Request For Proposal (RFP)
Assessment District Engineering and Administration Services

1. Introduction

San Joaquin Area Flood Control Agency (SJAFCA) is requesting proposals from qualified and available firms to provide annual assessment district engineer's reports and administration services. The Agency intends to select a qualified consultant to commence these services for Fiscal Year 2027/28 tax year and renewable every five years thereafter with satisfactory performance. The Agency seeks a consultant or firm with experience and expertise in the management and administration of annual district assessments in San Joaquin County, California. The selected firm will be expected to provide comprehensive services to ensure the accurate and timely administration of the Agency's Annual District Assessments and related Engineer's Reports. We invite all interested firms to submit their proposals in response to this RFP. The following provides general information regarding the history of SJAFCA's Assessment Districts, the requested scope of services, and the requirements for responses to this request.

Additional information about SJAFCA is available online at: sjafca.org

SJAFCA reserves the right to amend this RFP or to cancel the solicitation at any time, and to reject any and all submissions if doing so is determined to be in the Agency's best interest.

2. Background

SJAFCA is a Joint Powers Authority created in 1995 by San Joaquin County, the City of Stockton, and the San Joaquin County Flood Control & Water Conservation District and later expanded to include the Cities of Lathrop and Manteca in 2017. SJAFCA's mission is to reduce and manage the region's flood risk through implementation of capital projects and programs in collaboration with local, state, and federal partners. SJAFCA receives a significant amount of revenues to implement flood control projects in San Joaquin County through the assessment districts listed below.

2.1 Flood Protection Restoration Assessment 96-1 (AD 96-1) District. SAJFCA is authorized to annually levy and collect special assessments to provide and maintain facilities, improvements, and services within the Flood Protection Restoration Assessment District 96-1 (Reassessment and Refunding of 2002). The District was formed in 1996 and the Agency annually levies and collects assessments to maintain the improvements installed and constructed within the District pursuant to the Municipal Improvement Act of 1913, Division 12 of the California Streets and Highways Code §10000 (the "1913 Act"). By approving the formation of the Flood Protection Restoration Assessment District 96-1 on February 28, 1996, the Board also approved the levying of annual Operations and Maintenance (O&M) assessments to provide for the maintenance of levee improvements and detention basins constructed by SJAFCA. Each year, the Board must approve the O&M budget for the upcoming fiscal year. A notice of public hearing is published annually to inform the public of the O&M budget. The assessments are collected on the County tax rolls on parcels and subdivisions of land within the District that benefit from the improvements.

2.2 Levee Construction and Maintenance Assessment (LCMA) District was formed in June 2023 to levy a special benefit assessment for funding operations, maintenance, repair, replacement and rehabilitation (OMRR&R or O&M) of San Joaquin Flood Control and Water Conservation District Zone 9 maintained levees as well as flood risk reduction projects, including the Federally Authorized Lower San Joaquin River Project (LSJRP), to ensure continued Federal Emergency Management Agency (FEMA) accreditation of levees providing 100-year protection into the future. The LSJRP consists of 23 miles of

levee improvements and two closure structures. Construction of one of those closure structures, the Smith Canal Gate (SCG), was advanced early by SJAFCA and the State of California, and is a critical component of the flood risk reduction portfolio. As further described within the Final Engineer's Report, because of the relationship between the LSJRP, the SCG, and the previously formed Smith Canal Area Assessment District1 (SCAAD), as part of the formation of the LCMA District, SJAFCA's actions included; 1) The cessation future levies of SCAAD assessments on properties located within that District, and 2) the refunding of SCAAD Bonds as part the issuance of LCMA Bonds. Further, as it relates to the SCG, revenues from the LCMA District would be utilized to fund the remaining local share of the SCG and funding its ongoing O&M. In compliance with Proposition 218, parcels within the LCMA District are assessed for the improvements and services that specifically benefit each parcel. The special benefit provided to properties within the District is based on avoidance of flood damage to structures, contents of structures, and land. The Annual Engineer's Report specifies how these flood damage reduction benefits are calculated. The assessments are collected on the County tax rolls and manual billing on parcels and subdivisions of land within the District that benefit from the improvements.

2.3 Mossdale Tract Overlay Assessment District (OAD) was formed in 2024 to levy a special benefits assessment to fund the operation, program planning, design, construction, installation, implementation, and maintenance of the proposed fix-in-place and potential levee setback improvements and the dryland levee extension to achieve and maintain 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area, including related incidental expenses. To comply with State and Federal requirements, the overall objective of the Project is to provide increased public safety benefits by improving and expanding flood risk reduction infrastructure to achieve a 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area. The Damages Avoided, also known as Flood Damage Reduction Benefit (FDRB) method of assessment apportionment is utilized in this District. Total Damages Avoided for each parcel are based on the combined structure damage, content damage, and land damage reduction benefit. The assessments are collected on the County tax rolls and manual billing on parcels and subdivisions of land within the District that benefit from the improvements.

3. Scope of Services

It is expected that the selected firm will develop a Scope of Services for the District's Assessments and Administration Services for review and approval by SJAFCA to, at a minimum:

3.1 DATA REVIEW AND INTEGRITY

Research changes in property data, usage, valuations, and assessment changes from the previous year for all parcels within the Assessment Districts. Flag all parcels that require property research to determine the appropriate assessment. Maintain and periodically update an electronic database containing parcel basis data and annual Assessment levy amounts by Assessor's Parcel Number. Updates to the database should include those necessitated by the addition and/or removal of parcels, land subdivisions and merges, ownership and mailing address changes, and adjusted benefit unit information.

3.2 COORDINATION WITH SJAFCA STAFF AND OTHER AGENCY REPRESENTATIVES

Meet with District staff, District Board, legal counsel, and other individuals as needed to establish a timeline, review assessment data, and accomplish other tasks related to the administration of assessments. Be available to attend meetings with SJAFCA staff and the Board of Directors as needed.

3.3. PREPARE ANNUAL ENGINEER'S REPORTS FOR EACH ASSESSMENT DISTRICT AND NOTICING

Prepare annual Preliminary and Final Engineer's reports to include description of improvements, annual budgets, benefit spread methodologies, assessment district diagrams, and a listing of individual assessments for each parcel within each assessment district. The Engineer's Reports shall be stamped by a Professional Engineer licensed in the State of California.

Upon approval of each Preliminary Engineer's Report and Notice of Public Hearing, file with the necessary designated filing locations and outlets as determined by the Assessment District.

3.4. PREPARE APPORTIONMENT OF DISTRICTS' ASSESSMENTS

Annually calculate and apportion the assessments as specified in the Engineer's Report.

3.5. PREPARE ANNUAL DISTRICTS' ASSESSMENTS

Prepare an annual resolution and associated required documentation that establishes the assessment roll for the fiscal year.

3.6. PUBLIC OUTREACH ON ANNUAL DISTRICTS' ASSESSMENTS

At public hearings and board meetings, be available to respond to property owners' concerns about the Assessment Districts and be available to adjust as may be necessary.

3.7. PREPARE AND SUBMIT LEVY OF DISTRICTS' ASSESSMENTS

Provide the assessment levies for each parcel by Assessor's Parcel Number to the respective County Auditor /Controller's Office in the media, format and configuration required by the Counties for placement on the annual property tax roll.

3.8. ADDRESS VERIFICATION AND PROCESS RETURNED HAND BILL ASSESSMENTS

Research parcel exceptions provided by the Counties and, if possible, resubmit installment amounts that are unapplied by the County Auditor/Controller's Office. In addition, the respondent firm will manually invoice assessment installments that cannot be collected on the County property tax rolls on behalf of SJAFCA in coordination with SJAFCA staff and San Joaquin County (SJAFCA's fiduciary agency that provides all treasury and financial functions). The respondent will also work with San Joaquin County staff to track direct bill payments and provide the County and SJAFCA with a tracking document for their use.

Assist SJAFCA as requested with any property owner inquiries regarding the district and assessments. Provide the County Auditor with an actively monitored working phone number so property owners can contact the District Assessment Consultant throughout the fiscal year regarding specific assessment levies, procedures, and other issues.

3.9. PREPARE REPORT OF DELINQUENCIES OF DISTRICTS' ASSESSMENTS

Annually monitor delinquencies, prepare and submit periodic delinquency reports to SJAFCA in support of required ongoing bond disclosure and financial reporting. Propose collection options of uncollected assessment. SJAFCA will work with the selected firm to determine the most efficient way to continue the annual reporting in compliance with the agency's Continuing Disclosure Certificate. Maintain delinquency database each year on behalf of SJAFCA.

3.10. PROVIDE DATA AND RELATED REPORTS IN COMPATIBLE FORMATS

Annually, provide SJAFCA the Assessment roll data in a searchable MS Excel format to allow for use on SJAFCA's website, for use by SJAFCA's auditor and for use by SJAFCA's financial manager on an as needed basis.

3.11. OTHER TASKS

Perform such other tasks in relation to Districts' Assessments proceedings as may be requested by SJAFCA staff.

4. Submittal Requirements

Interested firms must submit the following information:

4.1 COVER LETTER

Introduce your firm and confirm your interest in the project. The cover letter should be signed by an authorized official of the firm. Include the name, title, address, phone, and email of the primary contact person for the proposal. The cover letter may also briefly summarize your understanding of SJAFCA's needs and the reasons your firm is suited for this work. (Limit to two pages.)

4.2 FIRM QUALIFICATIONS AND EXPERIENCE

Provide a summary of your firm's background, size, and expertise, particularly experience in conducting special district administration. Please highlight your firm's most relevant engagements that you believe qualify your firm to provide the requested services. Provide examples of specific special district assessment administrations previously conducted for other public agencies and project managements plan. If your qualifications are those of a team that includes sub-consultants, describe the team composition and prior working relationships (if any) that demonstrate your ability to successfully collaborate.

4.3 PROJECT TEAM AND KEY PERSONNEL

Identify the key personnel who will be assigned to this assignment, including the project manager and any lead analysts/consultants. For each individual, describe their role on the project and provide a brief resume or summary of relevant experience. If sub- consultants or technical specialists will be used, provide their qualifications as well. The Proposal should make clear the availability of key staff and the commitment that they will be involved in the project through completion. *(Resumes can be included in an appendix and will not count against the page limit, as noted below.)*

4.4 APPROACH

Discuss the firm's understanding of the requirements of conducting assessment administration and outline the proposed technical approach for completing the Scope of Services. Summarize how the firm will approach the assignment, methodology development, and interaction with the Agency. A proposed work plan or timeline can be included to demonstrate the sequence of activities.

4.5 RELEVENT PROJECT EXPERIENCE AND REFRENCES

Provide a brief description of at least three (3) similar projects completed by your firm. For each project, please include: the client agency name, the year completed, and a brief description of the work performed as well as a client reference (name, title, phone, email) whom SJAFCA may contact to inquire about the firm's performance.

4.6 CONFILIC DISCLOSURE

Disclose any actual or potential conflicts of interest between SJAFCA, its officers, Board, and staff, and any other person or entity represented by firm responding to this Request for Proposal.

4.7 ADDITIONAL INFORMATION

Please provide any additional information about your firm as it may relate to this RFP. You may include letters of reference, ongoing commitment to professional education of staff, the total number of permanent employees, and any other data that may assist in the Agency's evaluation of your proposal and expertise.

4.8 PAGE LIMIT

The Proposal (excluding the cover letter, appendices, and/or attachments) should not exceed 20 single-sided pages. Pages shall be standard letter size (8.5" x 11"), with at least 11-point font and 1-inch margins. Any Cover page and/or table of contents will not count toward the page limit, nor will the resumes of key staff if provided in an appendix or attachment. Brevity and clarity are encouraged.

4.9 SUBMISSION FORMAT

One (1) PDF electronic copy of the Proposal shall be submitted to on a single virus-free USB Flash Drive delivered in a sealed envelope containing the proposal package.

5. RFP Schedule

The list below outlines the anticipated schedule for the RFQ and selection process. SJAFCA reserves the right to modify these dates as necessary; any changes will be communicated to all known proposers or posted on the SJAFCA website.

RFP Issuance Date:	4/15/2026
Deadline for Questions:	5/1/2026 by 4:00 PM
Proposal Due Date and Time:	**5/15/2026 by 4:00 PM**
Evaluation of Submissions:	5/18 to 5/26/2026
Interviews (if needed):	6/01/2026
Selection of Consultant:	6/05/2026
Approval of Contract:	6/12/2026
Project Commencement:	6/12/2026

SJAFCA expects to adhere to the schedule as closely as possible. Proposal Due Date (as specified above) is firm; responses received after the deadline will not be considered. Proposers are encouraged to submit early to avoid any last-minute delivery issues.

6. Questions and Clarifications

Questions regarding this RFP must be submitted in writing via email to:

Sylvia Razniak
Director of Finance & Human Resources
email: Sylvia.Razniak@sjafca.org

No later than May 1, 2026 by 4:00 PM. Please include "SJAFCA Assessment Administration RFP Question" in the email subject line.

If needed, based on the questions received, SJAFCA will compile all questions received by the deadline and issue a written addendum modifying the RFP considering the question posed. This addendum will be emailed to all firms who have requested the RFP or otherwise registered interest, and/or posted on the

SJAFCA website, by May 5, 2026. If it is determined that an addendum needs to be issued, SJAFCA may extend the Proposal due date to allow adequate time for responders to incorporate clarifications from any addenda. Proposers are responsible for obtaining any addenda from SJAFCA.

7. Evaluation and Selection

Proposals will be evaluated by a selection committee of SJAFCA staff (and/or qualified external reviewers). The committee will review each Proposal for completeness and responsiveness to the RFP. Proposal failing to meet the RFP requirements may be disqualified without further evaluation.

For Proposal that meet the submittal requirements, the committee will evaluate and score the qualificat ions using criteria that include, but are not limited to, the following:

7.1 UNDERSTANDING ANF APPROACH (15 POINTS):

The proposer's grasp of the requirements of conducting assessment administration and the approach for how the proposer plans to execute the scope of services.

7.2 EXPERIENCE WITH SIMILAR PROJECTS (35 POINTS):

Demonstrated previous experience in conducting special district administration.

7.3 QUALIFICATIONS OF PROJECT TEAM (20 POINTS):

The expertise, qualifications, and relevant experience of the proposed project manager and key team members. Strong project management skills and the ability to communicate financial concepts to non-financial stakeholders are desirable.

7.4 LEVEL OF EFFORT (10 POINTS):

Please provide a level of effort matrix that includes the tasks and proposed hours by each job classification to execute the proposed work. Do not include costs or billing rates in this section.

7.5 REFRENCE AND PAST PERFORMANCE (15 POINTS):

Feedback from references or past clients on similar projects, regarding the firm's quality of work, adherence to schedules and budget, and overall performance. A track record in previously conducted assessment administration with other agencies. SJAFCA may contact the references provided to substantiate the information in the Proposal.

7.6 OVERALL QUALITY AND RESPONSIVNESS OF PROPOSAL (5 POINTS):

The clarity, professionalism, and completeness of the submission. The Proposal should address all requirements of this RFP. The inclusion of any innovative ideas or value-added services (while still meeting requirements of the RFP) may also be considered in the evaluation.

The evaluation committee will assign ratings based on the above criteria. SJAFCA does not intend to include cost as a scored criterion for this qualifications-based RFP; cost proposals are not evaluated as part of the criteria at this time. Following the initial evaluation, SJAFCA may invite one or more qualified firms to oral interviews on June 1, 2026 for final selection. It is expected that the interview process will take place virtually via Microsoft Teams. The interview will allow the firm's key team members to present their experience and approach, and for the committee to ask questions or seek clarification on the Proposal. The committee may re-score the finalists after interviews to determine the best qualified firm.

At the conclusion of the evaluation process (which may include interviews and reference checks), SJAFCA will identify the best qualified firm and proceed to negotiate a final Professional Services Agreement. The selected firm will be expected to enter into SJAFCA's standard contract (a template Master Services Agreement is attached to this RFP for reference). During contract negotiations, the scope of work, deliverables, schedule, and fee will be finalized. If SJAFCA cannot reach agreement with the best qualified firm, the Agency reserves the right to terminate negotiations and commence discussions with the next best qualified firm, or to take other appropriate action.

SJAFCA intends to award the contract to the best-qualified firm. Participation in this RFP process by submitting a Proposal indicates acceptance of the evaluation process and recognition that subjective judgments must be made by the selection committee. By submitting, proposers acknowledge that SJAFCA reserves the right to reject any and all Proposals, to waive minor irregularities or informalities in a Proposal, and to request clarification of any information submitted.

This RFQ solicitation does not obligate SJAFCA to enter into a contract nor to pay any costs incurred in the preparation of a Proposal. All Proposals become the property of SJAFCA and are subject to public disclosure under the California Public Records Act after award, except to the extent that a proposer has designated any legally exempt proprietary information.

8. Submission Instructions

8.1 SUBMISSION DEADLINE:

Complete Proposal packages must be received by SJAFCA no later than 4:00 PM (Pacific Time) on May 15, 2026 (the "Proposal Due Date"). Late submission will not be accepted or considered. Please provide a cost proposal in a separately sealed envelope, also due by the same date and time.

Proposals (Proposals and related attachments, with USB Flash Drive) and sealed cost proposal shall be delivered by Express Mail or in-person at the following address:

Sylvia Razniak
Director of Finance & Human Resources
San Joaquin Area Flood Control Agency
2800 W March Ln, Suite 200
Stockton, CA 95219

If submitting in person, please check in with the SJAFCA administrative office on the 2nd floor. If mailing, ensure delivery by the deadline; postmarks are not sufficient.

Each Proposal should include all materials as specified in Section 4.0 *Submittal Requirements*. It is the proposer's responsibility to ensure the packet is complete and responsive to the RFP.

8.2 WITHDRAWAL OR ALTERNATION OF A PROPOSAL:

A firm may withdraw its submission by written request after the due date, however no Proposal can be altered, amended, or supplemented after the due date, although SJAFCA may request clarifications during the evaluation.

SJAFCA will not reimburse any costs incurred in the preparation or delivery of the Proposal. All submissions remain the property of the consultant and can be returned to them at their request. By submitting a Proposal, proposers agree that their submission is valid for at least 90 days from the Proposal due date.

9. Additional Conditions

9.1 CONFLIC OF INTEREST:

Firms shall disclose any financial, business or other relationship with SJAFCA, its member agencies, or any member of the Board that may have an impact on the outcome of this contract. Likewise, any existing contracts with SJAFCA or recent assignments that could be perceived as a conflict should be described. SJAFCA reserves the right to disqualify any firm on the basis of a conflict of interest.

9.2 INSURANCE AND CONTRACT REQUIREMENTS:

The successful firm will be required to enter into a Service Agreement with SJAFCA and maintain insurance coverages as required by the Agency. By submitting a Proposal, the firm indicates its ability and willingness to meet the requirements of the Agreement.

9.3 RESERVATIONS:

SJAFCA reserves the right, without qualification, to reject any or all submissions or to cancel this RFP in whole or in part, if such action is deemed in the Agency's best interest. This RFP does not commit SJAFCA to award a contract or to pay any costs incurred in the preparation of a Proposal. SJAFCA also reserves the right to amend this RFP, postpone the award, or change the schedule at any time. Any such changes will be communicated to all known proposers.

9.4 PUBLIC RECORD:

Proposals submitted in response to this solicitation shall become the property of SJAFCA and, upon contract award, are considered public records available for release to requestors under the California Public Records Act (California Government Code §6250 et seq.), with the exception of any materials that are exempt from disclosure by law. If a proposer believes any portion of its submission is exempt from public disclosure, such portion must be clearly marked "PROPRIETARY" or "CONFIDENTIAL." While SJAFCA will endeavor to protect such information to the extent allowed by law, it cannot guarantee that information marked as confidential will not be disclosed if required by law. Entire Proposal cannot be designated as confidential.

SJAFCA appreciates your interest in this Request for Proposal. We look forward to reviewing your submission.

For any questions or clarification regarding this RFP, please refer to Section 6.0 (Questions and Clarifications) for the proper inquiry process.

Agreement No
Project Title:
Fiscal Year:

PROFESSIONAL SERVICES AGREEMENT FOR CONSULTANT SERVICES

(San Joaquin Area Flood Control Agency /)

This PROFESSIONAL SERVICES AGREEMENT ("Agreement") is entered into by and between the San Joaquin Area Flood Control Agency, a joint powers agency ("Agency"), and a ("Consultant") (collectively, "parties").

1. **CONTEXT:** Agency has determined that it requires the professional services identified in Attachment 1 from Consultant. Consultant represents that it is fully qualified to perform such professional services by virtue of its experience and the training, education and expertise of its principals and employees. Consultant further represents that it is willing to accept responsibility for performing such services in accordance with the terms and conditions set forth in this Agreement.

   NOW, THEREFORE, for and in consideration of the mutual covenants and conditions herein contained, Agency and Consultant agree as follows:

2. **TERM.** The term of this Agreement shall be from the date of execution until , unless otherwise terminated by the Agency as allowed below, and may be renewed by the Agency subject to re-negotiation by the parties for additional periods.

3. **CONSULTANT'S SERVICES.**
   Consultant has been selected for this Agreement which is intended to be a master services Agreement. Under this Agreement the Agency may issue to Consultant one or more task orders, each of which shall be considered a Scope of Services and incorporated herein by this reference once agreed to by the Consultant and the Agency. Consultant shall not receive any compensation for the development of a scope. Attachment 1 provides a high-level and generalized Scope of Services which shall be deemed amended with the issuance of any Task Order agreed to by the Consultant. Agency shall have the right to request, in writing, changes in the Scope of Services. Any such changes mutually agreed upon by the parties, and any corresponding increase or decrease in compensation, shall be incorporated by written amendment to this Agreement.

   SECTION 1090 PROTECTIONS: [1] Consultant's duties and services under this Agreement shall not include preparing or assisting the Agency with any portion of the Agency's preparation of a request for proposals, request for qualifications, or any other solicitation regarding a subsequent or additional contract with the Agency. [2] The Agency entering into this Agreement shall at all times retain responsibility for public contracting, including with respect to any subsequent phase of the work to be performed under this Agreement. [3] Consultant's participation in the planning, discussions, or drawing of project plans or specifications shall be limited to conceptual, preliminary, or initial plans or specifications. [4]

Consultant shall cooperate with the Agency to ensure that all bidders for a subsequent contract on any subsequent phase have access to the same information, including all conceptual, preliminary, or initial plans or specifications prepared by Consultant pursuant to this agreement.

4. **COMPENSATION.** Compensation under this Agreement shall not exceed $_____. Consultant's compensation rates are set forth in the fee schedule attached hereto as Attachment 2, incorporated herein by this reference, which shall be referred to as the Approved Fee Schedule. Agency agrees to compensate Consultant for the services provided under this Agreement and Consultant agrees to accept payment in accordance with the Approved Fee Schedule in full satisfaction for such services. No changes shall be made to the Approved Fee Schedule without a written amendment to this Agreement.

5. **GENERAL PROVISIONS.** The general provisions set forth in Attachment 3 are part of this Agreement, and incorporated herein. In the event of any inconsistency between the general provisions and any other terms or conditions of this Agreement, the other term or condition shall control insofar as it is inconsistent with the general provisions.

6. **AGREEMENT ADMINISTRATION.** The Agreement Administrator for this Agreement on behalf of the Agency will be the Executive Director or any of the Agency Designees. The Agreement Administrator shall be the principal point of contact. Agency reserves the right to change this designation upon written notice to Consultant.

7. **NOTICES.** Any notices, bills, invoices, or reports required by this Agreement shall be deemed received on: (i) the day of delivery if delivered by hand, facsimile or overnight courier service during Consultant's and Agency's regular business hours; or (ii) on the third business day following deposit in the United States mail if delivered by mail, postage prepaid, to the addresses listed below (or to such other addresses as the parties may, from time to time, designate in writing); or (iii) the day of delivery if emailed to the email address listed below and simultaneously deposited in the U.S. mail, postage prepaid, to the address(es) listed below (or to such other addresses as the parties may, from time to time, designate in writing).

If to Agency:	If to Consultant:
Darren Suen Executive Director San Joaquin Area Flood Control Agency 2800 W. March Lane Suite 200 Stockton, CA 95219 Telephone: (209) 451-2820 Email: Darren.Suen@sjafca.org	

*Bill and invoices shall be deemed received on the date of delivery if a complete invoice including billing summary, timesheet backup and subconsultant backup is emailed to invoices@sjafca.org. Noticing requirements in this section can be modified from time to time by mutual agreement of the parties in writing, without formally modifying this agreement.

TO EFFECTUATE THIS AGREEMENT, the parties have caused their duly authorized representatives to execute this Agreement on the dates set forth below.

"Agency"	"Consultant"
San Joaquin Area Flood Control Agency	
By: _____	By: _____
Signature	*Signature*
Printed: _____	Printed: _____
Title: _____	Title: _____
Date: _____	Date: _____

Approved as to form:

By: _____

Scott L. Shapiro,
Agency Counsel

Date: _____

Attachment 1
(Scope of Services)

Attachment 2
(Consultant's Compensation Rates)

Attachment 3
(GENERAL PROVISIONS)

1. PERFORMANCE BY THE CONTRACTOR

1.1. **Coordination with Agency**. In performing services under this Agreement, Consultant shall coordinate all contact with Agency through its Agreement Administrator.

1.2. **Scope.** Consultant shall not be reimbursed for any expenses incurred for work performed outside the Scope of Services unless prior approval is given by the Agency through an executed amendment. If the Consultant is of the opinion that any work it has been directed to perform is beyond the scope of this Agreement and constitutes extra work, it shall promptly notify the Agency of the fact. The Agency shall determine whether or not such work is, in fact, beyond the scope of this Agreement and constitutes extra work. In the event that the Agency determines that such work does constitute extra work, it shall provide extra compensation to the Consultant on a fair and equitable basis based upon a Supplemental Agreement providing for such compensation for extra work. In the event Agency determines that such work does not constitute extra work, Consultant shall not be paid extra compensation. Any decision by the Board of Directors' or Executive Director shall be final.

1.3. **Budgetary Notification**. Consultant shall notify the Agreement Administrator, in writing, when fees and expenses incurred under this Agreement have reached eighty percent (80%) of the maximum amount. Consultant shall concurrently inform the Agreement Administrator, in writing, of Consultant's estimate of total expenditures required to complete its current assignments.

1.4. **Professional Standards.** Consultant shall perform all work to the highest standards of Consultant's profession and in a manner in accordance with generally accepted professional practices and standards as well as the requirements of applicable federal, state and local laws. Consultant represents and warrants to Agency that (a) it has all licenses, permits, qualifications, insurance and approvals of whatever nature, including business license, which are required for Consultant to practice its profession, and (b) it shall, at its sole cost, keep in effect or obtain at all times during the term of this Agreement any licenses, permits, insurance and approvals which are legally required for Consultant to practice its profession.

