

FINAL

LOCKEFORD COMMUNITY SERVICES DISTRICT

Prepared for:
San Joaquin County
Local Agency Formation Commission

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September 2016

Errata

Lockeford Community Services District Municipal Services Review

October 13, 2016

(1) delete the second sentence on page 25; and

(2) replace the word "owner" with "applicant" in first sentence of paragraph 2 on page 25.

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I EXECUTIVE SUMMARY

One of the primary responsibilities of a Local Agency Formation Commission (LAFCO) is to determine the sphere of influence of local governmental agencies. A sphere of influence (SOI) designates the probable physical boundary and service area of a local agency. The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (the CKH Act) requires a Municipal Service Review (MSR) to be prepared prior to or concurrent with an update of an SOI. The MSR evaluates existing and future service conditions and reviews the advantages and disadvantages of various government service structure options. An MSR provides information upon which the LAFCO can base its action on an SOI.

Concurrent with approval of this MSR, San Joaquin LAFCO is amending the Lockeford Community Services District's (District) SOI consistent with the requirements of the CKH Act and San Joaquin LAFCO policies. Since the District's SOI is being amended at this time, and the District is requesting an expansion of its SOI, the MSR determinations address the District's ability to provide adequate services to existing and future residents within the proposed SOI. This MSR provides the basis for adopting the District's SOI update request.

A. ISSUES ADDRESSED

State law (Government Code section 56430) and San Joaquin LAFCO's Policies and Procedures for Spheres of Influence, Service Reviews, and Annexations require this MSR to make six written determinations with regard to the ability to provide services:

- Growth and Population Projections for the Affected Area;
- Present and Planned Capacity of Public Facilities and Adequacy of Public Services, including Infrastructure Needs or Deficiencies;
- Financial Ability of Agencies to Provide Services;
- Status of, and Opportunities for, Shared Facilities; and
- Accountability for Community Service Needs, including Governmental Structure and Operational Efficiencies
- Relationship to Disadvantage Communities

Written determinations are included for each of the areas addressed. The analysis and determinations in this MSR considered the LAFCO Municipal Service Review Guidelines (August 2003) prepared by the State Office of Planning and Research and comply with San Joaquin County LAFCO Service Review Policies (adopted September 21, 2007 and revised February 15, 2008).

B. FACTORS REGARDING SPHERE OF INFLUENCE BOUNDARIES

The District was originally established pursuant to California's Community Services District Law in 1976 to supersede San Joaquin County Water Works District No. 1 and Lockeford Sanitary District. The District's most recent SOI was approved by LAFCO in 1980.

1. Present and Planned Land Use within the Current Sphere of Influence

The existing SOI area encompasses approximately 834 acres. Present and planned land use within the SOI is consistent with the adopted San Joaquin County General Plan. Land uses reflect a mix of residential, commercial, industrial, agricultural, and other public uses so that jobs are created for residents in the community planning to work, and affordable housing is provided for residents. The most predominate land use type in the community is single family residences dispersed among grazing, equestrian and agricultural areas. Public and institutional uses (e.g., schools, churches, the fire station, etc.) exist in scattered locations. No community park within the SOI currently exists, although plans to build one are underway.

The District has approved an application to LAFCO to expand its SOI and service area boundaries by including a 105-acre parcel contiguous to the current District boundary. Although the County has not yet finalized its approval of the Preferred Land Use Alternative for this property in its ongoing General Plan Update, the Planning Commission has approved the landowners' designation change request to include the property as part of the County's Preferred Land Use Alternative as Low Density Residential. If the County re-designates the proposed SOI expansion area as part of its ongoing General Plan Update, the expansion area would be designated Low Density Residential and would be zoned Agriculture-Urban Reserve (AU-20). Such designations would allow the property owner to divide the 105 acres into five twenty-acre parcels although the low density Land Use category would allow for a change of zoning designation which would permit approximately 420 single family residences. Because the County has not yet completed its preferred alternative land use designations for the areas in the County as part of the General Plan Update, the existing Lockeford community area boundary and land uses are used for this MSR. Upon approval of the SOI expansion, the new SOI would total approximately 939 acres.

2. Present and Probable Need for Public Facilities and Services

The District provides water and wastewater services within the SOI, and has provided parks and recreation services by permitting others to use its historic schoolhouse for recreational events. The District is also authorized to provide storm water and street lighting services although it has never exercised these powers. The District plans a community park in the near future for residents of the SOI and is constructing the first improvements for that park. Lighting and storm drainage services within the SOI are provided by several dependent San Joaquin County special districts.

As described in greater detail in this MSR, the District's current and planned public facilities and service levels are adequate to meet the needs of the existing population within the proposed SOI, depending on how areas within the proposed SOI, but outside of the District's existing service area, would develop. Assuming that LAFCO approves the District's annexation and SOI

expansion application, however, future growth and development within the SOI will require continued improvements and upgrades to water and wastewater infrastructure and services. In particular, wastewater infrastructure improvements will be needed because the District's facilities are nearing their rated capacity. The District has a plan in place that details the feasibility, required improvements, and costs associated with providing water, wastewater treatment, reclamation and storage within the District through build-out. In addition, the District has policies and procedures in place that ensure the proper timing and adequate funding of needed upgrades to infrastructure and services as growth occurs. The District has an informal policy of "pay as you go" or "pay when you need new capacity" that allows developers to pay District fees as they develop lands. Facilities will be appropriately expanded to accommodate growth in the proposed SOI pursuant to the plan, including any future demands associated with the likely development of the property that the District seeks to annex.

3. Present Capacity of Public Facilities and Adequacy of Public Services

The District's existing public facilities and current level of service are adequate to meet the needs of the existing population. However, the District will need to expand services as the District's population grows. Future growth and development within the proposed SOI will require continued improvements and upgrades to infrastructure and services. The District's policies and procedures will ensure the proper timing and adequate funding for needed infrastructure and services. Development fees and connection fees will address the capital cost of new development and are required by an informal District policy of "pay as you go" or "pay when you need new capacity." Areas where growth is projected will be sufficiently served by the District's expansion of public facilities, and mechanisms are in place to ensure that adequate facilities and service are provided as growth occurs.

Specifically, due to the District's proximity to the Mokolumne River, the long-term water supply is also sufficient to meet the needs of near-term and long-term growth. Expansion of the water and wastewater facilities to meet the needs of the build-out population, however, is required. Wastewater facilities must be upgraded first through a planned expansion of the District's wastewater disposal capacity and then, for demands that exceed the capacity of that planned expansion, by additional expansions that may involve the acquisition of additional property. The District also may consider upgrading the facilities to allow the District to produce tertiary treated effluent, which can be used for reclamation with fewer restrictions than the District's current secondary-treated water. These considerations, as well as the improvements that are proposed to be constructed to enable the District to serve its customers at full build-out, are addressed in a wastewater feasibility evaluation plan (Appendix A). Whatever the level of treatment the District applies in the future, however, it will need to acquire additional land – whether through purchase, lease or contracts to apply treated wastewater to others' land – to dispose of amounts of wastewater that will exceed the capacity of the District's current facilities and planned expansion. Well upgrades or additional water wells will be needed to satisfy water demand at full-build-out.

Storm water and lighting services are provided by County Service Areas and are adequate to serve the various neighborhoods within the SOI. Expansion of storm water and lighting facilities

to meet the needs of the build-out population will occur at the time development occurs within the SOI.

No community park currently exists within the SOI. Plans to build a community park are underway, with an estimated completion date within the next five years. The District has completed construction of the first improvement for the park, which is a community center.

4. Existence of Social and Economic Communities of Interest

The proposed SOI expansion and annexation area is a logical growth area for the District as the property is surrounded on three sides by the District's current SOI boundaries. The residents within the SOI share social and economic interests with the adjacent communities of Lodi, Stockton, Clements, and Victor due to the proximity of these communities with the community of Lockeford. The area within the proposed SOI is not anticipated to negatively impact the social and economic interest of any adjacent communities.

C Determinations Regarding the District's Ability to Provide Services

LAFCO is charged with determining whether the District has the ability to provide an adequate level of service within the current agency boundaries and ultimately within the SOI boundaries. Presently, about eighty-three percent of the area within the SOI boundaries is within the District.

An explanation of the specific operational and management aspects of each service provider considered in each of these topic areas is provided below. Based on the information contained in the MSR, the determinations listed by general topic area covered in this MSR are as follows:

1. Growth and Population Projections for the Affected Area

The District is located in the area of Lockeford in San Joaquin County. Lockeford is an unincorporated urban community located 17 miles northeast of Stockton on SR 12/88 in the Lockeford planning area. The community of Lockeford includes about 1,172 acres with a population of about 2,151, based on 2000 U.S. Census data. The gross population density within the community area boundary in 2000 was about 1.8 people per acre.¹ According to the San Joaquin County General Plan Update Alternatives Report, as of 2010 the existing population of Lockeford is estimated at 2,410.² Based on a 1.1% annual growth rate and 2010 base population estimated at 2,410, the community of Lockeford is estimated to have a population of 2,719 by 2021 and 3,304 by 2031. For wastewater planning purposes a blended growth approach was used to acknowledge the likelihood of accelerated growth beyond the 1.1-percent 'background' growth. The increased growth could result from the known or potential developments projects in the Lockeford area. The overall growth rate, including the known projects and the background growth rate, results in a composite growth rate of approximately 2.3-percent over the next 20 years, after which the growth rate was reduced to the background rate of 1.1-percent.

¹ *San Joaquin County General Plan Background Report, July 2, 2009 at 2-42 and Table 2-16.*

² *San Joaquin County General Plan Update Alternatives Report, March 1, 2011 at 3-15.*

The current SOI for the District contains approximately 834 acres, while the District's current service area consists of approximately 696.75 acres. Thus, approximately 137 acres currently located within the District's existing SOI have not yet been annexed for service to the District. This area is located in the south west portion of the District. Although the District's boundaries generally track the community of Lockeford boundaries, they are not entirely coterminous.

Based on the number of connections the District serves and standard industry assumptions concerning the number of people who use each connection, the District estimates that it serves a population of approximately 2,500 to 2,900 people. The District anticipates that, at community build-out, it may serve approximately 7,000 people.

2. Present and Planned Capacity of Public Facilities and Adequacy of Public Services, including Infrastructure Needs or Deficiencies

Water Service Determinations

An adequate long term water supply is available for full build-out of the District's existing SOI area as well as for the proposed SOI. Studies show that due to the District's proximity to the Mokolumne River, the groundwater resources available to the District would be sufficient for the District to meet current demands as well as projected demands.

Although adequate water supplies exist to serve the District currently and with anticipated growth within the proposed SOI, the District's existing groundwater production wells and distribution system must be upgraded to serve more than a small number of additional demands. In order to serve such additional demands, the District would need to expand and upgrade its existing groundwater production well network, or add new groundwater production wells to the District's water system.

The District also may need to make improvements to its distribution system, including installing new pipelines, upsizing existing pipelines and installing additional storage and/or pumping facilities. Such upgrades could be funded by newly developing areas and would be timed to accommodate growth in the region.

The District receives notice of potential projects with sufficient time to secure all of the regulatory permits and to fund and construct the expansions.

Wastewater Service Determinations

The District's wastewater system sufficiently serves the currently developed portion of the SOI but does not have capacity to serve full build-out demand of the District's existing SOI. It also does not have sufficient capacity to serve full build-out demand of the Lockeford Oaks subdivision, the Lockeford Vista project, and potential future demand associated with the property proposed for annexation if all three projects developed.³ Upon completion of a planned

and permitted disposal site expansion, disposal capacity will increase to 400,000 gpd. Development requiring capacity beyond 400,000 gpd will need to fund further upgrades to the District's facilities, such as increasing the volume of the District's storage reservoir, developing reclamation facility at a site owned by the District, and upgrading the system to allow the District to produce tertiary-treated effluent. Such upgrades will be funded by new development necessitating the upgrades, as identified in the District's wastewater feasibility evaluation plan and through the District's informal policy of "pay as you go" or "pay when you need new capacity."

Storm Water Service Determinations

San Joaquin County Special Districts provide storm water services in the community of Lockeford. The County expects to continue to meet storm water flood control needs within the existing SOI. Build-out of the existing SOI will continue to require the capture and removal of storm water in a safe manner. Future growth in accordance with build-out of the existing SOI is expected to result in the typical amount of capture and removal needs associated with the type of urban development that has occurred in the past.

Lighting Service Determinations

San Joaquin County Special Districts provides lighting services within the SOI. The County expects to continue to meet lighting needs within the existing SOI. Future growth in accordance with build-out of the SOI is expected to result in the typical amount of lighting needs associated with the type of urban development that has occurred in the past in the community of Lockeford.

Parks and Recreation Service Determinations

Besides a newly constructed community center, Lockeford has no other community park facilities. The District rents the community center for various events and activities, and occasionally rents its schoolhouse to community groups for various functions. The District intends to develop a community park within the next five years, which will provide adequate parks and recreation facilities for the SOI residents. In the meantime, school play areas and regional recreational opportunities exist for the residents of the SOI.

3. Financial Ability of Agencies to Provide Services

The District relies primarily upon customers' payments of fees for water and wastewater services, property taxes and development mitigation fees and has little opportunity to increase these sources of revenue, except to increase water and wastewater fees to reflect what is necessary to provide those services. Because the District provides water and wastewater services, the District's most significant financing constraint in raising fees are the constitutional limitations imposed by Proposition 218. District ordinances and policies, however, do require new development to pay its fair share of the costs of public facilities and utilities needed to

³ *Dillon & Murphy, Lockeford Community Services District: Sanitary Sewer and Water Availability and Facilities Expansion Study (March 2015), at pp. 8-10; Gerry LaBudde, Lockeford Community Services District – Wastewater Feasibility Evaluation (February 2016), at pp.11-14.* The LaBudde or Hydros report is appended to this MSR.

support additional growth. The District also receives funds for the provision of public services through other Federal, State and local grant and loan sources. The District reviews its fee structure periodically to ensure that it provides adequate funding to cover the provision of District services. The District has an informal policy of “pay as you go” or “pay when you need new capacity.”

To date, the District has relied on standard tools to ensure that the owners of property that could generate a need to expand the District’s facilities will finance the necessary expansions. With the relevant landowners’ consent, the District has established community facilities districts for prior proposed developments. The District would plan to use similar measures to fund facility expansions or improvements that would be necessary to serve any development of other properties within the District’s existing service area and SOI and on the property proposed for annexation.

Because the District and other service agencies within the SOI have adequate fee structures and planning processes to ensure that the fees remain sufficient to covers costs of required services, no financial constraints to service provision have been identified. The District’s policy ensures it will continue its efforts to maintain funding of existing and future public facilities and services.

4. Status of, and Opportunities for, Shared Facilities

Although the District allows other public agencies to use the District’s historic schoolhouse for meetings, the District does not otherwise share water or wastewater facilities with any other public agencies. Because the District is the only water and wastewater service provider within the Lockeford community, opportunities to share facilities related to these services are limited.

5. Accountability for Community Service Needs, including Governmental Structure and Operational Efficiencies

The present independent district governance structure of the District, with its own elected Board of Directors, provides adequate opportunity for access and public participation in the design and implementation of services in the SOI. Monthly public meetings also provide the public with sufficient access to information regarding the District and its services.

Land within the SOI, but outside the current District boundaries, may be annexed as owners are ready to develop their property and as market conditions permit. It is noteworthy, however, that the District’s existing SOI was established in 1980 and there have been very few requests for property within the SOI, but not the District, to be annexed to the District. Upon property annexation to the District, the District’s Board of Directors will govern the delivery of water and wastewater services to that property and revenue collected and services provided there on the same basis as in the remainder of the District. This is the most appropriate form of governance for the District at this time.

At this time, the County cannot guarantee an appropriate additional share of the property tax revenue to finance the District taking over storm water and lighting services within the SOI.

Consolidation of the District with the County special districts offering such services within the SOI is therefore not presently financially feasible.

6. Relationship to Disadvantaged Unincorporated Communities

The District provides public services equally and without geographic distinction to all lands located within the District. The Lockeford Community has been determined by the State Department of Water Resources to be a Disadvantaged Unincorporated Community (DUC). Therefore, a DUC within District boundaries does not imply public service needs or deficiencies that are uncommon or uniquely different than public service needs or deficiencies faced by any other territory within the District.

The District provides services and upgrades as needed based on existing and anticipated service demands. As stated above, the District's policy ensures it will continue its efforts to maintain funding of existing and future public facilities and services. For further analysis regarding the DUC designation, please see Section IX of this report: Determination #6: Relationship to Disadvantaged Unincorporated Communities.

II. INTRODUCTION

LAFCO OVERVIEW

After World War II, California experienced dramatic growth in population and economic development. With this boom came a demand for housing, jobs, and public services. To accommodate this demand, the state approved the formation of many new local government agencies, often with little forethought as to the ultimate governance structures in a given region. The lack of coordination and adequate planning led to a multitude of overlapping, inefficient jurisdictional and service boundaries, and the premature conversion/loss of California's agricultural and open-space lands.

Recognizing this problem, in 1959, Governor Edmund G. Brown, Sr., appointed the Commission on Metropolitan Area Problems. The Commission's charge was to study and make recommendations on the "misuse of land resources" and the growing complexity of local governmental jurisdictions. The Commission's recommendations on local governmental reorganization were introduced in the Legislature in 1963, resulting in the creation of Local Agency Formation Commissions, often known as LAFCOs.

The San Joaquin County LAFCO was formed as a countywide agency to discourage urban sprawl and encourage the orderly formation and development of local governmental agencies. LAFCO is responsible for coordinating logical and timely changes in local governmental boundaries, conducting special studies that review ways to reorganize, simplify, and streamline governmental structure and preparing a sphere of influence for each city and special district within each county. LAFCO's efforts are directed toward seeing that services are provided efficiently and economically while agricultural and open-space lands are protected.

LAFCO regulates, through approval, denial, conditions and modifications, boundary changes proposed by public agencies or individuals. It regulates the extension of public service outside agencies' boundaries and approves or denies applications for the provision of new or different functions or class of services. LAFCO may initiate proposals involving dissolution or consolidation of special districts, mergers, establishment of subsidiary districts, formation of a new district or districts, and any reorganization that include such actions.

The San Joaquin LAFCO's board consists of five regular members: two members from the San Joaquin County Board of Supervisors, two city council members, and one public member who is appointed by the other members of the board. There is one alternative member in each category.

MUNICIPAL SERVICE REVIEW

Municipal service reviews (MSR) were added to LAFCO's mandate with the passage of the CKH Act in 2000. An MSR is a comprehensive study designed to better inform LAFCO, local agencies, and the community about the provision of municipal services. MSRs attempt to capture and analyze information about the governance structures and efficiencies of service providers, and to identify opportunities for greater coordination and cooperation between providers.

The CKH Act requires LAFCO to review and update SOIs not less than every five years and to review municipal services before updating SOIs. The MSR has been prepared by the District for LAFCO in compliance with the CKH Act, which requires preparation of a service review for all cities and special districts that provide municipal services to county residents. In 2007, San Joaquin LAFCO adopted *Policies and Procedures for Spheres of Influence, Service Reviews, and Annexations (Policies and Procedures)*. The MSR has been prepared in accordance with these policies.

The focal point of the MSR process lies with the preparation of written statements of determination regarding the agency's ability to provide services. The determinations are declaratory statements that arrive at a conclusion based on all of the information and evidence presented. According to San Joaquin LAFCO's *Policies and Procedures*, LAFCO must make written determinations on the following six categories:

- Determination 1:** Growth and population projections for the affected area
- Determination 2:** Present and planned capacity of public facilities and adequacy of public services, including infrastructure needs or deficiencies
- Determination 3:** Financing ability of agencies to provide services
- Determination 4:** Status of, and opportunities for, shared facilities
- Determination 5:** Accountability for community service needs, including governmental structure and operational efficiencies
- Determination 6:** Relationship to Disadvantaged Unincorporated Communities

An MSR does not require LAFCO to initiate changes based on the MSR's findings, but only to make a determination regarding the provision of public services. LAFCO, local agencies, and the public may subsequently use the determinations to analyze prospective changes of organization or reorganization or to establish or amend spheres of influence.

SPHERES OF INFLUENCE

In conjunction with the requirement to conduct an MSR, the CKH Act requires LAFCO to review and update, as necessary, an SOI for each local agency within LAFCO's jurisdiction. An SOI is considered to be a planning tool designed to provide guidance in reviewing proposals, promoting the efficient and effective provision of municipal services, and preventing duplication of service responsibility. LAFCO is responsible for determining that an agency is reasonably capable of providing needed resources and basic infrastructure to serve areas within the agency's boundaries and sphere. The SOI is the area in which LAFCO expects development might reasonably be expected to occur and need services or, in case of districts, where LAFCO expects services will be provided within a 5-10 and 30 year time frame.

In establishing an SOI, LAFCO must consider four factors and make written determinations with respect to each of the following:

- Present and planned land uses in the area
- Present and probable need for public facilities and services
- Present capacity of public facilities, and adequacy of public services, and
- Existence of any social or economic community of interest in the area.

The MSR will provide LAFCO with a clear indication of whether an agency has the services available to support a sphere boundary.

This MSR has been prepared by the District for LAFCO to amend the existing sphere of influence, annex property into the District, and to make determinations regarding the District's ability to provide services.

The District prepared and certified a negative declaration pursuant to the California Environmental Quality Act (CEQA) for the proposed SOI expansion and service-area annexation application because a sphere of influence amendment is subject to the provisions of CEQA under Government Code sections 56428(b).

III. SPHERE OF INFLUENCE PLAN

This chapter describes the District's SOI Plan and describes the District's ability to serve existing and future residents within the proposed SOI. In adopting the SOI for the District, LAFCO must consider and prepare a written statement of its determinations with respect to the following four factors as stated in Government Code §56425:

- The present and planned land uses in the area, including agricultural and open space lands;
- The present and probable need for public facilities and services in the area;
- The present capacity of public facilities and adequacy of public services that the agency provides or is authorized to provide;
- The existence of any social or economic communities of interest in the area if LAFCO determines that they are relevant to the agency.

In order to adopt the District's SOI, the State requires LAFCO to conduct a review of the municipal services provided in the District. The standards, procedures, and policies for MSRs are contained in San Joaquin LAFCO's policies and procedures. The SOI must be consistent with the determinations of the MSR. San Joaquin LAFCO requires the Sphere Plan to include maps and explanatory text that describe the probable boundary of the service area and the District's sphere.

San Joaquin LAFCO is being requested to expand the District's existing SOI and approve annexation of approximately 105 acres into the District's service area in conjunction with the MSR. Detailed determinations as to the ability of the District to provide adequate services to existing and future residents within the proposed SOI are contained in the subsequent chapters of this MSR.

A. SPHERE OF INFLUENCE BOUNDARIES

The District is an independent community services district formed pursuant to the Community Services District Law (Government Code §61000 et seq.). The District was formed under the July 6, 1976 Certificate of Completion Pertaining to the Reorganization of the San Joaquin County Water Works District No. 1 and the Lockeford Sanitary District and San Joaquin County Board of Supervisors Resolution R-76-3894, Resolution Confirming Order of Reorganization of San Joaquin County Water Works District No.1 and Lockeford Sanitary District by Dissolving Said Districts and Forming, in Their Place, the Lockeford Community Services District. These documents are recorded in the Official Records of San Joaquin County at Book 4195, Pages 908 through 920.

The District is located in northeastern San Joaquin County in the northeastern part of the San Joaquin Valley. It is approximately seven (7) miles northeast of Lodi and seventeen (17) miles northeast of Stockton, California, and lies within the community of Lockeford, as shown in

Figure 3-1. **Figure 3-2** shows the existing SOI boundary as well as the District’s existing service area boundary. The District’s current service area consists of approximately 697 acres. Approximately 137 acres within the District’s existing SOI have not yet been annexed to the District’s service area, as shown in **Figure 3-2**. The property that is within the District’s SOI but outside its service area is designated as OS/O (Other Open Space), I/G (General Industrial), and I/L (Limited Industrial) under the current General Plan, and is zoned P-F (Public Facilities), I-G (General Industrial), and I-L (Limited Industrial).⁴ The land uses on these parcels are vacant/fallow or agricultural with scattered residences. To date, the District is not aware of any pending or future plans to develop this area. It is noteworthy that these parcels have been included in the District’s SOI since 1980 with no indication that they will develop. **Figure 3-3** shows the proposed 105-acre annexation and SOI expansion area along with the District’s existing SOI and service area boundaries.

