
13	Pipeline Relocation in Drainage Area UU2 Notice of Exemption	July 30, 2009
14	Basin "CE" Expansion Mitigated Negative Declaration (SCH #2009071099)	September 9, 2009
15	Revision to Local Drainage Area "BL" and "BM" and Expansion of a Stormwater Retention Basin near Church and Armstrong Ave (Basin "BL")	October 13, 2010
16	Basin "II4" and Basin "JJ" Landscaping Notice of Exemption	January 3, 2011

Project #	Title	Date Completed
17	Elimination of Local Drainage Area "DJ"	June 8, 2011
18	Construction of a Stormwater Retention Basin near Herndon and DeWolf Avenues (Pup Creek Basin), Channel Re-Alignment and Culvert Replacement	April 11, 2012
19	RCB-19 Rehabilitation of the Redbank Creek Basin Control Structure	July 11, 2012
20	Expansion of Dry Creek Extension Basin	May 22, 2013
21	Big Dry Creek Seepage Remediation	July 24, 2013
22	2013 Basin Recharge Improvement and Soil Sampling Project	July 25, 2013
23	South Fresno Economic Development Project	December 11, 2013
24	2014 Basin Recharge Improvement and Soil Sampling Project	April 29, 2014
25	Acquisition and Construction of Basin "NN"	August 13, 2014
26	Acquisition and Construction of Basin "DQ", Basin "DS" and Basin "DV"	November 18, 2015

APPENDIX C

2016 DISTRICT SERVICES PLAN MASTER PLAN ADJUSTMENTS

FMFCD 2016 District Services Plan
Subsequent Projects

Project	General Location of Drainage Area[2]	Size of Drainage Area	Sphere of Influence	Existing Land Uses	Planned Land Uses	Description
Change to location of proposed Basin AV	Southern portion of District Service Area on west and east sides of State Route 41	852 acres	Within City of Fresno Sphere of Influence (SOI)	Rural residences, industrial uses, and small tracts of agricultural land.	Industrial, school facility and single family residential in the *Fresno General Plan* (City of Fresno 2014)	The currently location of Basin AV is immediately west of State Route 41 between North and Central Avenues. The proposed basin would be approximately 20 acres. Under the 2016 District Services Plan Update, the proposed basin would be relocated to a new site north of Central Avenue between Fig and Walnut Avenues. The proposed basin site is planted in row crops. The project would consist of land acquisition, and construction and operation of the proposed basin.[3]
Expansion of Basin CH	Western portion of the District service area west of State Route 99	881 acres	Within the City of Fresno SOI	Rural residences and small tracts of agricultural land	Single-family residential, office, and open space in the *Fresno General Plan* (City of Fresno 2014)	Stormwater runoff within the drainage area is conveyed to Basin CH, which is at the southwest corner of the Drainage Area CH, south of the intersection of McKinley and Bryan Avenues. The basin is approximately 15.2 acres. Under the 2016 District Services Plan Update, Basin CH would be enlarged by 2.0 acres, for a total basin area of 17.2 acres. The planned expansion area is immediately south of the existing basin and comprises two parcels containing agricultural land (row crops) and vacant land. The project would consist of land acquisition, and construction and operation of the proposed basin.

[2] The term "drainage area" refers to the land area served by a single drainage basin. All stormwater flows collected within the drainage area are conveyed to the drainage basin serving the drainage area. The District identifies its urban system basins with the same two-letter designation as the drainage area it serves (i.e. Basin AV serves Drainage Area AV).
[3] The District Board of Directors (Board), pursuant to public testimony at the Public Hearing on December 13, 2017, did not set the exact real property boundaries of Basin "AV". Additional studies will be required before the final location for Basin "AV" is adopted by the Board.

FMFCD 2016 District Services Plan
Subsequent Projects

Project	General Location of Drainage Area[2]	Size of Drainage Area	Sphere of Influence	Existing Land Uses	Planned Land Uses	Description
New Basin CJ	Western portion of District Service Area west of State Route 99	882 acres	Partially within City of Fresno SOI	Rural residences and small tract of agricultural land	Area within the Fresno SOI: Planned for single-family residential, school facility, and open space uses in the *2025 Fresno General Plan* (City of Fresno 2014). Area south of Belmont Avenue: Located in unincorporated Fresno County, outside of the Fresno SOI and designated for agricultural use in the *Fresno County General Plan Update*, 2000 (Fresno County 2000a).	The District's 2004 District Services Plan shows a proposed basin for Drainage Area CJ at the southeast corner of Grantland and Belmont Avenues. Under the 2016 District Services Plan Update, the proposed location for Basin CJ would be changed to a site immediately east of its previously planned location. The planned basin would be enlarged from approximately 13 acres to 28.4 acres. The proposed basin site comprises one parcel consisting of vacant land and one residential structure and portions of two parcels containing vineyards. The project would consist of land acquisition, and construction and operation of the proposed basin.
Expansion of Basin CK	Western portion of the District service area west of State Route 99	725 acres	Partially within City of Fresno SOI	Residential tract homes, rural residences, and small tracts of agricultural land	Area north of Belmont Avenue: Located within the City of Fresno SOI and planned for residential, office, and open space use in the *Fresno General Plan* (City of Fresno 2014). Area south of Belmont Avenue (where Basin CK is located): Located in unincorporated Fresno County and designated for agricultural use in the *Fresno County General Plan* (Fresno County 2000a).	Basin CK is south of Belmont Avenue between Hayes and Cornelia avenues. The basin is approximately 13.4 acres. Under the 2016 District Services Plan Update, Basin CK would be enlarged by 2.8 acres, for a total basin area of 16.2 acres. The planned expansion area is immediately north of the existing basin and consists of a portion of one parcel containing vacant agricultural land. The project would consist of land acquisition, and construction and operation of the proposed basin.

FMFCD 2016 District Services Plan
Subsequent Projects

Project	General Location of Drainage Area[2]	Size of Drainage Area	Sphere of Influence	Existing Land Uses	Planned Land Uses	Description
New Basin CP	Southwestern portion of the District service area west of State Route 99	311 acres	Within the City of Fresno SOI	Rural residences, single-family residences, industrial uses, open space, agricultural land, and a church	Single-family residences and commercial/business park use in the *Fresno General Plan* (City of Fresno 2014)	There is currently no proposed basin facility in Drainage Area CP. Under the 2016 Plan Update, a proposed basin would be located on the south side of Jensen Avenue just east of the intersection of Jensen and Marks avenues. The proposed basin would be approximately 10.3 acres and would consist of a portion of a larger parcel containing vineyards. The project would consist of land acquisition, and construction and operation of the proposed basin.
Installation of new and ongoing maintenance of existing and future stormwater infrastructure	Throughout the District service area	N/A	N/A	N/A	N/A	In addition to the acquisition, construction and operation of new basins and expansion of existing basins, the installation of new stormwater infrastructure and ongoing operation and maintenance of existing and future facilities is proposed under the 2016 District Services Plan Update. New infrastructure would consist of pipelines, surface conveyance structures, stormwater inlets, pumps and related system appurtenances. New pipeline construction and other improvements would occur as development occurs within areas planned for urban and suburban development by the cities of Fresno and Clovis and Fresno County. Approximately 260 miles of proposed pipelines would be constructed.