1.5. **Conflicts.** Consultant represents that it has no known relationships with third parties, the Board of Directors, or employees of Agency which would (1) present a conflict of interest with the rendering of services under this Agreement under California Government Code Section 1090, the Political Reform Act (Government Code Section 81000 *et seq.*), or other applicable law, (2) prevent Consultant from performing the terms of this Agreement, or (3) present a significant opportunity for the disclosure of confidential information. During the term of this Agreement, Consultant shall not perform any work for another person or entity for whom Consultant was not working when this Agreement became effective if such work would present a conflict interfering

with performance under this Agreement. However, Agency may consent in writing to Consultant's performance of such work.

1.6. **Appropriate Personnel.** Consultant has, or will secure at its own expense, all personnel required to perform the services identified in the Scope of Services. Consultant's project administrator shall be identified in the Scope of Services and shall have direct responsibility for management of Consultant's performance under this Agreement. No change shall be made in Consultant's project administrator without Agency's prior written consent. Any persons named in the proposal or Scope of Services constitutes a promise to the Agency that those persons will perform and coordinate their respective services under this Agreement. Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of Agency. If Agency and Consultant cannot agree as to the substitution of key personnel, Agency may terminate this Agreement for cause.

1.7. **Notification of Organizational Changes.** Consultant shall notify the Agreement Administrator, in writing, of any change in name, ownership, or control of Consultant's firm or of any changes for any subconsultant. Change of ownership or control of Consultant's firm may require an amendment to this Agreement.

1.8. **Inspections.** Agency or authorized representatives of the Agency shall have the right to inspect the work of Consultant whenever such representatives deem such inspection to be desirable or necessary. Inspections by the Agency do not in any way relieve or minimize the responsibility of Consultant to conduct any inspections Consultant has agreed to perform pursuant to this Agreement.

1.9. **Records.** Consultant shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services or expenditures and disbursements charged to Agency under this Agreement for a minimum of three years, or for any longer period required by law, from the date of final payment to Consultant under this Agreement. All such documents shall be made available for inspection, audit, and/or copying at any time during regular business hours, upon oral or written request of Agency. In addition, pursuant to California Government Code Section 8546.7, if the amount of public funds expended under this Agreement exceeds ten thousand dollars, all such documents and this Agreement shall be subject to the examination and audit of the State Auditor, at the request of Agency or as part of any audit of Agency, for a period of three years after final payment under this Agreement.

1.10. **Agency Cooperation in Performance.** Agency shall provide Consultant with all pertinent data, documents and other requested information as is reasonably available for the proper performance of Consultant's services under this Agreement.

2. SUBCONTRACTING AND ASSIGNMENT

2.1. **General Prohibition of Assignment.** Except as otherwise provided herein, Consultant shall not assign or transfer its interest in this Agreement or subcontract any services to be performed without amending this Agreement.

2.2. **Subconsultant's Fees.** All subconsultants shall be specifically listed and their billing rates identified in the Approved Fee Schedule contained in Attachment 2. Agency shall pay Consultant for work performed by its subconsultants, if any, only at Consultant's actual cost plus an approved mark-up as set forth in the Approved Fee Schedule. Consultant shall be solely liable and accountable for any and all payments, compensation, and federal and state taxes to all subconsultants performing services under this Agreement.

3. ADDITIONAL COMPENSATION PROVISIONS

3.1. **Invoices.** Consultant shall submit to Agency an invoice, on a monthly basis or as otherwise agreed to by the Agreement Administrator, for services performed pursuant to this Agreement. Each invoice shall identify the Maximum Amount, the services rendered during the billing period, the amount due for the invoice, and the total amount previously invoiced. All labor charges shall be itemized by employee name and classification or position with the firm, the corresponding hourly rate, the hours worked, a description of each labor charge, and the total amount due for labor charges.

3.2. **Taxes.** Agency shall not calculate, pay, or withhold applicable taxes or other payroll deductions from payments made to Consultant except as otherwise required by law.

3.3. **Disputes.** The parties agree to meet and confer at mutually agreeable times to resolve any disputed amounts contained in an invoice submitted by Consultant. Notwithstanding any other terms of this Agreement, no payments shall be made to Consultant until Agency is satisfied that the services are satisfactory. If Consultant fails to satisfy an indemnity obligation under this Agreement, Agency shall have the right to withhold payments under this Agreement to offset that amount.

3.4. **Expense Reimbursement.** Consultant shall not be reimbursed for any expenses unless (i) provided for in this Agreement explicitly, including through inclusion in the Scope of Services, or (ii) authorized in writing by Agency in advance of the Contractor incurring the expense. Consultants may not request expense reimbursement for auto mileage exceeding the current Federal rates or for a mark-up exceeding 5% of actual cost. To the extent that this Agreement is funded in part by funds received by Agency from another agency, or to the extent that the services to be provided under this Agreement are in support of a project being advanced by the U.S. Army Corps of Engineers or other agency, Consultant is advised to ensure that all expenses incurred by the Consultant are incurred consistent with the rules and regulations of the other partner agency, as those rules and regulations shall explicitly apply to expenses incurred by Contractor. Upon request, SJAFCA shall provide the Consultant a copy of any agreement with external entities which may affect expense reimbursement by the Consultant under this Agreement.

4. **PREVAILING WAGES**. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on certain "public works" and "maintenance" projects. This Agreement is subject to Prevailing Wage Laws, for all work performed under this Agreement for which the payment of prevailing wage is required by those laws. Consultant shall defend, indemnify, and hold the Agency, its elected officials, officers, employees, and agents free and harmless from any claim or liability arising out of any failure or alleged failure of Consultant to comply with the Prevailing Wage Laws.

5. **OWNERSHIP OF WRITTEN PRODUCTS.** All reports, documents, or other written material, including without limitation copies thereof, digital originals, and digital copies ("written products" herein) developed by Consultant in the performance of this Agreement shall be and remain the property of Agency without restriction or limitation upon its use or dissemination by Agency except as provided by law. Consultant may take and retain copies of such written products as desired, but no such written products shall be the subject of a copyright application by Consultant.

6. RELATIONSHIP OF PARTIES

6.1. **General.** Consultant is, and shall at all times remain as to Agency, a wholly independent contractor. As an independent contractor, Consultant shall be responsible for all reports and obligations. Consultant shall have no power to incur any debt, obligation, or liability on behalf of Agency or otherwise to act on behalf of Agency as an agent. Consultant, its officers, employees and agents shall not have any power to bind or commit the Agency to any decision or course of action, and Consultant, its officers, employees and agents shall not represent to any person or party that it or they are acting as agents of the Agency or that it or they have the power to bind or commit the Agency.

7. INSURANCE

7.1. **Insurance Required.** Consultant shall maintain insurance as described in this Section 7 and shall require all of its subconsultants to do the same. Agency has no obligation and Consultant shall be responsible for all premiums and deductibles in all of Consultant's insurance policies. For purposes of this Section 7, "Consultant" shall include Consultant, its officers, employees, agents, or subconsultants, or anyone directly or indirectly employed by either Consultant or its subconsultants, in the performance of this Agreement. "Agency" shall include Agency, its Board of Directors, agents, and employees.

7.2. **Documentation of Insurance.** Agency will not execute this Agreement until it has received a complete set of all required documentation of insurance coverage. However, failure to obtain the required documents prior to the work beginning shall not waive

the Consultant's obligation to provide the required insurance and the required documentation. Consultant shall file with Agency:

- Certificate of Insurance with a Best's Rating of no less than A; provided that if Consultant can make a good faith showing that A ratings are not available for the service to be provided, then Agency may accept a rating no lower than B.
- Copy of the entire insurance policy and the Declarations page.
- Current endorsements showing coverage for all policies required by this Agreement.

7.3. **Coverage and Deductibles.** Insurance coverage shall be at least in the following minimum amounts:

Professional Liability Insurance:	$1,000,000 per claim/occurrence $2,000,000 aggregate
General Liability:	$2,000,000 per person per occurrence $4,000,000 aggregate $2,000,000 Products Comp/Op Aggregate $1,000,000 Personal & Advertising Injury $ 50,000 Fire Damage (any one fire) $ 5,000 Medical Expense (any 1 person)
Workers' Compensation:	$1,000,000 EL Each Accident $1,000,000 EL Disease - Policy Limit $1,000,000 EL Disease - Each Employee
Automobile Liability	$1,000,000 Any vehicle, combined single limit

Any available insurance proceeds broader than or in excess of the specified minimum insurance coverage requirements or limits shall be available to the additional insured. Furthermore, the requirements for coverage and limits shall be the greater of (1) the minimum coverage and limits specified in this Agreement, or (2) the broader coverage and maximum limits of coverage of any insurance policy or proceeds available to the named insured. Consultant must disclose all deductibles and self-insured retention amounts to the Agency. The Agency may require the Consultant to provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within retention amounts. The amount of deductibles for insurance coverage required herein are subject to Agency's approval.

7.4. **Worker's Compensation Insurance.** Consultant is aware of the provisions of Section 3700 of the California Labor Code which requires every employer to carry Workers' Compensation (or to undertake equivalent self-insurance), and Consultant will comply with such provisions before commencing the performance of the work of this Agreement. If such insurance is underwritten by any insurance company other than the State Compensation Fund, such insurance company shall be a company authorized to do business in the State of California. If any class of employees engaged in work under this contract at the site of the Project is not protected under any Worker's Compensation

law, Consultant shall provide for itself and shall cause each subconsultant to provide adequate insurance for the protection of employees not otherwise protected. Consultant shall indemnify and hold harmless Agency for any damage resulting from failure of either Consultant or any subconsultant to take out or maintain such insurance.

7.5. **Professional Liability Insurance or Errors & Omissions Coverage.** The deductible or self-insured retention may not exceed $50,000 without written permission from the Agency. If the insurance is on a Claims-Made basis, the retroactive date shall be no later than the commencement of the work. Coverage shall be continued for two years after the completion of the work by one of the following: (1) renewal of the existing policy; (2) an extended reporting period endorsement; or (3) replacement insurance with a retroactive date no later than the commencement of the work under this Agreement. In the event Consultant's policy is a "claims made" policy only covering those claims made during the policy period, then Consultant agrees to maintain the professional liability insurance required hereunder with respect to this project in effect for at least three (3) years after acceptance of the work.

7.6. **Additional Insured Endorsements.** The Agency must be endorsed as additional insured for each policy required under this Section 7, other than Professional Errors and Omissions and Worker's Compensation, for liability arising out of ongoing and completed operations by or on behalf of the Consultant.

7.7. **Failure to Maintain Coverage.** In the event any policy is canceled, rescinded, lapses, terminates, or changes prior to the completion of the project and the Consultant does not furnish a new certificate of insurance prior to cancellation, Agency has the right, but not the duty, to obtain the required insurance and deduct the premium from any amounts due the Consultant under this Agreement. Failure of the Consultant to maintain the insurance required by this Agreement, or to comply with any of the requirements of this Section, shall constitute a material breach of this Agreement.

7.8. **Notices.** Consultant shall provide immediate written notice if (1) any of the required insurance policies is terminated; (2) the limits of any of the required policies are reduced; (3) or the deductible or self-insured retention is increased. Consultant shall provide no less than 30 days' notice of any cancellation or material change to policies required by this Agreement. Consultant shall provide proof that cancelled or expired policies of insurance have been renewed or replaced with other policies providing at least the same coverage. Such proof will be furnished at least two weeks prior to the expiration of the coverages. The name and address for Additional Insured Endorsements, Certificates of Insurance and Notices of Cancellation is: **San Joaquin Area Flood Control Agency**, Atten: Executive Director, Darren Suen, 2800 W March Lane, Suite 200, Stockton, CA 95219

7.9. **Consultant's Insurance Primary.** The insurance provided by Consultant, including all endorsements, shall be primary to any coverage available to Agency and any insurance or self-insurance maintained by Agency shall be in excess of Consultant's insurance.

7.10. **Waiver of Subrogation.** Consultant hereby waives all rights of subrogation against the Agency. Consultant shall additionally waive such rights either by endorsement to each policy or provide proof of such waiver in the policy itself.

7.11. **Report of Claims to Agency.** Consultant shall report to the Agency, in addition to the Consultant's insurer, any and all insurance claims submitted to Consultant's insurer in connection with the services under this Agreement.

8. INDEMNITY AND DEFENSE

8.1. **Definition.** For purposes of this Section 8, "Consultant" shall include Consultant, its officers, employees, agents, or subconsultants, or anyone directly or indirectly employed by either Consultant or its subconsultants, in the performance of this Agreement. "Agency" shall include Agency, its Board of Directors, agents, and employees.

8.2. **Duty to Indemnify and Hold Harmless.** Consultant shall indemnify and hold harmless the Agency from any and all claims, demands, causes of action, costs, expenses, liability, injuries (personal, bodily, and property) and damages (collectively "Claims") sought against Agency arising out of or resulting from Consultant's performance of, or failure to perform, services under this Agreement; provided that the indemnification required by this Section 8.2 shall not extend to Claims solely caused by the active negligence or the willful misconduct of the Agency. Consultant agrees to include this duty to indemnify and hold harmless in any agreement executed with a subconsultant.

8.3. **Duty to Defend.** Consultant shall also defend the Agency against such Claims if the Agency (1) provides advance and prompt written notice to the Consultant regarding the Claims for which Agency is seeking a defense, and (2) meets and confers in good faith with Consultant and/or Consultant's insurance company representative in advance of any election by it to conduct its own defense. The defense required by this clause shall not extend to Claims (1) solely caused by the negligence or willful misconduct of the Agency, (2) where the Agency enters into and/or pays a settlement with the claimant(s) without advance notice to the Consultant, (3) where the Agency elects to conduct its own defense and the attorneys' fees and litigation expenses it incurs are not reasonable and necessary, and/or (4) where the Agency does not elect to conduct its own defense but incurs separate attorneys' fees and costs for which it seeks payment or reimbursement. Consultant agrees to include this duty to defend in any agreement executed with a subconsultant; however, Subconsultant's obligation to defend any indemnified parties from claims covered by professional liability shall mean subconsultant's legal obligation is to reimburse the indemnified parties for their reasonable defense costs to the extent caused by subconsultant's negligence.

8.4. **Consultant Cooperation in Defense of Claims.** If any claim or action is brought against Agency relating to Consultant's performance in connection with this Agreement, Consultant shall render any reasonable assistance that Agency may require in the defense of that claim or action. Agency agrees to pay Consultant for such assistance (at its standard rates), unless there is an allegation that the claim or action arises out of or results from Consultant's performance of, or failure to perform, services under this Agreement.

8.5. **Non-Impact of Insurance on Duties Indemnify and Defend.** Consultant's duties to indemnify and defend Agency under this Agreement shall not be limited by the insurance requirements in Section 7. Agency does not waive any indemnity rights by accepting any insurance policy or certificate required pursuant to this Agreement.

9. SURVIVING COVENANTS. The parties agree that the covenants contained in the provisions on Records, Indemnification of CalPERS Determination, Insurance including Claims-Based Policies, Duty of Indemnification, Duty of Defense, Consultant Cooperation in Defense of Claims, Confidentiality shall survive the expiration or termination of this Agreement, subject to the provisions and limitations of this Agreement and all otherwise applicable statutes of limitations and repose.

10. TERMINATION

10.1. **Agency Termination.** The Agency may, in its sole and unfettered discretion and without cause, terminate this Agreement at any time prior to completion by Consultant of the services required. Notice of Termination of this Agreement shall be given consistent with this Agreement and shall be immediately effective. In such circumstances, the Consultant shall be compensated only for all work satisfactorily performed prior to time of receipt of termination notice, and shall be compensated for materials ordered by the Consultant or services of others ordered by the Consultant prior to receipt of Notice of Termination whether or not such materials or final instruments of services have actually been delivered, provided that the Consultant or its employees are not able to cancel such orders for materials or services of others.

10.2. **Consultant Termination.** Consultant may terminate this Agreement upon thirty days written notice to the Agency only for good cause. Consultant's written notice of termination shall contain a full explanation of the facts and circumstances constituting good cause. In the event of termination, all notes, sketches, computations, drawings and specifications, or other data, whether complete or not, produced through the time of the Agency's last payment shall be relinquished to the Agency. The Agency may, at its own expense, make copies or extract information from any such notes, sketches, computations, drawings, and specifications, or other data whether complete or not.

10.3. **Consultant Failure to Perform.** Should the Consultant fail to perform any of its obligations hereunder, within the time and in the manner provided, with a reasonable opportunity to cure, or otherwise violate any of the terms of this Agreement, the Agency may terminate this Agreement by giving written notice of such termination,

stating the reasons for such termination in such event. Consultant shall be compensated as above, provided, however, there shall be deducted from such amount the amount of damage if any, sustained by Agency by virtue of the Consultant's breach of this Agreement.

10.4. **Remedies.** Agency retains any and all available legal and equitable remedies for Consultant's breach of this Agreement.

11. INTERPRETATION OF AGREEMENT

11.1. **Governing Law.** This Agreement shall be governed and construed in accordance with the laws of the State of California.

11.2. **Integration.** In the event of any material discrepancy between the express provisions of this Agreement and the provisions of any document incorporated herein by reference, the provisions of this Agreement shall prevail. This instrument contains the entire Agreement between Agency and Consultant with respect to the transactions contemplated herein. No other prior oral or written agreements are binding upon the parties.

11.3. **Headings.** The headings and captions in this Agreement are descriptive only and for convenience in reference to this Agreement.

11.4. **Pronouns.** Plural pronouns shall be substituted for the singular form and vice versa, in any place or places herein in which the context requires such substitution.

11.5. **Severability.** If any term or provision of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, then such term or provision shall be amended to, and solely to the extent necessary to, cure such invalidity or unenforceability, and shall be enforceable in its amended form. In such event, the remainder of this Agreement, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected, and each term and provision of this Agreement shall be valid and be enforced to the fullest extent permitted by law.

11.6. **No Presumption Against Drafter.** Each party had an opportunity to consult with an attorney in reviewing and drafting this agreement. Any uncertainty or ambiguity shall not be construed for or against any party based on attribution of drafting.

12. OTHER PROVISIONS

12.1. **Confidentiality.** All data, documents, discussion, or other information developed or received by Consultant for performance of this Agreement are deemed confidential and Consultant shall not disclose it without prior written consent by Agency, which will not be unreasonably withheld.

12.2. **Amendment**. Amendments shall be effective and binding only if made in writing and executed by Agency and Consultant.

12.3. **Conflicts of Interest.** Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. Consultant further agrees to file, or shall cause its employees or subconsultant to file, a Statement of Economic Interest with the Agency's Filing Officer if required under state law in the performance of the services. Consultant shall comply with any applicable disclosure provisions of Government Code section 84308 prior to and concurrent with Consultant's execution and performance of this Agreement.

12.4. **Non-assignment.** Consultant shall not delegate, transfer, subcontract or assign its duties or rights hereunder, either in whole or in part, without Agency's prior written consent.

12.5. **Binding on Successors.** This Agreement shall be binding on the successors and assigns of the parties.

12.6. **No Third-Party Beneficiaries.** Except as expressly stated herein, there is no intended third-party beneficiary of any right or obligation assumed by the parties.

12.7. **Time of the Essence.** Time is of the essence for each and every provision of this Agreement.

12.8. **Non-Discrimination.** Consultant shall not discriminate against any employee or applicant for employment because of race, sex (including pregnancy, childbirth, or related medical condition), creed, national origin, color, disability as defined by law, disabled veteran status, Vietnam veteran status, religion, age (40 and above), medical condition (cancer-related), marital status, ancestry, or sexual orientation. Employment actions to which this provision applies shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; or in terms, conditions or privileges of employment, and selection for training. Consultant agrees to post in conspicuous places, available to employees and applicants for employment, the provisions of this nondiscrimination clause.

12.9. **Waiver.** No provision, covenant, or condition of this Agreement shall be deemed to have been waived by Agency or Consultant unless in writing signed by one authorized to bind the party asserted to have consented to the waiver. The waiver by Agency or Consultant of any breach of any provision, covenant, or condition of this Agreement shall not be deemed to be a waiver of any subsequent breach of the same or any other provision, covenant, or condition.

12.10. **Excused Failure to Perform.** Consultant shall not be liable for any failure to perform if Consultant presents acceptable evidence, in Agency's sole judgment, that such failure was due to causes beyond the control and without the fault or negligence of Consultant.

12.11. **Remedies Non-Exclusive.** Each right, power and remedy provided for herein or now or hereafter existing at law, in equity, by statute, or otherwise shall be cumulative and shall be in addition to every other right, power, or remedy provided for herein or now or hereafter existing at law, in equity, by statute, or otherwise. The exercise, the commencement of the exercise, or the forbearance from the exercise by any party of any one or more of such rights, powers or remedies shall not preclude the simultaneous or later exercise by such party of any or all of such other rights, powers or remedies.

12.12. **Attorneys' Fees.** If legal action shall be necessary to enforce any term, covenant or condition contained in this Agreement, the prevailing party shall be entitled to an award of reasonable attorneys' fees and costs expended in the action.

12.13. **Venue.** The venue for any litigation shall be the Superior Court of California for the County of San Joaquin and Consultant hereby consents to jurisdiction in that court for purposes of resolving any dispute or enforcing any obligation arising under this Agreement.

12.14. **Counterparts; Electronic Signatures.** This Agreement may be signed in one or more counterparts, each of which shall be deemed an original, but all of which together shall be deemed one and the same instrument. The parties acknowledge and agree that this Agreement may be executed by electronic signature, which shall be considered as an original signature for all purposes and shall have the same force and effect as an original signature. Without limitation, "electronic signature" shall include faxed or emailed versions of an original signature, electronically scanned and transmitted versions (e.g., via pdf) of an original signature, or a digital signature.

San Joaquin Area Flood Control Agency

FLOOD PROTECTION RESTORATION ASSESSMENT DISTRICT (REASSESSMENT AND REFUNDING OF 2002)

2025/2026 ENGINEER'S ANNUAL REPORT FOR THE OPERATION AND MAINTENANCE

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I. OVERVIEW

A. INTRODUCTION

The San Joaquin Area Flood Control Agency ("Agency") is authorized to annually levy and collect special assessments in order to provide and maintain the facilities, improvements and services within Flood Protection Restoration Assessment District (Reassessment and Refunding of 2002) ("District"). The District was formed in 1996 and the Agency annually levies and collects assessments to maintain the improvements installed and constructed within the District pursuant to the Municipal Improvement Act of 1913, Division 12 of the California Streets and Highways Code §10000 (the "1913 Act").

This Engineer's Annual Report ("Report") describes the District, any changes to the District, the method of apportionment established at the time of formation, and the proposed assessments for Fiscal Year 2025/2026. The proposed assessments are based on the estimated cost to maintain the improvements that provide a special benefit to properties assessed within the District. Each parcel within the District is assessed proportionately for the special benefits provided to the parcel from the improvements.

The word "parcel" for the purposes of this Report refers to an individual property assigned its own Assessment Number by the San Joaquin County Assessor's Office. The San Joaquin County Auditor/Controller uses Assessment Numbers and specific Fund Numbers to identify on the tax roll properties assessed for special district benefit assessments.

Following consideration of all public comments and written protests at an annual noticed public hearing, and review of the Engineer's Annual Report, the Board of Directors for the Agency may order amendments to the Report or confirm the Report as submitted. Following final approval of the Report, and confirmation of the assessments, the Board will order the levy and collection of assessments for Fiscal Year 2025/2026. In such case, the assessment information will be submitted to the San Joaquin County Auditor/Controller, and included on the property tax roll for each parcel in Fiscal Year 2025/2026.

B. COMPLIANCE WITH CURRENT LEGISLATION

The Agency has reviewed the provisions of the California Constitutional Article XIIID (established by the passage of Proposition 218 in November 1996) and has made the following findings and determinations:

Pursuant to Article XIIID Section 5 of the California Constitution, certain property related assessments existing on July 1, 1997 ("the effective date") are exempt from the substantive and procedural requirements of Article XIIID Section 4 and property owner balloting for the assessments is not required until such time that the assessments are increased. Specifically, Section 5 of Article XIIID reads:

"…the following assessments existing on the effective date of this article shall be exempt from the procedures and approval process set forth in Section 4:

(a) Any assessment imposed exclusively to finance the capital costs or maintenance and operation expenses for sidewalks, streets, sewers, water, flood control, drainage systems or

vector control. Subsequent increases in such assessments shall be subject to the procedures and approval process set forth in Section 4."

Since, the improvements and the annual assessment for maintaining the District improvements are exclusively for flood control purposes, the method of assessment and maximum assessment rate formula, as established by the Agency prior to the effective of the article (July 1, 1997), are exempt from the procedural requirements of Article XIIID Section 4 of the California Constitution.

The proposed assessment for Fiscal Year 2025/2026 may be less than or equal to the maximum assessment rate previously approved and adopted by the Agency. Future assessments that exceed the previously approved schedule of adjustments, including the clearly defined formula for inflation adjustment that was adopted by the Agency prior to November 6, 1996, will be subject to the substantive and procedural requirements of the California Constitution Article XIIID Section 4.

II. ANNUAL ASSESSMENT

When the District was formed, pursuant to Section 10100.8 of the Streets and Highways Code, the Board approved the levy of assessments to pay in whole or in part: a.) The costs and expenses of constructing or acquiring the Improvements; b.) The estimated annual costs and expenditures required during the ensuing years for the operation and maintenance of those improvements. The assessments so approved are collected through special assessment levied on the County tax rolls upon all lots, parcels and subdivisions of land within the District that benefit from the improvements.

Since the improvements are to be funded by the levying of assessments, the law requires and the statutes provide that assessments levied pursuant to the "1913 Act", must be based on the special benefit that the properties receive from the works of improvement. However, the statute does not specify the method or formula that should be used in any special assessment district proceedings. The responsibility for apportioning the costs to properties which special benefit from the improvements rests with the Assessment Engineer, who is appointed to make an analysis of the facts and to determine the apportionment of the assessment obligation to properties proportionate to the special benefit which each will receive from the improvements.

To apportion the assessment to each parcel in direct proportion to the special benefit it will receive from the improvements, an analysis was made to initially identify the special benefit that the public improvements would render to the properties within the boundaries of the District. In making the analysis to levy an assessment on a specific parcel, it is necessary that the parcel receive a special benefit distinguished from a benefit to the general public.

A. DEFINITION OF OPERATION AND MAINTENANCE

The costs and expenses for "Operation and Maintenance" include all applicable operation, maintenance and repair costs incurred annually, or that may not be reasonably collected in a single annual assessment to maintain the level of benefit to the assessed parcels in the District. Operation and Maintenance, as determined by the Board of the San Joaquin Area Flood Control Agency, may include, but is not limited to:

- Personnel costs;
- Utilities (water, electric and other);

- Maintenance equipment (purchase and repair);
- Weed abatement (herbicide spraying, mowing, debris burning);
- Rodent control;
- Road maintenance (Access Roads);
- Stream bed and detention basin clearing;
- Sedimentation removal;
- Erosion control;
- Patrolling and inspecting improvements and facilities;
- Pump station operation (including maintenance and repair);
- Flood wall repairs;
- Graffiti removal;
- Administration expenses; and
- Providing for an “Emergency Repair/Replacement Fund”.