The 105 acre annexation area is currently designated General Agriculture under the General Plan, and is zoned General Agriculture, 40-acre minimum (AG-40). The 105 acres is currently planted as a vineyard. However, the County is currently updating the General Plan and the County Planning Commission approved the landowner’s designation change request to include the property as part of the County’s Preferred Land Use Alternative as Low Density Residential. If this re-designation becomes part of the ongoing General Plan Update, the expansion area would be designated Low Density Residential and would be zoned Agriculture-Urban Reserve (AU-20), which allows for a parcel size minimum of 20 acres. Such a designation would allow the 105-acre property to be divided into five 20-acre parcels although the low density Land Use Category would allow for a change of zoning designation which would permit approximately 420 single family residences. Because the County has not yet identified the preferred alternative land use designations for the areas in the County as part of its General Plan Update, including the community of Lockeford, the existing community of Lockeford area boundary was used for purposes of this MSR.

Table 3-1: Parcels within the Existing SOI But Not Within the District’s Service Area Boundary

PARCEL NUMBER	ACRES	GENERAL PLAN	ZONING
051-160-08	1.94	OS/O	P-F
051-160-14	1.31	OS/O	P-F
051-160-15	4.76	OS/O	P-F
051-160-22	1.65	I/G	I-G
051-160-24	19.49	I/G	I-G
051-160-25	0.61	I/G	I-G
051-160-26	4.69	I/G	I-G
051-160-27	5.21	I/G	I-G
051-290-16	1.52	I/G	I-G
051-310-25	1.50	I/L	I-L
051-310-26	1.50	I/L	I-L

⁴ November 5, 2012 email from Ray Hoo, San Joaquin County Senior Planner, to Natalie Weber.

PARCEL NUMBER	ACRES	GENERAL PLAN	ZONING
051-310-34	4.00	I/L	I-L
051-310-35	4.09	I/L	I-L
051-320-03	10.04	I/L	I-L
051-320-07	23.90	I/G	I-G
051-320-08	2.32	I/G	I-G
051-320-10	25.12	I/G, I/L	I-G, I-L
051-320-12	23.61	I/G	I-G
	Total Acres: 137.26		

B. PROJECTED POPULATION WITHIN THE AFFECTED AREA

Because the District's SOI boundary closely tracks the community of Lockeford area boundary and exact population figures for the District's SOI were not available, the projected population figures were derived from projections for San Joaquin County and the community of Lockeford. The community of Lockeford includes about 1,172 acres with a population of about 2,151, according to the 2000 Census. The gross population density within the community area boundary in 2000 was about 1.8 people per acre.⁵ As of 2010, Lockeford's population had increased to 2,410.⁶

In 2010, San Joaquin County's population was estimated by San Joaquin Council of Governments to be about 685,000. On average the County's population has doubled every 30 years since 1900. According to projections developed by Economic Planning Systems based on Department of Finance and SJCOG Projections, over the next 20 years countywide population is expected to grow by an additional 338,000. By 2030 it is estimated that over one million people will live in the County, an average growth rate of about 2 percent per year.⁷

Growth in the unincorporated County is projected to be relatively slower than that of the cities – an estimated 1.1 percent increase annually for the 20-year time frame.⁸ **Table 3-2** projects the community of Lockeford's population growth from 2010-2020 and 2021-2041, based on the estimated 2010 base population of 2,410 and a 1.1 percent annual growth rate. For wastewater planning purposes a blended growth approach was used to acknowledge the likelihood of accelerated growth beyond the 1.1-percent 'background' growth. The increased growth could result from the known or potential developments projects in the Lockeford area. The overall growth rate, including the known projects and the background growth rate, results in a composite growth rate of approximately 2.3-percent over the next 20 years, after which the growth rate was reduced to the background rate of 1.1-percent.

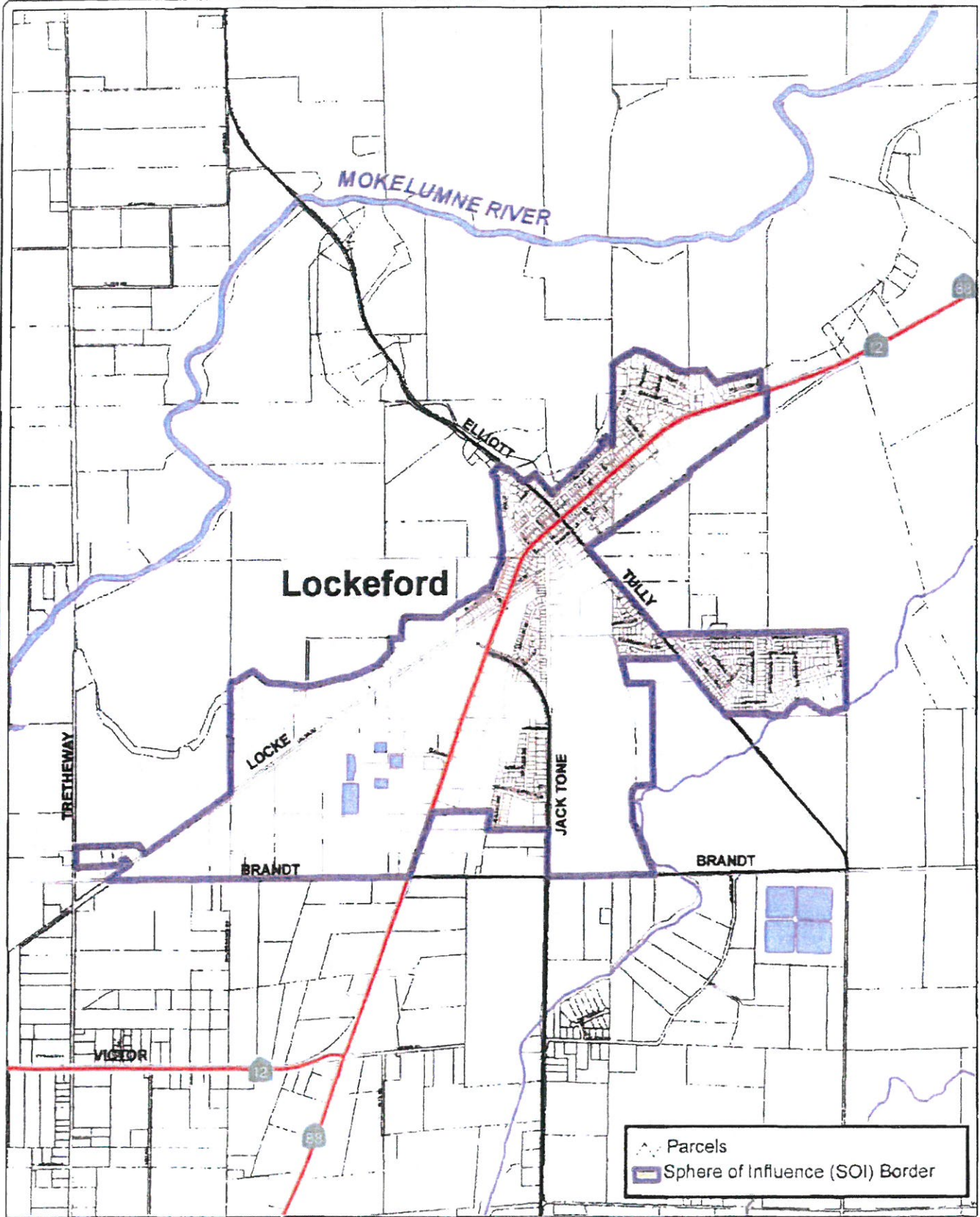
⁵ *San Joaquin County General Plan Background Report (July 2, 2009) at 2-42 and Table 2-16.*

⁶ *San Joaquin County General Plan Update Alternatives Report (March 1, 2011) at 3-15.*

⁷ *San Joaquin County General Plan Update Alternatives Report (March 1, 2011) at 1-6.*

⁸ *San Joaquin County General Plan Background Report (July 2, 2009) at 3-32.*

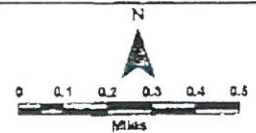
FIGURE 3-1



LOCKEFORD SPHERE of INFLUENCE

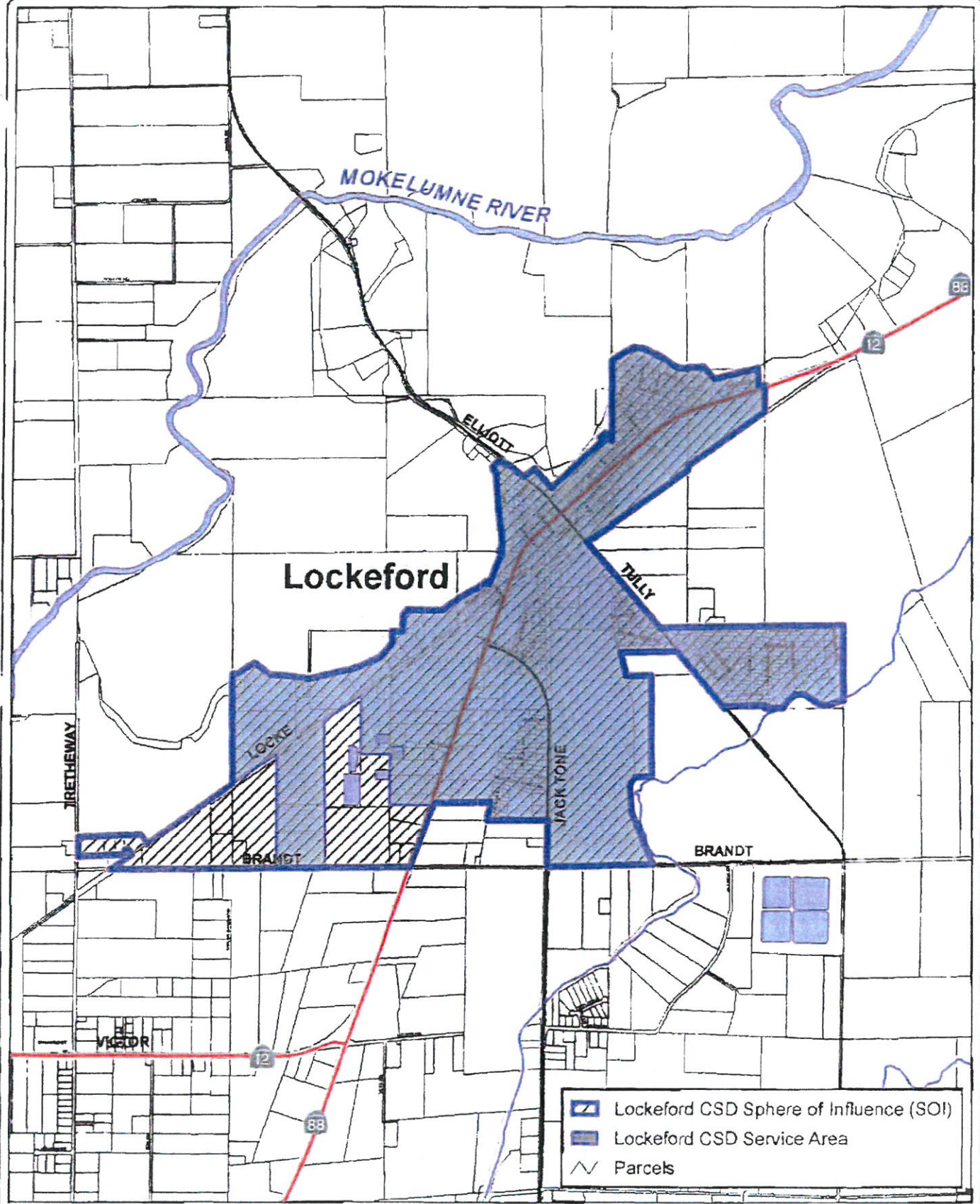
San Joaquin County Geographic Information Systems
1810 East Hazelton Avenue, Stockton, CA 95208




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December 15, 2010 GIL/med

FIGURE 3-2



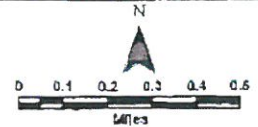
-  Lockeford CSD Sphere of Influence (SOI)
-  Lockeford CSD Service Area
-  Parcels



LOCKEFORD SPHERE of INFLUENCE

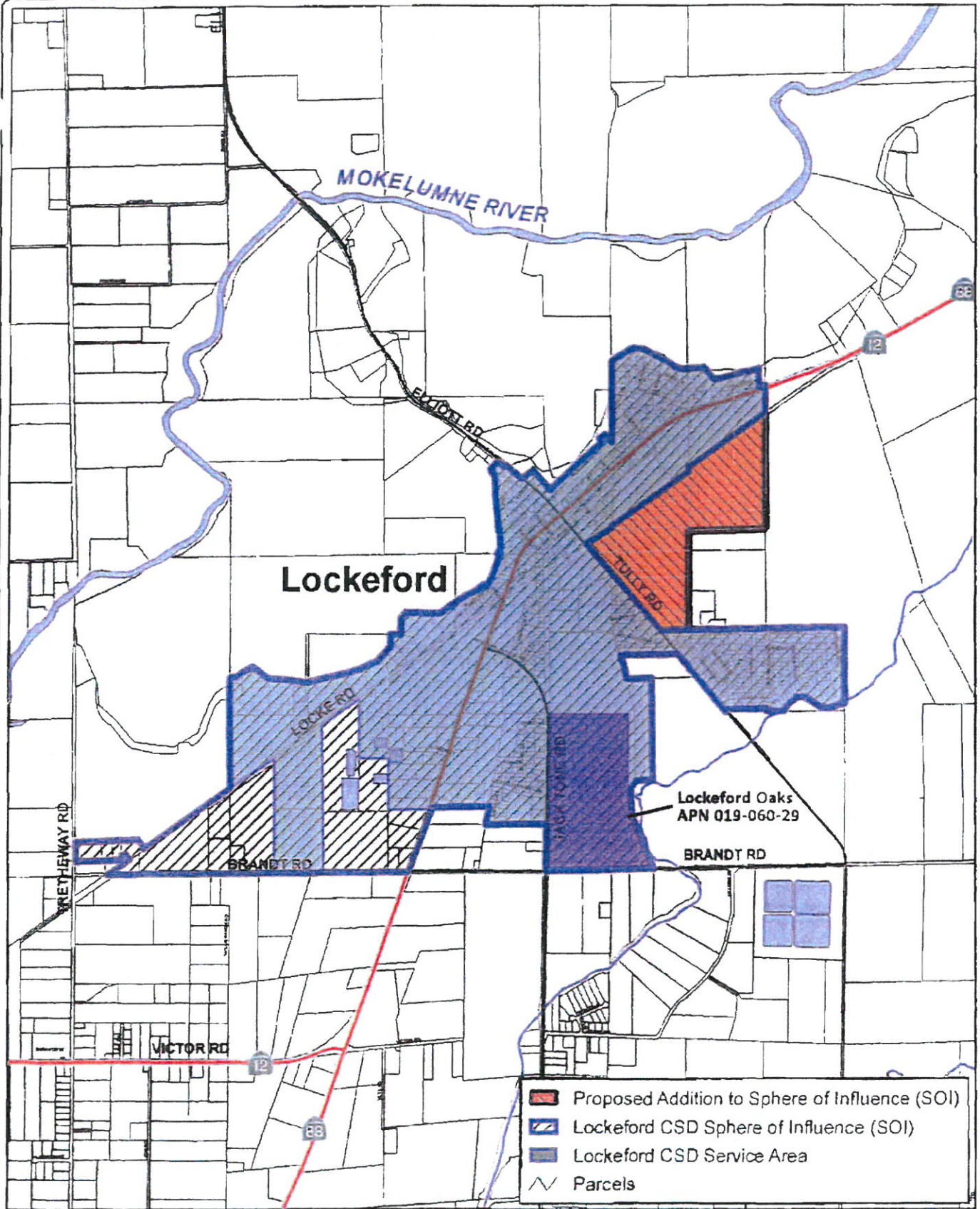
San Joaquin County Geographic Information Systems
 1010 East Hazelton Avenue, Stockton, CA 95205





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Page 23 of 31 | GIS-101

FIGURE 3-3



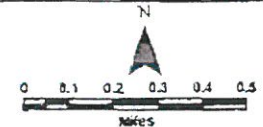
-  Proposed Addition to Sphere of Influence (SOI)
-  Lockeford CSD Sphere of Influence (SOI)
-  Lockeford CSD Service Area
-  Parcels



LOCKEFORD CSD SPHERE of INFLUENCE

San Joaquin County Geographic Information Systems
1810 East Hazelton Avenue, Stockton, CA 95205

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August 25, 2011 02:01

Table 3-2: Population Projections (1.1% Projected Annual Growth Rate)

YEAR	ESTIMATED POPULATION	NEW POPULATION	TOTAL POPULATION	COMPOUND GROWTH (NET NEW)
2010	2410	--	--	--
2011	2437	27	2464	27
2012	2464	27	2491	54
2013	2491	27	2518	81
2014	2518	28	2546	109
2015	2546	28	2574	137
2016	2574	28	2602	165
2017	2602	29	2631	194
2018	2631	29	2660	223
2019	2660	29	2689	252
2020	2689	30	2719	482
2021	2719	30	2749	512
2022	2749	30	2779	542
2023	2779	31	2810	573
2024	2810	31	2841	604
2025	2841	31	2872	635
2026	2872	32	2904	667
2027	2904	32	2936	699
2028	2936	32	2968	731
2029	2968	33	3001	764
2030	3001	33	3034	797
2031	3034	33	3067	830
2032	3067	34	3101	864
2033	3101	34	3135	898
2034	3135	34	3169	932
2035	3169	35	3204	967
2036	3204	35	3239	1002
2037	3239	36	3275	1038
2038	3275	36	3311	1074
2039	3311	36	3347	1110
2040	3347	37	3384	1147
2041	3384	37	3421	1184

According to the San Joaquin County Planning Department, there are two approved subdivision maps within the District's existing SOI and service area boundary: (1) PA-0500509 (Lockeford Vistas) Major Subdivision for 150 residential lots on 41.9 acres, approved November 2006 and expires November 2014; and (2) SU-00-0001 (Lockeford Oaks) Major Subdivision for 306 residential lots on 124.73 acres, approved May 2002 and expires May 2017.

The District terminated its will serve letter for the 234-unit Phase II of the Lockeford Oaks Project in 2008. The District has been informed, at that time, by representatives of the owners of the Lockeford Oaks Project that they do not plan to pursue either Phase I or Phase II of that project.

The District received a letter dated February 23, 2012 from Kevin Singer of Receivership Specialists informing the District that, as the Court appointed receiver for Livermore Acres, Inc. – the owner of the Lockeford Oaks project – he was “wrapping up the business dealings of the company.” Previously, the developer of Livermore Acres purchased 73 units of sewer capacity credits from another landowner. Livermore Acres purchased these credits in order to obtain capacity in the District’s wastewater system for Phase I of the Livermore Acres subdivision (Phase I consisted of 73 residential units). Subsequently, on October 8, 2014, the present property owners of Lockeford Oaks expressed an interest in completing development of the property. The District’s MSR reflects inclusion of the Lockeford Oaks project in analyzing the present and probable need for public facilities within the District and in determining the District’s present capacity to meet those needs. There are no proposed commercial or industrial projects within the District at this time, and the District is not aware of any future industrial or commercial proposals within its boundaries.

C. DETERMINATIONS

1. Present and Planned Land Uses within the Current Sphere of Influence

The existing District service area boundary encompasses approximately 697 acres while the District’s current SOI boundary includes approximately 834 acres. The proposed SOI expansion would add approximately 105 additional acres to the District’s SOI and service area boundary making the total proposed acreage for the SOI boundary at 941 acres. The proposed SOI expansion area is surrounded by the District’s existing boundaries on three sides.

The District’s boundaries closely track the community of Lockeford boundaries, although the two boundaries are not necessarily coterminous. **Figure 3-4** depicts the land uses within the District’s existing service area boundary. **Figure 3-5** shows the current General Plan designations for property located within the District’s existing SOI but outside its service area boundary. The County is currently in the process of updating its General Plan. Because the County has not yet identified the preferred alternative land use designations for the areas in the County as part of its General Plan update, including the community of Lockeford, the existing community of Lockeford area boundary was used for purposes of this MSR.

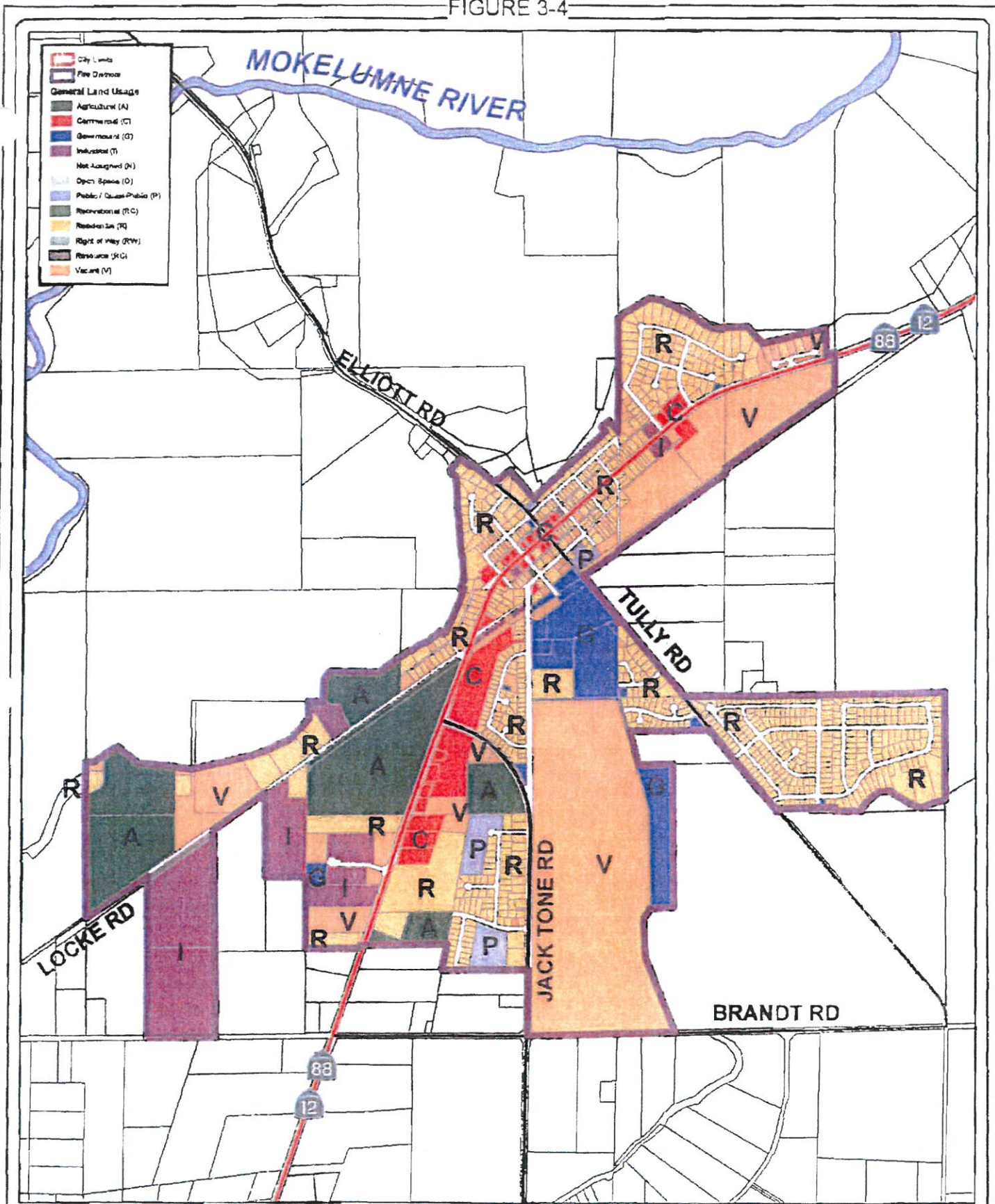
The land uses within the SOI and community of Lockeford include a mix of residential, commercial, industrial, agricultural, and other public uses. The business district in the community of Lockeford encompasses approximately a half mile from the intersection of North Tully Road and Elliot Road in the northwest portion of the District’s service area. Businesses prevail along State Route 12/88. Jack Tone Road supports residences and commercial uses. Topography is relatively flat with incremental sloping towards the Mokolumne River north of the business district. The most predominate land use type in the community is single family residences dispersed among grazing, equestrian and agricultural areas. Urban density residential

development (generally greater than four (4) dwelling units per acre) exists primarily in the business district. Suburban density residential development (generally 0.25 to 1.9 acre lot sizes) exists in small enclaves outside the business district along North Tully Road. Public and institutional uses (e.g., schools, churches, the fire station, etc.) exist in scattered locations.

As part of San Joaquin County's ongoing comprehensive General Plan Update process, the County requested that the owner of the property proposed for inclusion in the District's SOI and service area indicate its interest in having the property's land use designation reviewed as part of the General Plan Update. The property owner requested that, if approved by the County as part of its General Plan update, the property be re-designated from General Agriculture to Low Density Residential under the General Plan, and that the property be rezoned from General Agriculture, 40-acre minimum (AG-40) to Agriculture-Urban Reserve (AU-20).⁹ On June 21, 2012, the San Joaquin County Planning Commission voted to include the property owner's change request as part of its Preferred Alternative to be analyzed as part of the project under the California Environmental Quality Act for the County's General Plan Update. If the County ultimately re-designates the property, at some unknown point in the future (based on favorable market conditions), the property owner, acting upon the new Low Density Residential General Plan designation and the AU-20 zoning, could potentially divide the property into five 20-acre parcels although the low density Land Use Category would allow for a change of zoning designation which would permit approximately 420 single family residences. The certainty and timing of any such development, however, is speculative at this point in time.

⁹ *General Plan Land Use Designation Change Requests Summary, Request B-4 (June 14, 2012) at 45.*

FIGURE 3-4



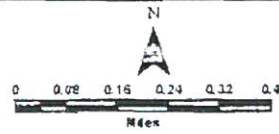
- City Limits
- Fire District
- General Land Usage
 - Agriculture (A)
 - Commercial (C)
 - Governmental (G)
 - Industrial (I)
 - Not Assigned (N)
 - Open Space (O)
 - Public / Quasi-Public (P)
 - Recreational (R.C)
 - Residential (R)
 - Right of Way (R.W)
 - Resource (R.G)
 - Vacant (V)



LOCKEFORD CSD - LAND USE

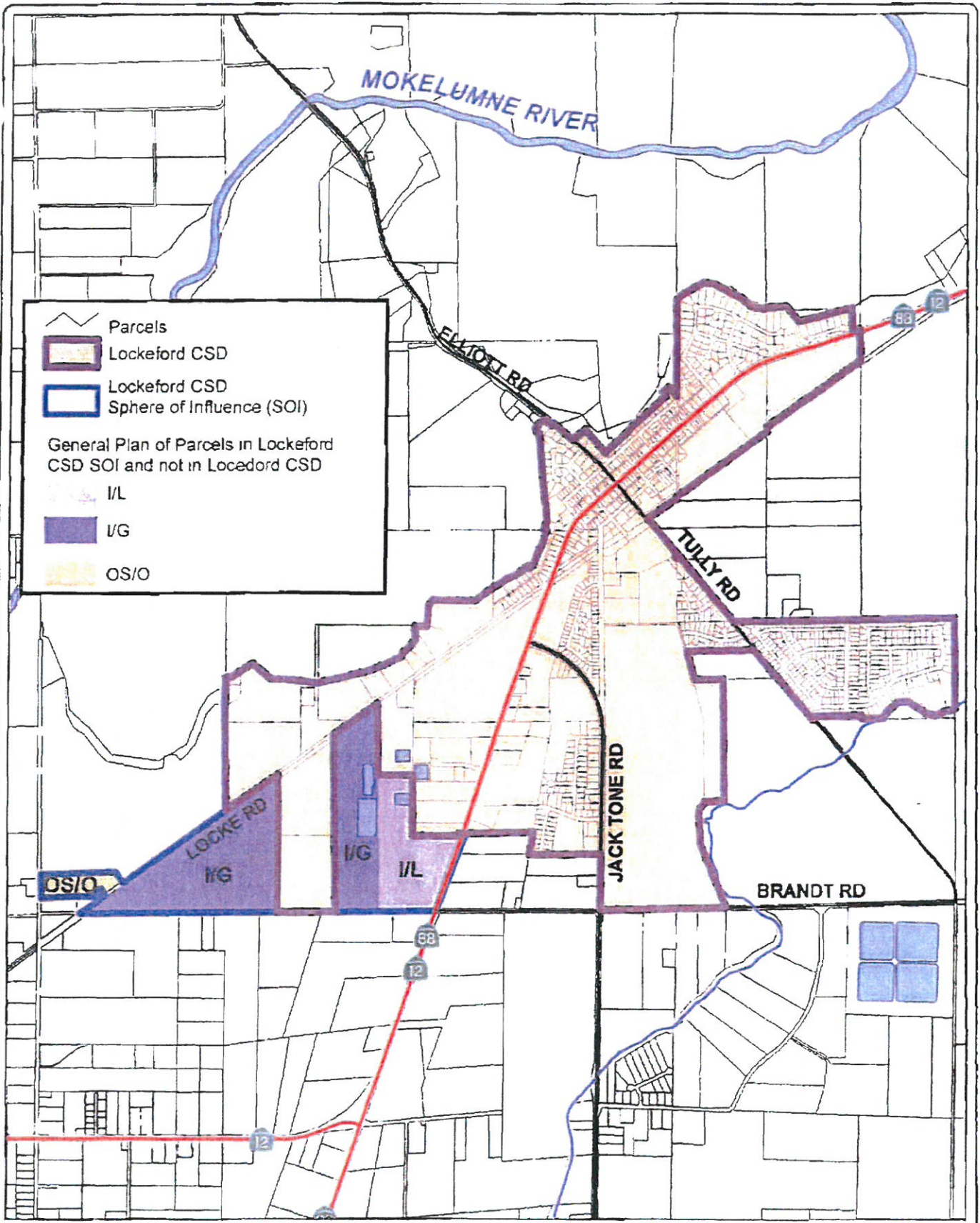
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APRIL 2, 2011 GCS

FIGURE 3-5



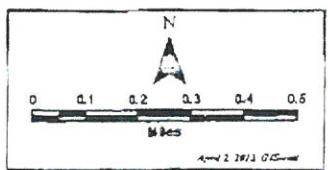
Parcels
 Lockeford CSD
 Lockeford CSD Sphere of Influence (SOI)
General Plan of Parcels in Lockeford CSD SOI and not in Lockeford CSD
 I/L
 I/G
 OS/O



**LOCKEFORD CSD SPHERE OF INFLUENCE
GENERAL PLAN OF PARCELS IN SOI AND NOT IN CSD**

San Joaquin County Geographic Information Systems
1810 East Hazelton Avenue, Stockton, CA 95206

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April 2, 2013 0:00:00

Through the District's phasing and financing mechanisms, the District is prepared and will be able to provide water and wastewater services to the property should a more dense residential designation and zoning classification be approved by the County. The District Board of Directors has unanimously adopted a resolution to this effect and has submitted this resolution to LAFCO. The District also has accepted, for future implementation, a wastewater feasibility evaluation plan that outlines the wastewater facility upgrades and related costs necessary to serve the community at full build-out (See Appendix A)

2. Present and Probable Need for Public Facilities and Services

Under its formation documents, the District is authorized to provide the following services: (1) To supply the inhabitants of the District with water for domestic use, sanitation, industrial use, fire protection and recreation; (2) The collection, treatment or disposal of sewage, waste and storm water of the District and its inhabitants; (3) Street lighting; and (4) Public recreation by means of parks. The District presently provides customers with water, wastewater and park services only.

The District has plans to develop a community park within the next five years, and has provided its historic schoolhouse for recreational services for years. It has completed construction of a community center. The District does not provide lighting or storm drainage services in the community. The County has several special dependent districts that provide storm drainage and lighting services in the area. **Figure 3-6** depicts the County special dependent districts within the SOI that provide lighting and storm drainage services.

Although the District's current and planned public facilities and service levels are adequate to meet the needs of the possible population within the proposed SOI, depending on how areas within the proposed SOI, but outside of the District's existing service area, would develop, the District will have to expand its water and wastewater facilities to serve the community at full build-out. Currently, there is an approved tentative map for a 159-unit single-family residential subdivision within the District's SOI. This development is known as the Lockeford Vista Project. There is also an approved tentative map for the Lockeford Oaks project, consisting of 73 single family residential units in Phase I and 234 single family residential units in Phase II. The District has negotiated and entered into a transaction whereby the District will purchase the 73 sewer capacity credits previously purchased by Livermore Acres in order to obtain capacity in the District's wastewater system. This transaction has been finalized and has been confirmed by the Superior Court. However, the MSR continues to reflect inclusion of the 73-unit sewer capacity commitment to the Livermore Acres subdivision and consideration of the Lockeford Oaks project for planning purposes because the approved tentative map for the Lockeford Oaks project will not expire until 2017. These are the only two approved tentative maps currently within the District.

There are no commercial or industrial projects proposed within the District. The only pending land use permit in the District's SOI is a use permit application by the District to establish a community center and public park. The District is constructing the first park improvement, which is the 3,500 square foot community center.

An adequate long term water supply is available for full build-out of the District's proposed SOI expansion. The District relies on the underlying groundwater resources for its entire water supply, and the District has appropriative rights sufficient to meet full build-out demands.

The District's existing groundwater production wells and distribution system would need to be upgraded to satisfy the proposed SOI at full build-out. The District currently serves approximately 721 single-family homes, 39 multifamily homes, and 57 commercial services. The District does not serve any industrial services. The approximate total number of equivalent dwelling units (EDU) is about 920 EDU. To serve water demand if significant residential development were to occur on the property proposed for annexation, the District would need to expand and upgrade its existing groundwater production well network, or add new groundwater production wells to the District's water system. The District also may need to improve its distribution system, including installing new pipelines, upsizing existing pipelines and installing additional storage and/or pumping facilities.

The District's existing wastewater collection and treatment facilities are sufficient to serve the existing population but are nearing their rated capacity. Moreover, water and wastewater loads resulting from development on the property proposed for annexation under its current land use designation of AG-40 would be inconsequential from a water/wastewater service perspective and therefore would not require any changes to the District's water and wastewater systems.¹⁰ Given the status of the only two approved tentative maps in the District's SOI (the largest of which – the 307-unit Lockeford Oaks project – is not currently proceeding), the District's planned and approved wastewater collection and treatment facility expansion would be sufficient to serve both the proposed 159-home Lockeford Vista project as well as demand on the property proposed for annexation (assuming the property was re-designated to Low Density Residential under the General Plan Update), if such demand were to arise in the future and if Lockeford Oaks project continues to remain undeveloped. However, the District's existing wastewater collection and treatment facilities would not be sufficient to serve all three projects – Lockeford Vista, Lockeford Oaks, and potential future demand on the property proposed for annexation – if all such projects develop at the same time. As discussed in the District's wastewater feasibility evaluation plan (Appendix A), the District will need to construct improvements to its wastewater system to serve all of these projects at full build-out.¹¹

Although the District is not aware of any other possible developments within its existing service area or SOI or in the immediate vicinity of the District apart from the projects for which tentative subdivision maps have been approved, given that future demand likely will exceed the planned capacity of the District's planned wastewater expansion, such development would be required to fund any necessary improvements or upgrades to the wastewater system.

The District has policies and procedures in place to ensure the proper timing and adequate funding of needed infrastructure and services. Existing development in the SOI is sufficiently served by current public facilities, and mechanisms are in place to ensure adequate facilities and

¹⁰ *Report on Plan of Service, prepared by Stantec (November 2, 2012) at 2; Sanitary Sewer and Water Availability and Facilities Expansion Study prepared by Dillon & Murphy (March 2015), at pp. 8-10).*

¹¹ *Sanitary Sewer and Water Availability and Facilities Expansion Study, supra, at pp. 8-10; Lockeford Community Services District – Wastewater Feasibility Expansion, supra, at pp. 11-14.*

services are provided as growth occurs. The presumptive method for developers to provide the necessary improvements will be through payment of the District's water and wastewater connection fees. The District may also negotiate, where appropriate, to provide funding through other mechanisms such as main line extension agreements and community facilities districts. The District receives notices of potential projects with sufficient time to secure all of the regulatory permits and to fund and construct the expansions. The District has an informal policy of "pay as you go" or "pay when you need new capacity."

3. Present Capacity of Public Facilities and Adequacy of Public Services

Existing public facilities and services are adequate to meet the needs of the current population within the SOI. The District's water supply and delivery and wastewater treatment and disposal facilities are also adequate to meet the needs of the existing population.

Continued growth within the SOI, however, will increase the overall demand for public services, including water and wastewater services provided by the District. As noted above, the District has policies and procedures in place that ensure the proper timing and adequate funding of needed infrastructure and services. The District also has a plan in place for meeting the wastewater service needs of the community at full build-out. At this time, however, the needs of the current population are being adequately met regarding current and planned public facilities.

The District has consistently followed a policy of correlating the financing and construction of new or expanded water and wastewater facilities with the requirements of new growth. The District historically has discouraged funding and constructing new facilities prior to an identified need for such additional capacity. Financing such facilities ahead of identified needs for them would require the District's ratepayers to accept higher rates for the benefit of proposed growth with the ratepayers shouldering the risk that the growth might not occur and the financial support for the new facilities might not materialize.

The District has procedures and mechanisms in place to ensure the proper timing of and adequate funding for the expanded facilities and services that will be needed in the future. Typically, this process is initiated by an interested property owner, who submits to the District a request for a will serve letter prior to submitting a discretionary land use permit application to the San Joaquin County Community Development Department. However, if District approval is required before or contemporaneously with filing land use applications with the County, then the District determines whether there is a need to increase its water and wastewater capacity to serve new development. District water and wastewater facilities are generally designed and constructed to be expanded in phases, subject to the identified need, financing and consistency with state, regional and local regulations. As discussed in the District's wastewater feasibility evaluation plan and in its water studies, the phasing of these expansions is feasible and will allow the District to serve the community at full build-out. If additional water or wastewater capacity is required by a proposed land use application, then the District will work collaboratively with the property owner to fund the required expansions described in the plan. This process would also be followed for a request involving the development of underutilized real property within District boundaries. However, the District has never received such an application.

If an expansion of water or wastewater capacity *other than the types of upgrades identified in the District's plan* is later determined to be necessary, and if the District further determines that such required expansion cannot be accomplished because of unforeseen physical, engineering or financial constraints, then the District will not issue a will serve letter concerning the land use application and will notify the County of the District's inability to serve the proposed land use project.

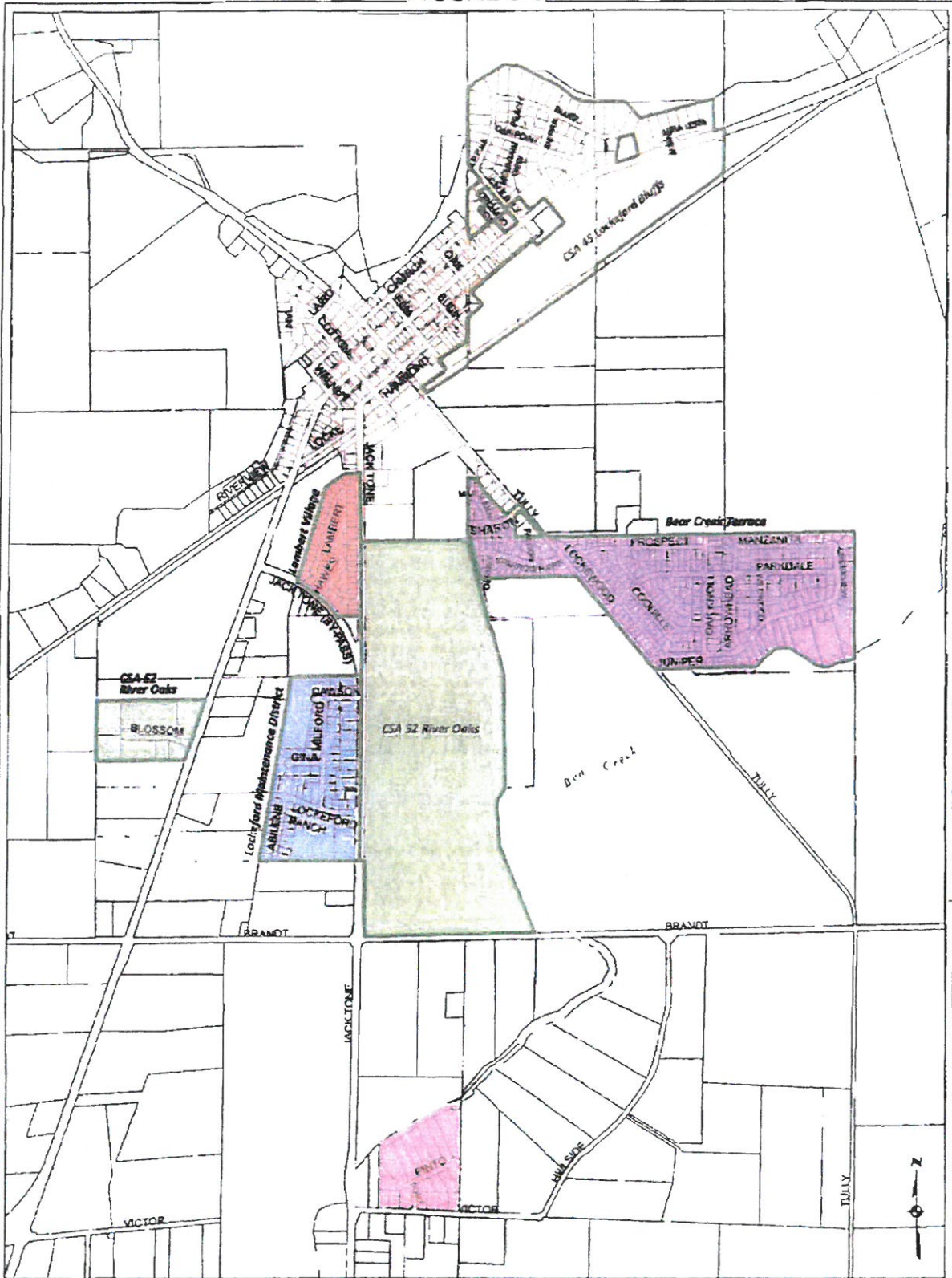
A request by a property owner to expand water and wastewater services may also implicate state regulatory requirements such as the Central Valley Regional Water Quality Control Board standards. State and regional regulatory requirements are integrated into the District's analysis of a landowner's request to expand current public service facilities.

4. Existence of Social and Economic Communities of Interest

The residents of the community of Lockeford, which essentially encompasses the SOI, share social and economic interests with the adjacent communities of Lodi, Stockton, Clements, and Victor due to the proximity of these communities and their location near State Route 99 and along State Route 12/88. The area within the proposed SOI addition should not negatively impact the social and economic interests of any adjacent communities. Furthermore, the proposed SOI expansion and annexation area is already surrounded on three sides by the District's existing SOI and urban development, which makes the area a logical extension of the District's boundaries.

Further, the District provides public services equally and without geographic distinction to all lands located within the District. Therefore, a disadvantaged unincorporated community within District boundaries does not imply public service needs or deficiencies that are uncommon or uniquely different than public service needs or deficiencies faced by any other territory within the District.

FIGURE 3-6



Lighting Districts	Bear Creek Terrace	Lockeford Maintenance District	Storm Districts
	CSA 52 River Oaks	Lockeford Public HWY Lighting District	Parcels
	Lockeford Village	Rancho Village Street Lighting MD	

0 500 1 000
Feet



LOCKEFORD SPECIAL DISTRICTS

(Lighting and Storm)
VICINITY MAP

SAN JOAQUIN COUNTY

Department of Public Works, 1810 E. Hazelton Ave. Stockton, CA 95205
The County of San Joaquin does not warrant the accuracy, completeness, or suitability for any particular purpose. The information on this map is not intended to replace engineering, business or private records research.



MUNICIPAL SERVICE REVIEW

IV. DETERMINATION #1: GROWTH AND POPULATION PROJECTIONS

This chapter of the Municipal Service Review provides information on the current and projected population of San Joaquin County and the community of Lockeford area that will create the need for services discussed in Chapter III.

The CKH Act requires LAFCO to consider growth and population projections for the affected areas as part of the preparation of the MSR. Consideration of this information will be valuable in assessing the future need for public services and ultimately in establishing a SOI boundary. Growth and population projections should correspond to the sphere horizon. LAFCO has adopted a planning horizon for SOI plans at a 10 year and 30 year horizon. This section focuses on these two planning periods.

A. CURRENT POPULATION

The population of San Joaquin County is estimated to be 694,293 in 2010 according to the State of California Department of Finance.¹² As part of its ongoing General Plan update, the County estimated its current population to be about 685,000.¹³ As of 2010, the existing population of the community of Lockeford was estimated to be 2,410.¹⁴

B. PROJECTED POPULATION

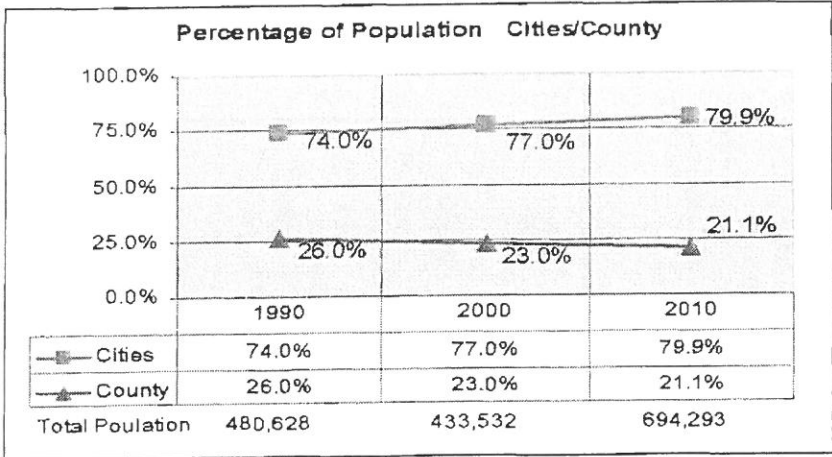
The County grew rapidly from a population of 480,628 in 1990 representing a growth of just over 44 percent, compared to a 29.8 percent increase statewide. The County's average annual growth rate from 1990 to 2000 was 1.6 percent as compared to California's rate of 1.3 percent for this period. Since 2000, the growth rate for San Joaquin County has been an overall annual rate of 2.0 percent with most rapid growth occurring between 2000 and 2005 (3.0 percent increase per year). This compares with a growth rate of 1.26 percent for the State since 2000 and 1.6 percent per year for the period from 2000-2005. San Joaquin County's growth rate has slowed considerably since 2005 with an annual average growth rate of 1.2 percent as compared to the State growth rate of 1.06 percent for this same period. In 2010, San Joaquin County's growth rate (0.9 percent) was even less than the State's growth rate of 1.0 percent.

Table 4-1: Percentage of Total Population

¹² *E-I State/County Population Estimates with Annual Percent Change-January 1, 2009 and 2010.*

¹³ *San Joaquin County General Plan Update Alternatives Report (March 1, 2011) at 1-6.*

¹⁴ *San Joaquin County General Plan Update Alternatives Report (March 1, 2011) at 1-6.*



The geographic distribution of the population in San Joaquin County is concentrated in incorporated jurisdictions (i.e., cities). Cities within the County have all experienced significant growth in the past 20 years with 87 percent of the growth focused in the incorporated cities. In 2010, incorporated areas made up 78.9 percent of the County’s population, whereas the unincorporated area made up the remaining 21.1 percent and has been decreasing as a percentage of total population since 1990 (Table 4-1). Today, 147,038 people live outside of cities in San Joaquin County.