B. OPERATION AND MAINTENANCE BENEFIT

The District assessments were established to provide funding and financing for the design construction, maintenance and operation of flood control facilities (improvements) that benefit parcels within the District. Properties within the District have been designated within the 100-year flood plain by the Federal Emergency Management Agency (FEMA)—according to the preliminary revised Flood Insurance Rate Maps (FIRM’s), dated February 28, 1995. The District’s flood control facilities restore flood protection to properties that are subject to flooding during a storm of 100-year intensity and thereby preserve the ability to use and develop the properties within the District without the requirements placed on parcels located within Special Flood Hazard Areas. Therefore, the improvements and the maintenance and operation of those improvements are a special benefit to the properties within the District.

The following outlines the special benefits properties within the District receive from the construction and maintenance of the flood protection improvements:

- Reduction in the risk of loss that would occur if a flood were to damage the improvements on the property: i.e., structural damage and/or damages affecting the revenue-producing environment.

- Removal of the flood plain disclosure required during the sale of a property.

- Removal of the requirement for properties that are removed from Special Flood Hazard Areas (as designated by FEMA) to adhere to the building and design “flood plain management” criteria required by FEMA for communities participating in the Flood Insurance Program (FIP). These criteria apply to new construction, as well as renovations and additions in most circumstances, and increase the costs of development.

- Removal of the mortgage/lender requirement to purchase flood insurance if a property is within a designated Special Flood Hazard Area shown on the preliminary revised FIRM’s, or providing the ability to purchase flood insurance at a reduced cost.

- Protection of public improvements required to provide access and service to properties.

- Enhanced ability to develop property to its "highest and best use" in accordance with existing zoning and land use regulations.

C. CALCULATION OF ANNUAL MAINTENANCE AND OPERATION ASSESSMENT

The benefit formula used for calculating the annual operation and maintenance benefit to each property within the District is based on the Benefit Units (BU's) used to calculate the original benefits and assessments each parcel received from the construction of the District improvements and facilities. However, when the development or land use of a property changes the special benefits the parcel receives from the operation and maintenance of the District improvements also changes. The Maintenance Benefit Units (MBU's) for each parcel is recalculated each year utilizing the same methodology and formula established in the District's original Engineers Report and outlined in Part III of this report (Method of Apportionment) to accurately reflect each parcel's current special benefit from the improvements. Therefore, if the development status or land use of a particular parcel has changed since the previous year, the MBU's and the resulting operation and maintenance portion of the parcel's assessment will likely change.

The assessment rate per MBU is calculated by dividing the total annual Operation and Maintenance Budget by the total number of MBU's in the District each year. The number of MBU's will vary year to year based upon development and land use changes in the District.

In the year the District was formed (Fiscal Year 1996-97), the maximum annual assessment rate ("maximum rate") for Operation and Maintenance was established at $3.59 per MBU, plus an annual inflation escalator equal to the National Consumer Price Index (CPI). This maximum rate of $3.59 was established using an estimated annual operation and maintenance cost of $450,000 for the first full year of maintenance, and the total number of Maintenance Benefit Units in Fiscal Year 1996-97 (125,474.396 MBU's).

The first assessments for Operation and Maintenance were collected in Fiscal Year 1996-97 pursuant to resolution of the Agency Board approved after a duly noticed public hearing, as provided in the Act. Annual assessments for Operation and Maintenance are anticipated to be levied and collected each fiscal year and shall be approved by resolution at an annual public hearing on the matter. The annual assessment approved each year may not exceed the CPI adjusted maximum assessment ($3.59 plus the annual inflation escalator) approved, without approval of the property owners subject to the assessment through a property owner protest ballot procedure pursuant to the California Constitution Article XIIID.

Based on the initial Annual Assessment Rate of $3.59 per MBU and the annual CPI inflation factor, the following table summarizes the application of the annual inflation escalator allowed to the assessment rate for the operation and maintenance assessments since Fiscal Year 1996-97. The "Maximum Assessment Rate" reflects the assessment rate per MBU that may be applied for the respective fiscal year without constituting an increased assessment or once again obtaining property owner approval in accordance with the provisions of the California Constitution Article XIIID. The "CPI" applied each year is the National Consumer Price Index (CPI) from January 1st of the previous year to January 1st of the current year (or similar period). (Example—the CPI applied for Fiscal Year 1997-98 is based on the CPI calculated from January 1, 1996 to January 1, 1997 to the first decimal place 0.0).

Fiscal Year	Base Year Rate	Calendar Year CPI	CPI Adjustment	Maximum Assessment Rate	Assessment Rate Applied
1996-97	N/A	N/A	N/A	$3.5900	$3.59
1997-98	$3.5900	3.30%	$0.1185	$3.7085	$3.59
1998-99	$3.7085	1.70%	$0.0630	$3.7715	$3.60
1999-00	$3.7715	2.95%	$0.1113	$3.8828	$3.56
2000-01	$3.8826	2.70%	$0.1048	$3.9874	$3.54
2001-02	$3.9874	3.90%	$0.1555	$4.1429	$3.53
2002-03	$4.1429	3.50%	$0.1450	$4.2879	$3.51
2003-04	$4.2879	1.10%	$0.0472	$4.3351	$3.49
2004-05	$4.3351	1.90%	$0.0824	$4.4174	$3.95
2005-06	$4.4174	3.00%	$0.1325	$4.5500	$3.95
2006-07	$4.5500	4.00%	$0.1820	$4.7320	$4.25
2007-08	$4.7320	2.10%	$0.0994	$4.8314	$4.36
2008-09	$4.8314	4.30%	$0.2078	$5.0392	$5.03
2009-10	$5.0392	0.00%	$0.0000	$5.0392	$5.03
2010-11	$5.0392	2.60%	$0.1310	$5.1702	$5.17
2011-12	$5.1702	1.60%	$0.0827	$5.2529	$5.25
2012-13	$5.2529	2.90%	$0.1523	$5.4052	$5.40
2013-14	$5.4052	1.60%	$0.0865	$5.4917	$5.49
2014-15	$5.4917	1.60%	$0.0879	$5.5796	$5.57
2015-16	$5.5796	0.00%	$0.0000	$5.5796	$5.57
2016-17	$5.5796	1.40%	$0.0781	$5.6577	$5.65
2017-18	$5.6577	2.50%	$0.1414	$5.7991	$5.79
2018-19	$5.7991	2.10%	$0.1218	$5.9209	$5.92
2019-20	$5.9209	1.60%	$0.0947	$6.0156	$6.01
2020-21	$6.0156	2.50%	$0.1504	$6.1660	$6.16
2021-22	$6.1660	1.40%	$0.0863	$6.2523	$6.25
2022-23	$6.2523	7.50%	$0.4689	$6.7213	$6.72
2023-24	$6.7213	6.40%	$0.4302	$7.1515	$7.15
2024-25	$7.1515	3.10%	$0.2217	$7.3731	$7.37
2025-26	$7.3731	3.00%	$0.2212	$7.5943	$7.59

The Fiscal Year 2025/2026 Maximum Assessment Rate allowed is $7.5943.

The Fiscal Year 2025/2026 Assessment Rate proposed is $7.59.

The "Base Rate" equals the prior year's "Maximum Assessment Rate" allowed.

The "Maximum Assessment Rate" is calculated to four decimal places, however, the actual assessment applied to each parcel is rounded down to the nearest even penny when applied to the tax rolls.

D. PROPOSED BUDGET FOR FISCAL YEAR 2025/2026

Item Descriptions		
San Joaquin County Operation and Maintenance Budget:		
Rents & Leases – Equipment Use of San Joaquin County Flood Control and Water Conservation District equipment to perform operation and maintenance activities and provide emergency services, if needed Equipment Maintenance Equipment Rental County Owned Communications cell phone Small Tools and Instruments	 $15,750 $73,500 $1,250 $10,500	**$101,000**
Professional Services – County Services provided for bridge parapet wall accident repair	 $26,250	**$26,250**
Materials Includes expenses for vegetation management materials, rodent control materials, and materials and supplies unique to operation and maintenance activities	 $52,500	**$52,500**
Labor Costs Services provided by San Joaquin County Flood Control and Water Conservation District for operation and maintenance activities and to provide emergency activities, if needed Allocated Service Department Costs Operation and Maintenance	 $239,570 $565,680	**$805,250**
Miscellaneous Expense -	$0	**$0**
Fixed Asset Funds needed to acquire additional equipment for the Agency	$0	**$0**
SUB-TOTAL SAN JOAQUIN COUNTY OPERATION AND MAINTENANCE BUDGET		**$985,000**

Aquatic Weed Control Program – Five Mile Slough This program is conducted in an approximate 5,100 ft lineal section of Five Mile Slough and is managed by SJAFCA; work during FY 25-26 will be carried out by a professional contractor		**$54,000**
Contractor – herbicide application; compliance and monitoring and reporting	$54,000	
SUB-TOTAL SJAFCA OPERATION AND MAINTENANCE BUDGET		**$54,000**
SJAFCA Administration Budget:		**$329,500**
Contribution To Capital Outlay Reserve (future floodwall replacement)	$0	
Property Tax Administration Charges Charges by the County Tax Collector for the collection of property assessments.	$11,500	
Administration Costs Annual General and Administration and Engineer's Report	$318,000	
SUB-TOTAL SJAFCA O&M AND ADMINISTRATION BUDGET		**$383,500**
TOTAL OPERATION AND MAINTENANCE BUDGET FY 2025/2026		**$1,368,500**
FY 2025/2026 – Revenue and Appropriations:		
FY 2025/2026 Assessment to be levied		**$1,176,255**
FY 2025/2026 Agency Reserve Appropriation to cover budget shortfall		**$192,245**
FY 2025/2026 Agency Reserve Appropriation for Emergencies or Additional Work		**$100,000**
TOTAL FY 2025/2026 REVENUE AND APPROPRIATIONS		**$1,468,500**

(1) Assessment to be levied may be slightly different from total amount on preliminary roll due to the rounding of assessment to even pennies as required by San Joaquin County.

(2) The surplus appropriation of $192,245 is needed to cover the difference between the amount collected by the O&M assessments and the additional amount requested by the District in the proposed FY 2025/2026 budget.

(3) The surplus appropriation of $100,000 will allow the Executive Director, without additional Board Authorization, to promptly deal with emergencies, or to authorize additional work not included in the budget.

The appropriations in the budget are funded from the unexpended balance in the O&M reserve, carried forward from previous year's O&M assessments. No increase in the current annual assessment charge is either required or made. The result of this request to the Engineer's Report will not affect the proposed FY 2025/2026 assessment rate of $7.59 per Maintenance Benefit Unit.

E. CALCULATION OF ASSESSMENT RATE FOR FISCAL YEAR 2025/2026

The assessment rate per MBU is calculated by dividing the total amount to be funded "O&M Budget" by the total "MBU's" estimated for the District.

O&M Budget-Surplus Appropriations/Maintenance Benefit Units (MBU's) = Assessment Rate

- The Total Maintenance Benefit Units (MBU's) that are estimated for the District in Fiscal Year 2025/2026 are 155,068.98 **MBU's**.

- Based on the estimated budget and the surplus appropriation for Fiscal Year 2025/2026, the assessment rate for Fiscal Year 2025/2026 is approximately $7.59 per Maintenance Benefit Unit.

III. METHOD AND FORMULA OF ASSESSMENT SPREAD

A. CALCULATION OF BENEFIT UNITS

To apportion the costs of the improvements to parcels that benefit, a method of assigning Benefit Units to each parcel was developed and approved when the District was formed. Benefit Units (BUs) were assigned to each parcel based upon the benefits to real property that the District improvements (levee system and other flood control improvements) provided to each parcel in proportion to the estimated benefit the parcel receives relative to the other parcels in the District from the flood protection facilities.

The specific number of Benefit Units assigned to each parcel was calculated based upon the formula shown below:

Improvement BUs + Land BUs = Total BUs

The single-family residence (SFR) was used as a basis of comparison since it represented approximately 70 percent of the assessable parcels of land in the District. BUs assigned to other parcels and land uses were based upon the relative benefit they receive as compared to a single-family residence. The total number of BU's for all assessable parcels in the District were then divided into the total cost to fund the District to determine the assessment rate per Benefit Unit.

The BUs assigned or calculated for each parcel for construction and installation of the improvements was based on the land use for the parcel as shown on the records of the San Joaquin County Assessor's office at the time of formation. Recognizing that under the 1913 Act, the assessment on each parcel may not be increased once it has been levied without further public hearings and property owner approval, the District was formed and the assessments

approved provided for annual adjustments to the assessments for operation maintenance of the improvements. The annual operation and maintenance assessment rate was established at $3.59 per Maintenance Benefit Unit (MBU) plus an annual escalator equal to the National Consumer Price Index (CPI). However, the assessment formula approved also established that the operation and maintenance assessment applied to each parcel would be recalculated annually based on the current development status or land use of each parcel. Therefore, if the development status or land use of a particular parcel changed from the previous year, the MBU's and the resulting assessment would change to more accurately reflect the parcel's current proportional benefit from the District improvements.

The methodology used to calculate the original BUs for the construction and installation of the improvements as well as the Maintenance Benefit Units calculated for future operation and maintenance of the improvements are assigned to each parcel based on land use. The method of apportionment for each land use is described in the following sections, with sample calculations provided in Appendix A.

B. IMPROVEMENT BENEFIT

Since the primary benefit to parcels from the construction, operation and maintenance of the flood control improvements is to remove them from the proposed new Special Flood Hazard Areas (new areas of the 100-year flood plain as identified by FEMA), the risk of loss or damage to improvements installed or constructed on developed parcels of land is significantly reduced.

The construction, operation and maintenance of the flood control improvements within the District significantly reduce the risk of damage and loss of real property, particularly to developed parcels of land. The improvements also facilitate the removal of properties from the proposed new Special Flood Hazard Areas (new areas of the 100-year flood plain as identified by FEMA). As a result, the special benefits to be enjoyed by property owners include:

- elimination of the requirements to purchase flood insurance in order to obtain financing;

- ability to purchase flood insurance at a reduced cost in comparison to parcels which are located within a Special Flood Hazard Area as designated by FEMA; and

- reduction of a flood event occurring and the probability of loss or damage to the property and improvements on the property.

The degree to which each developed property will benefit in relationship to any other property is based upon the intensity of development on the parcel (i.e., the percentage of the total parcel area which has or is allowed to have improvements constructed thereon) and the relative risk of loss of those improvements in relation to other land uses. The following describes the benefit relationship rational established in the original Engineer's Report.

Intensity of Development — Based upon an average parcel size of 1/6 acre for single-family development and a typical building footprint of about 1,600 sq. ft., the intensity of development on single-family residential parcels is approximately 20 percent. By comparison, a review of land use data within the Agency's sphere of influence showed that on retail/service commercial

parcels of one acre or less, the average intensity of development is approximately 40 percent of the parcel area. This means that for each acre of land used for single-family residential, on average approximately 20 percent of the area (or about 9600 square feet per acre) is covered by improvements; whereas, on each acre of land used for retail/service commercial, over 40 percent is covered by improvements (or about 19,500 square feet per acre). Since an acre of land developed for retail/service commercial use has a higher intensity of development than an acre of land used for single-family residential, it receives a greater benefit because there is more that would be damaged should a flood occur. Based upon a review of parcel area and intensity of development by land use for over 2,500 parcels, the following represents the average intensity of development per acre relative to single-family residential development within the District. The average intensity of development, by land use category (retail/service commercial, office/professional, personal care/recreational, manufacturing/industrial, institutional), was calculated by computing the average building coverage on the parcels analyzed after excluding those parcels that were significantly underdeveloped. Underdeveloped parcels were defined as those parcels within each land use category, which had the lowest 20th percentile current improvement density.

Unlike non-residential parcels, SFR parcels do not have a strong correlation between parcel size and the area which can be covered by improvements; therefore, they are assessed according to the size of the building footprint based on adjusting the improvement density factor for single-family residential as a function of the area of the structure footprint. A review of the available data showed that approximately 25 percent of the homes have a building footprint that would be 1,000 square feet or less, approximately 50 percent of the homes would fall in the 1-2,000 square foot range and the remainder would be over 2,000 square feet. Considering the number of houses in each category and the relative amount of replacement necessary should flooding occur, the improvement density factor reflects a 20% differentiation in replacement costs for the three categories of SFR, as shown in the table below.

Land Use	Improvement Density Factor
Single-Family Residential	
Less than 1,000 SF	0.8
1,000 to 2,000 SF	1.0
More than 2,000 SF	1.2
Multi-Family Residential	1.0
Retail/Service Commercial	2.0
Office/Professional	2.0
Personal Care/Recreational	2.0
Manufacturing/Industrial	2.0
Institutional	1.5

Risk of Loss — In determining the benefit that a parcel receives, it was also necessary to look at the relative replacement costs of the improvements constructed on the parcel relative to other land uses since the relative risk of loss in the event of a flood is directly proportional to the relative cost of the improvements at risk. For example, a review of published building construction cost data showed that the average cost range per square foot for single-family residential improvements was $45-60/square foot while the average cost range per square foot for industrial improvements was $25-45/square foot. Therefore, each developed single-family residential parcel receives a greater benefit than developed manufacturing/industrial parcels per unit of improvement since the loss or damage would be significantly higher should a flood

occur. Also, since the cost of flood insurance is based on the value of improvements to be insured, it would cost the single-family property owner more to purchase flood insurance per 100 square feet of single-family residential improvements in comparison to 100 square feet of manufacturing/industrial improvements; therefore, the single-family residential property would receive a greater benefit.

Based upon an analysis of the average cost per square foot for structures allowed under existing land use regulations for each land use, the table below shows the relative benefit per unit (i.e., square foot) for improvements by land use relative to single-family residential development within the District:

Land Use	Risk Factor
Single-family Residential	1.0
Multi-Family Residential	0.9
Retail/Service Commercial	0.9
Office/Professional	1.1
Personal Care/Recreational	1.2
Manufacturing/Industrial	0.7
Institutional	1.1

Therefore, it was determined that developed properties benefit differently from the flood protection facilities depending on the type of land use on the property and the average intensity of development; the potential damage to the structure, its contents, and/or the financial loss in revenues in the event of a flood would be different for the different types of land use based upon the relative cost per unit of improvement within the different land use categories.

In order to allocate benefit fairly between the land uses, an Equivalent Dwelling Unit (EDU) methodology was established that equated different residential and non-residential land uses to each other, thereby allowing a uniform method of assessment.

Therefore, the improvement benefit formula is summarized as:

(EDU's) x (Improvement Density Factor) x (Risk Factor) =
Improvement Benefit Units

C. EQUIVALENT DWELLING UNITS

Land use as shown on the San Joaquin County Assessor's records is used to assign Equivalent Dwelling Units (EDU's) to each improved parcel based on the following methodology.

- **Single-family Residential** — Since the single-family residential (SFR) parcel is the most common land use and represents over 70 percent of the assessable parcels within the District, it is used as the standard and is assigned one (1) EDU. Other improved land uses are converted to EDU's by comparing them to the SFR. Included in the SFR category are condominiums, mobile homes not in mobile home parks and agricultural-residential parcels.

- **Multi-Family Residential** — Multi-family residential improved land uses are equated to the SFR land use based upon the number of dwelling units per parcel. Studies have consistently shown that the average apartment unit's relative size and population density compared to

the typical size and impacts of single-family units is approximately 80 percent as much as a single-family residence. By virtue of their reduced size, each multi-family residential unit receives a lesser benefit or enhancement per unit to property values and therefore benefits less per unit than a single-family residence. Also, a review of parcel data finds that flood protection benefits do not increase proportionately as the number of units increase on a Multi-Family Residential (MFR) parcel, due to the nature of the building layouts and the fact that the value per unit generally decreases as the number of unit's increases.

EDU's for Multi-Family Residential parcels are calculated based upon the actual number of dwelling units as shown below:

Number of Dwelling Units	Equivalent Dwelling Unit Formula
Four (4) Units or less	0.8 EDU/DU for the first 4 DU's
More than four (4) but less than or equal to twenty (20)	0.6 EDU/DU for each DU over 4 and up to 20
More than twenty (20)	0.4 EDU/DU for each DU over 20

- **Non-Residential** — All Non-Residential improved land uses are equated to the SFR based upon parcel size. A review of the County land use records showed that the average SFR parcel size in the City of Stockton is 1/6 acre. Therefore, the factor of 6 EDU's per acre is used as the basis of comparison, and each Non-Residential parcel will be assigned 6 EDU's per acre or fraction thereof.

To more accurately reflect the benefit that some parcels receive from the flood control improvements, an additional adjustment in the EDU's assigned to the parcel is required. The data used to develop the density factors for each land use indicated that, on the larger parcels of land, the average density of development was significantly lower than on parcels that were less than one (1) acre in size. Even if it is assumed that the owner of land will ultimately develop that land to receive the maximum economic return from the land based upon allowed intensities of development and other land use regulations, there are a number of factors that limit the density of development on larger parcels of land. These include requirements based upon the specific land use which may include the need to provide large areas for the storage of materials or goods, to provide internal circulation roadways, to provide open areas or extensive buffer zones, to provide increased areas for employee/customer parking and other similar requirements.

Therefore, based upon an analysis of data relating the development intensity and parcel size for different types of land uses the number of EDU's assigned to non-residential parcels is adjusted on parcels which are larger than one (1) acre as shown below:

Parcel Size	Equivalent Dwelling Unit Formula
One (1) Acre or less	6.0 EDU/Acre
More than one (1) acre but less than or equal to four (4) acres	1.5 EDU/Acre for each acre over one (1) acre up to four (4) acres
More than four (4) acres	0.5 EDU/Acre for each acre over four (4) acres

Parcel area for non-residential condominiums will be calculated based on the individual parcel size and a proportional share of the common area attributed to the condominium complex.

- **Vacant** — Vacant properties have no improvements constructed on them; therefore, vacant properties are assigned zero (0) Improvement Benefit Units per parcel.

- **Vacant-like Developed Property** — This includes those parcels with land uses that closely resemble vacant property in that they have large land areas comprised of mostly park-like open space or vacant land and only a few buildings. These properties have very low land utilization and almost no potential for additional development; therefore, these land uses are assigned 1.0 BU per parcel for the ancillary structures on the property. These land uses include radio and television transmission facilities or towers, mineral processing, parcels with only parking lots, airports, mobile home parks, cemeteries, golf courses and other miscellaneous recreational uses.

A list of Land Use Classifications used in this report, with the corresponding County Assessor's use codes, is provided in Appendix B.

D. LAND BENEFIT

In addition to benefits that improvements on a property will receive, parcels within the District are assigned Land Benefit Units in proportion to the benefits that they receive by virtue of:

- Having the ability to economically use or fully develop a property consistent with zoning and land use regulations.

- Not having to adhere to the "Flood Plain Management" requirements for building and design of new construction, as well as renovations and additions, required for parcels in Special Flood Hazard Areas; and

- Not having to disclose during the sale of a property that it is located in a Special Flood Hazard Area of the 100-year flood plain.

Based on the benefits previously described the benefit to the land is preserved whether it is improved or not, and the benefit to each parcel is directly related to the size of the land. In addition, if the land were to remain in the flood plain, the cost of elevating the building pad area by filling the land would be proportional to the size of the parcel and the intensity of development allowed upon it based upon current land use and development standards. Therefore, the benefit received by the parcel varies as land varies in size.

For the City of Stockton, the San Joaquin County Assessor's Roll indicates that over 70 percent of the parcels of land are single-family residences (SFR's) and that the average land value for an average SFR located on 1/6 acre is between 20 and 30 percent of the total value of property. Therefore, 0.25 BU is assigned to each single-family residential parcel of land. Since the development potential of a SFR parcel is restricted to one house, no matter how big the parcel, the Benefit Units assigned to the land will not vary as parcel size increases for single-family residential parcels of land.

Benefit Units for all other land uses are based upon the size of the parcel at the rate of 0.25 BU for each 1/6 acre (1.5 BU/acre) to estimate the benefit to the land, since the amount of development which could occur is directly related to the size of the parcel. Each parcel of land, both developed and undeveloped and having no development restrictions on it, will be assigned Benefit Units at the rate of 1.5 BU/Acre to reflect the benefit that the land receives. Since the level of development or the potential for development would be similar for developed parcels of a similar size, the BU's assigned to the land for parcels larger than one (1) acre in size will be reduced in the same manner as the EDU's are reduced for the improvements on developed non-residential parcels as shown below:

Parcel Size	Land Benefit Unit
One (1) Acre or less	1.5 per Acre
More than one (1) acre but less than or equal to four (4) acres	0.375 per Acre
More than four (4) acres	0.125 per Acre

Parcel area for non-residential condominiums will be calculated based on the individual parcel size and a proportional share of the common area attributed to the condominium complex.

E. EXEMPT

Several land uses have been determined to be exempt because they would not benefit from the proposed flood control facilities, or they have a supporting use to a land use already being charged. Examples of exempt land uses are as follows:

- Common areas associated with residential condominiums, open spaces and green belts.
- Parcels with total property values of less than one dollar per the San Joaquin County Assessor's Roll.
- Properties owned by public agencies, such as cities, the County, the State or the Federal government, are exempt except when such property is not devoted to a public use.
- Rights-of-way owned by utilities and railroads.
- Agricultural parcels under the Williamson Act or within a General Plan area designated, as "Agricultural" has no potential for immediate development. By contrast, the Williamson Act parcels remain agricultural to take advantage of special tax treatments. The Williamson Act agricultural parcels and the General Plan Agricultural parcels are not assigned any benefit. If these parcels develop in the future, then the appropriate benefit will be collected under the "Flood Control Facilities Fee" mechanism. (Agricultural parcels that are not within the

General Plan designated areas and which do not have Williamson Act contracts are assessed as Vacant.)

- Parcels which are designated as Special Flood Hazard Areas on the Preliminary Revised FIRM's, dated February 28, 1995, and which were previously designated as Special Flood Hazard Areas on the previous FIRM's; these parcels are considered to have no benefit and will not be assessed.

F. ASSESSMENT DISTRICT BOUNDARY FACTOR

Parcels that are bisected by the flood line, as delineated on the preliminary Revised FIRM's, would have the total BUs for the property reduced by the percentage of the parcel within the proposed flood plain since they would receive a reduced benefit. The BUs for the parcel are reduced based on the following:

- If a parcel has less than 1/3 its area in the flood plain, the BU's for that parcel would be multiplied by 0.17.

- If a parcel has more than 1/3 but less than 2/3 its area in the flood plain, the BU's for that parcel would be multiplied by 0.50.

- If a parcel has more than 2/3 its area in the flood plain, the BU's for that parcel would be multiplied by 83.

IV. DESCRIPTION OF WORKS OF IMPROVEMENTS

Section 10102 of the Act provides for the legislative body of any agency authorized under the Act to finance certain capital facilities and services. The following is a list of improvements as allowed under the Act to be constructed, installed, maintained, repaired or improved under the provisions of the Act. The facilities diagram, on file in the Office of the Secretary, shows the general location of the improvements. Copies are also on file at the Office of the Clerk of the Board of Supervisors of the County of San Joaquin and at the Office of the City Clerk of the City of Stockton.

The improvements consist of, but are not limited to:

A. Flood protection improvements including the construction, strengthening and/or raising the height of levees, flood walls and wing levees; construction and/or improvements to detention basins and reservoirs; improvements to bridges, roadways and access ways; channel improvements; and related improvements along, but not limited to, the following waterways:

- Bear Creek - confluence with Disappointment Slough to Tully Road.