The 2009 Draft San Joaquin County General Plan Background Report estimates population through 2030. The report uses several sources to arrive at the conclusion that the County will continue to show strong population growth for the San Joaquin Valley, with an expected 2.3 percent average annual growth rate for the region, compared to 1.2 percent for the State overall.¹⁵ Projected growth is expected to be absorbed largely by the cities. Growth in the unincorporated County is projected to be relatively slower than that of the cities – an estimated 1.1 percent increase annually for the 20-year time frame, as opposed to 2.4 percent annually in the cities over the same time period. The County is expected to grow to 1,205,198 people by the year 2030.¹⁶

Based on a 1.1% annual growth rate and 2010 base population estimated at 2,410, the community of Lockeford is estimated to have a population of 2,719 by 2021 and 3,304 by 2031. By 2041, Lockeford’s estimated population based on an assumed 1.1% annual growth rate is 3,421 (Table 3-2). The District, however, would only grow up to what is allowed in its sphere of influence. For wastewater planning purposes a blended growth approach was used to acknowledge the likelihood of accelerated growth beyond the 1.1-percent ‘background’ growth. The increased growth could result from the known or potential developments projects in the Lockeford area. The overall growth rate, including the known projects and the background growth rate, results in a composite growth rate of approximately 2.3-percent over the next 20 years, after which the growth rate was reduced to the background rate of 1.1-percent.

¹⁵ San Joaquin County General Plan Background Report (July 2, 2009) at 3-32.

¹⁶ San Joaquin County General Plan Background Report (July 2, 2009) at 3-32.

Table 4-2 includes the commercial and industrial parcels within the District that are not yet developed.¹⁷ No commercial or industrial projects are proposed at this time within the District, and the District is not aware of any future commercial or industrial projects that might be proposed within its boundaries.

Table 4-2: Undeveloped Commercial and Industrial Parcels within the District

APN	Zoning	Acres
051-310-29	C-G	2.8
051-310-47	C-G	5.5
051-310-53	C-G	0.74
051-310-54	C-G	1.5
051-310-50	C-G	2.03
051-310-48	C-G	1.98
051-310-32	AU-20	5.64
051-300-12	AU-20	35.72
051-300-26	C-C	2.33
019-020-04	C-G	0.13
019-020-05	C-G	0.33
019-020-20	C-C	0.19
019-050-03	C-C	0.13
019-050-04	C-C	0.13
019-070-20	C-C	0.38

C. DETERMINATIONS

The San Joaquin County General Plan provides the basis for development in the community of Lockeford area. The plan details the approved land uses and projects the population in the land uses that will need the services provided by the District. The current population in the community of Lockeford is estimated at 2,410.¹⁸ The District's current services described in Chapter V would not be adequate to meet the needs of this projected build-out population of the community of Lockeford and SOI area, but the District's policies, ordinances, and Wastewater Plan would ensure that the District's services would be adequate before they were extended to residential or commercial uses representing build-out of the community and the SOI.

¹⁷ April 2, 2012 email from San Joaquin County Senior Planner Ray Hoo to Natalie Weber.

¹⁸ San Joaquin County General Plan Update Alternatives Report (March 1, 2011) at 3-15.

V. DETERMINATION #2: PRESENT AND PLANNED CAPACITY OF PUBLIC FACILITIES AND ADEQUACY OF PUBLIC SERVICES, INCLUDING INFRASTRUCTURE NEEDS OR DEFICIENCIES

The District is authorized to determine the level of service to provide within its service area. LAFCO is required to make a determination regarding the infrastructure needs or deficiencies and the quality and levels of service that are, can, and should be provided within the District and the SOI.

This chapter of the Municipal Service Review will provide information for the evaluation of the adequacy of public services needed to provide the following services to the present population and within the SOI boundaries at full build-out:

- Water Supply and Treatment
- Wastewater Collection and Treatment
- Storm Water Drainage
- Lighting
- Parks and Recreation

A. DISTRICT FACILITIES

The District's administrative and maintenance buildings, along with a wastewater treatment pond and three storage basins are located at the southwest corner of North Tully Road and Brandt Road, as shown in **Figure 5-1**. The District provides water service as well as wastewater collection, treatment and reclamation service for residents, schools, commercial and industrial establishments in the community of Lockeford, except for an industrial complex southwest of town and those residents with local septic systems.

B. WATER SUPPLY AND TREATMENT

The District uses groundwater production wells to extract groundwater from the Eastern San Joaquin Sub-Basin of the San Joaquin Groundwater Basin, as described in the Department of Water Resources *Bulletin 118*. Besides its rights to pump groundwater, the District does not have any other water rights or contractual entitlements to water. The District's average water demand currently is 0.300 million gallons per day (mgd).

In December 2007, the District obtained a report on the status of local groundwater supplies, and the ability of those supplies to meet projected demands (including possible demands from the 105-acres proposed for addition to the SOI and annexation to the District's service boundary), from the District's consulting engineers at ECO:LOGIC. (ECO:LOGIC is now part of Stantec.) ECO:LOGIC's calculation of projected demands was based on the 1998 Water Master Plan (prepared by ECO:LOGIC) and the additional demands that would result from annexing the proposed property that were not previously considered in the Water Master Plan. ECO:LOGIC's 2007 report therefore analyzed the effects of all of the new wells that would be necessary to serve the District's existing service area, as well as its sphere of influence and possible development of the property proposed for annexation. ECO:LOGIC's report determined that

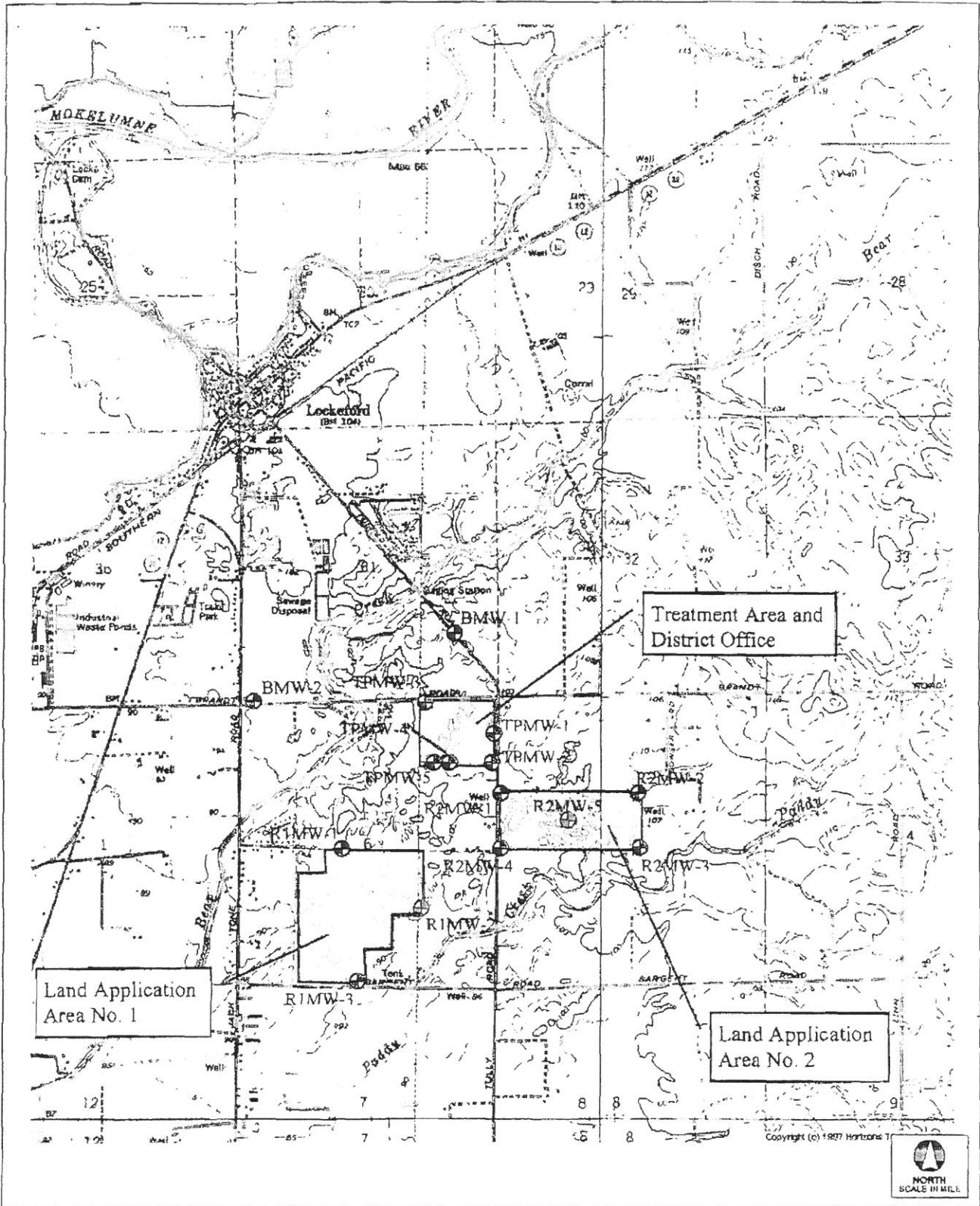
groundwater levels in the area of Lockeford are not declining significantly, unlike levels in other parts of San Joaquin County. The District has provided LAFCO with a copy of ECO:LOGIC's 2007 report. The 2007 report represents the District's best assessment of the sufficiency of its water supplies. The District has never prepared a water supply assessment under Water Code section 10910 because no project large enough to require such an assessment under that statute has been proposed for the Lockeford area since that statute took effect in 2002. The District holds at least appropriative rights to pump local groundwater, which are sufficient to meet demands in the District's service area.

1. Water Distribution System

The District's water distribution system is comprised of four groundwater production wells (Wells No. 2 through 5; Well No. 1 was abandoned/destroyed) with attendant distribution systems, a 50,000 gallon water storage tank, and approximately 50,000 linear feet of 2 to 8-inch diameter distribution piping. In order to balance well production and maintain uniform system pressures, the distribution system is isolated by valving into four (4) separate operating zones, each zone supplied by one well. Valves located near the intersection of Tully Road and Hammond Street can be opened so wells can serve other pressure zones for additional water supply reliability or system backup. The pressure zones are as follows:

- Pressure Zone 2 encompasses the northern portion of Lockeford including most of the downtown area. This pressure zone is supplied by Well No. 2 (Tower Well) and is the only pressure zone with usable gravity storage. Well No. 2 has a normal capacity of 500 gallons per minute.
- Pressure Zone 3 encompasses the southeast portion of Lockeford including the Tessie Estates and Bear Creek Terrace developments. This pressure zone is supplied by Well No. 3 (Bear Creek Well). Well No. 3 has a normal capacity of 700 gallons per minute.
- Pressure Zone 4 encompasses the northeast portion of Lockeford including a portion of the downtown area and the Lockeford Bluffs development. Well No. 4 (Lockeford Bluffs Well) supplies this pressure zone. Well No. 4 has a normal capacity of 500 gallons per minute.
- Pressure Zone 5 encompasses the south portion of the system along Jack Tone Road including the commercial area along State Route 12/88 and the Lockeford Ranch and Lockeford Villas developments. Well No. 5 (Jack Tone Well) supplies this pressure zone. Well No. 5 has a normal capacity of 500 gallons per minute.

FIGURE 5-1



120015372 | Lockeford Community Services District

Figure 1-2
WWTP Facilities and Land Application Areas

ATKINS

The groundwater wells range in depth from 310 to 535 feet with capacities ranging from 500 to 700 gallons per minute (gpm). Each of the four (4) wells is equipped with a deep well turbine pump. Well No. 2 pumps directly to the water distribution system or, depending on the system demand, pumps into the District's on-site 50,000-gallon elevated storage tank. The other three (3) pumps discharge into 10,000-gallon hydropneumatic pressure tanks located at each wellhead prior to distribution. The total maximum capacity of the District's wells is 2,175 gallons per minute. If all wells were operated continuously, the District can produce 3.3 million gallons per day; however, the District does not actually pump and deliver this much water because water usage generally occurs during daytime hours. The District currently serves approximately 721 single-family homes, 39 multifamily homes, 57 commercial services and no industrial services. The approximated total number of equivalent dwelling units (EDU) is about 920 EDU.

According to the report prepared by Stantec for the District's Plan of Services, increased water demand resulting from either significant development on the property proposed for annexation or development of the 159-unit Lockeford Vista likely would necessitate the need for an additional groundwater well.¹⁹ A more recent report prepared by Dillon & Murphy for the District's facilities expansion study further clarifies that this additional well would be required to serve development of Lockeford Vista, the Lockeford Oaks project, and of the property proposed for annexation.²⁰ The minimum capacity of this additional well should be 1,000 gpm to minimize the overall number of wells that must be operated and maintained.

2. Water Conservation Measures

The District's current water rates are a combination of a monthly base rate and a metered rate. By including a metered rate, the District's water rates implement the District's primary conservation practice. Implementation of water meters and metered rates in 2006 has resulted in an approximately 25% reduction in total water use within the District. While the state's 2009 urban water conservation target of a 20% reduction in water use from baselines that could include pre-2006 water use does not apply to the District because the District has less than 3,000 connections, the conservation that the District has achieved by implementing water meters and metered rates is in line with that state target. (Water Code §§10608.12(b), (p); 10608.16(a).)

The monthly base rate is for the first 10,000 gallons used per month and varies according to the size of the water meter. **Table 5-1** contains the rates for different sizes of water meters.

Table 5-1: Monthly Base Water Rates

Meter Size	Monthly Base Rate
¾-inch	\$15.00

¹⁹ *Stantec Report on Plan of Service (November 2, 2012) at 9.*

²⁰ *Sanitary Sewer and Water Availability and Facilities Expansion Study, supra, at pp. 8-10*

1-inch	\$19.50
1 ½-inch	\$24.60
2-inch	\$29.45
3-inch	\$60.00
6-inch	\$75.00

The charge for each gallon after the first 10,000 gallons used per month is \$1.50 per gallon. The District’s water rates are indexed to changes in the National Engineering News Record 20 Cities Construction Cost Index.

The quality of water produced by the District’s water system complies with state Department of Public Health (DPH) standards and the District’s DPH permit.

C. WASTEWATER COLLECTION AND TREATMENT

The District provides wastewater collection, treatment and disposal service for residents, schools, commercial and industrial establishments in the community of Lockeford, except for an industrial complex southwest of town and those residents with local septic systems.

1. Wastewater Treatment Plant

Wastewater facilities include the collection system, aerated treatment pond, storage, and reclamation area. The treatment, storage and reclamation facilities are nearing their permitted capacity. The District secured land and received approval from the Regional Water Quality Control Board to increase the capacity of the facility to an average dry weather flow (ADWF) of 0.4 MGD after completion of the improvements. The system is permitted by the Regional Water Quality Control Board under a Waste Discharge Permit R5-2007-0179 (WDR) issued December 2007.

Improvements to increase capacity to 0.4 MGD include providing additional storage by modifying the existing storage reservoir and increasing the reclamation area. The land has been secured, but none of the improvements have been completed. Detailed listing of the improvements are included in the Report of Waste Discharge, ECO:LOGIC (2006) and the WDR. A summary of the existing and permitted capacities after the improvements are completed are included in the following Table.

Wastewater Treatment System Capacity MGD - ADWF

Facility	Current Capacity	After Improvements
Treatment	0.40	0.40
Storage	0.37	0.40
Reclamation/Disposal	0.31	0.40

The District's sewage treatment plant performs primary and secondary treatment of effluent that the District collects from its sewage collection system. The treated wastewater is used to irrigate pastures. Effluent not needed for irrigation in winter/spring is stored until needed during the following summer. The effluent reclamation system is designed to operate through 100-year rainfall conditions without spills or runoff.

The District's existing sewage treatment system consists of an aeration treatment pond and three effluent storage basins, which are located on 53 acres near the intersection of Brandt Road and Jack Tone Road. Currently, the District treats roughly 270,000 to 280,000 ADWF.

The treated effluent flows by gravity to the wastewater treatment plant storage basins, where it generally remains prior to reclamation. The District also maintains an off-site storage basin on a twenty (20) acre parcel approximately 1,500 feet southwest of the treatment facilities. Reclamation occurs through a system of mud valves on an irrigated 95-acre pasture contiguous to the off-site storage basin known as Reclamation Area No.1. Tailwater is collected and temporarily returned to the off-site storage basin for subsequent reclamation on the pasture.

In 2006, the District acquired 60 acres of agricultural land for future reclamation purposes as the need arises. This newly acquired disposal expansion site is shown as Reclamation Area No. 2 on **Figure 5-2**. Reclamation Area No. 2 will provide 38 acres of irrigated pasture. A future storage reservoir site on the Reclamation Area No. 2 parcel will be constructed at some future time. The existing reservoir on Reclamation Area No. 1 also will be modified to provide additional storage. Through Order No. R5-2007-0179, the District has obtained the Central Valley Regional Water Quality Control Board's approval of the proposed expansion, which has been designed and is awaiting funding. In addition, the District has paid habitat mitigation fees for the proposed expansion to the San Joaquin Council of Governments under the San Joaquin habitat conservation plan. The planned expansion could serve up to 450 to 500 EDUs, depending on the design of, and wastewater generation of, new development.

To date, the District has not violated the wastewater permit the Regional Water Quality Control Board issued in 2007.

2. Wastewater Capacity

The District currently has approximately 1,164 wastewater connections. The current demand on the District's wastewater system is approximately 0.29 million gallons per day (mgpd).

Prior to obtaining its new waste discharge requirements under Order No. R5-2007-0179, the District's authorized system capacity was 0.31 mgpd. Of the 0.02 mgpd of capacity available in the District's existing system, approximately 0.018 mgpd was committed to Phase I of the Lockeford Oaks project since its owners purchased 73 units of capacity in the District's existing

system from another developer that did not build a project, but had committed wastewater capacity.

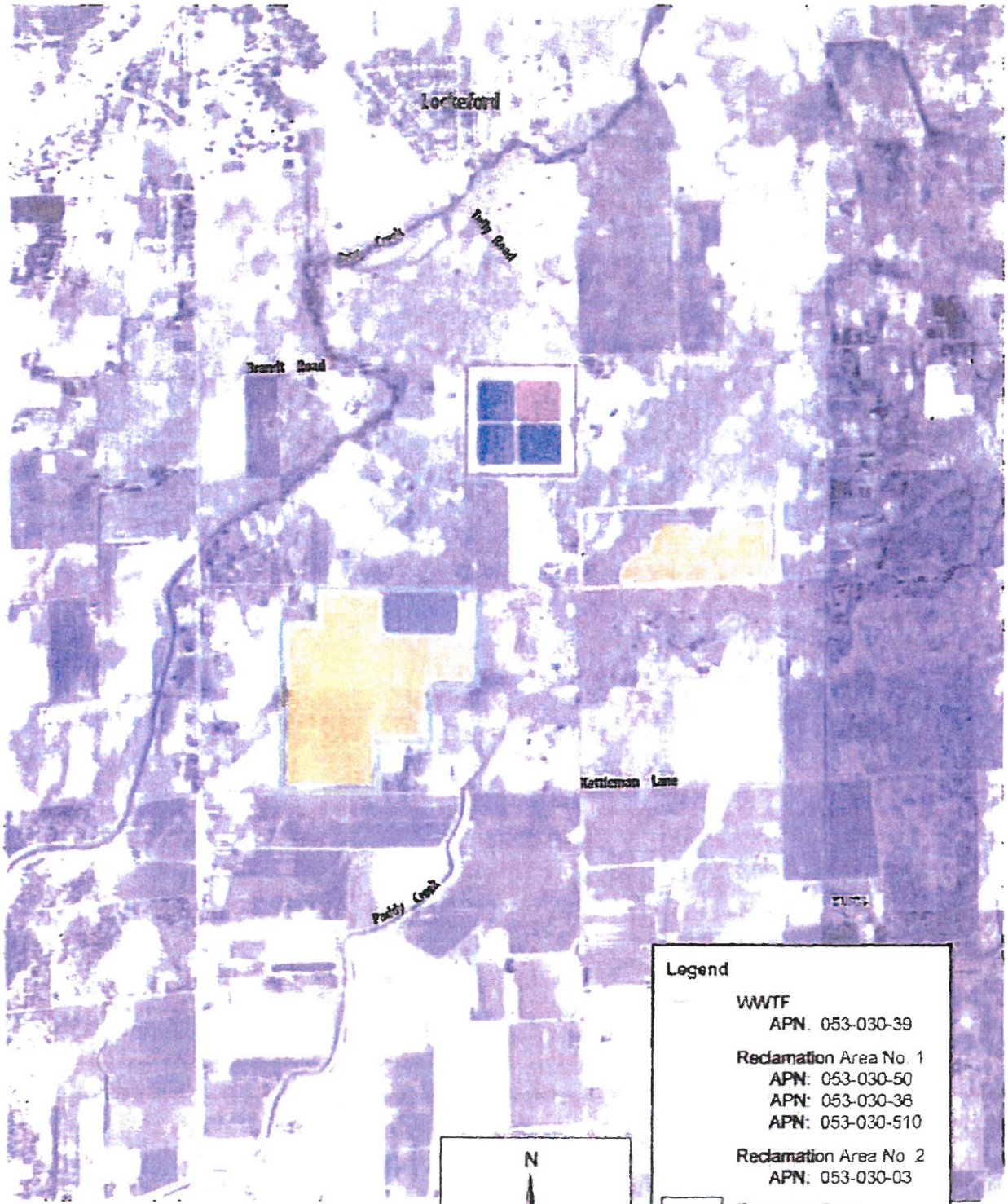
Following construction of the disposal expansion on the newly acquired 60-acre wastewater disposal site, the capacity of the District's wastewater system will increase to 0.40 mgpd based on ADWF. The specific changes being made to the District's wastewater treatment facility to accommodate the 0.40 mgpd sewer service capacity under 100-year rainfall conditions include:

- Adding two 10 HP aerators to the treatment pond to increase treatment capacity by increasing oxygen transfer to the wastewater, improving mixing within the pond which increases wastewater treatment kinetics, and reducing the potential for hydraulic short-circuiting in the pond. This work has been completed.
- Deepening the existing remote storage pond by 3.5 feet to increase the total available effluent storage volume (all four storage ponds) to 313 AF (102 Mgal).
- Adding the 60-acre Reclamation Area No. 2 parcel to the overall wastewater treatment facility. This will add 38 acres of effluent reclamation area to the District, and will increase the District's total effluent irrigation area to 133 acres.
- Adding a disinfection system using chlorine gas and existing chlorine contact basin to achieve a 23 MPN/100mL total coliform. This work has been completed.

FIGURE 5-2

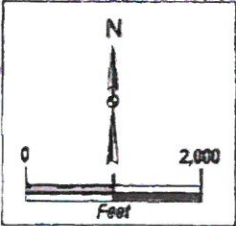
ECO:LOGIC

Consulting Engineers



Legend

- WWTF
APN: 053-030-39
- Reclamation Area No. 1
APN: 053-030-50
APN: 053-030-36
APN: 053-030-510
- Reclamation Area No. 2
APN: 053-030-03
- Treatment Pond
- Storage Pond
- Reclamation Area



D:_graphical\lockeford_CSD\AerialSite_Map_APNs.at 5/31/08 cms

Site Map with APNs

As noted above, approximately 0.298 mgpd of the projected 0.40 mgpd capacity was committed to existing connections or Phase I of the proposed Lockeford Oaks project. Phase I of the Lockeford Oaks project represented approximately 73 EDUs in the District's existing wastewater system. This leaves roughly 0.1 mgpd of capacity available after completion of the wastewater disposal expansion on the 60-acre parcel. Depending on the manner in which future development occurs, that capacity could serve between 450 to 500 EDUs, depending on the design or, and wastewater generation by, new development. The Lockeford Vista project (adjacent to the proposed SOI expansion and annexation area) will receive approximately 160 units of the available capacity because it has invested in the waste disposal site expansion. This leaves roughly 360 to 420 units of capacity available in the District's wastewater system after the disposal site expansion is complete.

The District had previously issued a will-serve letter for Phase II of the Lockeford Oaks project for 234 units of capacity for property currently within the District's existing boundaries. The District, however, has terminated that will-serve letter. These changed circumstances indicate that: (1) the 73 EDUs in the District's existing wastewater system that the Lockeford Oaks owners are no longer dedicated to that project; and (2) the 234 EDUs that were projected for Phase II of the Lockeford Oaks project under the prior will serve statement for that phase could potentially be available to landowners within the District, or who are annexed to the District, who will commit to participating in the District's planned wastewater expansion project. However, if the Lockeford Oaks project were to proceed with development in the future, then this existing capacity would not be sufficient to serve both Lockeford Oaks and any future development of the property proposed for annexation.

Assuming that the Lockeford Oaks project proceeds with development, the 0.40 mgpd of sewer service capacity will not be sufficient to fully serve the Lockeford Vista Project, the Lockeford Oaks project, and the development of the property proposed for annexation.²¹ Development requiring capacity beyond that which can be provided by the District's 60-acre wastewater disposal site expansion would need to fund a further upgrade to the District's facilities. Such facilities will be properly timed and expanded to accommodate growth in the area. The most cost-effective option will be to upgrade the current system to allow the District to produce tertiary-treated wastewater that could be applied to vineyards or other commercial agricultural use. The District's wastewater feasibility evaluation plan describes these improvements and related costs in greater detail. Coupled with the District's policy of "pay as you go" or "pay when you need new capacity," The timing of the construction and financing of such an upgrade would enable the District to serve the community at full build-out. In addition, the District receives notices of potential projects with sufficient time to secure all regulatory permits and to fund and construct needed expansions and upgrades to existing infrastructure.

The District has conducted a detailed review of the further tertiary-treatment-based improvements to the District's wastewater system that would provide further waste-water system capacity when the capacity in the District's planned and approved expansion is fully committed (Appendix A).

²¹ *Lockeford Community Services District Wastewater Treatment Facility Report of Waste Discharge (June 2006) at 1-1; Lockeford Community Services District -- Wastewater Feasibility Evaluation Plan, supra, at pp.10-14.*

3. Effluent Discharge, Sludge Disposal, and Industrial Waste Regulations

Treated effluent is discharged pursuant to Wastewater Discharge Requirements Order No. R5-2007-0179. Order No. R5-2007-0179 was effective December 6, 2007. With complete containment of effluent on land, the District wastewater facilities are not subject to federal standards under the National Pollutant Discharge Elimination System (NPDES).²²

Sludge generated at the treatment plant and aeration pond will be removed, dried and disposed in a landfill of appropriate classification. Sludge production and accumulation in the treatment pond have been minor over the past 30 years of operation. One area is known to have a sludge mound that does not impact operation. Sludge removal is not planned at this time. The District is considering the possibility of, when either sludge removal is deemed to be necessary or ADWF approaches 0.40 mgpd, converting Storage Pond #1 to two aerated treatment ponds to add treatment capacity and to allow the existing treatment pond to be taken out of service for sludge removal and conversion to two aerated treatment ponds. Prior to any such conversion, additional storage volume would be constructed to replace the storage volume being lost by the conversion process.

D. STORM WATER DRAINAGE

The District does not currently provide storm water drainage services. Storm water collection infrastructure and services within the community of Lockeford area are provided by several San Joaquin County special districts. The special districts providing storm water services are described below.

1. CSA No. 45 – Lockeford Bluffs

CSA No. 45 is a dependent district within San Joaquin County that provides storm water services for the Lockeford Bluffs neighborhood in Lockeford. CSA No. 45 currently serves 107 parcels.

The storm water collection system is a mixed gravity and force main system. The system consists of two storm ponds and one pump. One storm pond and pump is located to the northwest of the Lockeford Bluffs neighborhood, while a second storm pond is located near the northeast portion of the development. The system is a gravity system to the pond, and then forced to the Mokelumne River. There is a total of 7,534 linear feet of storm pipe. The boundaries of CSA No. 45 are depicted in **Figure 5-3**.

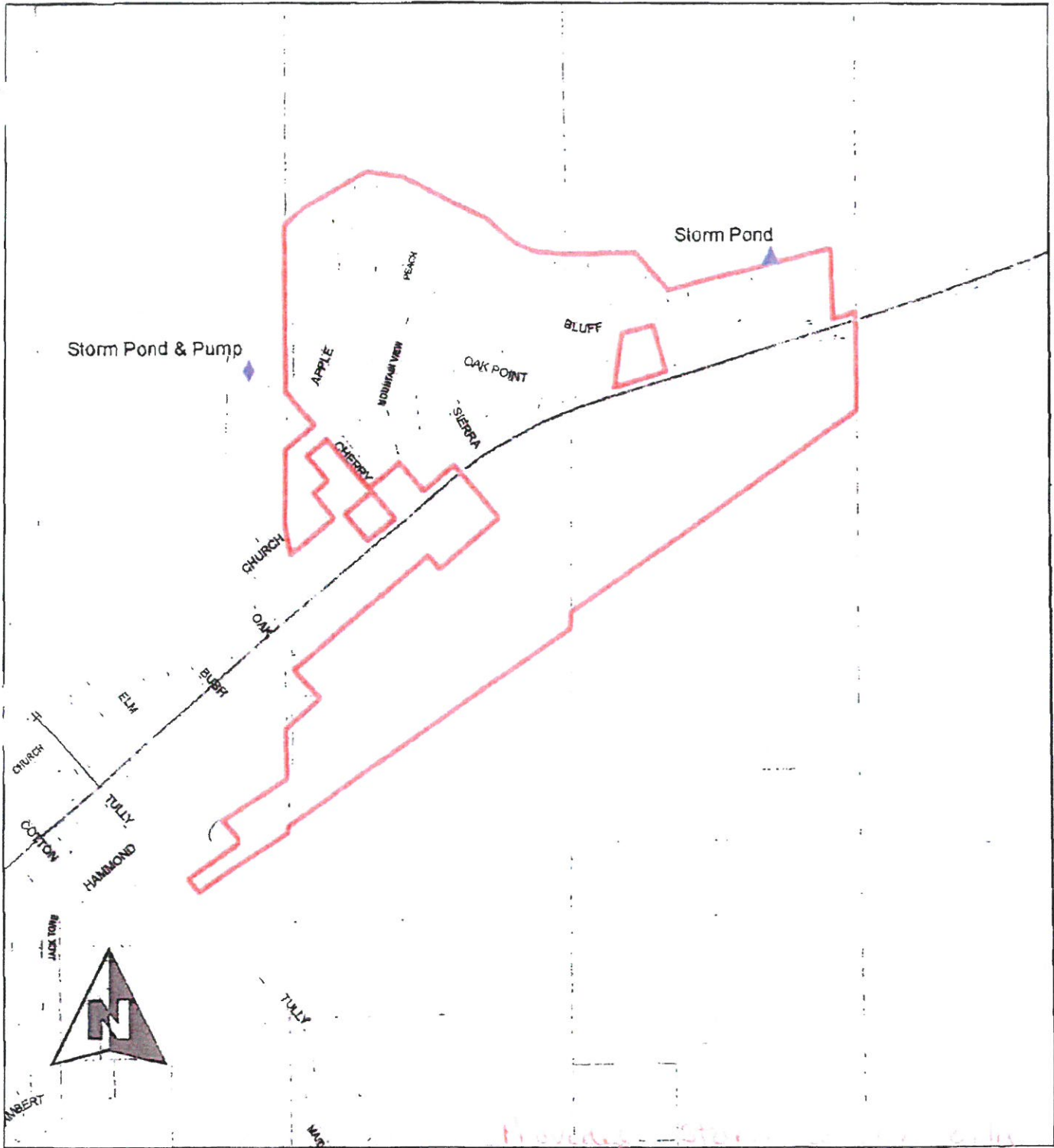
2. Lockeford Maintenance District

The Lockeford Maintenance District is a dependent district within San Joaquin County that provides lighting and storm water services to 81 parcels in the Lockeford area. This district's storm water infrastructure consists of approximately 3,800 feet of storm pipes. This district is


²² Lockeford Community Services District Wastewater System Master Plan (Sept. 1998) at 3-5.

fully built-out with no plans for expansion. This district's boundaries are reflected in **Figure 5-4**.

FIGURE 5-3

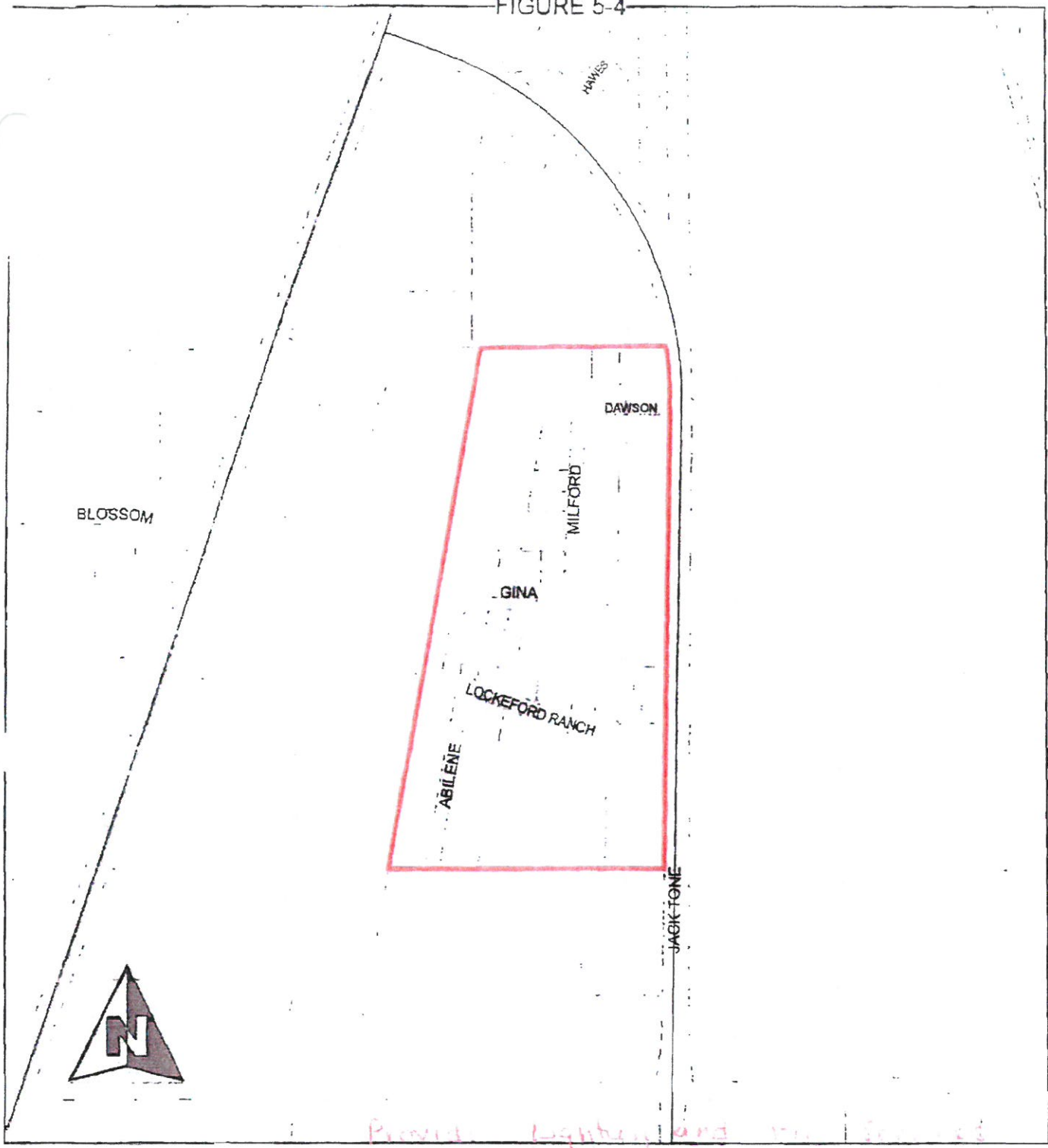


County of San Joaquin
CSA NO. 45 - LOCKEFORD BLUFFS

 CSA 45 Lockeford Bluffs

January 2008

FIGURE 5-4



County of San Joaquin
LOCKEFORD MAINTENANCE

 Lockeford MD

January 2008

3. **Bear Creek Terrace Maintenance District**

The Bear Creek Terrace Maintenance District is a dependent district within San Joaquin County that provides lighting and storm water services to 323 parcels. This district has approximately 11,188 linear feet of storm pipes, two storm ponds and a pump. This district is fully built-out with no plans for expansion. The boundaries of Bear Creek Terrace Maintenance District are shown in **Figure 5-5**.

4. **CSA No. 52 – River Oaks/Blossom Court**

CSA No. 52 is a dependent district within San Joaquin County that provides lighting and storm water services to 8 parcels. This district has approximately 992 linear feet of storm pipes, two storm ponds and a pump. CSA No. 52's boundaries are shown in **Figure 5-6**.

5. **Lambert Village Maintenance District**

The Lambert Village Maintenance District is a dependent district within San Joaquin County that provides lighting and storm water services to 70 parcels. This district has approximately 1,768 linear feet of storm pipes and a storm pond. This district is fully built-out with no plans for expansion. This district's boundaries are reflected in **Figure 5-7**.

E. LIGHTING

The District does not currently provide lighting within its service area. Lighting services within the SOI are provided by several San Joaquin County special districts. The special districts providing lighting services are described below.

1. **Lockeford Public Highway Lighting District**

The Lockeford Public Highway Lighting District is a dependent district within San Joaquin County that provides lighting services to 357 parcels in the Lockeford area. This district's lighting facilities include 69 street lights. There are currently no plans for expansion within the district. The district's boundaries are shown in **Figure 5-8**.

2. **Lockeford Maintenance District**

The Lockeford Maintenance District, shown in **Figure 5-4**, is a dependent district within San Joaquin County that provides lighting services to 81 parcels in the Lockeford area. This district's lighting facilities consist of 14 street lights. This district is fully built-out with no plans for expansion.

3. **Bear Creek Terrace Maintenance District**

The Bear Creek Terrace Maintenance District, shown in **Figure 5-5**, is a dependent district within San Joaquin County that provides lighting services to 323 parcels. This district's lighting facilities consist of 57 street lights. This district is fully built-out with no plans for expansion.

4. CSA No. 52 – River Oaks/Blossom Court

CSA No. 52, shown in **Figure 5-6**, is a dependent district within San Joaquin County that provides lighting services to 8 parcels. This district's lighting facilities consist of 2 streetlights.

5. Lambert Village Maintenance District

The Lambert Village Maintenance District, shown in **Figure 5-7**, is a dependent district within San Joaquin County that provides lighting services to 70 parcels. This district's lighting infrastructure consists of 16 street lights. This district is fully built-out with no plans for expansion.

F. PARKS AND RECREATION

The District is authorized to provide park services, and has been providing parks and recreation services to the community for years by making its historic schoolhouse available for recreational events. The District has acquired a total of 14.5 acres for use as a community park. The property is located directly south of Lockeford Elementary School. The park will be known as Lockeford Memorial Park. The park would include the District's historic schoolhouse. Most of the park would be located east and south of the schoolhouse. The District is currently in the design and planning stage.

On April 26, 2011, the District executed an Agreement for Transfer of Title to Real Property (A-11-159) whereby it acquired land from San Joaquin County to facilitate the public use of the property as part of the District's planned community park. Conveyance of the property from the County to the District is conditioned upon the District's construction of components of a District community park upon the property within a certain time period. Subject to a one time 5-year extension, the District must complete construction of the park within 5 years from execution of the agreement. The District has completed construction of the first improvement for the park, namely a 3,500 square foot community center.

G. DETERMINATIONS

Based on the information provided in the sections above, the following are the determinations regarding the infrastructure needs or deficiencies within the unincorporated area of Lockeford and the District's SOI.

1. Water Supply and Treatment

An adequate long term water supply is available for full build-out of the District's existing SOI area as well as for the proposed SOI. The District relies on the underlying groundwater resource for its entire water supply, which comes from a single aquifer. The District's consulting engineers at ECO:LOGIC (now Stantec) have determined that, because of the District's proximity to the Mokelumne River, the groundwater resources available to the District would be sufficient for the District to meet full build-out demands, as well as the possible demand of five

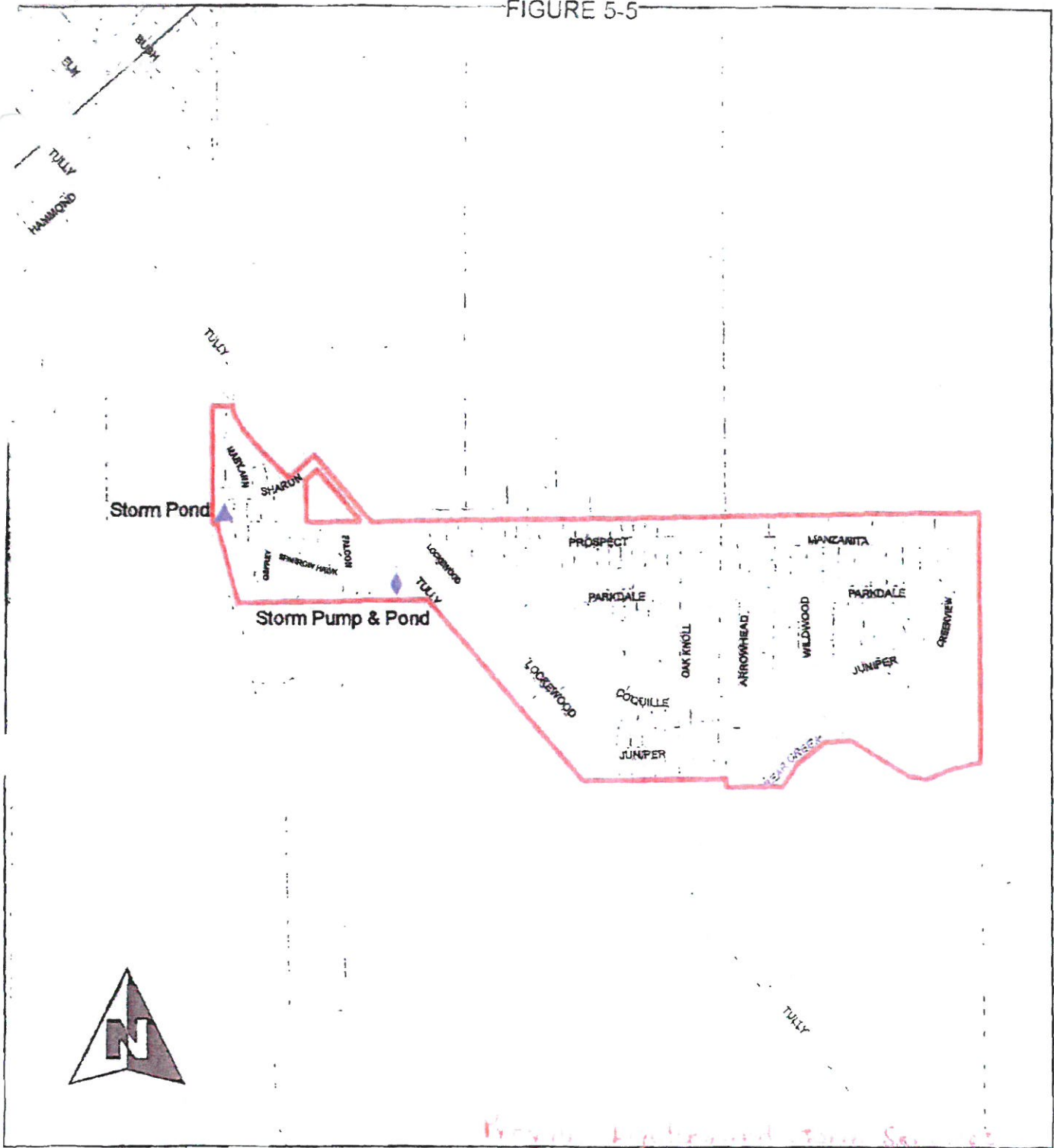
20-acre parcels on the property proposed to be annexed to the District and included in the District's proposed SOI.²⁵ ECO:LOGIC based projected demand calculations on the 1998 Water Master Plan (prepared by ECO:LOGIC) and the additional demands that would result from annexation of the proposed property that were not previously considered in the Water Master Plan. The report therefore analyzed the effects of all of the new wells that would be necessary to serve the District's existing service area as well as its SOI and possible development on the 105-acres proposed for annexation. As noted elsewhere in this MSR, the property owners are not currently proposing a specific development project on the property to be annexed to the District.

Although adequate water supplies exist to serve the District at full build-out of its existing SOI as well as the proposed SOI, the District's existing groundwater production wells and distribution system would not be able to serve water demand within the District's current SOI and service area at full build-out. In order to serve water demand at full build-out, the District would need to expand and upgrade its existing groundwater production well network, or add new groundwater production wells to the District's water system. The District also may need to improve its distribution system, including installing new pipelines, upsizing existing pipelines and installing additional storage and/or pumping facilities. Such upgrades could be funded by newly developing areas through the District's informal policy of "pay as you go" or "pay when you need new capacity." In other words as fees from new development is received by the District, those fees are used to expand existing facilities or construct new facilities, as necessary.

The water distribution system serves all of the presently developed area and will be expanded by developers into the developing areas as needed. The presumptive method for developers to provide the necessary improvements will be through their payments of the District's water connection fees, but the District may negotiate with developers to provide funding through other mechanisms such as main line extension agreements and community facilities districts. Depending on each development's arrangements, the District may reimburse a developer for certain costs through funds that accrue through the District's collection of its water rates.