- Paddy Creek - confluence with Bear Creek to approximately Jack Tone Road.

- Bear Creek - approximately 700 downstream of Interstate 5 to confluence with Paddy Creek.

- Paddy Creek - confluence with Bear Creek to confluence with South Paddy Creek.

- South Paddy Creek - confluence with Paddy Creek to approximately Jack Tone Road.

- Mosher Creek & Mosher Creek Diversion - confluence with Bear Creek to approximately 6300 feet upstream of Highway 88.
- Mosher Slough - 2,000 feet upstream of Interstate 5 to approximately 150 feet upstream of Thornton Road.
- Calaveras River - confluence with the San Joaquin River to approximately Solari Ranch Road.
- Stockton Diverting Canal - confluence with the Calaveras River to Mormon Slough.
- Mormon Slough - confluence Stockton Diverting Canal to approximately 500 upstream of confluence with Potter Creek.
- Potter Creek A - confluence with Mormon Slough to approximately Jack Tone Road.
- Potter Creek B - confluence with Mormon Slough to 1,500 feet east of Fine Avenue.
- Mosher Slough Detention Basins No.1 & 2.
- Little Bear Creek - confluence with Mosher Slough to Davis Road.
- Pixley Slough - confluence with Bear Creek to Lower Sacramento Road.
- Five Mile Slough – confluence with Fourteen Mile Slough to the north/south land levee at the east boundary line of Shima Tract.

B. The acquisition of all interest in real property necessary or useful for the above described improvements or other improvements constructed by the District; and,

C. The acquisition and/or construction of any other work, auxiliary to any of the above and necessary or useful to complete the same and to reduce the risk of flooding within the District.

Appendix A — SAMPLE BENEFIT UNIT CALCULATIONS

Land – Use	Land Benefit	Improvement Benefit (EDU) x (Imp. Density Factor) x (Risk Factor)	Total MBU's
Single-family Res. ftprint < 1000sf	All parcels = .25 BU	(1DU x 1EDU/DU) x .8 x 1 = 0.8 BU	1.05
Single-family Res. 1000 > ftprint > 2000	All parcels = .25 BU	(1DU x 1EDU/DU) x 1 x 1 = 1.0 BU	1.25
Single-family Res. ftprint > 2000 sf	All parcels = .25 BU	(1DU x 1EDU/DU) x 1.2 x 1 = 1.2 BU	1.45
Agricultural Res.	All parcels = .25 BU	(1DU x 1EDU/DU) x 1 x 1 = 1.0 BU	1.25
3-Unit Apartment 1/2 acre parcel	.5ac x 1.5BU/ac = .75 BU	(3DU x .8EDU/DU) x 1 x .9 = 2.16 BU	2.91
11 Unit Apt. 3/4 acre parcel	.75ac x 1.5BU/ac= 1.125BU	[(4DU x .8EDU/DU) + (7DU x .6EDU/DU)] x 1 x .9 = 6.66 BU	7.785
41 Unit Apt. 3 acre parcel	3ac x 1.5BU/ac = 4.5 BU	[(4DU x .8EDU/DU) + (16DU x .6EDU/DU) + (21DU x .4EDU/DU)] x 1 x .9 = 19.8 BU	23.58
Grocery Store 1 acre parcel	1ac x 1.5BU/ac = 1.5 BU	(1ac x 6EDU/ac) x 2 x .9 = 10.8 BU	12.3
Regional Shopping 5 acre parcel	1ac x 1.5BU/ac + 3ac x .375BU/ac + 1ac x .125BU/ac = 2.75BU	[(1ac x 6EDU/ac) + (3ac x 1.5EDU/ac) + (1ac x 0.5EDU/ac)] x 2 x .9 = 19.8 BU	22.55
Service Station 1/4 acre parcel	.25ac x 1.5BU/ac = .375BU	(1/4ac x 6EDU/ac) x 2 x .9 = 2.7 BU	3.075
Office Building 2 acre parcel	1ac x 1.5BU/ac + 1ac x .375BU/ac =1.875BU	[(1ac x 6EDU/ac) + (1ac x 1.5EDU/ac)] x 2 x 1.1 = 16.5 BU	18.375
Church 2 acre parcel	1ac x 1.5BU/ac + 1ac x .375BU/ac = 1.875BU	[(1ac x 6EDU/ac) + (1ac x 1.5EDU/ac)] x 1.5 x 1.1 = 12.375BU	14.25
Industrial Building 10 acre parcel	1ac x 1.5BU/ac + 3ac x .375BU/ac + 6ac x .125BU/ac = 3.375BU	[(1ac x 6EDU/ac) + (3ac x 1.5EDU/ac) + (6ac x 0.5EDU/ac)] x 2 x .7 = 18.9 BU	22.275
Vacant SFR	All parcels = .25 BU	No imp. benefit = 0 BU	0.25
Vacant 1 acre parcel	1ac x 1.5BU/ac = 1.5 BU	No imp. benefit = 0 BU	1.5
Mobile Home Park 2 acre parcel	1ac x 1.5BU/ac + 1ac x .375BU/ac = 1.875BU	All parcels = 1 BU	2.875
Golf Course 20 acre parcel	1ac x 1.5BU/ac + 3ac x .375BU/ac +16ac x .125BU/ac = 4.625 BU	All parcels = 1 BU	5.625
Vacant 40 acre parcel	1ac x 1.5BU/ac + 3ac x .375BU/ac + 36ac x .125BU/ac = 7.125 BU	No imp. benefit = 0 BU	7.125
Agricultural (Williamson Act or General Plan)	Not assessed	Not assessed	0.0

Note: For those properties that are bisected by the flood line, the Total BU's are multiplied by the appropriate Boundary Factor.

Appendix B — LAND USE CLASSIFICATIONS

Assessor's Use Codes	San Joaquin County Assessor's Use Descriptions
10-17, 51, 56, 94, 96, 401, 421, 451, 461, 463, 471, 481, 501, 511, 521	**Single-Family Residential** SFR, condominium, Agricultural Residential, Mobile home not in mobile home park
21, 22, 31-32, 34-35, 41-48, 52	**Multi-Family Residential** Duplex, triplex, four-plex Apartments
110-114, 120-121, 130-132, 140-144, 150-155, 201-203, 210-214, 250-252, 255-256, 260-263, 270-272, 280-285, 290-291, 771	**Retail and Service Commercial** Stores & store combos, Department stores & super markets, Community & regional shopping centers, Restaurants, Service shops & service stations, Equipment sales and service, Misc. commercial
170-173, 190-197, 240	**Office/Professional** Professional & office buildings, Medical and dental offices, Banks, savings and loans
55, 59-65, 68, 70-71, 78, 180-184, 189, 204, 230, 231, 610-615, 620, 630-632, 640, 650, 651, 740-742, 750-752, 760	**Care/ Personal Recreational** Hospitals & nursing homes, Rooming houses, Homes for the aged, Day care facility, Hotels/motels, Theaters & bowling alleys & skating rinks, Clubs, lodge halls
253-254, 310-314, 320-324, 330-332, 340-342, 350-355, 360-363, 370-371, 381-382, 391, 392, 811, 812	**Manufacturing/Industrial** Manufacturing outlets, Misc. industrial, Warehousing, Distribution and Storage, Lumber yards, Truck Terminal, Bulk Plants, Winery
710-711, 720-722, 730	**Institutional** Institutional & Churches, Private schools & colleges
90-93, 380, 393, 660-664, 670, 681, 690, 691, 772, 810, 813, 814, 820, 830, 890-892	**Vacant-Like Developed** Golf Courses & Driving Ranges, Parking Lots, Drive-in Theaters, Swimming Pools, Airports, Mineral Processing, Mobile Home Park, Cemeteries, Radio/TV Transmission Sites, Privately Owned Race Track, Privately Own Camps
1-7, 20, 30, 40, 50, 53-54	**Vacant Residential** Vacant Residential Lots
100-102, 107, 300-302, 307	**Vacant** Vacant Lots
80-82, 95, 156, 200, 390, 400, 420, 450, 460, 462, 470, 480, 490, 500, 510, 520, 530, 550, 551, 590, 591, 770, 780, 815, 821-824, 840-841, 850-851, 860-862, 900-951	**Exempt** Common Areas, Right of Ways, Agricultural Parcels, Public Agency Properties

Appendix C – DIAGRAM OF ASSESSMENT DISTRICT

Full-sized copies of the Assessment Diagram are on file in the Office of the Secretary, of the San Joaquin Area Flood Control Agency. Copies are also on file at the Office of the Clerk of the Board of Supervisors of the County of San Joaquin and at the Office of the City Clerk of the City of Stockton.

As required by the Act, the Assessment Diagram shows the exterior boundaries of the Assessment District and the assessment number assigned to each parcel of land corresponding to its number as it appears in the Assessment Roll contained in Appendix D. (The assessment number for each parcel is the San Joaquin County Assessor's Parcel Number.)

The lines and dimensions of each lot or parcel within the Assessment District are those lines and dimensions shown on the maps of the Assessor of the County of San Joaquin for the year in when this Report is prepared. The Assessor’s maps and records are incorporated by reference herein and made part of this report.

Appendix D — 2025/2026 COLLECTION ROLL

Parcel identification, for each lot or parcel within the District, shall be the parcel as shown on the San Joaquin County Assessor's map for the year in which this Report is prepared.

The Assessments have been levied in proportion to the estimated benefit that each parcel receives from the improvements in accordance with the method and formula of assessment as presented and approved upon formation of the District.

A listing of parcels of land, and the proposed assessment amount to each parcel for the Operation and Maintenance of the improvements is provided under a separate cover and by reference is made part of this report. For current ownership of each parcel of land, reference is made to the most recent equalized tax roll for the County of San Joaquin, which is by reference also made part of this report. The assessment amount for each parcel pursuant to approval of this report shall be submitted to the San Joaquin County Tax Collector for collection on the property tax bill for Fiscal Year 2025/2026.

San Joaquin Area
Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

FINAL ENGINEER'S REPORT

SAN JOAQUIN COUNTY
Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023

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1. INTRODUCTION

Background

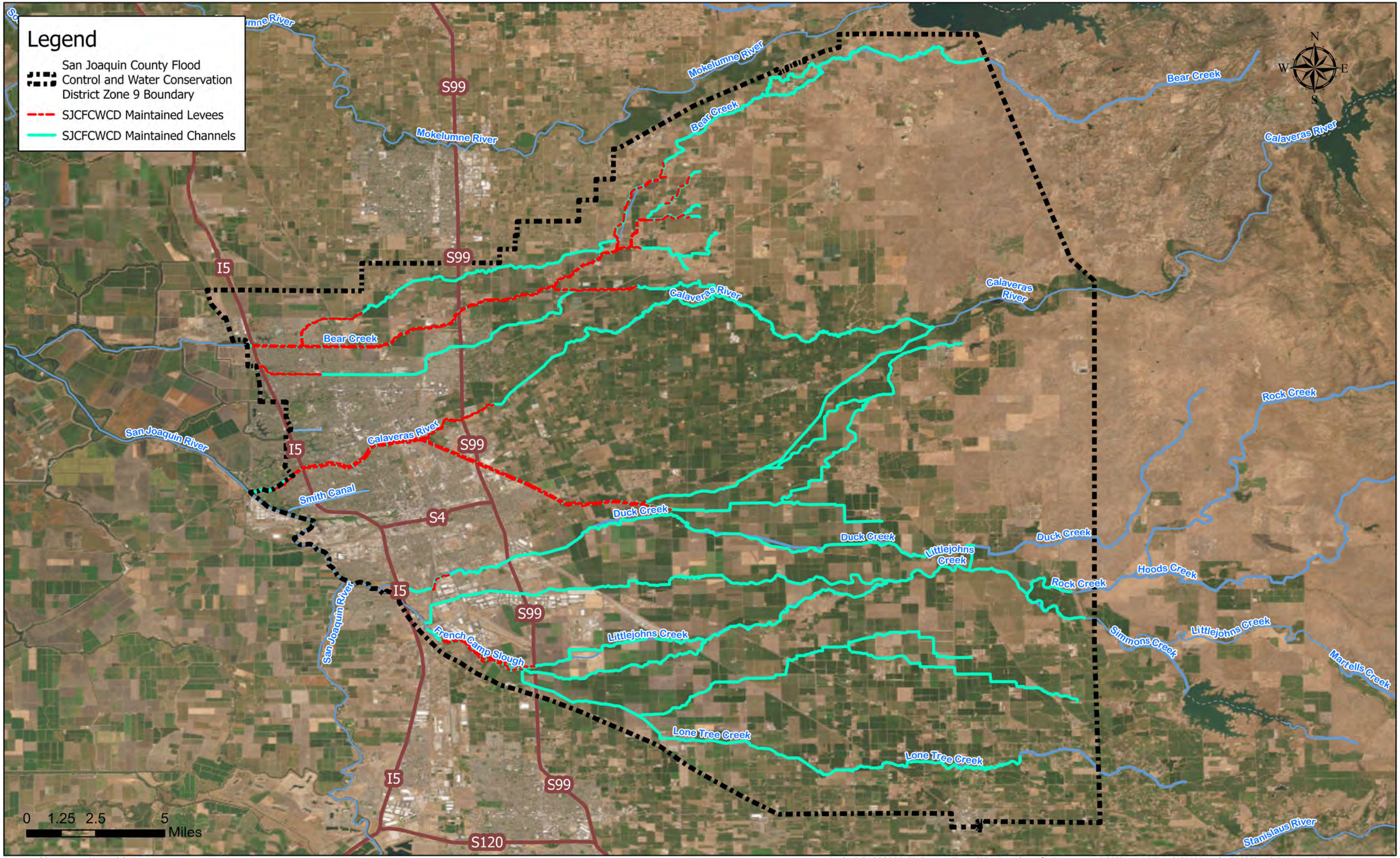
The San Joaquin County Flood Control and Water Conservation District (SJCFCWCD) was formed in 1956 to plan, construct, operate, and maintain flood control, water supply, drainage, and groundwater recharge projects. On December 19, 1961, the San Joaquin County Board of Supervisors created Flood Control Zone No. 9 (Zone 9) to provide maintenance of existing channels, levees, and associated structures **(Figure 1)**. SJCFCWCD Zone 9 currently maintains 119 miles of Project Channels and 112 miles of Project Levees[1] in accordance with agreements with the U.S. Army Corps of Engineers (USACE) and the California Department of Water Resources (DWR). Zone 9 also contains approximately 152 miles of non-project channels and 3 miles of Non-Project Levees maintained by SJCFCWCD as resources allow. Zone 9 is currently funded by a combination of property assessments and a small allocation of property taxes. The current property assessments include the Zone 9 Flood Control Benefit Assessment established in 1988 and an assessment levied by the San Joaquin Area Flood Control Agency (SJAFCA) established in 1996.

SJAFCA is a Joint Powers Authority (JPA) formed in 1995 between the City of Stockton, San Joaquin County, and SJCFCWCD with the initial goal of restoring a 100-year level of flood protection to the greater Stockton metropolitan area. In February 1995 the Federal Emergency Management Agency (FEMA) issued preliminary Flood Insurance Rate Maps (FIRMs) that placed a majority of the greater Stockton metropolitan area within a Special Flood Hazard Area (SFHA). To prevent the SFHA designation from becoming effective, the JPA parties recognized that a coordinated regional effort was needed. SJAFCA was formed to plan, design, and construct a suite of projects that became known collectively as the Flood Protection Restoration Project (FPRP). The FPRP consists of flood wall and levee improvements along 40 miles of existing levees, 12 miles of new levees, modifications to 24 bridges, and the construction of two major detention basins and pump stations. To fund construction and provide for the long-term operation and maintenance (O&M) of the FPRP, SJAFCA formed an Assessment District No. 96-1 (AD 96-1) in 1996. The completed FPRP is operated and maintained by SJCFCWCD on behalf of SJAFCA using funds generated by AD 96-1. In November 2017, SJAFCA expanded to include the Cities of Lathrop and Manteca to address the requirements of Senate Bill 5.

After significant flood damage from hurricanes Katrina and Sandy, as well as other major storms, State and Federal policies were adjusted effectively creating more stringent levee maintenance requirements. The new requirements have increased necessary levee maintenance efforts resulting in increased O&M costs. The current funding sources described above have not been sufficient to provide for the increased maintenance efforts causing both SJAFCA and Zone 9 to rely on reserve funds to maintain Project Levees. In addition, support from SJAFCA is needed by SJCFCWCD to ensure that obligations associated with the FPRP are complied with and flood protection levels are maintained consistent with the increasingly stringent regulatory requirements.

[1] Project levees are those facilities that are part of the State Plan of Flood Control as defined by the 2010 State Plan of Flood Control Descriptive Document, Central Valley Flood Management Planning Program, November 2010.

Figure 1: Zone 9 Levees and Channels



Additionally, in response to the aforementioned policy changes, in 2009, SJAFCA partnered with the Central Valley Flood Protection Board (CVFPB) and the USACE to study and evaluate ways to improve the region's flood risk. This resulted in the San Joaquin River Basin, Lower San Joaquin River, CA Final Integrated interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report (Feasibility Study), completed by the USACE in January 2018[2]. The recommended plan contained within the Feasibility Study was subsequently authorized by Congress and signed into law under the Water Infrastructure Improvements for the Nation Act (Public Law 115-270) Title 1, Subtitle D, Section 1401(2), dated October 23, 2018.

Implementing the plan defined in the Feasibility Study is expected to reduce flood risk to 122,000 people, over 80,000 structures, and $28.7 billion in property. USACE uses benefit-to-cost ratios for feasibility study implementation plan recommendations. In this case, the study resulted in a benefit-to-cost ratio of 7.0, meaning that for every dollar invested in the flood risk reduction project, the region receives seven times that in economic benefit. Additionally, implementation of the Feasibility Study's recommendations is expected to reduce expected annual damages within north and central Stockton by 83 percent.

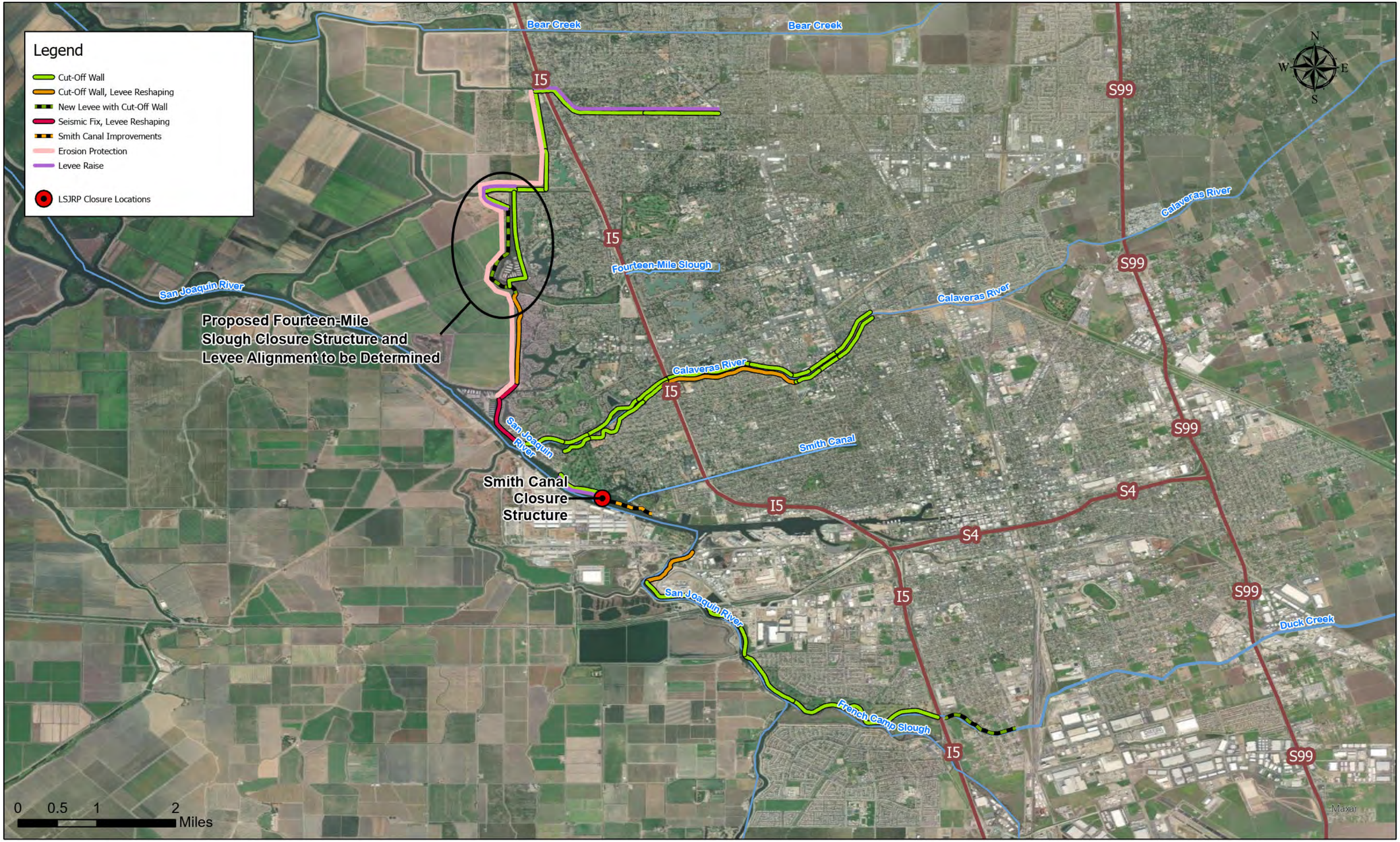
The Congressionally authorized recommended plan found in the Feasibility Study, referred to as the Lower San Joaquin River Project (LSJRP) consists of 23 miles of levee improvements and two closure structures (**Figure 2**). Construction at one of those closure structures, the Smith Canal Gate, was advanced early by SJAFCA and is a critical component of the implementation and funding approach as defined in this Engineer's Report.

After the Feasibility Study authorization, the USACE, CVFPB and SJAFCA entered into a Project Partnership Agreement (PPA) on September 30, 2020, which defines the requirements, obligations, and responsibilities of the Federal government and the Non-Federal Sponsor (NFS), which is defined as both CVFPB and SJAFCA. The CVFPB and SJAFCA entered into a Local Project Partnership Agreement (LPPA) on September 30, 2020, that specifies the obligations of each party; this includes CVFPB's and SJAFCA's commitment to contribute 24.5% and 10.5%, respectively, of the total project cost.

However, the LSJRP improvements do not improve all FEMA Accredited Levees providing protection to North and Central Stockton. **Figure 3** shows the area designated by FEMA as Shaded Zone X (FEMA Shaded Zone X). The FEMA Shaded Zone X area is the area of the accredited levee system currently designated by FEMA as protected by levees from a 100-year flood. To ensure long-term accreditation and keep up with increasing regulatory requirements and engineering standards, SJAFCA will need to complete additional capital project planning, engineering, design, and implementation of projects to FEMA Accredited Levees. Ensuring continued long-term accreditation becomes more important as the impacts of flood frequency and severity worsen over time, as the system reaches its useful life, and as regulatory compliance standards become more stringent.

[2] https://www.spk.usace.army.mil/Portals/12/documents/civil_works/lower_sj_river/final_eis-eir/01_San%20Joaquin%20River%20Basin%20Lower%20San%20Joaquin%20River_CA%20FINAL%20IIFR_EIS_EIR.pdf?ver=2018-02-01-184425-453

Figure 2: Lower San Joaquin River Project [1]



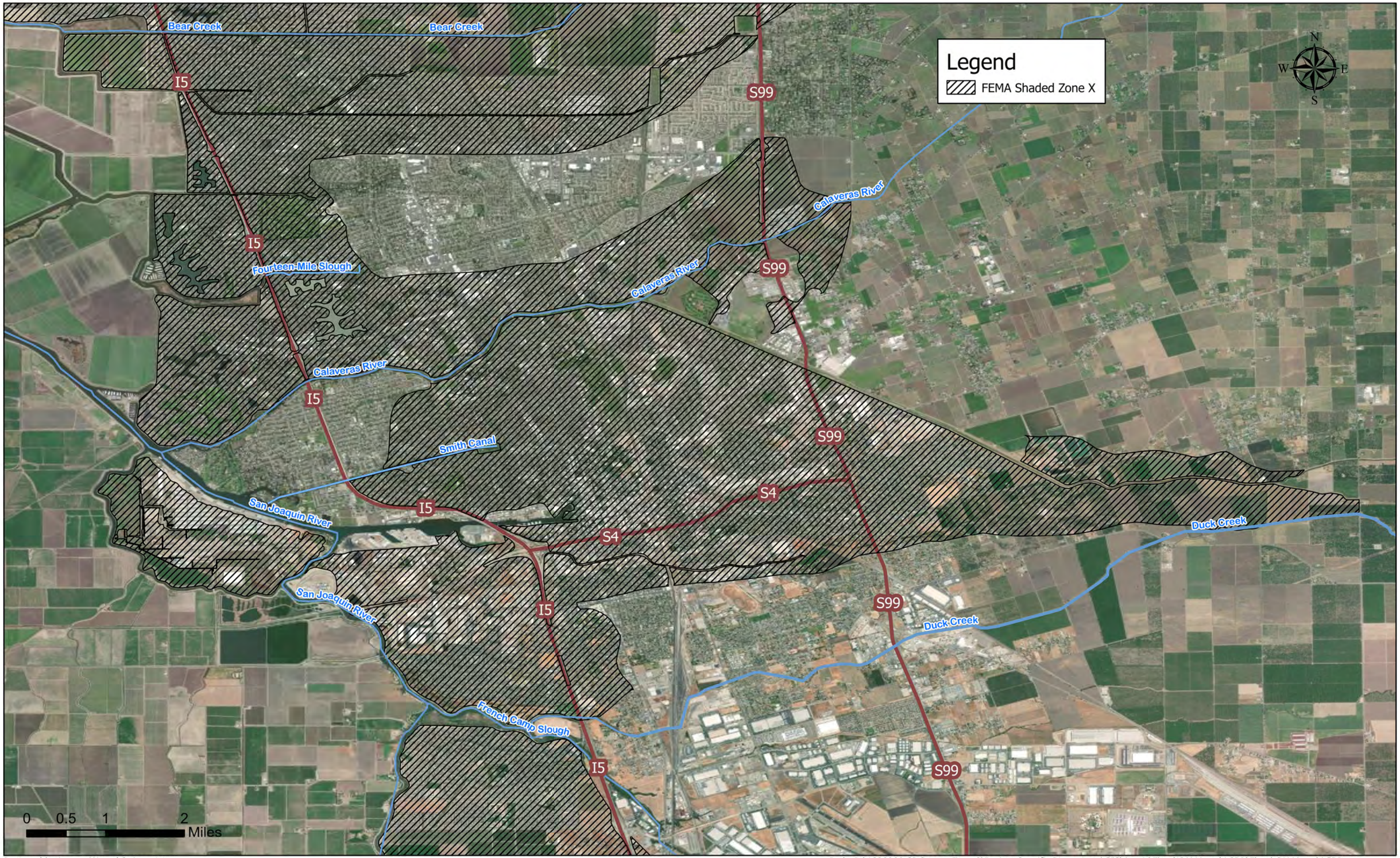
Prepared by Larsen Wurzel & Associates

Path: P:\1808000 SJ County Zone 9\Project Specific Documents\GIS\Arcgis\Flood CALM and LSRP\Flood CALM and LSRP.aprx

Source: U.S. Army Corps of Engineers, San Joaquin River Basin, Lower San Joaquin River, CA, Integrated Interim Feasibility Report/Environmental Impact Statement/Environmental Impact Report, Figure 8-1, January 2018, as modified by LWA.