²⁵ ECO:LOGIC Engineering, *Lockeford Community Services District: Evaluation of Groundwater Conditions (Dec. 2007) at I-1 through I-4.*

FIGURE 5-5

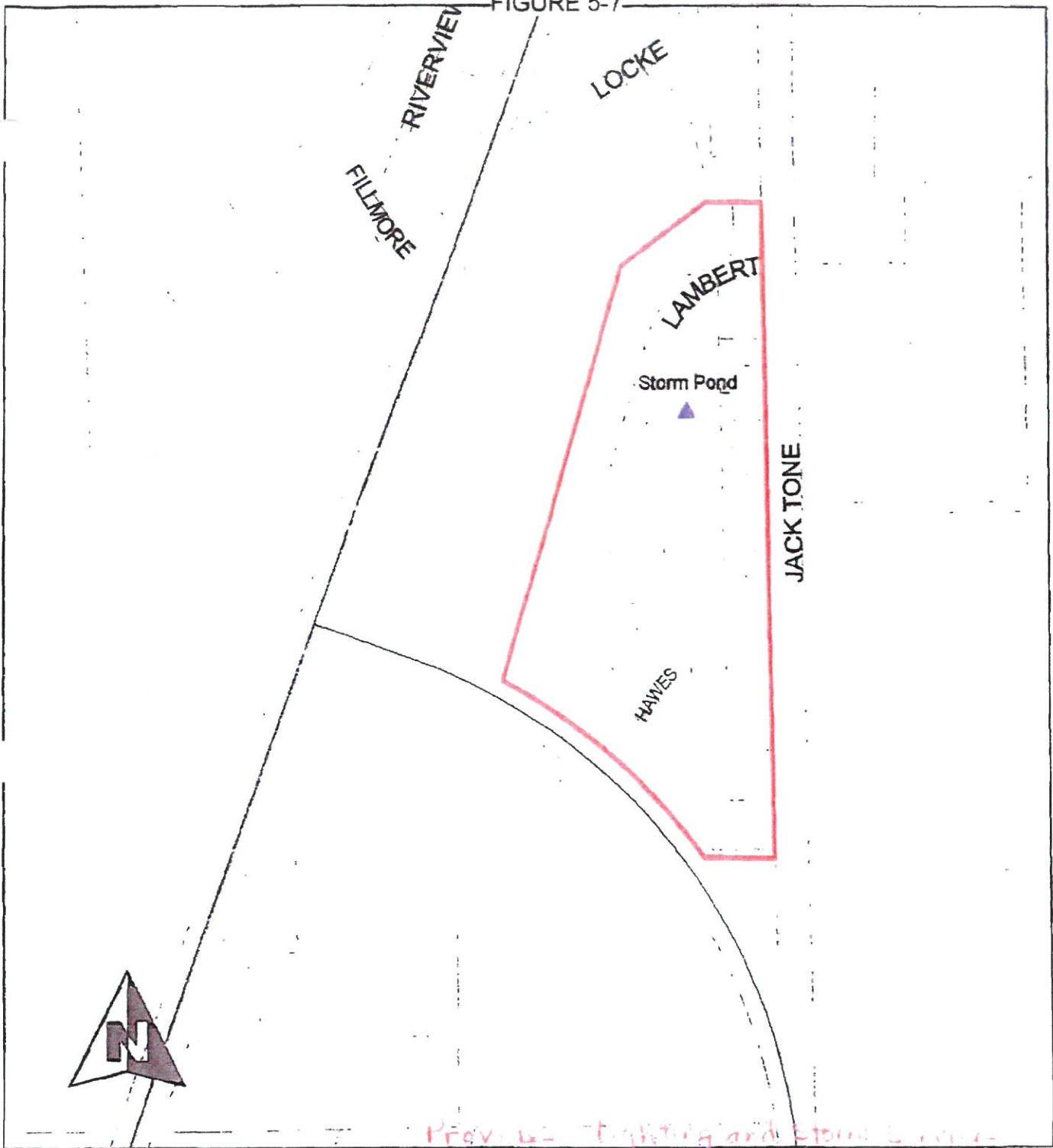


County of San Joaquin
BEAR CREEK TERRACE MAINTENANCE

 Bear Creek Terrace PISLMD

January 2008

FIGURE 5-7

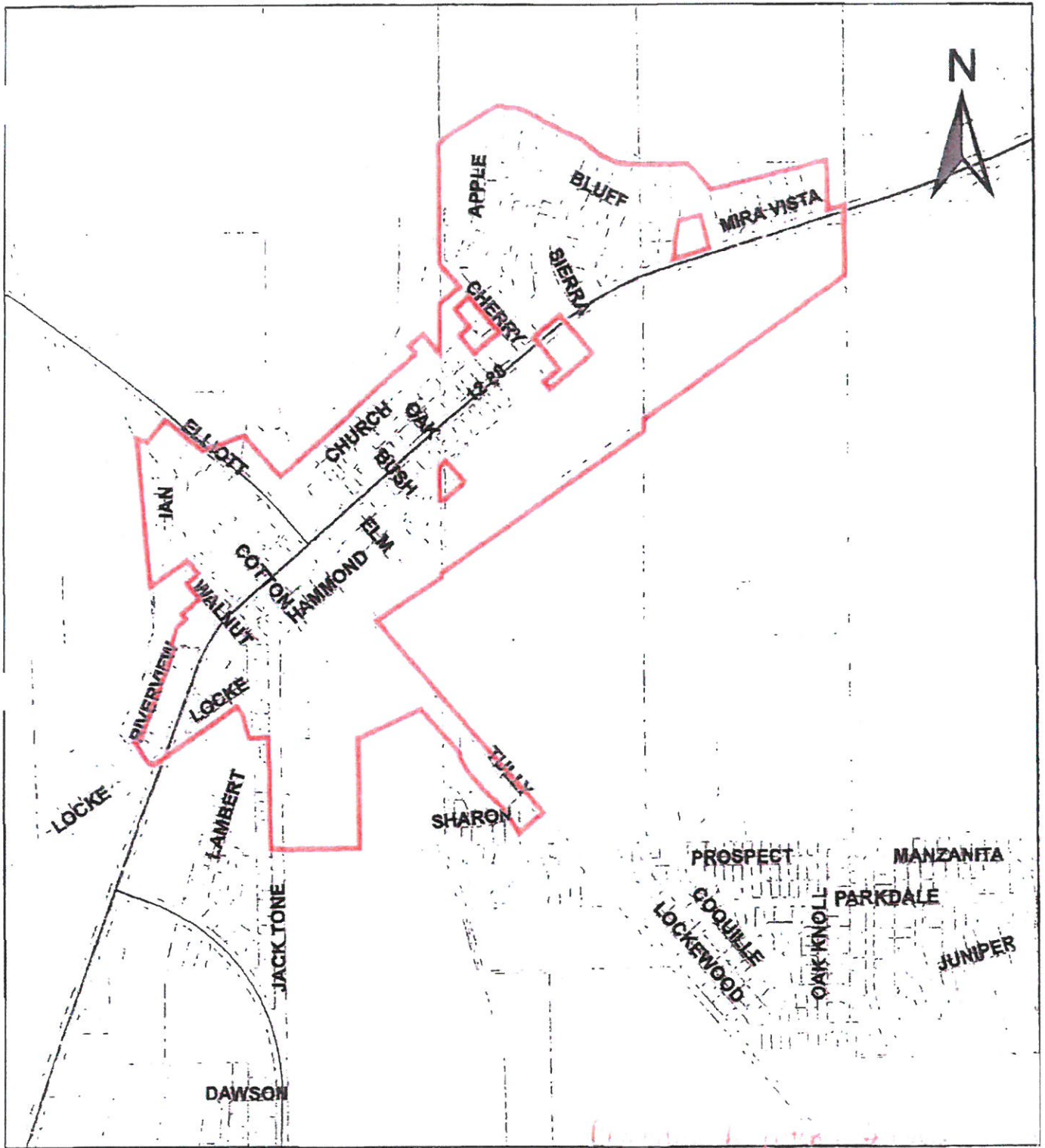


County of San Joaquin LAMBERT VILLAGE MAINTENANCE

 Lambert Village PISLMD

January 2008

FIGURE 5-8



County of San Joaquin LOCKEFORD PUBLIC HIGHWAY LIGHTING

 Lockeford Street Lighting Boundary

May 2007

2. Wastewater Collection and Treatment

The wastewater treatment facility provides biological treatment in an oxidation pond. Present treatment capacity is in excess of 400,000 gpd. However, Order No. R5-2007-0179 limits the discharge flow rate to 300,000 gpd, as the wastewater system is limited by the disposal capacity. Upon completion of the disposal site expansion, which the District was authorized to perform upon adoption of Order No. R5-2007-0179, disposal capacity will increase to 400,000 gpd.

The District's existing wastewater facilities do not have capacity to meet treatment and disposal demand at full build-out of the District's proposed SOI. To meet the next increment of future wastewater demand, the District will need to complete the planned Reclamation Area No. 2, already permitted under Order No. R5-2007-0179. In addition, to fully meet the demands of the Lockeford Vista project, the Lockeford Oaks project, and demand on the property proposed for annexation, further upgrades to the District's facilities would be required, such as upgrading the system to allow the District to produce tertiary-treated effluent and acquiring additional land, or additional rights to dispose of treated wastewater on land, for reclamation activities.

The collection system serves the currently developed portion of the SOI and will be expanded by developers as new areas develop within the District's SOI. The presumptive method for developers to provide the necessary improvements will be through their payments of the District's wastewater connection fees, but the District may negotiate with developers to provide funding through other mechanisms such as main line extension agreements and community facilities districts. Depending on each development's arrangements, the District may reimburse a developer for certain costs through funds that accrue through the District's collection of its wastewater rates. In addition, the District's existing collection system may require improvements, such as new pump stations or modifications to existing pump stations. Depending on future development proposals, future developments could help to fund improvements to the District's existing collection system. As with the water services, the District's informal policy of "pay as you go" or "pay as you need new capacity" would apply to the developers for waste water infrastructure and facility upgrades.

3. Storm Water Discharge

Storm water collection infrastructure within the community of Lockeford is provided by several County special districts. The County expects to continue to meet storm water flood control needs within the existing SOI. Build-out of the existing SOI will continue to require the capture and removal of storm water in a safe manner. Future growth in accordance with build-out of the existing SOI is expected to result in the typical amount of capture and removal needs associated with the type of urban development that has occurred in the past.

CSA No. 45 collects and conveys storm runoff to the Mokelumne River while Bear Creek Terrace Maintenance District and Lockeford Maintenance District capture and convey storm runoff to Bear Creek.

On December 8, 1999, the United States Environmental Protection Agency promulgated regulations under authority of the Clean Water Act §402(p)(6). These Storm Water Phase II Final Rule regulations require the State Water Resources Control Board (SWRCB) to issue National Pollutant Discharge Elimination System storm water permits to operators of Small Municipal Separate Storm Sewer Systems. On April 20, 2003, the SWRCB adopted Water Quality Order No. 2003-005-DWQ, National Pollutant Discharge Elimination System General Permit CAS000004 WDRs for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (General Permit) to comply with Clean Water Act §402(p)(6). San Joaquin County was a permittee regulated under the General Permit.

The SWRCB is currently considering amendments to the Waste Discharge Requirements for Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (Tentative Order). The Tentative Order updates the General Permit. Permittees regulated under the prior General Permit, such as San Joaquin County, will continue to be designated under the proposed Tentative Order, if it is approved. Once it is approved, San Joaquin County intends to comply with the revised General Permit for discharging storm water.

4. Lighting

The County expects to continue to meet lighting needs within the existing SOI. Future growth in accordance with build-out of the existing SOI is expected to result in the typical amount of lighting needs associated with the type of urban development that has occurred in the past in the community of Lockeford.

5. Parks and Recreation

Lockeford has no community park facilities, although the District does allow community groups to use its historic schoolhouse for events. School playfields are available for use by town residents, and there are regional recreation areas close-by. The District is in the process of developing a community park for the residents of Lockeford. The County is funding a portion of this park construction. The first phase of the park is anticipated to be completed within the next five years, as discussed in the District's April 26, 2011 Agreement for Transfer of Title to Real Property (A-11-159) with the County. The District has completed construction of the first improvement for the park, namely a 3,500 square foot community center. Upon completion the District will provide parks and recreation services to those within the SOI. Further phases of the park's development will expand the District's park and recreation services.

VI. DETERMINATION #3: FINANCIAL ABILITY OF THE AGENCY TO PROVIDE SERVICE

This chapter of the Municipal Service Review describes the financing system currently in place that provides the District with the ability to fund all of the services currently provided to the developed areas within its SOI.

A. INFRASTRUCTURE FINANCING

1. Water and Wastewater Services

Ongoing water and wastewater services provided by the District are funded through the District's user fees, billed monthly to customers. The user fee rates are set by the District's Board of Directors. These fees are generally sufficient to cover all of the costs of operating the water and wastewater treatment and distribution systems within the District's SOI.

The District has a Water Fund and a Sewer Fund, which generally finance the water and wastewater treatment facilities. As of December 31, 2012, the District has capital reserves of approximately \$542,524.68, which are allocated among funds as follows: \$345,913.17 in the Water Fund and \$196,611.51 in the Sewer Fund. There is an outstanding loan of approximately \$2,200,000.00 from the Water Fund and the District's General Fund to the Sewer Fund, which loan contributed to funding the District's 2006 acquisition of the site of its planned and approved wastewater disposal expansion. The proposed annexation could help resolve this loan by annexing to the District a logical location for possible development.

The District's capital improvement plan consists of its 1998 Water and Sewer Master Plans and its plans for its wastewater disposal expansion, which effectively revised the 1998 Sewer Master Plan. The District's water and wastewater connection fees reflect the costs that would be associated with the improvements necessary to implement those portions of the Master Plans that would be necessary to serve new development.

The District has also established, in Ordinances Nos. 99-1 and 2009-01, water and wastewater annexation fees of \$1,800 per acre and \$3,200 per acre, respectively, to obtain necessary contributions from the owners of newly-annexed areas to the maintenance of the District's existing system. Under Ordinance No. 99-01, the respective annexation fees are subject to inflation adjustments.

When repairs or improvements to the District's existing water or wastewater systems are necessary, the District generally funds them through the applicable annexation-fee proceeds or system revenues. For major projects that may exceed the funds immediately available from those sources, the District may obtain grants or loans from state or federal sources. For example, in 2010, the District obtained a \$500,000 loan from the United States Department of Agriculture's Rural Utilities Services to replace a water well.

Property tax revenue is also a source of revenue for the District. Proposition 13 fixed the tax generally at one percent of the value, except for taxes to repay certain voter approved bonded

indebtedness. Property tax revenue was proportioned to each local agency based on the amount received during the three years preceding adoption of Proposition 13 (1978). This allocation formula benefitted local agencies which had relatively high tax rates at the time Proposition 13 was enacted, and allocates less to districts and cities that were spending relatively low amounts at that time. Although property tax revenue varies from year to year, the District generally receives between \$90,000 and \$115,000 as its share of property taxes. In fiscal year (FY) 2012-2013, the District received \$110,727.03 in property taxes.

Because all capital improvements that would be necessary to provide water and wastewater services to areas within the SOI as it builds out would be funded by developers or new residents of those areas, the District would have sufficient revenue to provide new service to such areas. As with the District's current water and wastewater services, the District's charges to newly developed areas would be set to fund the operations necessary to provide those services.

2. Storm Drainage and Lighting Services

Several San Joaquin County special districts provide storm water and lighting services within the SOI. These special districts are generally funded through special assessments and taxes as well as property taxes. The State Constitution, as amended by Proposition 218, authorizes special districts to impose special taxes with a two-thirds approval of the electors or with a 50 percent plus one vote for a benefit assessment. In San Joaquin County, several special districts have implemented special taxes or assessments.

According to the San Joaquin County 2012-2013 Special District Budget, CSA No. 45 has \$15,227 in total financing sources for 2012-2013.

The Lockeford Maintenance District funds its operations through assessments. According to the San Joaquin County Special District Budget for 2012-2013, the district has \$5,346 in total financing sources for 2012-2013.

Bear Creek Maintenance District funds its operations through property taxes and assessments. According to the San Joaquin County Special District Budget for 2012-2013, the district has \$48,325 in total financing sources for 2012-2013.

CSA No. 52 funds its operations through assessments. According to the San Joaquin County Special District Budget for 2012-2013, CSA No. 52 has \$13,035 in total financing sources for 2012-2013.

Lambert Village Maintenance District funds its operations through property taxes and assessments. According to the San Joaquin County Special District Budget for 2012-2013, the district has \$28,366 in total financing sources for 2012-2013.

The Lockeford Public Highway Lighting District funds its operations through property taxes and assessments. According to the San Joaquin County Special District Budget for 2012-2013, the district has \$36,000 in total financing sources for 2012-2013.

3. Parks and Recreation Services

The District does not currently operate park facilities within the Lockeford community, although it has provided parks and recreation services by permitting others to use its historic schoolhouse for recreational events. The District is planning a Lockeford Memorial Park and has constructed the park's first improvement, namely a 3,500 square foot community center. To date, the District's park-related activities have been funded by the District's share of local property taxes and grants. The District theoretically could propose a parcel tax to fund park services, but the District has not considered proposing such a tax, which would require approval of the voters in the District. San Joaquin County has also set aside approximately \$950,000 to reimburse the District's expenses in planning and constructing the park. To the extent other funds would be needed, the District would consider using its share of property tax revenues, would use any available developer fees, and would seek grants.

B. OPPORTUNITIES TO INCREASE REVENUE

The opportunity to increase revenue would depend on the type of service provided by the District. The District's water and wastewater rates are governed by Proposition 218's constitutional requirements. The District would be limited to raising its rates to fund water and wastewater services and related improvements. Growth in the number of units to which the District provides those services would increase those sources of revenue, however. The District receives notices of potential projects with sufficient time to secure all of the regulatory permits and to fund and construct the expansions. The District has an informal policy of "pay as you go" or "pay when you need new capacity," which allows the District to fund service upgrades and expansions.

For park services, the District has proposed a parcel tax to fund park services, and the measure is scheduled to appear on the November 2016 ballot for consideration by the District's voters.

The County special districts are also constrained by Proposition 218's voter approval requirements in raising fees for storm water services. Because such storm water fees or charges are subject to Proposition 218, the special districts must comply with the procedural and substantive requirements of California Constitution article XIII D, section 6.

C. DETERMINATION

The District's primary sources of revenue currently are payments that its customers make for the District's water and wastewater services, property tax payments and developer reimbursement of District costs in support of projects and other activities proposed by developers. The District also has annexation fees that apply to newly annexed property, as well as water and wastewater connection fees for new connections to the applicable service provided by the District. The District's fee structure will apply equally to newly annexed territory.

Revenue from the current fee structure together with future developer capital contributions and revenue from those areas into which the District's water and wastewater services would expand to be adequate to fund the projected level of those services needed at build-out of the District's

SOI. The District's policies ensure it will continue its efforts to maintain funding of existing and future infrastructure improvements.

VII. DETERMINATION #4: STATUS OF, AND OPPORTUNITIES FOR, SHARED FACILITIES

This chapter is a review of the current use of shared facilities by the District and the opportunity for sharing additional facilities and resources.

A. CURRENT AND FUTURE POTENTIAL SHARED FACILITIES

The District does not currently share facilities with any other public agencies. Other public agencies sometimes use the District's historic schoolhouse for their meetings. The District anticipates continuing this arrangement with other public agencies. The District eventually may have an agreement with a non-profit entity to maintain historical exhibits in the schoolhouse.

B. DETERMINATION

Because the District is the only district that provides water and wastewater services in the community of Lockeford, the potential for sharing such facilities with other public agencies is minimal. The District will continue to explore opportunities to share facilities and infrastructure whenever they exist.

VIII. DETERMINATION #5: ACCOUNTABILITY FOR COMMUNITY SERVICE NEEDS, INCLUDING GOVERNMENTAL STRUCTURE AND OPERATIONAL EFFICIENCIES

This chapter of the Municipal Service Review assesses the level of accountability of the District to those it serves, focusing on the public accessibility opportunities for public participation.

Efficiently managed organizations provide high level of public services without unnecessary or inefficient expenditures of public funds. They maximize the quality and use of human and operational resources and strive to provide the best services feasible, considering local conditions and circumstances. An efficiently managed organization reports budget and reserve data to customers and either reinvests excess reserves in infrastructure or operations or returns excess funds to service users through rate reductions or service improvements.

LAFCO is not required to enact changes in government structure as part of an MSR, although proposals may be initiated concurrently or subsequently. LAFCO is required to consider the advantages and disadvantages of any options that might be available to provide the services. In reviewing potential government structure options, consideration may be given to financial feasibility, service delivery quality and cost, regulatory or government frameworks, operational practicability, and public reference.

A. GOVERNMENT MANAGEMENT AND STRUCTURE

As previously noted in this MSR, the District and several San Joaquin County special districts provide services and infrastructure within the SOI.

1. Lockeford Community Services District

The District was formed pursuant to the Community Services District Law (Government Code §61000 et seq.) in 1976 through the reorganization of the Lockeford Sanitary District and the San Joaquin County Water Works District No.1. The District is an independent special district with statutory powers within its boundaries. The District is run by an elected Board of Directors that answers to the public through the electoral process. The Board of Directors consists of five members who are elected for four year terms.

As discussed above, the District provides water and wastewater services to those developed properties within its boundaries. The District also anticipates providing community park services within the next five years.

2. San Joaquin County

San Joaquin County has several special districts that provide services within the District's existing SOI. These special districts are dependent districts that are governed by the San Joaquin County Board of Supervisors. The Board of Supervisors sets rates and fees within the service districts and ensures adequate service is provided to customers. These districts include County

Service Areas as well as lighting and maintenance districts. Table 8-1 lists the County districts within the District's SOI.

Table 8-1: San Joaquin County Districts

COUNTY SERVICE AREAS
County Service Area No. 45, Lockeford Bluffs
County Service Area No. 52, River Oaks/Blossom Court
COUNTY LIGHTING AND MAINTENANCE DISTRICTS
Bear Creek Terrace Maintenance District
Lambert Village Maintenance District
Lockeford Maintenance District
Lockeford Public Highway Lighting District

3. Public Information and Participation

The District holds regular Board of Directors meetings on the second Thursday of each month at 9:00 a.m. The meetings are held at the District's historic Old Lockeford Schoolhouse. This schedule is varied occasionally in order to hold an evening meeting. The District also holds occasional special meetings as needed.

Because the District is small, the District generally does not undertake mailings or events for community awareness. Occasionally, however, the District will include an insert with its water and wastewater statements. When the District adjusts its water or wastewater rates or considers environmental review documents, it complies with legal public notice requirements.

B. EVALUATION OF MANAGEMENT EFFICIENCIES

The District's staff consists of four positions: a General Manager, an office manager, and two water/wastewater treatment operators. The District regularly utilizes expert consultants to conduct environmental analyses under the California Environmental Quality Act as well as water supply and wastewater evaluations.

Although the District is authorized to exercise its storm water and lighting service powers under its formation documents, the District has never provided such services. LAFCO's approval under Government Code §61106(a) (latent powers) would therefore be required prior to the District providing storm water or lighting services. The opportunity for consolidating the District with several of the County special districts for purposes of taking over the provision of storm water and lighting services has been discussed occasionally. Due to the financial constraints for raising revenue to provide such services, and especially given the severe economic downturn in the economy, the County was not able to assure the District that the District would receive an appropriate additional share of the property tax revenue to finance such services. Therefore, at this time, consolidation is not financially feasible. In addition, such a consolidation would dramatically increase the services that the District provides, with related

significant effects on the District's operations. Accordingly, such a consolidation would require very serious study by the District before the District could decide whether to undertake that consolidation. The District's Board has expressed no interest in providing storm water and lighting services at this time. In particular, storm water service involves very significant regulatory requirements with little or no related financing. The County has not indicated that there would be sufficient funding for the District to assume storm water and lighting services, even if the District's Board of Directors was interested in expanding the District's mission to include those services.

C. DETERMINATION

The present independent district governance structure of the District with its own elected Board of Directors who reside in the Lockeford community and vote within the District provides greater opportunity for access and public participation in the design and implementation of services in the SOI. The use of monthly public meetings has provided the public with sufficient access to information.

Because the County cannot guarantee an appropriate additional share of the property tax revenue to finance the District taking over storm water and lighting services within the SOI, consolidation of the District with the County special districts is not financially feasible at this time. In addition, as discussed above, the District would need to study very carefully the commitment associated with assuming storm water and lighting services before making such a commitment.

IX. DETERMINATION #6: RELATIONSHIP TO DISADVANTAGED UNINCORPORATED COMMUNITIES

In accordance with Senate Bill (SB) 244, an additional determination for this Municipal Service Review was added to the LAFCO review process regarding Disadvantage Unincorporated Communities (DUC). SB 244 aims to encourage investment into DUCs by requiring cities and special districts that provide sewer, municipal water, and structural fire protection to consider providing services in the DUCs when making decisions regarding annexations, preparing MSRs, and updating SOIs.

SB 244 defines a “disadvantaged community” is a community with an annual median household income that is less than 80 percent of the statewide annual median household income. DUCs are defined as “a territory that constitutes all or a portion of a ‘disadvantaged community’ including 12 or more registered voters or some other standard as determined by the LAFCO.” The majority of the District and all of the project site is located within a DUC area.

A. Demographics

The U.S. Census Bureau 2010 census provides information for San Joaquin County, as a whole. For 2010, San Joaquin County had 259,600 people unemployed with a total labor force of 310,900 people. Thus the County had a 16.5 percent unemployment rate. For 2011, San Joaquin County had a labor force of 314,769 people, with 269,072 people employed and 45,417 people unemployed in 2011. Thus the County had a 14.4 percent unemployment rate in 2011, a decrease of approximately 2 percent over the 2010 unemployment rate. In 2011, the median household income was \$53,764.²⁴

The Lockeford Community had a total labor force of 1,487 people in 2011, with 1,217 people employed and 270 people unemployed. Thus the Lockeford Community had an 18.2 percent unemployment rate in 2011. The median household income was \$40,946 in 2011.²⁵

By comparison, the State of California had 16,603,417 people employed and 1,868,871 people unemployed for an unemployment rate of 10.1 percent in 2011. The State’s median household income was \$61,632 in 2011.²⁶

For 2011, 80 percent of the State’s median household income is approximately \$49,305. The Lockeford community has an annual median household income of \$40,946 in 2011 dollars, which is less than 80 percent of the State’s household median income threshold. Therefore, LAFCO has determined that the Lockeford Community is a DUC. **Figure 9-1.**

²⁴ US Census Bureau. 2007-2011 American community Survey 5-Year Estimates, San Joaquin County. Available at: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml

²⁵ U.S. Census Bureau. 2007-2011 American Community Survey 5-Year Estimates, Lockeford Community. Available at: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml.

²⁶ U.S. Census Bureau. 2007-2011 American Community Survey 5-Year Estimates, California. Available at: http://factfinder2.census.gov/faces/nav/jsf/pages/community_facts.xhtml.

B. Public Services

As discussed above, the District provides water and waste water services within the SOI and has provided parks and recreation services by permitting others to use its historic school house for recreational events. The District also has the authority to provide storm water and street lighting services; however, it has never exercised these powers.

The District's services are sufficient to meet the needs of the existing population; however, expanded infrastructure will be required for future growth and full build-out of the SOI, as discussed in Section V. These expansions will be funded as discussed above, in Sections VI.

San Joaquin County provides storm water services and lighting services. The County expects to continue to meet the needs of the SOI. Further details on these services are provided in Section V.

C. Determination

The District is the only district that provides water and wastewater services in the community of Lockeford. The District provides service upgrades as needed based on existing and anticipated service demands. The funding for the upgrades is determined at the time that upgrades are identified. Therefore, the District's policies ensure it will continue its efforts to maintain funding and service capacity of existing and future infrastructure facilities.

APPENDIX

A

Memo

To: Joe Salzman, GM
From: Gerry LaBudde, PE
Date: February 8, 2016
Re: Lockeford Community Services District - Wastewater Feasibility Evaluation

Purpose

This memorandum addresses the feasibility of providing wastewater treatment, reclamation and storage within the Lockeford Community Services District (District) through buildout. A summary of current wastewater flows is provided to establish the current level of service within the District. Future wastewater flow is estimated and includes wastewater generated from parcels within the District boundary, parcels outside the District boundary within the Sphere of Influence (SOI) and a proposed development project that has requested inclusion in the sphere and annexation into the District to receive water and wastewater service. A conceptual plan and planning level cost for additional wastewater capacity including treatment, storage and reclamation is included based on projected wastewater flows.

Background

The District provides water and wastewater services within the District and has provided parks and recreation services by permitting use of its historic schoolhouse for recreational events. Storm water and lighting services are provided by several San Joaquin County special districts. Wastewater facilities and means to expand these facilities are addressed in this memorandum.

The existing wastewater treatment plant consists of treatment, storage and reclamation facilities. The wastewater facilities are nearing their rated capacity. The District acquired land for an expansion in 2006 and developed improvement plans and has received a permit for expanded capacity of up to 0.4 million gallons per day (MGD) from the Regional Water Quality Control Board once the improvements have been completed.

Three development projects that have been, or are currently, contemplated include:

- Lockeford Vista Project, consisting of 159 single family residences currently developing improvement plans.
- Kautz Project, which could consist of up to 420 single family residences. The parcels are located outside of the District Boundary and the SOI. The property owners are requesting inclusion in the sphere and annexation into the District and to receive sewer service.
- Lockeford Oaks, which consisted of 306 single family residences. The project is currently inactive although the tentative map is still valid.

Additional development will result from infill within the District boundary along with parcels that are within the SOI that could someday receive service. Existing facilities and projections of future wastewater flow and improvements to expand the wastewater facilities are described below.

Existing Facilities

Wastewater facilities include the collection system, aerated treatment pond, storage, and reclamation area. The treatment, storage and reclamation facilities are nearing their permitted capacity. The District secured land and received approval from the Regional Water Quality Control Board to increase the capacity of the facility to an average dry weather flow (ADWF) of 0.4 MGD after completion of the improvements. The system is permitted by the Regional Water Quality Control Board under a Waste Discharge Permit R5-2007-0179 (WDR) issued December 2007.

Improvements to increase capacity to 0.4 MGD include providing additional storage by modifying the existing storage reservoir and increasing the reclamation area. The land has been secured, but none of the improvements have been completed. Detailed listing of the improvements are included in the Report of Waste Discharge, ECO:LOGIC (2006) and the WDR. A summary of the existing and permitted capacities after the improvements are completed are included in Table 1.

Table 1

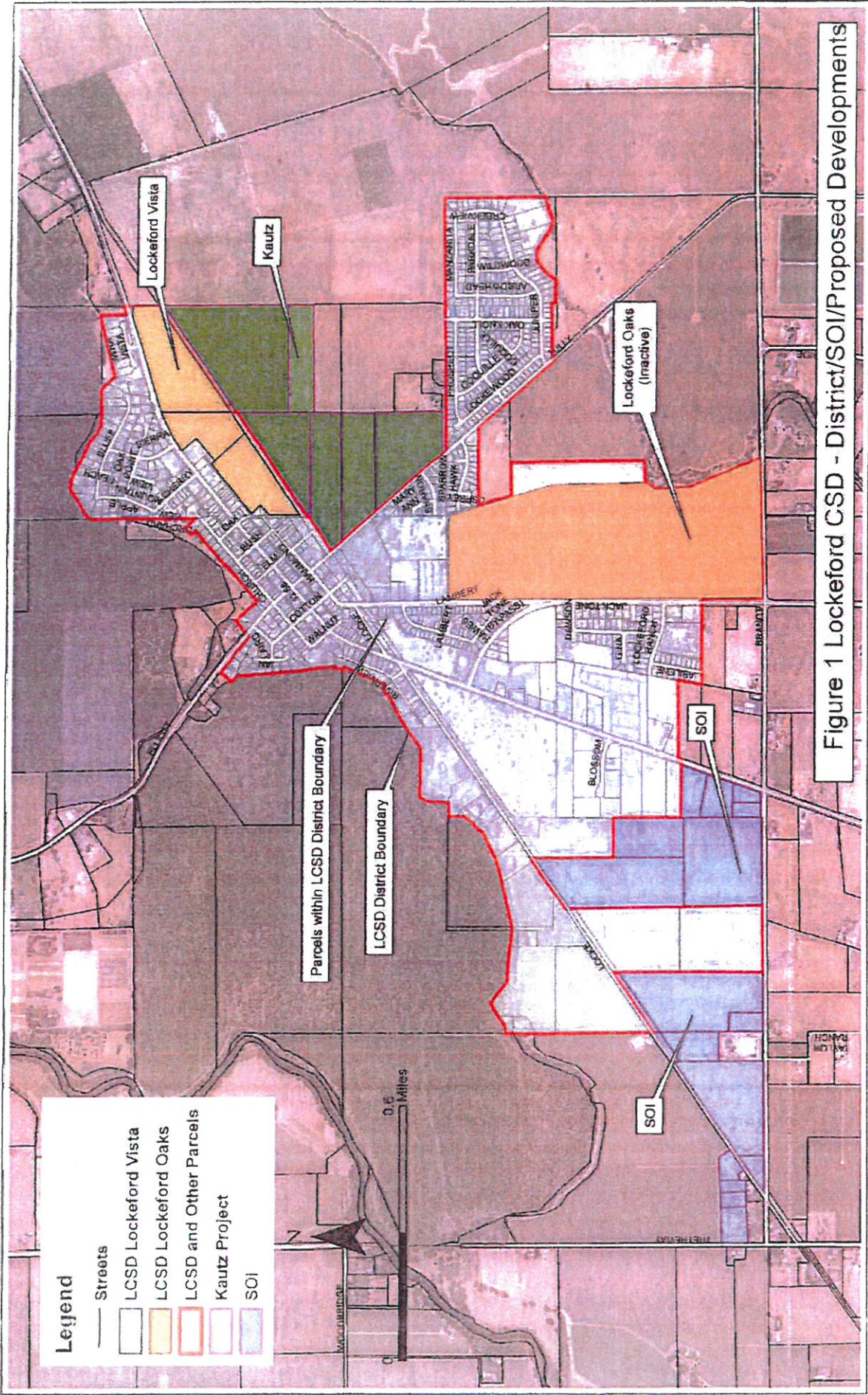
Wastewater Treatment System Capacity MGD - ADWF

Facility	Current Capacity	After Improvements
Treatment	0.40	0.40
Storage	0.37	0.40
Reclamation/Disposal	0.31	0.40

Land Use and Development

The District boundary encompasses approximately 696 acres. The District provides wastewater service to property within the service area. The Community Plan area encompasses approximately 834 acres and represents the Sphere of Influence (SOI). There are approximately 138 acres outside the District boundary but within the SOI. Figure 1 includes the District boundary, SOI, and known development projects within the District boundary and other projects that have requested annexation into the District to receive wastewater services.

Figure 2 includes parcels that currently receive wastewater service from the District. None of the 138 acres outside the District boundary within the SOI receive wastewater service from the District at this time. Parcel land use and service status evaluations are based on San Joaquin County geographical information system and District billing records. Three parcel categories have been identified with the potential to receive wastewater service:



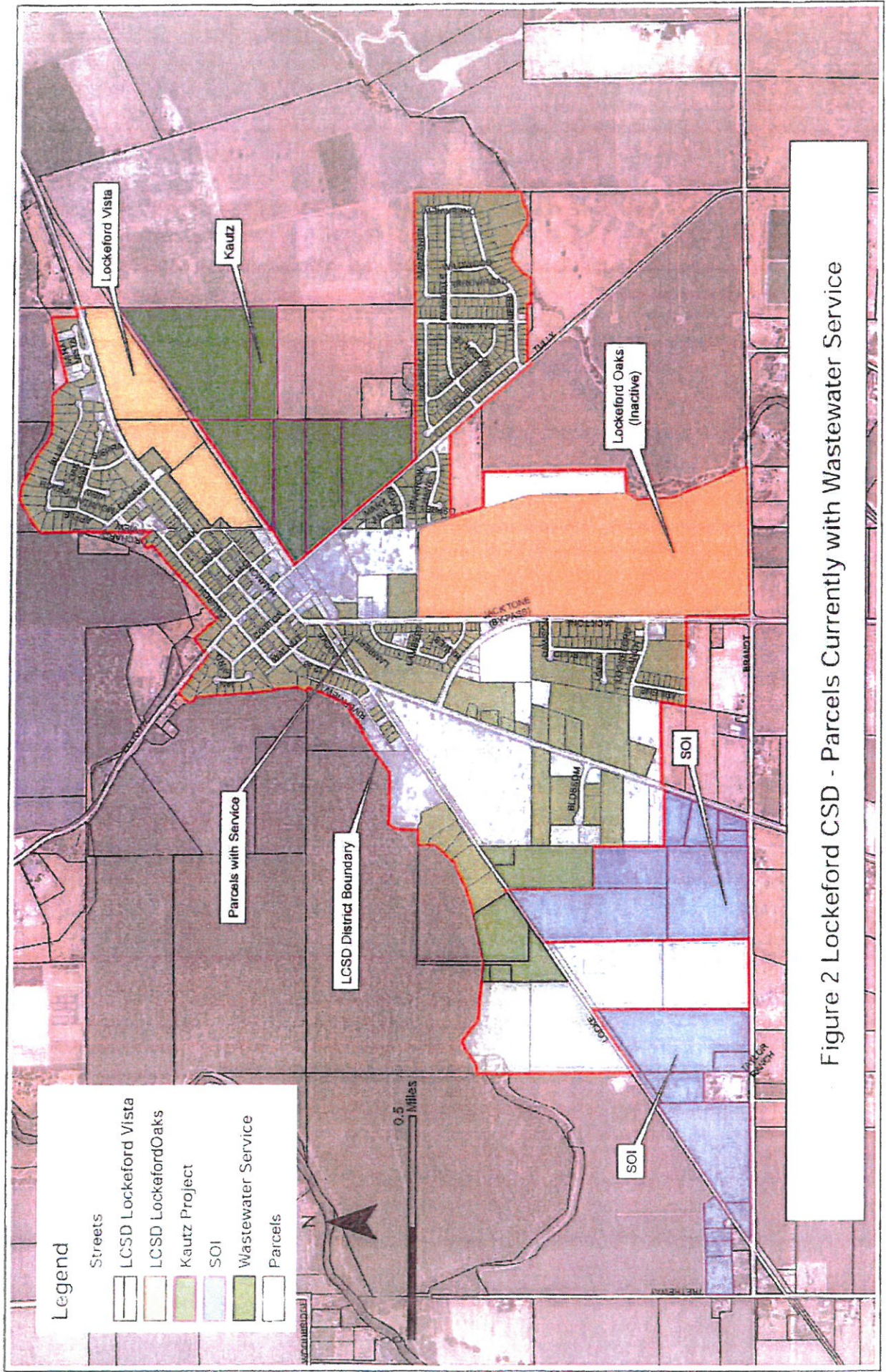


Figure 2 Lockeford CSD - Parcels Currently with Wastewater Service

- Lands within the District boundary,
- Lands within the SOI, and
- Lands outside the District and SOI.

Projected wastewater flows based on the parcel categories above and approved land uses are developed in the following section.

Lands Within the District. Wastewater service is provided to a portion of the parcels within the District. Sewer service is not provided to all parcels that have been developed. Unserved developed parcels rely on onsite sewage treatment/disposal systems or some other type of service (e.g. portable outhouses). Table 2 includes the approximate acreage and General Plan land use for land receiving sewer service based on District billing records correlated with San Joaquin County GIS data.

Table 2

Current Acreage with Sewer Service in District

General Plan Land Use	Acres
Agriculture/General	1.2
Commercial/Community	25.3
Commercial/General	27.9
Commercial/Office	36.6
Public	1.0
Residential/Low density	185.2
Residential/Medium density	23.1
Residential/Very low density	15.0
Total	315.3

As lands develop within the District, future connections to the wastewater system will be added. Table 3 includes an estimate of the acreage within the District that does not have sewer service. Note that the lands included below may have been previously developed, but do not currently receive sewer service from the District.

Table 3

Future Acreage with Sewer Service

Land Use	Acres
Agriculture/General	0.7
Commercial/Community	12.7
Commercial/General	15.8
Commercial/Office	6.9
Industrial/General	40.7
Industrial/Limited	21.8
Public	7.8
Residential/Low density	237.4
Residential/Medium density	11.7
Residential/Very low density	27.9
Total	383.3

The total calculated acreage within the District boundary is 698.6, which is slightly higher than the acreage within the District boundary based on the land use data from the San Joaquin County GIS data and is due to discrepancies between the District billing data and San Joaquin County records. Efforts to identify the cause of the discrepancy did not reveal the source. The discrepancy was considered small enough to ignore for the purpose of this analysis.

Sphere of Influence. The Sphere of Influence includes approximately 138 acres that do not receive sewer service from the District, but could at some point be incorporated into the District and request service. Land uses and acreages within the SOI are summarized in Table 4.

Table 4

Acreage and Land Uses in SOI/Outside District Boundary

Land Use	Acres
Industrial/General	81.9
Industrial/Limited	47.4
Open Space/Other	8.0
Total	137.3

Development Projects Outside the SOI. Near term interests for development outside the District boundary and SOI are discussed in this section. Parcels with current interest to develop and receive sewer service include the Kautz project identified in Figure 2. Based on input from the District and background reports, there could be as many as 420 single family homes constructed on the parcels pending approvals from various agencies including the District and San Joaquin County.

Wastewater Flow Projections

Current and projected wastewater flows are discussed in this section. The wastewater characteristics are assumed to remain consistent in terms of the wastewater strength. The analysis should be revisited in the event a large discharger were to develop within the District and discharge wastewater of unusually high

strength requiring additional treatment. An example may include a food processor or other industrial facility that processes waste with high strength organic material.

Existing conditions were evaluated based on District influent flow and billing records. Future flows were calculated by assuming that all parcels within the District boundary and SOI develop based on current land use designations. Additional development outside the District boundary were also factored in and include parcels within the SOI and the six parcels included in the proposed Kautz Project.

Current Wastewater Flow. Wastewater influent flow from 2010 – 2014 is summarized in Table 5 and includes annual average flow (AAF) and average dry weather flow (ADWF). The AAF represents the monthly average through the entire year; ADWF represents influent flow from June through August during the dry weather periods. Generally, the AAF is higher than the ADWF because the influence of rainfall does not have an effect on the flows. Historically, the AAF and ADWF have been similar within the District due to the low groundwater table and a comprehensive collection system maintenance and inspection program, which combined, result in relatively low amounts of inflow and infiltration.

Table 5

Wastewater Treatment Plant Influent Flow, MGD

Year	AAF	ADWF
2010	0.20	0.19
2011	0.19	0.18
2012	0.20	0.20
2013	0.19	0.19
2014	0.18	0.18

Based on billing records, the District estimates there are approximately 1,148 equivalent dwelling units (EDU) receiving wastewater service at this time. An EDU represents flow from a typical single family home. Estimating the number of EDU is not an exact science and the values are within expected variation and considered to be a reasonable estimate and based on the most current information and used herein. Previous EDU estimates by others have been slightly higher, but within the expected range of variability.

Wastewater influent flows are lower than historical levels and likely due to the factors listed below:

- Conversion from flat rate billing structure to a consumptive use rate structure which promotes conservation and reduced potable water use within the District;
- Replacement of the influent flow meter at the wastewater treatment plant in 2008; influent flows dropped and the original flow meter was thought to have been reading higher than actual flows. The influent flow meter is calibrated annually and considered to be accurate and reflects actual flow into the wastewater treatment plant;
- Impacts from the recession may have reduced water use, particularly in light of the meter usage charges;
- Water conservation due to drought conditions in California has reduced overall water use which has translated to a reduction of water entering the wastewater collection system.

Table 6 includes a summary of wastewater water generation rates based on current conditions, estimates used in the 1997 Master Plan and the recommend wastewater generation rate per EDU for planning purposes.

Table 6

EDU Wastewater Generation Rate

Condition	Estimated	gpd/EDU	ADWF	Comments
Current	1,148	177	0.20	Based on current estimate of 1,148 and current ADWF.
1997 Master Plan	1,077	250	0.27	Based on estimated EDU and ADWF in 1997; would expect a decrease as a result of consumptive use rate structure on potable water.
Recommended	1,148	225	0.26	Based on current EDU and estimated wastewater generation rate after drought conditions subside.

The current ADWF of 0.2 MGD corresponds to an average wastewater generation rate of 177 gpd per EDU. The current average wastewater generation rate is not recommended for planning purposes. The current wastewater generation rate is likely low, primarily due to current conservation efforts due to the drought. The overall reduction in potable water production is approximately 16 percent from 2013 to 2014, and due to conservation efforts, the District reports that this year's water use is more than 25 percent lower than 2013. The unit wastewater generation rate is expected to rise as water usage returns to 'typical' non-drought usage conditions.

Use of 225 gpd/EDU is recommend for planning purposes. This unit generation rate represents a 27-percent increase beyond current wastewater generation rates, which nearly corresponds to the reported reduction in potable water use, and is considered a reasonable mid-point between the current rate and those previously used for planning purposes in the 1997 Master Plan.

Future Flows. Future wastewater flow projections are comprised of current influent flow and future flow resulting from wastewater service extended to lands within the District boundary, SOI, and lands potentially annexed into the District SOI and included in the District boundary at some point.

Table 7 includes a summary of the unit wastewater production rates used to develop the projected wastewater flows. Values used for the Commercial, Public, and Residential land uses are from the San Joaquin Public Works Improvement Standards (November 2014). Wastewater generation rates used for the Commercial and Industrial land uses appear to be high on a per acre basis, and was pointed out in the 1997 Master Plan. The County's published rates were used to project future flows and thought to be conservative, which is considered appropriate for a feasibility study of this nature.

Residential low density development in the San Joaquin Improvement Standards (November 2014) includes 7.3 units/acre, which is significantly higher than large developments proposed over the last decade in the Lockeford community. Estimates of the number of units for low density residential land are based on recent residential projects proposed within and around the District.

- Lockeford Vista Project – 40 acres w/159 units – 3.9 units/acre
- Lockeford Oaks Project – 125 acres/305 units – 2.4 units/acre
- Kantz Project – 100 acres/420 units – 4.2 units/acre

Table 8 includes the estimated flow at complete build-out of the current District boundary, SOI, and the addition of the Kautz Project if included in the District boundary at some point in the future. Current land uses were used in connection with the unit wastewater generation rates included in Table 7. Total flow is estimated to be 0.96 MGD. For the purposes of projecting future wastewater flow, the estimated capacity of 1 MGD will be used, and as noted is considered a conservative estimate for assessing feasibility.

Table 7

Unit Wastewater Generation Rates

Land Use	Value	Unit	Comments
Commercial (a)	2,000	gpd/acre	
Public	1,600	" "	
Industrial (b)	1,600	" "	
Open Space	0	n/a	Assumed open space will not develop or generate measurable wastewater flows.
Residential			
Very Low Density	1	Units per Acre	225 gpd/unit
Low Density	4	" "	225 gpd/unit
Medium Density	6	" "	225 gpd/unit

(a) Includes all categories of Commercial (Office, General)

(b) Includes all categories of Industrial (General, limited).

Table 8
Projected Wastewater Flows

Source	Wastewater Flow, GPD
Current – In District	260,000
Future Wastewater Flow – In District	
Agriculture/General	1,314
Commercial/Community	25,437
Commercial/General	31,537
Commercial/Office	13,822
Industrial/General	65,054
Industrial/Limited	34,877
Public	12,511
Residential/Low density	201,801
Residential/Medium density	9,121
Residential/Very low density	6,272
Future In District - Subtotal	401,745
In District Total – Current + Future	661,745
Future Wastewater - Flow Outside District	
SOI	
Industrial/Limited	75,760
Industrial/General	131,040
SOI - Subtotal	206,800
Kautz Project	95,870
Outside District Total - Future	302,670
Total Wastewater	964,415

Projected Growth and Wastewater Capacity Requirements

Projected growth and anticipated wastewater capacity improvements are discussed in this section.

Anticipated Growth. Sources of growth within the District’s service area will come from:

- Development projects within the District;
- Infill as parcels currently not receiving sewer service connect;
- Projects/lands within the SOI requesting service; and
- Projects/lands outside the District requesting annexation and requesting sewer service.

Existing Capacity. Capacities of the wastewater facilities are comprised of treatment, storage and reclamation. The reclamation component is limiting, followed by the available storage capacity. Table 9 includes a summary of the estimated number of EDU that remain for each component. A total of 1,778

EDU could be served if the storage and reclamation components were increased to an ADWF of 0.4 MGD, equivalent to the treatment capacity.

Table 9

Existing Capacity ^(a)

	Flow, MGD	Total, EDU	Remaining, EDU
Treatment	0.40	1,778	630
Storage	0.37	1,644	496
Reclamation	0.31	1,378	230

(a) Based on 225 gpd/EDU and 1,148 currently connected.

Future Expansion

The District completed the wastewater permitting processes with the California Regional Water Quality Control Board in 2007 and acquired land and designed improvements to increase capacity to provide service up to 0.4 MGD, or approximately 1,778 EDU of capacity. The improvements would provide up to an additional 630 EDU of capacity based on 225 gpd/EDU. Improvements include modifying the existing reservoir to provide additional 34 acre-feet of storage capacity (11 Mgal) and development of a new reclamation area providing an additional 38 acres of useable reclamation area.

For the purpose of this memorandum, approximate acreages will be used in order to estimate future treatment, storage and reclamation needs. Eventually a detailed predesign report will be necessary including water balances specific to the type(s) of crop irrigated and proposed improvements including the geometry of the various ponds and reservoirs. Preliminary planning level costs are provided and are intended to provide an order of magnitude estimate and not intended to be used to set connection charge rates. Many factors will affect the project costs that cannot be determined at this time. Specific parcels are not identified for the various facilities, but are discussed in general terms.

The draft 'Lockeford Community Service District – Municipal Service Review' (April 2015) (MSR) prepared by the Lockeford Community Services District cites a 1.1-percent growth rate for the next 20 years, which may be a good average over the long term. However, there are potential development projects under consideration within the Lockeford area at this time including the Lockeford Vista, Kautz Project, and a possible Lockeford Oaks project in the future. Growth rates above 1.1-percent are likely in the near term that could drive development rates and the need for additional wastewater capacity sooner than assuming a 1.1-percent growth.

For wastewater planning purposes a blended growth approach was used to acknowledge the likelihood of accelerated growth beyond the 1.1-percent 'background' growth identified in the MSR. The increased growth could result from the known or potential developments projects in the Lockeford area including Lockeford Vista Project, the proposed Kautz Project, and the inactive Lockeford Oaks Project. For this analysis both the Lockeford Vista and Kautz Projects were assumed to buildout within the next 10-years, whereas the Lockeford Oaks Project would buildout over a 10-year period beginning 2026.

The overall growth rate, including the known projects and the background growth rate, results in a composite growth rate of approximately 2.3-percent over the next 20 years, after which the growth rate

was reduced to the background rate of 1.1-percent. Table 10 includes a summary of estimated wastewater flow rates and corresponding EDU over time.