[1] The LSJRP, as shown, can or may be modified to achieve the same functional equivalent benefits as contemplated by the current authorized Project.

Figure 3: FEMA Shaded Zone X



To address the funding for the activities described above, SJAFCA and SJCFCWCD jointly investigated a strategy for generating additional revenue to provide funding for levee capital improvements and O&M services. A formal arrangement for the joint investigation and implementation of a new special benefit assessment was memorialized in an MOU between the two agencies in July 2022. The result of the coordinated effort is the Levee Construction and Maintenance Assessment (LCMA or Proposed Assessment) described further within this Engineer's Report.

Purpose of this Engineer's Report

This Engineer's Report describes, in detail, the methodology for levying an assessment upon parcels that receive special benefit from the LCMA Services as defined within this Engineer's Report. In combination with the Zone 9 Flood Control Benefit Assessment, property tax revenues allocated to SJCFCWCD Zone 9, and SJAFCA's AD 96-1 Assessment, this assessment is intended to provide sufficient funding for:

1. Annual O&M services necessary to maintain SJCFCWCD Zone 9 Project levees, establish a reserve fund to support routine repairs, rehabilitation, and replacement of the infrastructure, and O&M services associated with the LSJRP capital improvements.
2. Capital improvements within the greater Stockton area as defined in the LSJRP and other system improvements to ensure long-term compliance and accreditation of the FEMA accredited levees.

Report Organization

This report is divided into seven sections with tables and a section for figures as well as five appendices, all described further below.

Section1 provides the background, purpose of this Engineer's Report, and describes the report's organization.

Section 2 outlines the authorization and process for imposing the Proposed Assessment.

Section 3 details the services to be funded by the Proposed Assessment.

Section 4 describes the financing and funding plan for LCMA Services.

Section 5 details the methodology for levying an assessment that is proportional to the special benefits received by each parcel assessed.

Section 6 describes how the annual assessment administered process.

Section 7 Provides the special benefit findings and certification by the Assessment Engineer as required by Article XIIID Section 4 (b) of California Constitution.

Appendix A provides a technical memorandum prepared by Kjeldsen, Sinnock & Neudeck, Inc. (KSN) that describes the incremental cost to operate and maintain the LSJRP levees.

Appendix B provides the financial plan cash flow model for the Capital Services funded by the Proposed Assessment.

Appendix C provides a technical memorandum prepared by R&F Engineering (R&F) that describes the supporting floodplain analyses utilized as part of special benefit analysis.

Appendix D provides the Assessment District Boundary Diagram

Appendix E provides the list of the County Assessor's use codes and identifies the assignment of Land Use Categories for use as part of the assessment methodology described herein.

Appendix F provides the list of parcels by reference to assessor parcel number (APN) subject to the Proposed Assessment as well as a schedule of the proposed assessment amounts for FY 2023/2024 (the initial maximum annual assessment roll for assessment balloting purposes).[3]

[3] The proposed Assessment Roll included with **Appendix F** is reflective of the Record Owners of parcels as defined by Government Code 53753 (j) which is based upon the last equalized secured property tax assessment roll. The last equalized secured property tax assessment roll of San Joaquin County prior to the mailing of the notice is the 2022 roll (as of lien date July 1, 2022). The 1st year of the assessments collection will be fiscal year 2023/24 and thus reflective of July 1, 2023 equalized secured property tax assessment roll. SJAFCA will be responsible for applying the assessment methodology described in this Engineer's Report to the 2023 roll and updating the roll presented in **Appendix F** for the levy of the assessment in fiscal year 2023/24.

2. AUTHORITY AND PROCESS

The Levee Construction & Maintenance Assessment (LCMA) would be imposed by SJAFCA pursuant to the authority of Government Code §54703 – 54719, the Benefit Assessment Act of 1982 (1982 Act), and consistent with the requirements of Article XIIID of the California Constitution[4] (Proposition 218), Government Code §53750 et. seq. (Proposition 218 Omnibus Implementation Act). Specifically, Government Code §54710(a) of the 1982 Act authorizes SJAFCA to levy an assessment to fund the Operations & Maintenance (O&M) costs for levees. Furthermore, under Government Code §54710.5, the assessment may include the cost of installation and improvement of the levees. As further detailed herein, the Proposed Assessment will fund levee construction, a portion of the annual cost of levee O&M, as well as create a reserve for routine repairs, rehabilitation, and replacement of the levees.

Government Code §54711, requires that:

1. The amount of the assessment imposed on any parcel be related to the benefit received by the parcel;
2. The aggregate amount of the assessment not exceed the estimated annual cost of providing the service; and
3. The revenue derived from the assessment be used only for the services identified as the basis for assessment.

In addition, all special benefit assessments must also comply with Proposition 218 and the Proposition 218 Omnibus Implementation Act. These requirements outline the process for imposing the Assessment, including the requirement that this Engineer's Report document the special benefits conferred by the service provided, the process for imposing the Assessment, and property owner approval through a balloting process.

This Engineer's Report has been prepared to:

1. Contain the information required pursuant to Government Code §54716(a), including;
    a. a description of the services proposed to be financed through the revenue derived from the Assessment;
    b. a description of each lot or parcel of property to be subject to the Assessment;
    c. the amount of the Proposed Assessment for each lot or parcel;
    d. the basis of the Assessment; and,
    e. the schedule of the Assessment;
2. Determine the special benefits from the services received by benefiting properties; and,
3. Assign a method of apportioning the Proposed Assessment to benefiting parcels.

Following submittal of this report to the SJAFCA Board of Directors (Board) for preliminary approval, the Board may, by resolution, call for an assessment ballot proceeding and public hearing on the establishment of the Proposed Assessment.

[4] Article XIIID of the California Constitution is a portion of the California constitution added by Proposition 218 that addresses the requirements of benefit assessments and is applicable here.

If the Board approves such a resolution, the SJAFCA staff will initiate the notice, protest, and hearing procedure required by Government Code §54716 and Article XIIID. A notice and assessment ballot will be mailed to property owners within the Proposed Assessment boundary. Such notice will include a description of the services to be funded, the total Proposed Assessment amount, the Proposed Assessment amount for each parcel owned, the duration of the Proposed Assessment, an explanation of the method of voting, and the name and telephone number of the person designated by the Board to answer inquiries regarding the Proposed Assessment and ballot proceeding process. Each notice will specify the date, time, and place of the public hearing and a summary of the ballot return procedures. Each notice will include a ballot upon which the property owner can vote for approval or disapproval of the Proposed Assessment and affix his or her signature. Finally, each notice will include an official postage prepaid security envelope in which the ballot must be returned.

The balloting and notice period will extend for a minimum of 45 days. Government Code 53750 (i) deems that notice is given and the 45-day period commences upon the deposit of the notice and ballot with the United States Postal Service. On the last day of the balloting period, the public hearing will be held for the purpose of receiving public testimony from property owners regarding the Proposed Assessment. Property owners will have the opportunity to provide testimony to the Board and submit their ballots at the public hearing, however, in order to be included within the tabulation, all ballots must be submitted prior to the close of the public hearing. At the public hearing, and at any time prior to the close of the public hearing, property owners may also revise previously submitted ballots.

If the votes received in favor of the Assessment, weighted by the proportional financial obligation of the properties for which the ballots are submitted, outweigh the votes received opposing the Assessment, then the Board may continue with the formation of the Proposed Assessment district, the process of imposing the Proposed Assessment and its future levy. If the assessments are so confirmed and approved by the Board, the Assessment roll will be submitted to the San Joaquin County Auditor Controller for inclusion on the secured property tax rolls or may be directly billed by SJAFCA to the property owner for the Assessment pursuant to Government Code §54718. As outlined in Government Code §53739, the Board may levy the Assessment in future years without conducting a new ballot proceeding so long as the Assessment is within the stated inflation-adjusted Assessment Rate authorized by the original balloting proceeding.

3. PROPOSED SERVICES

Services Funded by the Proposed Assessment

The services to be funded by the Proposed Assessment include:

1. Levee O&M Services: O&M services are required to ensure that the design level of flood protection is maintained over time for Zone 9 Project Levees maintained by SJCFCWCD, LSJRP levees, and other levees improved in the future by SJAFCA. As footnoted in the **Introduction**, Project Levees are those facilities that are part of the State Plan of Flood Control. LSJRP levees are those built as part of the Federally authorized LSJRP as further defined under the **Levee Capital Services** section below.
2. Levee Capital Services: All work associated with the planning, design, implementation and construction of the LSJRP and other future capital improvements completed within the benefit area that ensure continued FEMA accreditation of levees providing 100-year protection into the future.

Levee O&M Services

Levee O&M Service activities may include, but are not limited to, levee inspections and evaluations, debris removal that restricts flow or damages the system, vegetation removal and control, rodent control, levee patrols, levee road resurfacing, erosion protection material replacement, flood fighting, and embankment repair. In addition, Levee O&M Services also includes all activities associated with maintaining the current level of flood protection received by benefiting properties. These activities include compliance with any existing permits, obtaining new permits, permit enforcement, removal of encroachments, coordination with State and Federal floodplain regulators and policy makers, and coordination and reporting activities that ensure compliance with FEMA, DWR, and USACE standards. These services will be performed by SJAFCA and/or local maintaining agencies, including SJCFCWCD. These agencies may utilize SJAFCA resources or other contractors to support Levee O&M Services with funding from the Proposed Assessment.

In addition to the regular on-going O&M services, the proposed assessment will also provide adequate reserves to support routine repair, rehabilitation, and replacement of levees and appurtenant facilities.

Levee Capital Services

Levee Capital Services activities include the local contribution to the Federally authorized LSJRP and other capital improvement planning, design, and construction efforts along the flood protection system to support long-term FEMA accreditation of levees providing 100-year protection to North and Central Stockton.

The LSJRP consists of 23 miles of levee improvements and two closure structures. Construction at one of those closure structures, the Smith Canal Gate (SCG), was advanced early by SJAFCA and is a critical component of the implementation and funding approach defined in this Engineer's Report. The 23 miles of levee improvement as described in the Feasibility Study currently include:

Delta Front:

- 2.05 miles of fix-in-place improvements with soil-bentonite cutoff walls of various depths with 2.5 miles of geometry improvements.
- 1.1 miles of seismic fixes along two segments of Tenmile Slough.

- 1.33 miles of new setback levee along the Delta Front to eliminate the eastern portions of the Fourteenmile Slough levee.
- 0.59 miles of height improvements between 1.8 and 2.7 feet on the Delta Front.
- 5 miles of erosion protection.
- Control structure on Fourteenmile Slough.

North Stockton:

- 9.4 miles of fix-in-place improvements with soil-bentonite cutoff walls of various depths.
- 2.03 miles of height improvements between 1.4 and 1.6 feet in North Stockton.

Central Stockton:

- 9.2 miles of fix- in-place improvements with soil-bentonite cutoff walls of various depths.
- 2 miles of levee geometry improvements along one segment of the Calaveras River and one segment of the San Joaquin River.
- 0.53 miles of height improvements of 1.8 feet.
- 0.75 miles of new levee with soil-bentonite cutoff wall on Duck Creek to address flanking of flood waters from South of Central Stockton.
- 0.28 miles of height improvements of 4 feet on the RD 404 levee.
- Control structure at Smith Canal with 0.2 miles of floodwall.

As the USACE, the CVFPB, and SJAFCA advance implementation of the LSJRP, the final configuration of the improvements may be refined consistent with the intent of the original authorization or any future changed authorization by Congress. The Levee Capital Services are intended to provide the flood protection benefits of the authorized project in its final configuration. In addition, any required project mitigation or permitting requirements of the project are included within the Levee Capital Services.

Capital improvements along other portions of the system for the purposes of ensuring the long-term FEMA accreditation may include feasibility studies, analyses, field investigations, engineering, design, and construction. Efforts have not yet been defined in detail for this work. Should the Proposed Assessment be approved, these efforts will be further investigated and defined over the coming years.

4. FINANCING AND FUNDING PLAN

The financing and funding plan is based on an estimated annual budget for the Levee O&M Services as well as an estimated budget and financing plan for the LSJRP and other necessary capital improvements. Levee O&M Services include both the SJCFCWCD Zone 9 Project Levee O&M as well as the incremental additional Levee O&M associated with LSJRP and related improvements; however, the budget for the incremental O&M associated with the LSJRP are accounted for within the financing plan analysis for Levee Capital Services as further described below.

Annual Budget for Levee O&M Services

The annual budget for Levee O&M Services has been estimated in two parts. First, the County's Public Works Department, in coordination with SJAFCA, prepared an updated budget for the SJCFCWCD, Zone 9 Project levees. Second, Kjeldsen, Sinnock & Neudeck, Inc (KSN) prepared an incremental O&M budget estimate for the levees improved by the LSJRP (**Appendix A**). The intent is that the incremental O&M budget for the LSJRP would supplement funds from local maintaining agencies who currently operate and maintain the existing levee system to ensure that the benefits received by the Levee Capital Services can be maintained into the future.

The budget for Levee O&M Services represents the current expectation of Fiscal Year (FY) 2023/24 costs based on both historical expenses and anticipated changes over the life of the assessment. It should be noted that the budget was developed for the purpose of determining the annual revenue required for the Proposed Assessment based on the increased costs SJCFCWCD has experienced associated with performing O&M of Zone 9 Project Levees and based on KSN's experience operating and maintaining levees in the region. Future annual budgets approved by the Board may vary from year to year according to actual anticipated expenses and revenues.

Budget for Zone 9 Project Levee O&M

Table 1 provides a summary of the estimated FY 2023/24 budget. This budget takes into consideration the required level of currently unfunded O&M services associated with Project levees in conjunction with the available revenues described further below.

SJCFCWCD estimates that the required total cost of O&M is $5,954,000. This estimate includes the following services: O&M, ongoing engineering support, State & Federal coordination, administration, auditing & compliance, and the legal and insurance burden associated with all services SJCFCWCD provides for Zone 9 facilities. The existing revenues available to support O&M services total $4,470,000 and are provided by the current Zone 9 Flood Control Benefit Assessment, ad valorem property taxes received by the SJCFCWCD for Zone 9, and the SJAFCA AD 96-1 Assessment. The net difference, or shortfall, is $1,484,000. This shortfall is associated with the additional costs of providing the required level of Levee O&M Services for Zone 9 Project levees.

Table 1
Levee Capital and Maintenance Assessment (LCMA)
Levee O&M Services Budget for Zone 9 - FY 2023/24

Budget Item / Category	FY 2023/24 Budget
Operations & Maintenance [1]	$5,426,000
Ongoing Engineering Support	$70,000
State & Federal Coordination (Certifications, Policy & Funding)	$305,000
Administration, Auditing & Compliance	$65,000
Legal & Insurance Burden on Services	$88,000
Subtotal Annual Services Budget	**$5,954,000**
Current Zone 9 Assessment (Government Code 56901)	($2,716,000)
Zone 9 Ad Valorem Tax Apportionment	($850,000)
SJAFCA AD 96-1 (Government Code 57594)	($904,000)
Total Current Funding Sources	**($4,470,000)**
Net equals Budget for Levee O&M Services	**$1,484,000**

[1] Includes Labor, Equipment, Supplies, Materials, Repair & Replacement for Equipment and Mitigation.

Source: San Joaquin County Public Works Dept. and SJAFCA

The current Zone 9 Flood Control Benefit Assessment is utilized by the SJCFCWCD to fund the O&M of Project Levees within Zone 9. Ad valorem property taxes, which come from a portion of the County's base 1% of net assessed value property taxes apportioned to Zone 9 of SJCFCWCD, are also used to fund Project Levee O&M services. Finally, the SJAFCA AD 96-1 is an existing assessment for parcels with the SJAFCA service area to fund O&M of the FPRP. Revenue from AD 96-1, collected by SJAFCA, is utilized to contract for services provided by SJCFCWCD on behalf of SJAFCA for the O&M of those Project Levees improved as part of the FPRP.

The Proposed Assessment will be utilized to fund the increase in cost associated with Levee O&M Services. The budget presented in **Table 1** reflects the budget for the O&M of Zone 9 Project related Levees and Channels. As costs have increased over the years, SJCFCWCD has been required to prioritize the limited resources to those areas with the greatest risk in terms of life safety and flood damages. The assessment revenues and property taxes described above have generally been fully expended on Project Channels and Levees. Even with full expenditure of revenues on Project facilities, including depletion of reserve funding, essential maintenance for Project facilities is currently being deferred until additional funding is available. The Proposed Assessment will provide the SJCFCWCD with additional resources needed to address the increased cost of Levee O&M Services.

Budget for LSJRP Levee O&M

Table 2 provides a summary of the estimated budget for incremental O&M of the LSJRP levees. This is the increase in the estimated costs to O&M the levees to the standards required by USACE once the LSJRP is turned over to the NFS. A portion of this estimate was prepared by KSN through an evaluation of current local maintaining agency resources and estimated cost of levee O&M upon the completion of improvements (**Appendix A**). The total budget for the components of the LSJRP evaluated by KSN is $425,340 escalated to January 2023. SJAFCA has also worked as part of the implementation of the Smith Canal Gate Project to estimate the cost of ongoing O&M of the gate facility. This amount is expected to be similar to the O&M of a second gate structure at 14-Mile Slough. The cost to O&M both gates is expected to be $700,000 (in January 2023 $'s) therefore the total incremental O&M is expected to be $1,125,341. Because these costs are incurred as the LSJRP capital improvements are completed over time, the incremental O&M costs for each completed element has been incorporated into the financing plan for levee capital services, described below.

Table 2
Levee Capital and Maintenance Assessment (LCMA)
Levee Capital Services Incremental O&M Budget for LSJRP Features

Budget Item / Category	Estimated Budget [1]
Mosher Slough	$20,840
Shima Tract	$17,475
Fivemile Slough	$4,291
Fourteenmile Slough	$138,403
Tenmile Slough	$31,973
Calaveras River - Right	$42,783
Calaveras River - Left	$43,072
San Joaquin River	$40,717
French Camp Slough	$18,317
Duck Creek	$67,470
Smith Canal Gate [2]	$350,000
Fourteenmile Slough Structure [2]	$350,000
Capital Project	**$1,125,341**

[1] Budget as of January 2023 and utilized as part of cash flow and financing plan analysis found in Appendix B.

[2] Estimated based on SCAAD budget for O&M of the SCG

Source: KSN Memo and SCAAD Engineer's Report

Financing Plan for Levee Capital Services

To determine the annual funding requirements necessary to fund the SJAFCA share of new facility capital costs and the associated incremental O&M, LWA prepared a financing plan including a cash flow analysis. The financing plan incorporates several assumptions, such as initial cost estimates, cost sharing, SJAFCA project delivery responsibilities, implementation timeline, cost escalation, SJAFCA and State advancement of the Smith Canal Gate, and bonding. These costs are described further below. Importantly, this model incorporates the incremental O&M cost of the LSJRP levee system as the O&M responsibility and funding requirements are layered in over time as project features are completed and turned over the NFS for O&M.

Initial LSJRP Cost Estimate

Project cost estimates, including contingency values, are derived from the Feasibility Study "first cost" estimate of $1,070,309,000 (2017 price levels). These values serve as the basis for the escalated costs utilized in the financing plan. Because this cost estimate was based on feasibility level information with limited information on or consideration for prior analyses of the levee system, several assumptions associated with the estimate were modified, as described herein, to prepare a realistic, reasonable, and fiscally prudent base cost.

The Feasibility Study was performed under USACE's 3x3x3 paradigm: defined as a study requiring no more than three years, with no more than three million dollars, and undergoing three levels of concurrent review. USACE contrived this concept to streamline and accelerate feasibility analyses, but it has resulted in some unintended consequences.

Detailed and informative analyses were often left for the design phase of a project, resulting in overly conservative project cost estimates, assuming worst-case design conditions. Indeed, during the feasibility study phase, existing information about the levee system performed by the State of California's Urban Levee Evaluation (ULE) that could have helped reduce the cost estimate went partially unused, and conservative assumptions were instead used.

For example, during the feasibility study phase, several reaches were identified as requiring a higher level of improvement than those identified from the ULE work. This resulted in higher estimated costs and higher contingencies. Although individual features were not analyzed in detail to determine specific reductions in program costs, several elements were identified as requiring much less robust re-build. These include the improvements near Brookside and Mosher Slough.

Further, recent cost projections of Ten Mile Slough, which is currently designed and awaiting environmental clearances, are now projected to come in below those prepared in the 2017 feasibility estimates. Further, comparing USACE cost-estimates to actual bid costs for over a dozen flood projects being implemented in the Sacramento area demonstrates that USACE estimates are always significantly conservative. In most cases, a conservative cost estimate is beneficial for future planning and helps minimize long-term financial risk; however, several principles of SJAFCA's program are to be financially frugal with local funding and not raise more money from property owners than will be required. SJAFCA also notes that USACE is required by statute to regularly develop new costs estimates, and such estimates have a tendency to fluctuate wildly based on

market conditions, but these updated estimates do not generate actionable information until such time as USACE incorporates the use of actual site conditions. As such, SJAFCA has decided to program funding on the lower side of the "first cost" range (i.e., lower contingency).

SJAFCA has prepared several contingency plans to mitigate for any cost increases. These include leveraging other funding sources or locally leading future phases of design and construction.

There are other funding sources that may come to fruition over the next decade. These may be used to offset upfront bond financing and/or mitigate for future increased costs. SJAFCA is currently coordinating with other flood agencies to leverage their existing, excess in-kind credit. These inter-basin credit transfers require close coordination with USACE for approval as they would be applied to the NFS's cost share, and they require negotiation on the amount. While the actual cost of these credits is not yet known, they would only be sold/purchased at a discount, and therefore they will "generate" additional resources for the program. Secondly, SJAFCA is seeking credit for its prior work on Mosher Slough that would directly offset cost sharing obligation to USACE. These efforts could result in $5-$10 Million of local funding applicable toward the local cost share of the LSJRP.

It is also feasible that SJAFCA could receive a higher state-local cost share for work on this project. Although the current cost share (70%-30%) is generous, other areas within California have seen a higher than 70% state share. For example, an additional 10% State cost share would result in a 33% reduction in the local funding match.

Additionally, in close coordination with USACE, SJAFCA could lead design and construction of one or more project features. Throughout the valley, locally led projects have been completed on Federal levees, resulting in cost savings from the initial USACE estimate. However, the precise features, extents, and expected saving remain uncertain and can't be quantified at this time.

The feasibility study estimates a "first cost" of $1.070 Billion (2017 price levels, not escalated) or estimated at $1,385 Billion in the PPA (fully escalated over time). This estimate includes a 38% contingency. For the reasons described above, SJAFCA is preparing this program estimate with 23% contingency (a 15% reduction), resulting in an initial cost of approximately $910 Million (**Table 3**), for use in the financing plan which escalates cost over the project implementation timeline.

Cost Sharing

As previously discussed, the LSJRP is Federally authorized and led. The USACE, DWR, and SJAFCA entered into a PPA defining the cost share obligations of USACE and the NFS. DWR and SJAFCA then entered into an LPPA, defining the cost sharing obligations between the NFSs. The Federal cost share is 65%, DWR cost share is 24.5%, and SJAFCA's cost share is 10.5%.

SJAFCA's cost share funding will come in the form of 1) cash contributions, 2) In-kind contributions (IKC) for work at Smith Canal and any other approved credit for work performed by the NFS, and 3) lands, easements, rights-of-way, relocations, and disposal areas (LERRDs) purchases. NFS cash contributions are estimated in the financing plan after accounting for LERRDs and IKC estimates.

Table 3
Levee Capital and Maintenance Assessment (LCMA)
Lower San Joaquin River Project Base Budget

Budget Item / Category	Cost Share	$2017 Costs [1]
Land and Damage		$68,555,900
Relocation		$72,250,000
Fish and Wildlife		$60,268,400
Levees and Floodwalls		$481,609,150
Floodway Control and Diversion Structure		$45,205,550
Planning, Engineering, Design		$123,165,850
Construction management		$58,708,650
Capital Project		**$909,763,500**
Federal	65.0%	$591,346,275
State	24.5%	$222,892,058
Local Share [2]	**10.5%**	**$95,525,168**

[1] Cost estimate used from 2018 Feasibility Study, based on Oct 1, 2017 price levels, USACE "First Cost", with adjusted contingency to 23%; Utilized as part of financing plan found in Appendix B.

[2] Local share simply based on "first cost" percent obligations, not accounting for credit from local work completed (e.g. Smith Canal Gate)

Source: San Joaquin Area Flood Control Agency and U.S. Army Corps of Engineers

Smith Canal Gate

SJAFCA and DWR are delivering the Smith Canal Gate (SCG) project as advanced work that directly supports the overall LSJRP. USACE recognizes this as IKC, and it is assumed all costs will be recognized and attributed toward the NFS cost sharing requirements. For the purposes of the cash flow financing plan for the LSJRP, the assumed creditable cost of the SCG project is $96.8 Million. It is assumed that upon review of project expenditures, USACE would approve credit in this full estimated amount. The $96.8 Million estimate is reflected in the total project cost for the purposes of calculating cost share percentages. It is also used as IKC to offset immediate NFS cash contribution requirements.

The costs of the SCG project have been funded from a combination of grant funding provided to SJAFCA by DWR and local funding from SJAFCA generated by the Smith Canal Area Assessment District (SCAAD). If the LCMA is approved by property owners and the assessment district if formed by the SJAFCA Board, the following actions would take place:

- Assessments authorized to be levied by the SCAAD would cease to be levied. In other words, the LCMA would supplant the SCAAD.
- The current outstanding bonds issued by SJAFCA to finance the local share of the project, which are secured by SCAAD assessment revenues would be redeemed by SJAFCA. See **Bond Plan** discussion below.

To account for and recognize the Levee Capital Services benefits provided to date by the SCAAD assessments, an adjustment factor has been applied to the properties located within the SCAAD. See **SCAAD Factor** discussion below.

LERRDs

LERRDs are a line-item estimate in the Feasibility Study and the timing and amounts of LERRDs purchases are incorporated into the financing plan. LERRDs have been escalated based on current project implementation assumptions as defined here and estimated at approximately $210 Million.

Project Implementation Timing

Project implementation timing has been revised from the initial estimates prepared for the Feasibility Study by USACE. The sequence of reach implementation and start timing has been updated to reflect recent project developments (including status of design efforts as of mid-2022, Federal funding commitments, and available personnel and project team resources).

Given the status of this program and timelines of similar programs in the Central Valley, the estimated time to project completion used for this engineer's report is twenty years. Therefore, the LSJRP expenditures associated with construction continue into 2043 and may extend for several years to complete financial and project close-out with USACE and DWR.