Table 10

Projected Wastewater Generation Rates

Year	EDU(a)	Flow, MGD
2016	1,148	0.26
2026 ^(a)	1,885	0.42
2036 ^(b)	2,310	0.52
2046 ^(c)	2,477	0.56

- (a) Based on 1.1-percent growth background growth with 10-year buildout of the Lockeford Vista and Kautz developments beginning 2016.
- (b) Based on 1.1-percent growth background growth with 10-year buildout of the currently inactive Lockeford Oaks development over 10-years, beginning 2026.
- (c) Based on 1.1-percent background growth, assumption that major development projects build out.

The Lockeford Community Services District, Wastewater System Master Plan (Master Plan) completed in 1997 by ECO:LOGIC Engineering has been used to identify improvements in terms of land and storage needs. Addition of tertiary treatment is also considered in the event higher treatment levels are necessary to facilitate future reclamation of treated effluent.

Secondary Treatment Improvements. Secondary treatment is provided through an aerated pond to remove organic material and stabilize the wastewater. The effluent is disinfected to 23 MPN/100 ml (“Disinfected Secondary-23”) prior to transfer to the offsite storage reservoir. The disinfected effluent is used for irrigation of fodder crops. The existing configuration can provide up to 0.4 MGD of secondary treatment capacity.

Continued utilization of aerated ponds for future secondary treatment capacity is proposed through buildout. Secondary treatment is necessary to stabilize the wastewater prior to providing any additional treatment to provide a higher quality effluent (i.e. tertiary). Improvements to provide additional capacity to provide 1 MGD of secondary capacity as identified in the Master Plan include:

- Construct a berm to create two 3.2-acre ponds at 6.5 foot depth and add up to 35 horsepower of aeration – 0.64 MGD,
- Deepen the ponds to 8.5-foot depth and up to 45 horsepower of additional aeration – 0.85 MGD,
- Convert one of the onsite storage basins into one 3.2 acre pond with berm partition and up to 145 horsepower of additional aeration - >1 MGD. This improvement reduces the overall storage by 30-acre-ft which must be replaced, as discussed in storage requirements identified below.

Uses of secondary effluent is somewhat limited and identifying recycled use areas can be challenging due to the limited types of allowable reuse to treated effluent. Treating all or part of the secondary effluent to a tertiary level will provide more options for reuse in the future. Attachment A includes a summary of

allowable reuses based on the level of treatment. Tertiary treatment unit processes to treat the secondary effluent are discussed below.

Tertiary Treatment Improvements. Tertiary treatment increases the level of treatment beyond secondary effluent. There are fewer restrictions associated with the reuse of tertiary effluent that can provide more options for suitable lands for reuse. There are many unit processes and equipment manufacturers that can provide tertiary level of treatment, and a full evaluation of alternatives is beyond the scope of this feasibility study. For the purposes of this memorandum the following processes are assumed:

- Dissolved air flotation (DAF) to remove algae that may be produced while in storage;
- Filtration through rotating disk filters;
- Upgrades to the disinfection system to increase reliability;
- Addition of storage tanks, pump station, and conveyance piping.

These unit processes will enable the District to continue utilizing aerated ponds for secondary treatment and treat just the portion of the effluent to tertiary as necessary depending on the end uses. Ancillary improvements that will be necessary to utilize the tertiary effluent include steel storage tank(s), pump station, and conveyance pipeline to use areas.

Filtration is a key component of tertiary treatment. Rotating disk filters are easily expandable by adding additional filter disks as capacity is necessary. The Aqua-Aerobics Systems, Inc. MiniDisk system is considered herein, although there are many alternative manufacturers and technologies. The units are approved for production of Title 22 Tertiary Effluent. Algae growth in storage ponds can be problematic, so the DAF would be needed for pretreatment prior to filtration. Pilot testing will be necessary as part of the predesign efforts for process selection. Other technologies are available including granular media filters and should also be considered during predesign.

Table 11 includes tertiary treatment facilities and potential for phasing. Facilities have been selected to provide up to 0.60 MGD of tertiary capacity, assuming flows through 0.4 MGD would be treated to secondary levels and used on the reclamation areas currently permitted for the use of secondary level water. The phasing shown in Table 11 is considered preliminary. Alternative equipment manufacturers may be able to provide more alternatives for phasing, particularly on the first phase when initial costs are the highest.

Table 11
Tertiary Treatment Facilities ^(a)

Process/Component	Initial Capacity	Incremental Phase Expansion	Comments
Dissolved Air Flotation (DAF)	0.2 MGD	0.2 MGD	Provides pretreatment prior to filters; assumed material removed recycled to treatment pond. Smaller increments of capacity for future expansions may be possible with other equipment suppliers.
Filtration	0.2 MGD	0.05 MGD	Installation of two Parksin MiniDisk filters to provide duty and stand-by for redundancy. Expandable by adding additional filter disks in 50,000 gpd increments. Assumed backwash water is recycled to treatment pond.
Disinfection	0.2 MGD	<0.05 MGD	Disinfection utilizing liquid sodium hypochlorite system; increase capacity by upsizing chemical feed pumps and storage tanks to match treatment capacity.
Storage & Pumping	0.25 Mgal storage tank and pump station with capacity of up to 1 MGD	Additional 0.25 Mgal storage tank and incremental expansion of pump station	Water storage tanks used for storing tertiary effluent to maintain water quality and a pump station to pressurize and deliver water to end users. For purpose of planning a 0.25 Mgal storage tank was assumed. Tank size could be increased in future stages. Pump station capacity will be determined based on actual demands in system and can be expanded by increasing pump size or adding additional pumps.
Conveyance	N/A	N/A	Conveyance pipeline sized for ultimate capacity and assumed to be 0.60 MGD average day demand. Assuming a peaking factor of two, an 8-inch diameter pipeline would maintain velocity below 7 feet per second. Sizing and layout will depend on location of water demands.

(a) Conceptual plan subject to predesign and pilot studies.

Storage (secondary effluent). Storage will be necessary regardless of whether or not secondary or tertiary level of treatment is provided. Storage is provided to capture and hold secondary effluent during the winter months when there is little or no irrigation demand for the water. Earthen basins provide storage and hold secondary pond effluent through the late fall, winter and early spring. If tertiary treatment is provided, the secondary effluent would be pumped from the storage reservoirs and treated through the tertiary facilities and conveyed to end users. The Regional Water Quality Control Board permit requires that storage reservoirs be designed to contain treated effluent through wet years based on annual precipitation with a 1-100 year return frequency.

Storage currently consists of four reservoirs (three onsite and one offsite) totaling 280 acre-feet. The current ratio of storage to influent flow is 760 acre-ft/MGD and used to scale up additional storage requirements for future expansion. There are many factors that can affect that ratio including the geometry of the basin, the amount of inflow and infiltration, etc. A site specific water balance will be needed prior to finalizing the storage requirements.

Based on the projected influent flow of 1 MGD, a total of 760 acre-ft of storage will be necessary, which would include the development of 510 acre-ft of storage, which includes 480 acre-ft of new storage plus replacement of the 30-acre feet that was eliminated through the conversion of one of the existing storage ponds to treatment. Final sizing of the facilities will depend on reservoir liner and geometry of the basin during preparation of the water balances.

Reclamation. Reclamation areas consist of the crop area, tailwater return system to prevent water from flowing offsite, and distribution system which varies depending on the crop type and irrigation method (e.g. spray, drip or flood). The District currently utilizes 95 acres of fodder crop within the reclamation area on a single site. The current ratio of reclamation area to influent flow is 306 acres/MGD. Crop type and irrigation methods impact the amount of applied water and this ratio will need to be revisited based on specific reuses during preparation of the water balances.

Conceptual Improvement Plan and Planning Level Costs

A conceptual improvement plan is presented in this section. Planning level costs are provided. A detailed predesign report will be necessary to select equipment, size facilities, develop costs, and compare alternative technologies for suitability and life cycle costs. Tertiary treatment was assumed to be provided in a manner that can be phased. Ideally, the District could identify lands and reclamation suitable for secondary effluent to minimize treatment cost by avoiding the need for tertiary treatment.

Secondary Capacity. Secondary treatment will be necessary through buildout, conservatively estimated with an influent flow of 1 MGD. Estimated costs have been developed based on the 1997 Master Plan and scaled up based on the Engineering News Record Construction Cost Index. Table 12 includes a summary of the various flow increments (based on the treatment increments included in the 1997 Master Plan), associated EDU served by the expansion, and costs. Costs include land acquisition, site development and soft costs along with a 20-percent contingency for the development of more secondary pond treatment and development of reclamation area, including land cost and storage. Wastewater collection and conveyance facilities are not included in these costs.

The total cost of providing treatment, storage and land is approximately \$40 million and would serve an additional 3,300 EDU. The estimated connection charge associated with increasing secondary treatment ranges from \$12,000 to \$15,000; however, there are a number of factors that could influence the actual cost such as land prices, construction climate, future regulatory environment, incremental capacity of future expansions, etc.

Tertiary Capacity. Tertiary improvements are based on providing secondary treatment to stabilize the organic material through the pond system, pretreatment to remove algae, filtration, disinfection, storage/pumping, and limited conveyance facilities to the use areas. Tertiary treatment improvements are assumed to be located at the existing wastewater treatment plant.

Costs include equipment, site development, electrical and controls, and conveyance piping. Preliminary engineering, including pilot testing, will be necessary to size and specify the unit processes prior to design. Table 13 includes a summary of costs, EDU served, and estimated connection charge based on rough estimate of phasing. The estimated cost of providing 0.6 MGD of tertiary capacity, not including secondary costs, is \$13 million. The estimate includes 30-percent for engineering, administration and construction management and an additional 40-percent contingency due to uncertainties at this phase of planning.

A major variable will be conveyance cost and is completely dependent on the location of the use area. Two miles of pipeline were assumed in the cost estimate included in Table 13 and occur in two phases. Costs for expansion increase significantly when conveyance is included. In all likelihood, conveyance would probably occur in smaller increments over time, but cannot be determined at this point and dependent on the location of the use areas. Providing tertiary capacity up to 0.6 MGD would serve approximately 2,667 EDU based on 225 gpd/day per EDU. The total estimated cost of the tertiary improvements is \$13 million, with an average cost of \$4,850/EDU. These costs are in addition to the costs to bring the water to secondary level of treatment. Land acquisition costs were included in the secondary treatment, storage and reuse costs.

The total connection charge would likely range between \$17,000 to \$20,000 for secondary/tertiary treatment, storage and final use at a recycle water use area. Conveyance costs to convey raw sewage to the wastewater treatment plant are not included in this estimate and are site specific.

Table 12
Secondary Capacity Planning Level Costs

Cumulative Flow, MGD (a)	Cumulative EDU	Treatment		Storage		Reclamation		Total	
		Improvements	Incremental Cost, \$ (x1,000)	Improvements (additional AF)	Incremental Cost, \$ (x1,000)	Improvements (additional Acres)	Incremental Cost, \$ (x1,000)	Incremental Cost, \$ (x1,000)	Estimated Cost per EDU, \$
0.4	1,778	N/A	0	0	0	0	0	0	0
0.64	2,944	Construct berm to create two 3.2 acre ponds at 5.5 foot depth and add 35 HP of aeration.	\$1,000	185	\$7,500	75	\$10,250	\$13,800	\$13,900
0.75	3,333	Add berms to create four 1.2 acre ponds at 7.5 foot depth and add 30 HP of aeration.	\$700	85	\$1,150	35	\$4,700	\$6,500	\$13,400
0.85	3,778	Deepen 3.2 acre ponds to 8.5 foot depth and add up to 45 HP of aeration.	\$640	75	\$1,100	31	\$4,300	\$6,000	\$13,400
>1	4,444	Convert south-east storage basin into one 5.2 acre pond with berms and add 145 hp.	\$1,900	115	\$1,600	47	\$5,400	\$9,800	\$14,700

(a) Flow increments based on Treatment Capacity Rating included in the 1997 Master Plan
(b) Land cost of \$80,000 per acre.
(c) Based on Engineering Now & Record 25-Client Construction Cost Index of 10,100.

Table 13

Tertiary Capacity Planning Level Costs

Total Influent Flow, MGD (a)	Cumulative EDU	Treatment	Incremental Cost, \$ (x 1,000)	Incremental EDU Served	Estimated Cost per \$/EDU
0.4	1,778	NA – Assumed secondary treatment through 0.4 MGD	--	--	--
0.64	2,844	Site work, 0.25 MGD of Initial capacity for DAF/FT and filter capacity; disinfection improvements, 0.25 Mgal of storage, pumping and one mile of conveyance pipeline.	\$7,600	1,067	\$7,200
0.75	3,333	Treatment improvements, no pipeline extension or storage expansion.	\$450	489	\$1,500
0.85	3,778	Treatment capacity improvements including one mile of conveyance piping and storage improvements.	\$3,900	444	\$8,800
>1	4,444	Treatment improvements, no pipeline extension or storage expansion.	\$650	667	\$1,000

(a) Flow increments based on treatment capacity staging included in the 1997 Master Plan.

(b) All costs include 30-percent for engineering/admin/CM and 40-percent contingency.

(c) Based on Engineering News Record 20-Cities Construction Cost Index of 10,100.

Other Considerations

There are a number of other considerations that will play into the long-term wastewater treatment, storage and reclamation alternatives presented herein. Some of the more important factors are outlined below.

Cost of Service. Cost of service includes the initial connection charge to purchase capacity into the system and ongoing monthly service charges to cover operation and maintenance, and depreciation.

Connection Charge. Future connections to the wastewater treatment system must contribute to capacity expansions through the connection charge. If the connection charge is too high, then growth will be inhibited. Initial phases of the projects are generally the most difficult due to higher initial costs with minimal connections to front the costs. Preliminary connection charges have been presented in the following sections for development of secondary and tertiary treatment. The expected connection charge would likely be in the range of \$17,000 to \$20,000 per EDU, for treatment (secondary + tertiary), storage, and reclamation based on improvements identified herein. The estimated connection charges for the various incremental capacity increases are shown in Tables 12 and 13. The District will need to complete a detailed preliminary engineering report and develop a final connection charge that represents the average connection cost over time. These costs are based on 2016 cost level. Detailed predesign evaluation will be necessary to confirm findings herein and develop a specific plan and final connection charge costs representing the average connection cost over time. Wastewater collection system extensions are not included and dependent on the location and will need to be included.

Monthly Service Charge. Monthly service charge covers O&M and depreciation. Tertiary treatment costs will increase the overall cost to customers receiving wastewater service. Means of passing those costs onto customers will need to be addressed in a rate study that determines the appropriate assignment of the costs.

Future Reclamation Areas. The reclamation area(s) beyond those currently owned by the District will be developed in the future. Key considerations on future reclamation areas include:

- **Reclamation Area Ownership** – the Regional Water Quality Control Board prefers that the discharger owns and has control over the reclamation area to ensure long-term viability and continued use of the lands. Historically this has worked for secondary recycled water on lands used to grow fodder crops. Depending on the end use of the recycled water - orchards, vineyards and golf courses could be suitable reuse for Tittle 22 tertiary recycled water. Purchasing these types of lands is probably not realistic and long-term agreements would be necessary and must be approved by the Regional Board as part of the permitting process.
- **Land Acquisition** – Identifying lands for recycled water use has been time consuming in the past due to lack of interest in using recycled water and/or lack of a desire to sell property to the District. Identifying lands will in part be based on the type of reuse and quality of the recycled water provided. Pursuing land for recycled water use should be initiated long-before needed to account for the time necessary to develop into a use area.
- **Drought Impacts** - The recent drought has exemplified the need to develop additional water resources throughout California. Over time, effluent reuse will likely become more common. Effluent streams are treated as a commodity in water scarce areas, which may become the case in the future around Lockeford, and create more opportunities for reuse.

Monitoring Wastewater Generation Rates. The District should monitor wastewater generation rates. As noted, there are a number of factors that have reduced wastewater generation within the District.

Reasonably conservative wastewater generation factors have been used, but should be adjusted either up or down if necessary depending on future conditions.

Implementation Schedule. Development of wastewater improvement projects can take some time. There are a number of tasks that must be completed including:

- Planning and predesign,
- Identifying suitable recycled water use areas,
- Applying for and obtaining a Waste Discharge Permit,
- Environmental requirements,
- Funding agreements, and
- Construction and start up.

The District has acquired land and received a permit for the next expansion through 0.4 MGD. Efforts to identify lands and begin the permitting process should begin well in advance of the need for more capacity.

Future Need for Recycled Effluent. The current drought affecting California will likely change policy within the State to develop water supplies. Future acceptance and use of recycled effluent is increasing and in some cases considered a valuable commodity rather than a waste. As the State's water resources become further stretched, identifying uses for recycled water may become easier.

The District may consider exploring groundwater recharge as a potential to recycle a portion of the effluent. Prior to implementing a recharge project, close coordination with the State Water Resources Control Board regarding water quality and the groups such as the North San Joaquin Water Conservation District or the San Joaquin County Groundwater Banking Authority will be necessary. Treatment levels would likely need to be tertiary, depending on the location and aquifer characteristics, but would need to be closely coordinated with regulatory agencies.

Higher levels of treatment will translate into higher capital and operational costs compared with continued production of secondary level effluent, but may be necessary if suitable lands for application of lower quality reclaimed water cannot be identified. Future reclamation areas suitable for Title 22 tertiary effluent could include parks, food crops (e.g. grape vines, nut trees), schools, road medians, etc. The preponderance of these types of land uses in the area could provide more opportunities for reuse in the future.

Conclusions and Recommendations

Conclusions and recommendations from this report are summarized below.

Conclusions:

1. The District provides wastewater service within the District. **The current facility can be expanded to 0.4 MGD and providing secondary-23 level of treatment.** The project has been permitted by the Regional Board. Current influent flows are 0.26 MGD. Reclamation and storage are limiting at capacities of 0.31 and 0.37 MGD, respectively.
2. Improvements include increasing the volume of the existing storage reservoir by deepening it and development of a new reclamation facility at a site owned by the District.
3. **Since the 1997 Master Plan was completed, unit wastewater generation rates appear to have dropped.** The recommend wastewater generation rate is 225 gpd/EDU. An EDU represents a typical single family home.

4. Increasing the capacity to 0.4 MGD will result in approximately 622 new single family residential units worth of development.
5. There is limited active development in and around the District and includes:
 - o The Lockeford Vista Project, which consists of 159 single family homes and expected to begin construction in 2016.
 - o Interest in the Kautz Project and would entail up to 420 single family homes. The parcels are not in the District Boundary or the SOI and would need to be annexed.
 - o The Lockeford Oaks Project could consist of 306 single family homes based on the currently approved tentative map – the wastewater generated from this project is accounted for within the estimated wastewater generation rates for the District.
6. Future development within the District boundary and the SOI include:
 - o Approximately 1,800 EDU of potential development within the District boundary.
 - o Approximately 950 EDU within the SOI.
 - o At full buildout of the SOI, including the addition of the Kautz Project there is projected to up to 1 MGD of flow, or approximately 4,400 EDU, including existing development.
7. Full buildout of the District and SOI is projected to occur in 2,119 based on growth rate assumptions used herein.
8. Future wastewater treatment will likely consist of a combination of secondary treatment followed by tertiary level of treatment of a portion of the flow. Tertiary effluent has more potential for reuses and developing reuse areas may be easier.
9. Connection charges based on the feasibility plan included herein range between \$17,000 and \$20,000 per EDU and would include costs for secondary and tertiary treatment. Preliminary engineering reports will be necessary to confirm equipment type and sizing and cost to determine actual connection charges. Cost for conveyance will depend on the location of the development and not included in the calculated charge.
10. Monthly service charge to cover O&M and depreciation costs will need to be evaluated. Tertiary treatment will increase operational costs. A rate study will be necessary to develop an equitable rate structure. Service charge rates should not be excessive given only a portion of the effluent will be treated to tertiary level. Tertiary treatment is becoming more common place throughout California and there may be some offset to production costs if the recycled water is sold to end users.
11. The District should begin the process of developing additional capacity, including predesign, permitting, identify potential reuse areas. etc. well in advance of needing capacity. Based on the growth rates assumed herein, the existing permitted capacity of 0.4 MGD will be utilized in approximately 10-years. Additional capacity will be necessary at that time including development of additional storage and new recycled use areas.

Recommendations from this report are summarized below.

Recommendations:

1. Present the draft results of this study to the District Board of Directors and incorporate comments.
2. Submit final report to San Joaquin LAFCo for use in preparation of the Municipal Service Review / Sphere Update and in consideration for annexation requests for development projects, including the Kautz Project, that have requested inclusion in the sphere and annexation into the District to receive wastewater service.

3. Monitor future wastewater influent flows and assess the EDU unit flow; update unit rates if necessary.
4. Complete detailed predesign of facilities to size and select the various components.
5. Prepare a wastewater rate study to develop equitable means of recovering cost of O&M and depreciation of secondary and tertiary treatment facilities.
6. Develop a strategic plan to begin to identify land owners that may be interested in utilizing secondary or tertiary recycled water. Efforts should begin well before the actual need for the capacity is necessary.
 - o With the addition of tertiary treatment, end uses could include food crops, right of ways, golf courses, etc. as described in Attachment A. Search for land should take the additional uses into account.

ATTACHMENT A

Allowable Wastewater Reuses Based on Treatment Level

The California Code of Regulations (Title 22) stipulates allowable forms of reuse of reclaimed water. Increasing the level of treatment provides additional opportunities for reuse. Three levels of treatment are summarized below and allowable uses for each level of treatment are summarized in Table 1A for reference.

Disinfected tertiary recycled water: Under California Title 22 code of regulations, Division 4 Environmental Health, Chapter 3 section 60301.225 "Disinfected tertiary recycled water" means a filtered and subsequently disinfected wastewater that meets the specific criteria outlined in the code. Also, The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

Disinfected secondary-2.2 recycled water: "Disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

Disinfected secondary-23 recycled water: "Disinfected secondary-23 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period.

The District currently produces Disinfected Secondary – 23. The water is used for the irrigation of fodder crops used for beef cattle. More opportunities for reuse may be available as the level of treatment increases. The District may consider increasing the level of treatment of a portion of the effluent in the future to provide more opportunities for reuse if suitable lands to apply secondary effluent are not available.

Higher levels of treatment will translate into higher capital and operational costs compared with continued production of secondary level effluent, but may be necessary if suitable lands for application of lower quality reclaimed cannot be identified. Tertiary level reclaimed water is suitable for the irrigation of vineyards and orchards. The preponderance of these types of land uses in the area could provide more opportunities for reuse in the future.

This information was updated July 16, 2015 and these compilations of recycled water-related laws were once referred to by staff and the regulated community as "The Purple Book."

Table 1A
Water Reuse Guidelines

Allowable Reuses	Secodary- 2.2	Secondary - 23	Tertiary Disinfection
Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop,	n	n	y
parks and playgrounds	n	n	y
school yards	n	n	y
residential landscaping	n	n	y
unrestricted access golf courses	n	n	y
Impoundments	n	n	y
Industrial or Commercial Cooling and air conditioning	n	n	y
structural fire fighting	n	n	y
commercial laundries	n	n	y
commercial car washes	n	n	y
Industrial process water that may come into contact with workers	n	n	y
Consolidation of backfill around potable water pipelines	n	n	y
Decorative fountains	n	n	y
Industrial boiler feed	n	y	y
Nonstructural fire fighting	n	y	y
Cleaning roads, sidewalks and outdoor work areas	n	y	y
Dust control on roads and streets	n	y	y
Mixing concrete	n	y	y
Industrial boiler feed	n	y	y

Backfill consolidation around nonpotable piping	n	y	y
Industrial process water that will not come into contact with workers			
	n	y	y
cemetery irrigation	n	y	y
freeway landscaping	n	y	y
restricted access golf courses	n	y	y
Ornamental nursery stock and sod farms where access by the general public is not restricted	n	y	y
Pasture for animals producing milk for human consumption	n	y	y
Any nonedible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground or school yard	n	y	y
Orchards where the recycled water does not come into contact with the edible portion of the crop	y	y	y
Vineyards where the recycled water does not come into contact with the edible portion of the crop	y	y	y

Non food-bearing trees (Christmas tree farms are included in this category provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting or allowing access by the general public)	Y	Y	Y
Fodder and fiber crops and pasture for animals not producing milk for human consumption	Y	Y	Y
Seed crops not eaten by humans	Y	Y	Y
Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans	Y	Y	Y
Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public	y	y	y