Cost estimates are escalated in alignment with the estimated reach delivery timelines. LWA utilized construction cost escalation of 2.4%, based on the average annual growth rate from 2010 to 2020 from the Department of General Services (DGS) California Construction Cost Index (CCCI). This analysis excludes 2020-

present, which reflects the effects from aftermath of COVID-19 years and the current inflationary environment in favor of reflecting a longer-term average construction escalation over the entire period of the project.

Assessment Timing

The first year of assessment collection would occur in FY 2023/24. The duration of the capital component of the assessment is assumed and is to be authorized for 30 years from a final bond issuance, which is expected to take place in 2038.

Bond Plan

Based on the project implementation timeline, cash contributions to USACE, and the redemption of the outstanding SCAAD Assessment Revenue bonds, SJAFCA plans to issue bonds secured by LCMA assessment revenues as soon as feasible after the formation of the Assessment District. The timing of the project implementation dictates the timing and amount of bond financing versus pay-go revenues to cover expected costs. The next bond issuance is expected to occur in 2033. The financing plan currently assumes that annual assessment district revenues and IKC would cover much of the cost outlays and funding match to USACE. A third and final bond issuance would occur in 2038. The financing plan assumes that each bond issuance would be structured as a conventional 30-year financing and to be paid from annual assessment collections.

Cash Flow Analysis

A cash flow analysis was developed in quarterly periods for years 2022 through 2049, however, is presented in annual periods here. The cost projections were spread over time as described above. The financing plan assumes an initial assessment need of $6.2 Million beginning in FY 2023/24 for Capital Services. The initial Capital Services budget includes the LSJRP costs, District operational soft costs to deliver LSJRP, defeasance of the existing SCAAD bonds, as well as the incremental O&M required to support this project long-term. The initial O&M assessment need is $1.125 Million (2022) and is assumed to continue in perpetuity. The assessment is assumed to be escalated annually based on the Consumer Price Index (CPI-W) for San Francisco-Oakland-Hayward, CA. For purposes of the cash flow analysis, escalation of the assessment was assumed to be 2.4% annually. Upon final payment of bonds and completion of the LSJRP, the capital portion of the annual assessment is assumed to end.

The financing and funding plan is detailed in the cash flow shown in **Appendix B**.

Total Estimated LCMA Budget

The total LCMA budget combines the FY2023/24 O&M budget for Zone 9 Project levees and the resultant capital FY2023/24 budget developed in the cash flow and financing plan analysis. These budgets are summarized in **Table 4** and result in a total estimated LCMA FY 2023/24 budget of **$7,684,000**.

Table 4
Levee Capital and Maintenance Assessment (LCMA)
Assessment District Budget - FY 2023/24

Budget Item / Category	FY 2023/24 Budget
Levee O&M Services Budget [1]	$1,484,000
Levee Capital Services Budget	$6,200,000
Total Budget [2]	**$7,684,000**

[1] Includes Labor, Equipment, Supplies, Materials, Repair & Replacement for Equipment and Mitigation.

[2] Assessment can be escalated annually, according to CPI-W San Francisco-Oakland-Hayward, not to exceed 4% (Reference Section 6, Annual Escalation of the Assessments)

Source: San Joaquin County Public Works Dept. and SJAFCA

5. ASSESSMENT METHODOLOGY

General Discussion

Requirements of Proposition 218

To levy an assessment for a property related service such as flood control, Proposition 218 has certain substantive requirements that the local agency must comply with. The local agency must:

- Separate the general benefits provided by service(s) from the special benefits conferred on a parcel;
- Identify the parcels that have special benefits conferred on them by the facility and/or service;
- Calculate the proportionate special benefit for each parcel in relation to the entirety of the benefits provided by capital and O&M services being funded;
- Apportion the costs of services to each parcel that receives special benefit in relation to that proportion; and
- Ensure that the total assessment levied does not exceed the reasonable cost of the proportionate special benefit conferred on each parcel.

Special Benefits vs. General Benefits

Proposition 218 requires any local agency proposing to increase or impose a special assessment to "separate the general benefits from the special benefits conferred on a parcel." (Cal. Const. art. XIIID §4). The rationale for separating special and general benefits is to ensure that property owners are not charged a special benefit assessment in order to pay for general benefits provided to the properties or general public at large. Thus, a local agency carrying out a project that provides both special and general benefits may levy an assessment to pay for the special benefits but must acquire separate funding to pay for the general benefits.[5]

A special benefit is a particular and distinct benefit over and above the general benefits conferred on real property located within the agency's boundary or to the public at large. The total cost of the services must be apportioned among the properties being assessed based on the proportionate special benefit the properties will receive. Moreover, the governmental agency must demonstrate through a balloting process that the ballots submitted in opposition to the assessment do not exceed the ballots submitted in favor of the assessment, weighted according to the proportional special benefit and financial obligation of the affected properties.

Because flood control work has an obvious indirect relationship to the provision of general benefits and may, upon first blush, appear to be general benefits, the issue of general benefits merits further discussion. For example, the facilities to be funded by the assessment will protect parks that are used by people regardless of whether they own property within the floodplain or not (the general public). But this indirect relationship does not mean that these facilities or services will themselves provide any general benefits. Rather, they will provide special benefits to all parcels within the floodplain, including special benefits to public parcels (such as parks) that are themselves used in the provision of general benefits.

[5] *Silicon Valley Taxpayers' Assn., Inc. v. Santa Clara County Open Space Authority*, (2008) 44 Cal. 4th 431, 450.

More to the point, the public at large will be paying for the special benefits provided to public property, and specially benefited property owners' assessments will not be used to subsidize general benefits provided to the public at large or to property outside the district. All property that is specially benefited will be assessed, including schools, parks and other parcels used in the provision of general benefits. Assessing agencies are required to assess and levy the assessment on all specially benefited property, including publicly owned property, within the assessment district.[6] Thus, the general public will pay for the provision of flood control services because the assessed public agencies within the assessment district will use general taxes or other revenues to pay their assessments.

In this instance, the Levee Capital and O&M Services provide both a general benefit to the public at large and a special benefit to those properties located within the boundaries of the Proposed Assessment by virtue of preventing flood waters due to uncontrolled flood from collecting on or flowing over a parcel and causing damages as a result of inundation. The special benefits provided by the services have been calculated for all parcels within the boundaries of the Proposed Assessment. The boundaries of the proposed district consists of only those parcels within the levee protected area.

The special benefit provided to each parcel varies based on the relative avoided damage from flooding. The relative avoided flood damages are based on an uncontrolled flood resulting from a breach along the levee system. The avoided flood damages are a function of parcel size, land use and the depth of flooding from each breach scenario, and, for Levee O&M services, the length of levee represented by each breach.

As noted above, special benefits are those "particular and distinct over and above general benefits conferred on real property located in the district or to the public at large." Cal. Const. art. XIIID §2(i). By contrast, general benefits provided to the public at large could be discussed in terms of general enhanced property values, provision of general public services such as police and fire protection and recreational opportunities that are available to people regardless of the location of their property. *See e.g.*, Cal. Const. art. XIIID §§2(i), 6(2)(b)(5); *Silicon Valley Taxpayers*, 44 Cal. 4th 431. 450–56. In this case, general benefits can be identified as the ability to move through and across the benefited area. The following considerations were evaluated to distinguish the general benefits by the Levee Capital and O&M Services.

Public Property

The Levee Capital and O&M Services will protect certain public properties (e.g., government buildings, schools, and parks). While the use of these public properties is a general benefit, the public properties themselves are protected by the flood protection system and receive a special benefit from the Levee Capital and O&M Services in the same manner as private property. All public properties have been included in the determination of special benefit, as described in more detail under the Assessment Apportionment Methodology below. With the exception of Federal Properties, there is no general benefit for Non-Federal public properties to be funded by the Proposed Assessment because the public properties will be assessed based on the special benefit received. As discussed further below, Federal properties are exempt from paying

[6] Reference Cal. Const. art. XIIID §4(a) with respect to the requirement to assess and *Manteca Unified School District v. Reclamation District No. 17 (2017) 10 Cal.App.5th 730* with respect to the requirement to levy.

an assessment levied by a local agency. While the special benefit and associated assessment is calculated without consideration of the Federal property exemption, the lost revenue cannot be reapportioned to assessed property owners. Therefore, the Levee Capital and O&M Services provide a general benefit by protecting federally owned property against flood damages, and the lost assessment revenue must be funded by other revenue sources.

Local Streets and Collectors

The Levee Capital and O&M Services will protect certain local streets and collectors. These roads are primarily used to access properties, as opposed to thoroughfares discussed separately below. The boundary of the Proposed Assessment has been narrowly drawn to include only those properties receiving special benefit from Levee Capital and O&M Services. Therefore, the benefit from Levee Capital and O&M Services to local streets and collectors is captured by assessing the properties they serve – as these roads have no value but in providing access to the specially benefitted parcels, and protecting these roads is a means to provide special benefit to these parcels.

Thoroughfares

The Levee Capital and O&M Services will also protect certain thoroughfares within the boundary of the Proposed Assessment. These roads are distinct from local streets and collectors in that these roads serve as primary transit routes within, through and across the community. These roads are used by the public at large regardless of residency, destination, or purpose. Therefore, the protection of these thoroughfares provides a general benefit that must be separated from the special benefit conferred on parcels by the Proposed Assessment and cannot be funded by the Proposed Assessment. Further discussion supporting the quantification and separation of this general benefit from the special benefit is provided below.

Assessment Boundary

The Proposed Assessment Boundary encompasses all properties that receive a special benefit from Levee Capital and O&M Services. Properties receiving special benefit from the Levee O&M Services were identified through the flood breach analyses prepared by R&F Engineering (R&F). Properties receiving special benefit from the Levee Capital Services were identified from a combination of floodplain mapping sources. The analyses completed by R&F have been documented and incorporated into this Engineer's Report by reference and attached as **Appendix C**.

Hydraulic Analyses Performed to Support the Assessment Methodology

Levee Breach Analysis for Levee O&M Services on Zone 9 Project levees

To determine the avoided flood damages as a result of the Levee O&M Services on the Zone 9 Project levees, as described in **Appendix** C, R&F utilized an existing levee breach analysis that evaluated 72 different breach scenarios along the SJCFCWD Zone 9 Project levees. The resulting floodplain from each breach was overlaid on the San Joaquin County Geographic Information System (GIS) parcel shapefile to determine the average flood depth and area of flooding for each individual parcel for each breach scenario. The resulting average flood depth was used as one of the inputs to the USACE Depth-Damage functions to calculate avoided flood damage. R&F also identified the length of levee represented by each breach to apportion avoided flood

damages across the project levee reaches maintained by Zone 9. The representative levee lengths can be found in **Table 5**. To account for the situation where a Project levee was maintained by an agency other than SJCFCWCD, the portion of that reach of levee maintained by others was subtracted from the representative levee length. As a result, a 1.4-mile portion of levee along the Calaveras River maintained by Reclamation District 2074 was removed from the representative levee length associated with the CSR R1 breach analysis. R&F's hydraulic analysis included a channel overtopping scenario to determine flood depths with no levee breaches when the channels and levees overtop when their capacity is reached. As the channel overtopping is not prevented by Levee O&M services, this additional scenario presented in R&F's analyses was not utilized in the analysis of special benefits.

Levee Breach Scenarios for Levee Capital Services on LSJRP and 100-year Accreditation Assurance

Properties receiving special benefit from the Levee Capital Services (and associated incremental levee O&M for the LSJRP) were identified using a combination of floodplain mapping that included:

- The 100-year composite without project floodplain based on breaches of levees to be improved by the LSJRP[7];
- The FEMA Shaded Zone X area within north and central Stockton; and,
- Additional hydraulic modeling showing the extent of the inundation from breaches of upstream FEMA Accredited Levees prepared by R&F.

To determine the avoided flood damages as a result of the Levee Capital Services from the improvements to the levee system associated with the LSJRP and FEMA Accredited levees, the Assessment Engineer utilized the without project floodplain mapping from the Feasibility Study as well as the floodplain mapping for breaches of FEMA accredited levees. The Feasibility Study does not define one single protection level but looks at levee assurances at a suite of flood scenarios, including the 100-year event. For the purpose of this Engineer's Report, the Assessment Engineer determined that the USACE's 100-year mapping best represents the level of service provided by the improved project and provides an appropriate comparison to the FEMA Shaded Zone X area. A composite without-project floodplain map, utilizing USACE floodplain mapping data, was prepared to identify the specific area benefiting from the improvements of LSRJP Project levees. To determine the extent of the floodplain for properties benefiting from FEMA Accredited levees, next, the Assessment Engineer overlaid the composite floodplain from breaches along FEMA Accredited levees prepared by R&F Engineering. This designated the extent of the area benefiting from Levee Capital Services for FEMA Accredited Levee. Because different sources of floodplain mapping were combined, the floodplain mapping associated with the FEMA Accredited levee breaches was only utilized to inform the extent of the benefit area from Levee Capital Services, not the depth of flooding for the purpose of calculating avoided flood damages.

[7] As noted above, floodplain mapping for these breaches is based on hydraulic modeling completed by the USACE. Reference the USACE Feasibility Study.

Table 5
Levee Capital and Maintenance Assessment (LCMA)
Representative Levee Lengths

Breach name	Levee Length (Miles)	Breach name	Levee Length (Miles)
Brc L10	2.3563	**Lmh R1**	1.9343
Brc L11	0.4907	**Mhc L1**	0.4615
Brc L13	0.5117	**Mhc L2**	1.3213
Brc L14	1.2882	**Mhc R1**	2.4343
Brc L2	2.7578	**Mhd L1**	0.7099
Brc L3	0.9300	**Mns L1**	0.8855
Brc L4	1.2738	**Mns L2**	1.3696
Brc L5	0.6320	**Mns R1**	0.8117
Brc L6	0.8283	**Mns R2**	1.5242
Brc L7	0.4238	**Mpc L1**	0.4808
Brc L8	0.9540	**Mpc L2**	0.9664
Brc L9	1.6391	**Pca L1**	0.8861
Brc R1	1.4009	**Pdc L1**	0.4747
Brc R10	0.8685	**Pdc L2**	0.7654
Brc R11	1.5526	**Pdc R1**	0.4658
Brc R12	0.5926	**Pdc R3**	0.8128
Brc R13	1.1358	**Pdc R6**	1.3186
Brc R14	1.1888	**Pxs L1**	1.5965
Brc R3	2.0168	**Pxs L2**	0.8936
Brc R4	1.1972	**Pxs R1**	0.3875
Brc R5	0.6819	**Pxs R2**	1.2298
Brc R6	1.1045	**Pxs R3**	0.9059
Brc R7	1.0703	**Sdc L1**	0.7090
Brc R8	0.3499	**Sdc L2**	0.8142
Brc R9	1.4818	**Sdc L3**	0.4382
Csr L1	3.1824	**Sdc L4**	0.9177
Csr L2	1.7846	**Sdc L5**	0.6785
Csr L3	2.6353	**Sdc L6**	0.6670
Csr R1	2.4215	**Sdc L7**	0.5747
Csr R2	1.0034	**Sdc R3**	2.8152
Csr R3	0.9816	**Sdc R4**	0.8204
Csr R4	1.4676	**Sdc R5**	1.1742
Csr R5	1.0943	**Spc L1**	0.8003
Fcs L1	2.8398	**Spc R1**	0.3657
Fcs R1	3.1873	**Wrs L1**	0.8674
Lmh L1	1.9767	**Wrs R1**	0.2602

Source: Appendix C - Assessment District Floodplain Analysis, DATE, prepared by R&F.

The Assessment Engineer considered all of this floodplain mapping to develop and designate the area receiving benefit from Levee Capital Services. **Figure 4** superimposes these three floodplain mapping sources and identifies the boundary of the area receiving benefit from Levee Capital Services.

Assessment District Boundary Diagram

All of the mapping sources have been combined to identify the overall area of benefit from Levee Capital and O&M Services. **Figure 5** identifies the designated boundaries of the Levee Capital and O&M Services as well as the overall Proposed Assessment Boundary. The official Assessment District Boundary Diagram is included within **Appendix D**.

Because the Proposed Assessment Boundary does not align with parcel boundaries and parcel boundaries can change over time, a process for regularly determining those parcels within the boundary subject to the assessment is warranted. (Reference

Application of the Assessment Boundary to Parcels below, for further discussion.)

Accounting for Uncertainty in the Breach Analysis Results

To account for the uncertainty associated with the hydraulic modeling assumptions, the difference in modelling tools leveraged (i.e., R&F analysis vs. USACE analysis vs. FEMA maps), and the accuracy of underlying LiDAR data used to generate the floodplains from each breach scenario (for R&F analysis), all flood depths were rounded down to the nearest foot. This rounding down of flood depths also accounts for the affects that any elevation variation within an individual parcel would have on shallow flooding. Further, given the uncertainty of flood depths and assumptions, for any parcel that is flooded based the analyses conducted or the review of the three flood mapping sources, the Assessment Engineering assigned a minimum flood depth of one foot.

The R&F hydraulic model used a standardized approach of calculating the floodwaters from the levee breach on a 250-foot square (1.4 acre) grid pattern and reporting the average depth for each grid block. Based on this grid block size, multiple parcels may reside within a single grid block, or a single parcel may span multiple grid blocks. Therefore, for parcels that are partially flooded along the boundary of the floodplain from a levee breach, the level of accuracy for the area of flooding for these parcels is uncertain. To account for this uncertainty, flood damages were excluded for parcels along the fringe of the boundary with less than 95% of their boundary within Levee Capital and O&M Service Boundary.

Assessment Apportionment Methodology

The methodology for apportioning the Proposed Assessment to each parcel in the Proposed Assessment District is based first on quantifying the total benefits received, in terms of benefit units, by each parcel from the Levee Capital and O&M Services and then second, separating the General Benefits from the Special Benefits, then third, determining each parcel's proportionate share of total benefits received, again in terms of benefits units, and finally allocating the Proposed Assessment, in terms of dollars to each parcel based upon its proportionate share of total benefit units. Through this approach, each parcel's share of the total Proposed Assessment would be equivalent to its proportionate share of benefit received from the Services. Because the General Benefits have been separated from the Special Benefits and only the Special Benefits are assessed to parcels the requirement of Proposition 218 have been met.

Figure 4: Floodplain Mapping supporting Capital Services Benefit Area

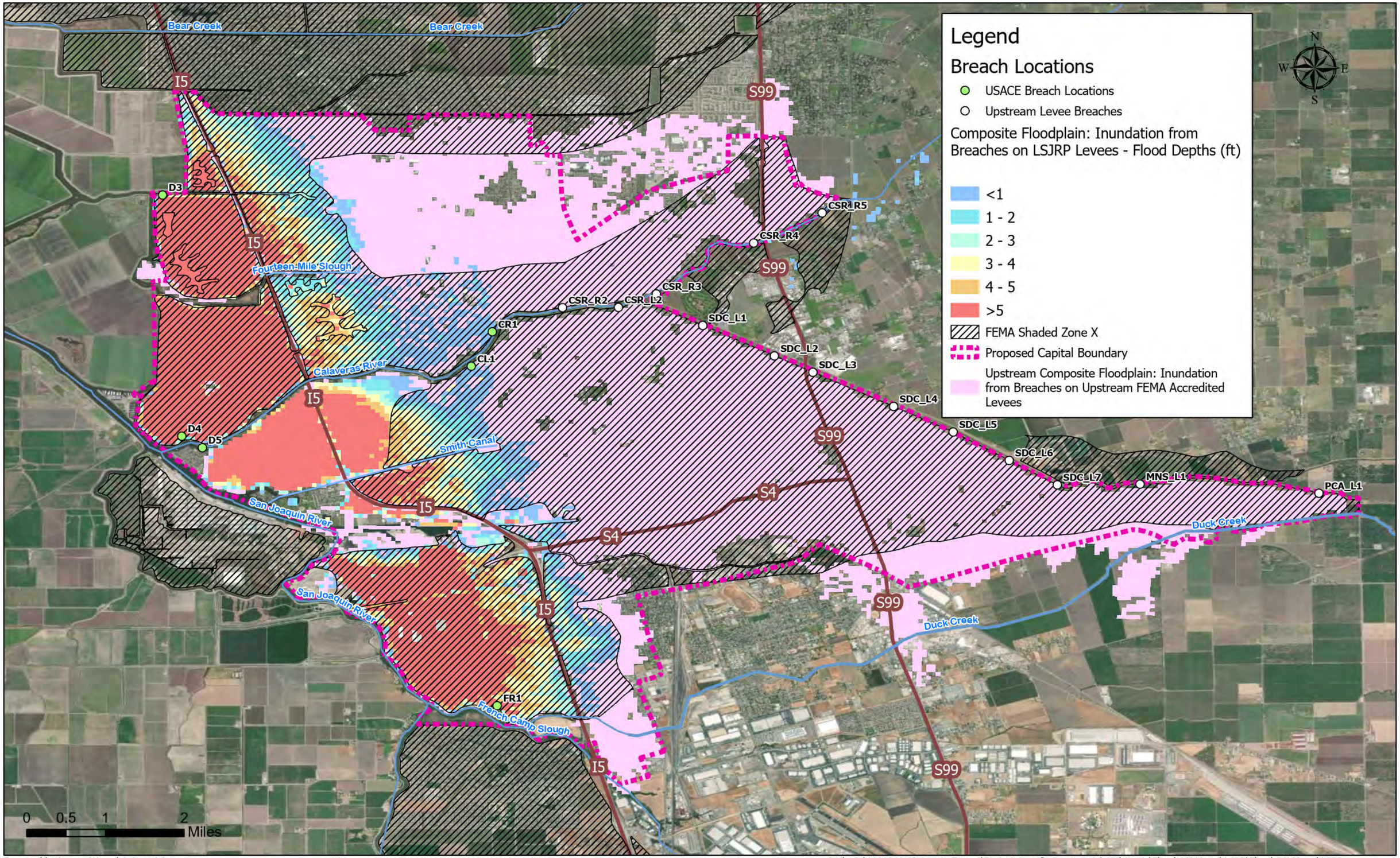
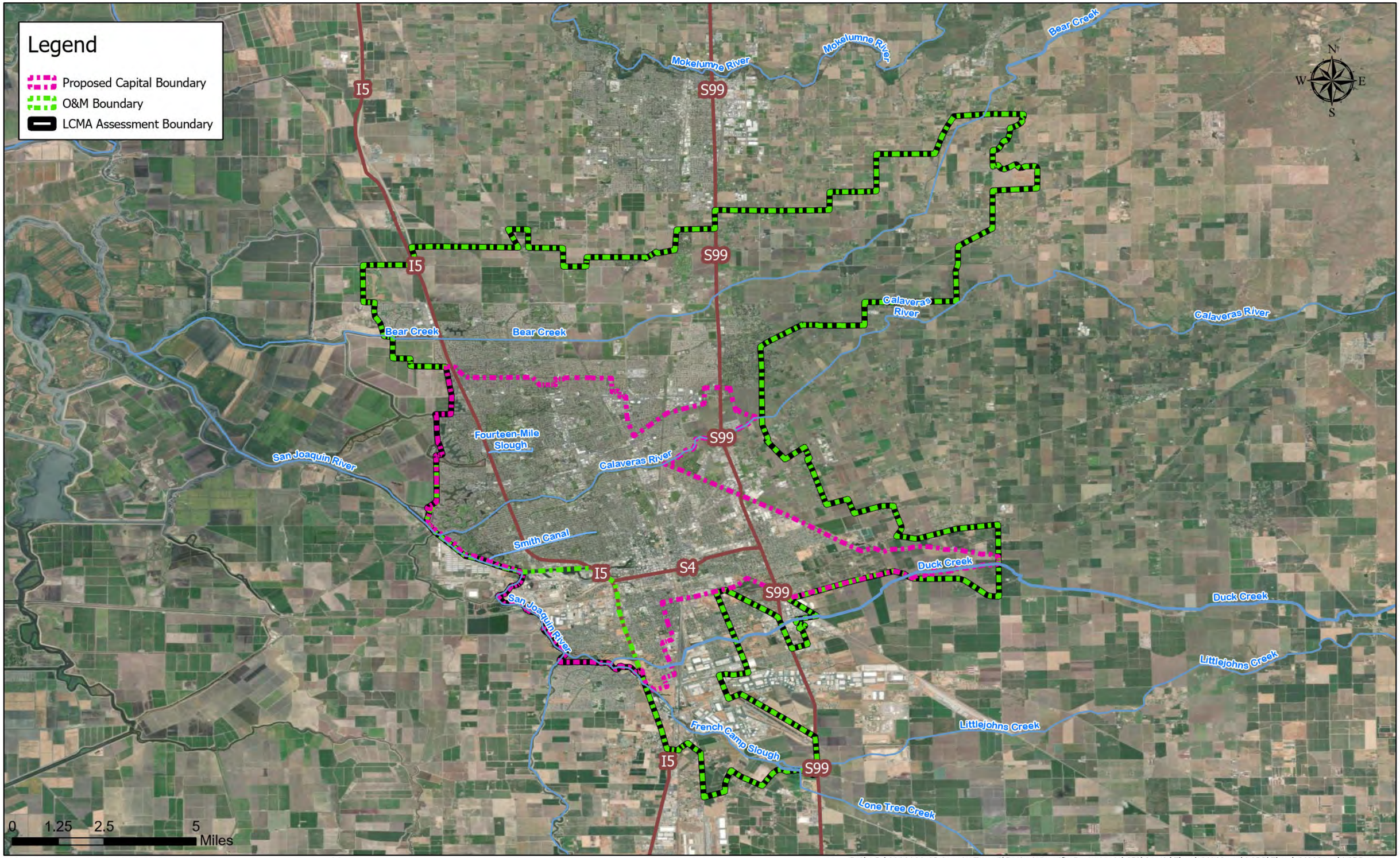


Figure 5: LCMA Area of Benefit - Levee Capital & O&M Services



The special benefit conveyed to a parcel from Levee Capital and O&M Services (in terms of Levee Benefit Units) is based on the flood damage reduction received by the parcel due to the decreased likelihood of flooding caused by a levee failure.

The methodology for calculating Levee Capital and O&M Benefit Units for each parcel utilizes the following property characteristics:

1. The size (acreage) of each parcel;
2. The Land Use Category assigned to each parcel;
3. The average structure size (square footage) per acre for each Land Use Category or sub-Category;
4. The depth of flooding from each breach scenario affecting the parcel;
5. The Relative Land Damage Rate per acre;
6. The Structure Damage Rate per square foot;
7. Whether the parcel was located within the prior SCAAD Assessment; and
8. Length of levee represented by each breach scenario (for Levee O&M Services for Zone 9 Project levees only).

A minimum flood damage reduction benefit was determined for all parcels with more than 95% of their area included within the Boundary. The minimum benefit was applied in the event a parcel's calculated flood damages was less than the minimum calculated benefit. This approach accounts for uncertainty in the model as a result of utilizing a finite number of flood breach analyses where a parcel's resulting inundation was nominal. This minimum benefit calculation is further described on Page 34.

Property Characteristics

The following property characteristics were developed for apportioning benefit. A summary of the property characteristics data is provided in **Table 6.**

Land Use Categories

Multiple land use codes are used by the San Joaquin County Assessor to categorize the properties within the boundaries. Each land use code was evaluated and assigned to a generalized Land Use Category (e.g.: Agricultural, Single-Family Residential, Commercial, etc.) for the purpose of identifying characteristics of each category for use in apportioning special benefit (**Appendix E**). A random sample of parcels for each County land use code was analyzed by reviewing aerial photographs to ensure that it had been assigned to the appropriate Land Use Category. The Land Use Categories are generally described as follows:

Agricultural land was characterized as large productive or unproductive land outside the urban area. No differentiation was made to differentiate between the crop types or use for livestock grazing.

Blended parcels are large parcels with multiple land uses present. The characteristics of these parcels are typically unique and require dedicated apportionment factors that are weighted by the portion (percent) of the parcel associated with each land use. An example would be a single large lot zoned as commercial that is half developed for a commercial use and the other half is vacant.

Table 6
Levee Capital and Maintenance Assessment (LCMA)
Summary of Assessed Property Characteristics

Land Use Category	Parcel Count	Total Acres
Agricultural	767	23,767
Blend	40	1,886
Commercial	3,378	3,124
Industrial	944	3,043
Mobile Home	143	304
Multi-Family Residential	5,904	1,336
Open Space	2,575	6,640
Open Space - Developed	3,432	3,375
Rural Residential	1,071	3,292
School	166	1,311
Single-Family Residential	75,741	14,159
Total	**94,161**	**62,236**

Source: Parcel Quest, San Joaquin County GIS and R&F Engineering

Commercial is characterized by properties with office, retail or public service buildings. This Land Use Category includes hotels, shopping centers, restaurants, offices, hospitals, etc. Some parcels within this Land Use Category have been assigned to a sub-category of Commercial Building Only. Parcels in this sub-category are commercial parcels with minimal acreage dedicated to parking and common areas within a larger commercial development. Parcels in this sub-category have adjacent parcels dedicated to supporting parking and other common areas associated with commercial uses.

Industrial is characterized by manufacturing, storage and processing facilities. This Land Use Category includes warehouses, manufacturing, processing, distribution, and public utilities.

Mobile Home Park is exclusively properties designed specifically for multiple mobile home structures. This category also includes individual parcels with Mobile Home Residential structures.

Multi-Family Residential is characterized as four or more dwelling units on a parcel. This Land Use Category includes apartments, condominiums, and townhouses. Condominium parcels within this Land Use Category have been assigned to a sub-category of Multi-Family Residential Condominium. Parcels in this sub-category are parcels designated as Condominium Units (Code 11) or Planned Unit Residential Development (Code 12) by the San Joaquin County Assessor. Parcels in this sub-category have minimal acreage not covered by structures and have adjacent parcels with open areas.

Open Space is characterized by properties with limited hardscape, without structures, that have been developed for their ultimate use. This Land Use Category includes parks, sports fields, bike paths, common areas, etc.

Open Space Developed is characterized by properties that do not have a structure, however, are generally ready to be built on. This Land Use Category includes parcels in developed areas that have been prepared for construction, parcels that are generically described as "vacant", and parcels that are entirely used as a parking lot.

Rural Residential are large lots with a Single-Family Residential structure outside the urban areas with limited amount of hardscape.

School properties are characterized as educational campuses, but do not include conversion of other land use categories for education activities (i.e. a commercial parcel utilized by a trade school). School properties can be public or private.

Single-Family Residential properties are characterized by three or fewer single-family dwelling structures on a parcel. This Land Use Category includes land with duplex and triplex buildings as they generally have the same physical characteristics as other single-family residences.

Parcel Size

The size of the parcel is used to appropriately apportion the special benefit from Levee Capital and O&M Services. Parcel data was obtained from San Joaquin County Assessor's data acquired through ParcelQuest. Parcel data was also obtained from the San Joaquin County Community Development Department GIS group

shapefiles. Where any significant discrepancy existed between the two sources, satellite imagery was used to measure and identify the more reliable source.

Average Structure Size per Land Use Type

Structure sizes were obtained from San Joaquin County Assessor's data acquired through ParcelQuest. The average structure size was calculated by summing the total square footage from all parcels for each land use and dividing by the total acres of all parcels with structures for each land use. **Table 7** summarizes the number of parcels, total parcel acreage and total structure square-footage of the parcels used to determine the average structure size associated with each Land Use Category.

Levee Capital and O&M Benefit Units

In general, flood damages were quantified for land and structures based on the depth of flooding. Levee O&M Benefit Units are calculated based on the levee breach modeling performed by R&F, as discussed above. Levee Capital Benefit Units were calculated utilizing the Feasibility Study floodplain modeling and floodplain modeling utilized to determine the extent of the Capital Boundary, as discussed above. Benefit unit calculations for each of these components are presented below, and then these two components are normalized to determine the total benefit units from both services.

Levee O&M Benefit Units

Levee O&M Benefit Units (OBU) are equal to the avoided flood damage to a parcel as a result of the Levee O&M Services associated with the Zone 9 Project levees. For the purpose of this assessment, flood damages were quantified for land and structures based on the depth of flooding from each of the breach scenarios.

The OBU for each property is calculated using the following formula:

OBU = Total [Weighted Flood Damage] for all Breach Scenarios

Where, for each Breach Scenario:

Weighted Flood Damage = [Avoided Flood Damage] x [Representative Levee Length]

Avoided Flood Damage = [Levee Breach Damage]

Levee Breach Damage = [Land Damage] + [Structure Damage]

Land Damage = [Parcel Size] x [Relative Land Damage Rate per Acre$_{\text{by land use}}$]

Structure Damage = [Average Structure SQFT] x [Parcel Size] x [Structure Damage Rate$_{\text{by structure type}}$]

Minimum OBU within Zone 9

For parcels within the Boundary shown in **Figure 5** (Page 30) that have been determined to benefit from Zone 9 levee maintenance but not inundated by any of the individual levee breach analysis scenarios, a minimum LBU is calculated as follows:

OBU = [1,000 ft of Levee] x [Parcel Size] x [Relative Land Damage Rate]

Table 7
Levee Capital and Maintenance Assessment (LCMA)
Average Structure Size per Acre

Land Use Category	Parcel Count [1]	Acres	Structure Sq. Ft.	Average Structure Sq. Ft/Acre
Agricultural	N/A	N/A	N/A	N/A
Blend	N/A	N/A	N/A	N/A
Commercial	865	1,078	9,531,904	8,800
Commercial Building Only [2]	140	41	1,522,633	36,800
Industrial	407	1,351	16,827,510	12,400
Mobile Home	108	153	156,072	1,000
Multi-Family Residential	2,106	1,065	17,644,638	16,500
Multi-Family Residential Condominium [3]	3,625	94	4,050,564	43,000
Open Space	N/A	N/A	N/A	N/A
Open Space - Developed	N/A	N/A	N/A	N/A
Rural Residential	1,027	3,096	2,048,467	600
School	29	233	516,174	2,200
Single-Family Residential	75,453	13,976	126,523,952	9,000

[1] Includes only parcels with structure building sq. ft for the purpose of calculating average structure sq. ft. per parcel.

[2] Represents commercial parcels with minimal acreage dedicated to parking and common areas within commercial developments. Parcels in this sub-category of commercial have adjacent parcels dedicated to supporting parking and other common areas within a larger commercial development. As a result the Average Structure / Sq. Ft. is much higher than the remaining parcels in the balance of the Commercial Land Use Category.

[3] Represents residential multi-family condominiums, specifically San Joaquin County use code 11 and 12. Parcels in this Multi-Family Residential sub-category have minimal acreage not covered by structures and have adjacent parcels with open areas. As a result the Average Structure / Sq. Ft. is much higher than the remaining parcels in the balance of the Multi-Family Residential Land Use Category.

Source: Parcel Quest, San Joaquin County GIS and R&F Engineering

Relative Land Damage Rate per Acre

The Relative Land Damage Rate per Acre represents the relative damage to site improvements (e.g. landscaping, utilities, etc.) that occurs as a result of inundation and deposition of sediment carried in floodwaters. The Relative Land Damage Rate per Acre was determined by assigning a Relative Land Value per Acre to each land use category and applying a 10% damage factor to the Relative Land Value per Acre. **Table 8** summarizes the Relative Land Damage Rate for each Land Use Category.

Structure Damage Rate

The Structure Damage Rate is calculated based on the methodology used in the UASCE Flood Damage Analysis (FDA) program. The FDA program assigns a relative Structure Replacement Value according to type of structure and estimates the percent structure damage based on the depth of flooding. Similarly, the FDA program assigns a relative Contents Replacement Value according to type of structure and estimates the percent of contents damage based on the depth of flooding (**Table 9** & **Table 10**). **Table 11** summarizes the OBU's by Land Use Category. Because an average structure size rate per acre was utilized for calculating structure damages, for the O&M Benefit unit calculations, the structure sizes calculated were capped at 5,000 square feet per parcel for single family residential.

Levee Capital Benefit Units

Levee Capital Benefit Units (CBU) are equal to the avoided flood damage to a parcel as a result of the Levee Capital Services. For the purpose of this assessment, flood damages were quantified for land and structures based on the depth from the without LSJRP hydraulic modeling and also through preventing flooding within this same leveed area due to the failure of a FEMA 100-year accredited levee.

The CBU for each property is calculated using the following formula:

CBU = Total Avoided Flood Damage

Avoided Flood Damage = [Levee Breach Damage] x SCAAD Factor

SCAAD Factor = 0.852

Levee Breach Damage = [Land Damage] + [Structure Damage]

Land Damage = [Parcel Size] x [Relative Land Damage Rate per Acre$_{\text{by land use}}$]

Structure Damage = [Average Structure SQFT] x [Parcel Size] x [Structure Damage Rate$_{\text{by structure type}}$]

Minimum flood depth

All parcels, which reside in the Capital Boundary floodplain receive flood protection benefits from FEMA accredited levees. As such, all parcels within the Capital Boundary of the Proposed Assessment are assumed to have a minimum flood depth of 1' for the purpose of calculating avoided flood damage to approximate the special benefit associated with regulatory accreditation.

Table 8
Levee Capital and Maintenance Assessment (LCMA)
Relative Land Damage Rate

Land Use Category	Relative Land Value per Acre A [1]	Relative Land Damage Per Acre B = A X 10%
Agricultural [2]	$25,000	$2,500
Commercial	$70,000	$7,000
Industrial	$70,000	$7,000
Mobile Home	$50,000	$5,000
Multi-Family Residential	$70,000	$7,000
Open Space	$10,000	$1,000
Open Space - Developed	$40,000	$4,000
Rural Residential	$25,000	$2,500
Single-Family Residential	$50,000	$5,000
School	$41,000	$4,100

[1] Relative land value based on previous Engineer's Reports prepared in the region.
[2] Includes Crop Damage.

Table 9
Levee Capital and Maintenance Assessment (LCMA)
Structure Replacement Value and Depth Damage

Land Use		Structure Replacement Value	Percent of Structure Damaged															
Depth			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agricultural	[1]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Commercial	[2]	$85.56	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%
Industrial	[4]	$54.51	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%
Mobile Home	[5]	$45.85	9.9%	44.7%	45.7%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%	96.5%
Multi-Family Residential	[6]	$84.40	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Open Space		$0.00	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Open Space - Developed		$0.00	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rural Residential	[7]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
Single-Family Residential	[8]	$111.67	11.4%	19.3%	26.5%	33.2%	39.3%	44.7%	49.7%	54.1%	58.0%	61.5%	64.5%	67.1%	69.3%	71.2%	72.7%	74.0%
School	[3]	$144.46	7.0%	21.7%	30.2%	31.2%	32.4%	32.4%	39.8%	42.8%	51.7%	53.1%	54.1%	61.8%	64.8%	64.8%	65.5%	86.1%

[1] Source: Table B-33 - Good Status for Single Family Residential
[2] Source: Table B-9 - Good Status for Commercial Retail
[3] Source: Table B-29 Good Status for Public and Private Schools
[4] Source: Table B-21 - Good Status for Industrial Light
[5] Source: Table B-25 - Good Status for Mobile Home
[6] Source: Table B-26 - Good Status Construction Class and Quality for Multi-Family Residential
[7] Source: Table B-33 - Good Status for Single Family Residential
[8] Source: Table B-33 - Good Status for Single Family Residential

Source: Table C-1 2012 CVFPP HEC-FDA Structure and Damage Functions - CVFPP Attachment 8F Flood Damage Analysis

Table 10
Levee Capital and Maintenance Assessment (LCMA)
Contents Replacement Value and Depth Damage

Land Use		Structure to Contents Ratio	Percent of Contents Damaged															
Depth			0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Agricultural	[1]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Commercial	[2]	51%	0.0%	79.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Industrial	[4]	31%	0.2%	87.6%	96.4%	99.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Mobile Home	[5]	50%	0.0%	85.0%	95.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%	99.0%
Multi-Family Residential	[6]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Open Space		0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Open Space - Developed		0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Rural Residential	[7]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
Single-Family Residential	[8]	50%	6.6%	11.0%	15.1%	18.8%	22.1%	25.1%	27.7%	30.1%	32.1%	33.8%	35.2%	36.3%	37.2%	37.8%	38.2%	38.5%
School	[3]	38%	0.0%	87.8%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

[1] Source: Table B-33 - Good Status for Single Family Residential
[2] Source: Table B-9 - Good Status for Commercial Retail
[3] Source: Table B-29 Good Status for Public and Private Schools
[4] Source: Table B-21 - Good Status for Industrial Light
[5] Source: Table B-25 - Good Status for Mobile Home
[6] Source: Table B-26 - Good Status Construction Class and Quality for Multi-Family Residential
[7] Source: Table B-33 - Good Status for Single Family Residential
[8] Source: Table B-33 - Good Status for Single Family Residential

Source: Table C-1 2012 CVFPP HEC-FDA Structure and Damage Functions - CVFPP Attachment 8F Flood Damage Analysis

Table 11
Levee Capital and Maintenance Assessment (LCMA)
Summary of Resulting Levee Benefit Units

Land Use Category	O&M Benefit Units (OBU) A	Capital Benefit Units (CBU) B	Total Levee Benefit Units (LBU) C = A/30 + B
Agricultural	77,923,914	4,377,700	6,975,164
Blended	214,830,020	118,795,205	125,956,206
Commercial	4,003,482,162	456,928,315	590,377,720
Industrial	3,830,507,661	217,399,407	345,082,995
Mobile Home	21,631,953	3,114,756	3,835,821
Multi-Family Residential	4,020,218,444	480,368,762	614,376,044
Open Space	16,772,254	2,029,262	2,588,337
Open Space - Developed	50,095,586	7,698,085	9,367,938
Rural Residential	78,371,947	2,274,568	4,886,966
School	574,720,144	73,039,324	92,196,663
Single-Family Residential	22,450,511,025	2,863,250,973	3,611,601,341
Total	**35,339,065,110**	**4,229,276,358**	**5,407,245,195**

Source: As calculated by Larsen Wurzel & Associates, inc.

Relative Land Damage Rate per Acre

As defined under OBU methodology, the Relative Land Damage Rate per Acre represents the relative damage to site improvements (e.g. landscaping, utilities, etc.) that occurs as a result of inundation and deposition of sediment carried in floodwaters. The Relative Land Damage Rate per Acre was determined by assigning a Relative Land Value per Acre to each land use category and applying a 10% damage factor to the Relative Land Value per Acre. **Table 8** (page 37) summarizes the Relative Land Damage Rate for each Land Use Category.

Structure Damage Rate

As defined under OBU methodology, the Structure Damage Rate is calculated based on the methodology used in the USACE Flood Damage Analysis (FDA) program. The FDA program assigns a relative Structure Replacement Value according to type of structure and estimates the percent structure damage based on the depth of flooding above the finish floor. Similarly, the FDA program assigns a relative Contents Replacement Value according to type of structure and estimates the percent of contents damage based on the depth of flooding (reference again, **Table 9** & **Table 10,** pages 38 and 39 respectively). **Table 11** (page 40) summarizes the CBU's by Land Use Category.

Because an average structure size rate per acre was utilized for calculating structure damages, for the Capital Benefit unit calculations, structure sizes were capped at 5,000 square feet per parcel for single family residential. When calculating the flood depth to a finished floor, a finish floor height elevation was assumed at 1' for all structures and 2' for mobile homes.

SCAAD Factor

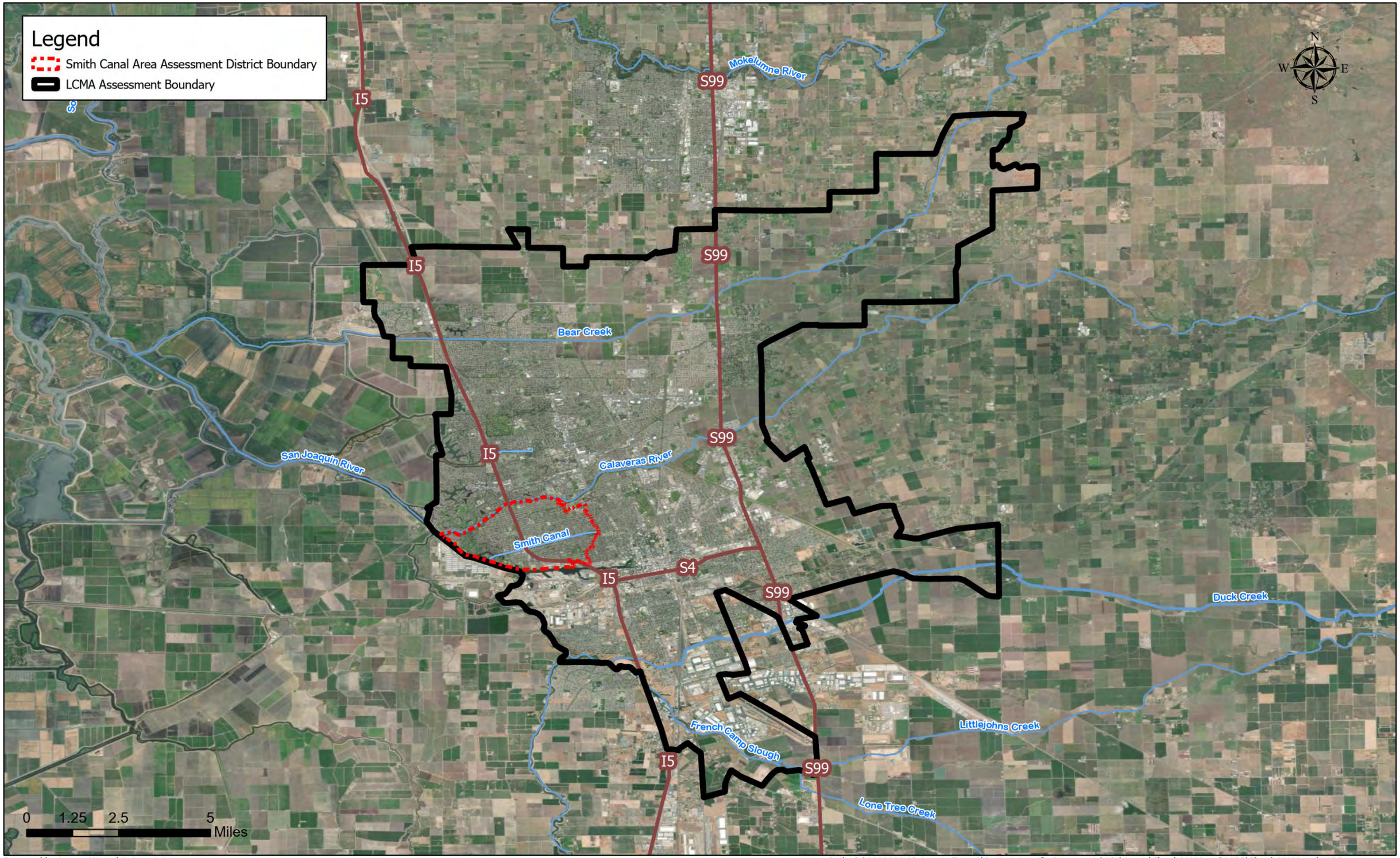
This factor is used to recognize the prior contribution of the SCAAD toward the implementation of the SCG Project. Those properties within the current SCAAD are given a SCAAD factor of 0.852 and those properties outside of the SCAAD assessment boundary are given a SCAAD factor of 1. The SCAAD factor of 0.852 was determined based on the ratio of the prior investments into the SCG Project by properties in the SCAAD, based on total annual assessment revenues provided to date, versus the investment required for the Levee Capital Services of this Proposed Assessment for the same benefitting parcels. When applied at 0.852, this factor reduces the special benefits received to account for the share of special benefits already delivered by properties in the SCAAD boundary to date and are now credited to the investment of funding for Levee Capital Services. For those properties within the SCAAD boundary (See **Figure 6**), the SCAAD factor is calculated as follows:

- SCAAD investment to date: approximately $17 Million
- SJAFCA 10.5% portion of LSJRP "first cost", adjusted for updated SCG cost, escalated to 2022 cost basis: approximately $115 Million
- Discount factor = 17/115 = 14.78%
- SCAAD Factor = 1 – 0.148
- **SCAAD Factor = 0.852**

Equivalent Levee Benefit Unit (LBU)

Benefit units have been calculated based on individual levee breaches for O&M Services and weighted by representative levee lengths. However, a composite floodplain boundary was utilized to determine the

Figure 6: Smith Canal Area Assessment District (SCAAD) Boundary



benefits from Capital Services because the capital project is considered a whole system of improvements. As a result of this approach, the total number of calculated OBU's is significantly larger than the calculated CBU's. As such an equivalency factor is needed to allow for a comparable equivalent levee benefit unit for which to serve as a basis for assessing the total special benefits and determining parcel-level assessment rates. Because O&M Services represent an ongoing service that will continue into the future and can considered on a single annual basis, and the Capital Services represent a shorter term but larger financed investment over time, the Assessment Engineer has considered the application of a factor related to the term of financing to equivocate the benefit units of the two services. The Assessment Engineer has utilized an equalization factor of 30:1, which is indicative of the capital financing term that is expected to be utilized for the Capital Services. To simply the application of the factor, and reduce the total number of calculated benefit units, the equalization factor is applied by dividing the OBU's by 30 as follows:

Total Equivalent Levee Benefit Units = Total OBU / 30 + Total CBU

Table 11 (page 40) summarizes the OBU's, CBU's and Total Levee Benefit Units (LBU's) by Land Use Category.

General Benefits

Thoroughfare Damages Calculation

As described above, the Levee Capital and O&M Services provide a general benefit to the public at large by protecting thoroughfares within the boundary of the Proposed Assessment from flood damages. The amount of general benefit associated with each thoroughfare was quantified by identifying the cost to repair the road because of the flood damages. San Joaquin County indicated that the average cost to repair flood damages for an entire reach of thoroughfare is approximately $5.00 per square-foot.

Table 12 lists the reaches of thoroughfares protected against flood damages by the Levee Capital and O&M Services; identifies the cross-street limits, reach length, and typical road width.

Table 13 calculates the general benefit from protecting thoroughfares by multiplying the area of thoroughfare pavement by the estimated cost to repair flood damages. The general benefit from protecting all thoroughfares was calculated to be 24,470,000 equivalent Levee Benefit Units.

Federal Properties

Federally owned properties, such as the United States Post Office in Stockton, receive a special benefit from the Levee Capital and O&M Services and are included in the apportionment of special benefit. The benefit for all federally owned properties is calculated as 458,523 equivalent Levee Benefit Units. However, federal law prohibits local agencies from collecting assessments due from the federal government. The lost revenue cannot be reapportioned to assessed property owners. Therefore, the benefits of Levee Capital and O&M Services provided by protecting these federally owned properties against flood damages are treated similar to general benefits, and the lost assessment revenue must be funded by other revenue sources.

Table 12
Levee Capital and Maintenance Assessment (LCMA)
Protected Throughfares

Throughfare	Reach Description	Reach Length (ft) A	Width (ft) B	Total SQFT C = A X B
HWY 99	Diverting Canal to Carpenter Road	22,800	120	2,736,000
HWY 4	SJR River to I-5	9,000	50	450,000
HWY 4	Main Street to HWY 99	8,200	120	984,000
Charter Way	I-5 to HWY 99	18,100	40	724,000
Total				**4,894,000**

Source: GIS Imagery

Table 13
Levee Capital and Maintenance Assessment (LCMA)
Thoroughfare General Benefit Calculation

Thoroughfare SQFT	Repair Rate per SQFT	Total General Benefit from Thoroughfares
A	B	C = A X B
Reference Table 11	[1]	
4,894,000	$5.00	24,470,000

[1] Based on input from San Joaquin County Public Works

Evaluation of Funding Sources for General Benefit

Together, the federal properties and thoroughfares amount to 24,928,523 units in general benefit. The total revenue required to fund the total general benefit is $40,834, using the special benefit assessment calculation found in the next section.

- Protecting thoroughfares: $40,074
- Special benefit to federally owned property: $750

Because other funding sources are provided for Levee Capital and O&M Services including from USACE and DWR, as well as San Joaquin County property tax apportionment revenues, this funding can be applied to the general benefits provided by the Services. In short, these funding sources are sufficient to fund the general benefit occurring within the area.

Proposed Special Benefit Assessment Calculation

To determine the proposed assessment for an individual parcel, the amount of Levee Benefit Units (LBU) for the parcel is calculated and multiplied by the assessment rate per LBU. The proposed assessment rate per LBU is equal to the required annual budget divided by the total quantity of LBU's as shown on **Table 14**. All factors required to calculate each Parcel's LBU have been described above and can found in the provided tables and appendices. The proposed assessment rate per LBU is **$0.001415** / LBU.

Example Parcel Assessment

Using the proposed parcel assessment equation and supporting LBU equations as well as parcel attributes including parcel size, average structure size, relative land damage rate per acre, structure damage rate per square foot, and finally the proposed assessment rate, an individual parcel's assessment can be calculated.

Assessments are rounded down to the closest multiple of $0.02 as required by the San Joaquin County Assessor's office for submission of the special assessment roll for collection on County Property Tax Bills.

The following list of steps are taken to calculate a parcel's assessment:

Step 1 – Determine the Parcel Size, Land Use, Breach Name, Representative Levee Length.

Step 2 – Using **Table 7**, determine the Average Structure Size.

Step 3 – Using **Table 8**, determine the Relative Land Damage Rate per Acre.

Step 4 – Using **Table 9**, determine the Structure Damage Rate per Square Foot.

Step 5 – Using **Table 10**, determine the Contents Damage Rate per Square Foot.

Step 6 – Calculate the Parcel **OBU** using **Equation 1.**

Step 7 – Calculate the Parcel **CBU** using **Equation 2.**

Step 8 – Determine if the parcel is within the previous SCAAD boundaries and add SCAAD Factor.

Step 9 – Calculate the Parcel **LBU** using **Equation 3**

Table 14
Levee Capital and Maintenance Assessment (LCMA)
Initial Proposed Assessment Rate Calculation - FY 2023/24

FY 2023/24 Budget	Total Benefit Units	Proposed FY 2023/24 Assessment Rate
A	**B**	**C = A /B**
Reference Table 4	Reference Tables 11 & 13 [1]	
$7,684,000	5,431,715,195	$0.001415

[1] Includes benefit from thoroughfares and federal properties.

Step 10 – Calculate the parcel assessment using **Equation 3.**

Step 11 – Round down to the closest multiple of $0.02. Raise up to $ 2.00 if it is less than the minimum[8]

A detailed example parcel assessment calculation is included at the end of this report on **Table 16** (Page 55)**.**

Summary of Assessments

A detailed listing by Assessor's parcel number of the assessments is included in **Appendix F.** The proposed assessments are summarized by Land Use Category in **Table 15**.

Special Considerations

Public Parcels

Consistent with the requirements of Proposition 218, all publicly owned parcels are assessed proportionately based upon the special benefits they receive from services provided by the proposed assessment. That is, public parcels are treated the same as privately owned parcels for assessment calculation purposes. To calculate assessments for these parcels, a land use category was assigned to each public parcel based on its current use.

As noted previously, the benefits received by Federally owned parcels are treated the same a general benefits. Because the assessments will not be collected from Federally owned parcels, the lost revenues from must be funded from an alternate sources similar to other general benefits.

Multiple Use Parcels

A property that is determined to have multiple uses but is classified under a single use code by the San Joaquin County Assessor that is not consistent with the multiple uses may be eligible to have its assessment calculated as if it were two or more parcels ("sub-parcels") with varying structure and land uses types for the purpose of apportioning benefit. The assessments of the sub-parcels would then be combined to represent a single assessment for the purpose of assessment balloting, direct billing and/or submission of the roll to the San Joaquin County Auditor for collection on the secured property tax roll.

Minimum Assessment Amount

The Agency has determined that the collection of very small annual assessments can result in a net loss to the Agency due to the costs of processing. It light of the legal obligation to ensure that property owners pay assessments in proportion to the special benefit they receive, the Agency has determined that waiving those very small assessments is not legally permissible. The Agency has therefore set a minimum assessment at $2.00. The minimum annual assessment will be $2.00 per parcel to reflect the cost to administer the Assessment Roll. All annual assessments calculated to be less than $2.00 will be raised to the $2.00 minimum. If the additional revenue collected by the SJAFCA due to the minimum assessment exceeds the cost to administer the Assessment Roll, the funds will be added to the reserve fund for the LCMA's Services.

[8] Reference Minimum Assessment Amount discussion below.

Table 15
Levee Capital and Maintenance Assessment (LCMA)
Summary of Proposed FY 2023/24 Assessments by Land Use Category

Land Use Category	Parcel Count	Average Assessment	Proposed FY 2023/24 Assessment [1]	Share of Total Assessment
Agricultural	767	$14	$10,618	0.1%
Blended	40	$4,455	$178,193	2.3%
Commercial	3,378	$247	$835,681	10.9%
Industrial	944	$517	$488,452	6.4%
Mobile Home	143	$38	$5,479	0.1%
Multi-Family Residential	5,904	$147	$870,219	11.3%
Open Space	2,575	$3	$7,673	0.1%
Open Space - Developed	3,432	$5	$16,516	0.2%
Rural Residential	1,071	$8	$8,255	0.1%
School	166	$786	$130,484	1.7%
Single-Family Residential	75,741	$68	$5,132,808	66.8%
Total	**94,161**	**$82**	**$7,684,376**	**100.0%**

[1] Includes $2 minimum assessment.

Application of the Assessment Boundary to Parcels

The Assessment Boundary described above represents a boundary driven by the hydraulics associated with flooding. The hydraulic floodplain does not align with the parcel boundaries as they are configured, assessed, and taxed by the County. The Assessment Engineer has determined that those parcels with 95% of their land area located within the Assessment Boundary will be subject to the Assessment. While the hydraulics are not expected to change significantly over time, parcel boundaries can and do change regularly. As a result, the area subject to the collection of the assessment will not align with the boundary of the assessment. The application of the Assessment Boundary to the then current set of parcels will take place annually as part of the assessment administration process.

Updating the Annual Assessment Roll

Recalculating individual property assessments will accommodate changes within LCMA over time. These changes can result from the development activity such as recordation of subdivision maps, zoning changes, conditional use permits, and lot splits or mergers. Placement of a structure on an undeveloped parcel or other changes to improvements on a parcel may trigger a recalculation of the assessment if there is a change in the land use category.

It is recognized that when compiling data for the tens of thousands of parcels within the assessment boundary, the data[9] used to derive individual parcel characteristics may not be accurate and may not precisely fit the intent of the Assessment Engineer thus leading to errors and/or circumstances that result in inaccurate assessment calculations on annual basis. Where such circumstances are discovered, either by the persons administering the assessment district or by the owners of the properties affected, SJAFCA staff shall review such circumstances and determine if corrections or adjustments are appropriate. Any such corrections or adjustments are to be consistent with the concept, intent, and parameters of the methodology for the assessment as set forth within this Engineer's Report without formal approval by the SJAFCA Executive Director. Unless such proposed changes are appealed to the SJAFCA Executive Director and determined not to be acceptable, they will be incorporated into the Assessment Roll.

[9] The Assessment Engineer has utilized data compiled from the San Joaquin County Assessor to determine the individual property characteristics used as the basis for assessing and apportioning special benefit. While the data from the San Joaquin County Assessor is assumed to be accurate, its primary purpose is for use by the San Joaquin County Assessor and is subject to the Assessor's standards for accuracy and update. As a result, the information may be inaccurate and not reflect the actual property characteristics of every parcel.

6. ASSESSMENT ADMINISTRATION

Schedule for Collection

If property owners approve the proposed assessment, SJAFCA intends to commence collection of the assessments in FY 2023/24. The assessment would be collected annually on the secured property tax rolls of San Joaquin County as described further below under "Duration of the Assessment" (Page 52).

The annual administrative expenses of LCMA would also be funded through the annual levy of assessments. Ongoing administrative expenses would include the annual calculation and preparation of the assessment roll, the actual costs of collecting the annual assessments and the costs of responding to inquiries including the review and processing of any appeals.

Assessment Revenue Distribution

Assessment revenues are collected for O&M Services and Capital Services. Since SJAFCA is not a maintaining organization, SJAFCA will transfer revenues to local maintaining agencies or fund others (i.e. contract for services) for levee O&M Services.

SJAFCA will transfer funding for the O&M of the SJCFCWCD levees to SJCFCWCD, except for the cost incurred by SJAFCA for the administration of the assessment. SJAFCA and SJCFCWCD will arrange an agreement for funding transfers if the Proposed Assessment is approved.

SJAFCA will transfer funding for the additional O&M services associated with the LSJRP to the appropriate maintaining agency or contract with others for these services. Transfer of funds for additional O&M associated with the LSJRP will occur as particular capital improvement features are finished and turned over by USACE to the NFS for long-term maintenance. If the Proposed Assessment is approved, SJAFCA will setup agreements with applicable maintainers that detail out the responsibilities and funding transfer amounts.

Appeals of Assessments Levied to Property

Any property owner who believes his or her property should be reclassified and the assessment adjusted may file a written appeal with the SJAFCA Executive Director. Any such appeal is limited to correction of an assessment during the then-current fiscal year and future years.

All appeals must include a statement of reasons why the property should be reclassified and may include supporting evidence. On the filing of any such appeal, the Executive Director will direct staff to promptly review the appeal and any information provided by the property owner and may investigate and assemble additional evidence necessary to evaluate the appeal. If the Executive Director finds that the assessment should be modified, the appropriate changes will be made to the assessment roll for the following fiscal year. Any such changes approved after the assessment roll has been filed with the County for collection, will not result in a refund of the current or any prior year's assessments paid before the appeal was filed unless so directed by the Executive Director.

Impact of Appeals

The majority of the data being used to generate the assessment rates for specific parcels comes from the San Joaquin County Assessor. Because the main purpose of the Assessor in compiling this data is not to support this and other Special Benefit Assessment efforts but rather to determine Assessed Value for the purpose of administering the County's Secured Tax Roll, the Assessment Engineer has worked to refine the Assessor's data so it properly reflects the conditions present in the physical benefit area. However, throughout the formation period (and indeed even after the formation of the assessment), data errors and discrepancies with the San Joaquin County Assessor data may surface and require modification of the assessment calculation for various parcels. Changes in the data without a corresponding change in the Assessment Rate established by this report will, by definition, change the total amount of assessments levied and collected in any one year. For example, if the data assumes the existence of a house that has since been destroyed and not been reconstructed, once the database is corrected the rates will generate a smaller total assessment. On the other hand, if the data assumes an empty lot where a house has since been constructed, once the database is corrected the rates will generate a larger total assessment. Due to the database being constantly refined (either through internal review or an external appeal process), it is infeasible to fine-tune the rates between the Preliminary Engineer's Report and the Final Engineer's Report. In addition, because changes to the database will either increase or decrease the total amount assessed, it is presumed that these amounts will roughly offset each other. Therefore, although minor changes to the database will continue to be made during the formation period, the rates proposed in this Report are not being fine-tuned, even though that will result in a total assessment which may be slightly less than or slightly more than the amount determined for the development of this report.

Duration of the Assessment

If approved by property owners in an assessment ballot proceeding conducted pursuant to Article XIIID Section 4 of the State Constitution and Government Code § 53750, *et. seq*., and subsequently approved by the SJAFCA Board of Directors, the assessment can be levied annually commencing FY 2023/24. The Executive Director will establish the assessment rate each year and while the assessment is only effective for that year, the assessment may be continued each year without another ballot proceeding with approval of the SJAFCA Board of Directors. The annual budget for Levee Capital Services will be collected by SJAFCA for 30 years following a final bond issuance which is expected in 2038. The budget for Levee O&M services will be collected each year that Levee O&M Services are provided, which is expected to be in perpetuity. On-going annual assessments cannot be increased without property owner approval, except for the annual escalation as described below.

Annual Escalation of the Assessments

To ensure that SJAFCA can provide the needed services over time, it is important to allow for an increase of the assessment over time to address the rising costs of labor, supplies, and materials. The Assessment Engineer has determined that an appropriate escalation factor is a factor that is reflective of rising labor costs and goods over time. Therefore, beginning in FY 2024/25, the maximum authorized assessment may be increased subject to an annual inflationary escalator pursuant to Government Code § 53739 (b), based on the annual change in the Consumer Price Index February to February CPI-W for San Francisco-Oakland-Hayward all Items, with Base Period 1982-84 = 100, published by the U.S. Department of Labor, Bureau of Labor

Statistics, subject to a minimum of zero percent and a maximum of 4% in any given year. The adjustment to the maximum authorized assessment would be applied to the prior year's annual assessment rate.

7. CONCLUSIONS

It is concluded that the proposed assessments do not exceed the reasonable cost of the proportional special benefit conferred on each property assessed.

Scott L. Brown, P.E.

Table 16
Assessment Parcel Equations and Example Calculations

Equation 1: Levee O&M Benefit Units

$$Total\ OBU\ = OBU\ per\ breach\ for\ all\ breaches\ that\ affect\ the\ parcel$$

$$\textbf{OBU}\ per\ breach = \ Representative\ Levee\ Length\ [1]\ \times \{(Parcel\ Size\ [2] \times Relative\ Land\ Damage\ Per\ Acre\ [3]) + \big(Average\ Structure\ Sq.Ft.per\ acre\ [4] \times Parcel\ Size\ [2] \times Structure\ Replacement\ Value\ [5] \times (Structure\ Depth\ Damage\ [5] + Structure\ to\ Contents\ Ratio\ [6] \times Contents\ Depth\ Damage\ \ [6])\big)\}$$

[1] Table 5; Parcels within the LCMA O&M Boundary without flood depths utilized a levee length of 1,000 and only receive land damage benefit.
[2] Assessor's Data
[3] Table 8
[4] Table 7
[5] Table 9
[6] Table 10

Equation 2: Capital Benefit Units

$$\textbf{CBU}\ = \{(Parcel\ Size\ [2] \times Relative\ Land\ Damage\ Per\ Acre\ [3]) + (Average\ Structure\ Size\ per\ acre\ [4] \times Parcel\ Size\ [2] \times StructureReplacement\ Value\ [5] \times (\ Structure\ Depth\ Damage\ [5] + \ Structure\ to\ Contents\ Ratio\ [6] \times Contents\ Depth\ Damage\ \ [6]))\}$$

$$X\ SCAAD\ Factor\ [7]$$

[2] Assessor's Data
[3] Table 8
[4] Table 7
[5] Table 9
[6] Table 10
[7] Based on parcel location; see Figure 6.

Equation 3: Proposed Parcel Assessment

$$Parcel\ LBU\ = \frac{OBU}{30} + CBU$$

$$\textbf{Calculated Parcel Assessment} = \boldsymbol{Parcel\ LBU} \times \boldsymbol{Assessment\ Rate\ per\ LBU}\ [8]$$

[8] Table 14; **Assessment Rate per LBU** = $0.001415

Example Assessment Calculations

The following examples illustrate the application of the assessment equation to determine the annual assessment for several hypothetical properties.

Example 1

Consider a 0.16-acre single-family residential property the following property characteristics.

O&M Breach	Depth (ft)
Csr L3	8
Csr R1	1

Capital	Depth (ft)
100-Year	6

OBU Calculation

Land Use Category – Single-Family

From **Table 5**, Representative Levee Length: Csr L3- 2.6353 miles and Csr R1- 2.4215 miles

From **Table 7**, Average Structure Sq. Ft. – 9,000 sq ft per acre

From **Table 8**, the Relative Damage per Acre - $5,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $111.67 per square foot; Structure Depth Damage 58.00% for 8 ft and 19.25% for 1 ft; Structure to Contents Ratio of 50.00%; Contents Depth Damage of 32.05% for 8ft and 11.00% for 1 ft

$$\boldsymbol{OBU}\ (\boldsymbol{Csr\ L3}) = 2.6353\ miles\ x\ \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + (9{,}000\ sq\ ft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (58.00\% + 50\%\ X\ 32.05\%)\} = 315{,}817$$

$$\boldsymbol{OBU}\ (\boldsymbol{Csr\ R1}) = 2.4215\ miles\ x\ \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + 9{,}000\ sq\ ft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (19.25\% + 50\%\ X\ 11.00\%)\ \} = 98{,}309$$

$$\textbf{Total OBU} = 315{,}817 + 98{,}309 = 414{,}126$$

CBU Calculation

From **Table 7**, Average Structure Size – 9,000 sq ft per acre

From **Table 8**, the Relative Damage per Acre - $5,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $111.67 per square foot; Structure Depth Damage for 6 ft (5ft with finished floor) – 44.70%; Structure to Contents Ratio of 50.00%; Contents Depth Damage of 25.05% for 6 ft (5ft with finished floor)

SCAAD Factor of 1

$$\boldsymbol{CBU} = \{(0.16\ acres\ x\ \$5{,}000\ per\ acre) + (9{,}000\ sq\ ft\ per\ acre\ x\ 0.16\ acres\ x\ \$111.67\ x\ (44.7\% + 50\%\ x\ 25.05\%)\}\ x\ 1 = 92{,}820$$

$$\textbf{Total LBU} = 414{,}126/30 + 92{,}820 = 106{,}624$$

Assessment Calculation

$$\boldsymbol{Calculated\ Parcel\ Assessment} = (106{,}624\ x\ 0.001415) = 150.84$$

$$[\boldsymbol{Proposed\ Assessment}] = \$\mathbf{150.84}$$

Example 2

Assume a 1.5-acre commercial property the following property characteristics:

O&M Breach	Depth (ft)
Brc L2	3
Brc L3	4

Capital	Depth (ft)
100-Year	6

OBU Calculation

Land Use Category - Commercial

From Table 14, Representative Levee Length: Brc L2 – 2.7578 miles and Brc L3 – 0.9300 miles

From **Table 7**, Average Structure Size - 8,800 sqft per acre

From **Table 8**, the Relative Damage per Acre - $7,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $85.56 per square foot; Structure Depth Damage 31.20% for 3 ft and 32.40% for 4 ft; Structure to Contents Ratio of 51.00%; Contents Depth Damage of 82.20% for 3ft and 83.40% for 4 ft

$$\boldsymbol{OBU}\ (\boldsymbol{Brc\ L2}) = 2.7578\ miles\ x\ \{(1.50\ acres\ x\ \$7{,}000\ per\ acre) + (8{,}800\ sqft\ per\ acre\ x\ 1.5\ acres\ x\ \$85.56\ x\ (31.20\% + 51\%\ x\ 82.20\%)\} = 2{,}589{,}156$$

$$\boldsymbol{OBU}\ (\boldsymbol{Brc\ L3}) = 0.9300\ miles\ x\ \{(1.50\ acres\ x\ \$7{,}000\ per\ acre) + (8{,}800\ sqft\ per\ acre\ x\ 1.50\ acres\ x\ \$85.56\ x\ (32.40\% + 51\%\ x\ 83.40\%)\} = 885{,}672$$

$$\textbf{Total OBU} = 2{,}589{,}156 + 885{,}672 = 3{,}474{,}828$$

CBU Calculation

From **Table 7**, Average Structure Size - 8,800 sqft per acre

From **Table 8**, the Relative Damage per Acre - $7,000 per acre

From **Table 9** and **Table 10**, the Structure Replacement Value - $85.56 per square foot; Structure Depth Damage for 6 ft (5ft with finished floor) – 32.40%; Structure to Contents Ratio of 51.00%; Contents Depth Damage of 83.40% for 6 ft (5ft with finished floor)

SCAAD Factor of 1

$$\boldsymbol{CBU} = \{(1.5\ acres\ x\ \$7{,}000\ per\ acre) + (8{,}800\ sqft\ per\ acre\ x\ 1.50\ acres\ x\ \$85.56\ x\ (32.40\% + 51\%\ x\ 83.40\%))\}\ x\ 1 = 952{,}413$$

$$\textbf{Total LBU} = 3{,}474{,}828/30 + 952{,}413 = 1{,}068{,}241$$

Assessment Calculation

$$\boldsymbol{Calculated\ Proposed\ Assessment} = (1{,}068{,}241\ x\ 0.001415) = 1{,}511.19$$

$$[\boldsymbol{Proposed\ Assessment}] = \$\mathbf{1{,}511.19}$$

San Joaquin Area Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix A

KSN, Technical Memorandum, LCMA, Incremental O&M Costs LSJRP, February 23, 2023

SAN JOAQUIN COUNTY

Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023

KJELDSEN SINNOCK NEUDECK
CIVIL ENGINEERS & LAND SURVEYORS

Stephen K. Sinnock, P.E.
Christopher H. Neudeck, P.E.
Neal T. Colwell, P.E.
Barry O'Regan, P.E.

2494-0010
08-300

TECHNICAL MEMORANDUM - DRAFT

January 31, 2023

Project: Levee Construction and Maintenance Assessment District

Subject: Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

Prepared by: Erik E. Almaas, PE

Reviewed by: Christopher H. Neudeck, PE

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1. Introduction

The San Joaquin County Flood Control and Water Conservation District (SJCFCWCD) and the San Joaquin Flood Control Agency (SJAFCA) are currently planning the Levee Construction and Maintenance Assessment (LCMA) District. The proposed assessment would provide funding for the following:

- Current budget deficiencies for operations and maintenance (O&M) of the existing Federal levee and channel facilities under the jurisdiction of SJCFCWCD within Zone 9.
- Local cost share for the capital costs for the Lower San Joaquin River Project (LSJRP).
- Incremental O&M costs resulting from the implementation of the LSJRP.

The evaluation of funding requirements for the first two components listed above is currently underway by Larsen Wurzel & Associates, Inc. (LWA). Kjeldsen, Sinnock & Neudeck, Inc. (KSN) has been requested to evaluate the third component listed above. This technical memorandum summarizes this evaluation and provides a summary of the results of the incremental O&M costs resulting from the implementation of the LSJRP.

2. Data Sources

The existing data sources that were utilized in this evaluation are as follows:

- U.S. Army Corps of Engineers (USACE). *San Joaquin River Basin, Lower San Joaquin River, CA, Final Integrated Interim Feasibility Report*. January 2018. (USACE Report)
- State of California, Department of Water Resources (DWR). *Flood System Long-Term Operations, Maintenance, Repair, Rehabilitation, and Replacement Cost Evaluation*, Central Valley Flood Protection Plan, 2017 Update. January 2017. (DWR Report)

3. Project Understanding and Assumptions

The basic understanding of the LSJRP for the basis of evaluation is in accordance with the Recommended Plan (i.e., Alternative 7A) within the USACE Report. The LSJRP consists of 20.4 miles of existing levees to be rehabilitated and 2.0 miles of new levees. A map of the LSJRP and proposed remediation measures is shown below in Figure 1, and the levee reach names used in this evaluation are shown below in Figure 2.

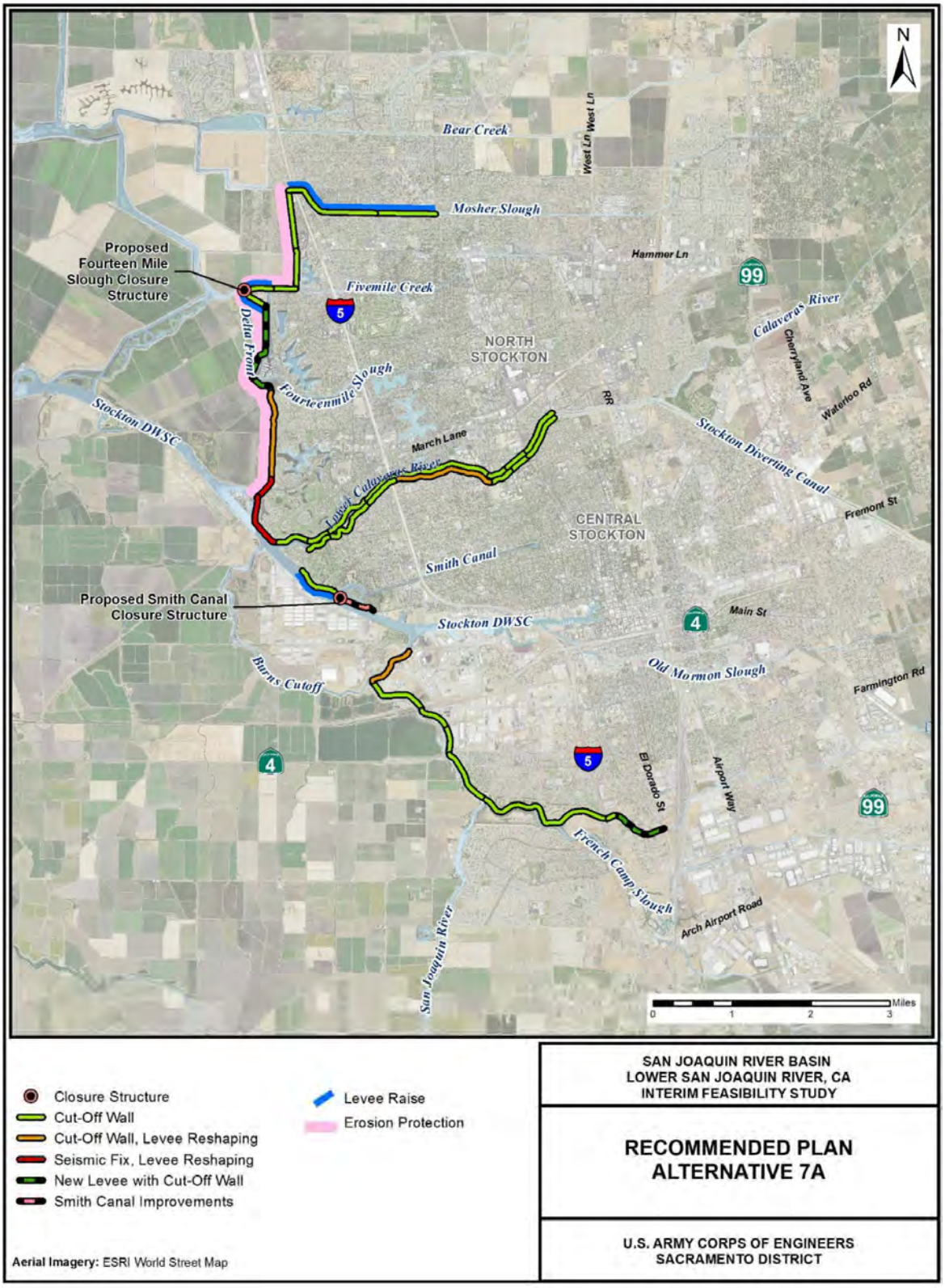


Figure 1 - Proposed Remediation Measures (Source: U.S. Army Corps of Engineers)

Figure 2 - Levee Reach Names (Source: U.S. Army Corps of Engineers)

The proposed new flood control measures within the LSJRP include the following:

- New levee
- New closure structure

The proposed remediation measures for the existing levees within the LSJRP include the following:

- Seepage cutoff wall
- Levee reshaping
- Seismic fix
- Levee raising
- Erosion protection

Long-term levee subsidence mitigation was also considered in evaluating the O&M costs. For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough was **not** performed. A breakdown of the proposed remediation measures on a levee reach-by-reach basis is summarized below in Table 1. A more detailed breakdown in included in Exhibit 1.

Table 1 - Summary of Proposed Remediation Measures

Levee Reach	Proposed Remediation Measure (1)							Levee Length (miles)
	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	Subsidence Mitigation	
Mosher Slough (left bank)								**1.96**
MC_10_L		x			x		x	1.22
MC_20_L		x			x		x	0.74
Shima Tract (right bank)								**1.25**
ST_10_R		x				x	x	0.47
ST_20_R		x				x	x	0.78
Fivemile Slough (right bank)								**0.31**
FS_10_R		x				x	x	0.31
Fourteenmile Slough (left bank)								**1.89**
FM_60_L		x			x	x	x	0.31
FM_40_L		x			x	x	x	0.27
FM_30_L	x	x				x	x	1.31
Tenmile Slough (left bank)								**2.08**
TS_30_L		x	x			x	x	1.14
TS_20_L			x	x		x	x	0.27
TS_10_L			x	x			x	0.68
Calaveras River (right bank)								**4.29**
CR_10_R		x					x	0.42
CR_20_R		x					x	0.26
CR_30_R		x					x	0.71
CR_40_R		x					x	0.54
CR_50_R		x					x	1.22
CR_60_R		x					x	0.25
CR_70_R		x					x	0.30
CR_80_R		x					x	0.59

Levee Reach	Proposed Remediation Measure (1)							Levee Length (miles)
	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	Subsidence Mitigation	
Calaveras River (left bank)								**4.09**
CR_10_L		x					x	0.33
CR_20_L		x					x	0.90
CR_30_L		x					x	0.49
CR_40_L		x	x				x	1.20
CR_50_L		x					x	0.32
CR_60_L		x					x	0.27
CR_70_L		x					x	0.58
San Joaquin River (right bank)								**3.90**
SJR_10_R		x			x		x	0.53
SJR_20_R		x			x		x	0.42
SJR_30_R		x	x				x	0.65
SJR_40_R		x					x	0.79
SJR_50_R		x					x	0.33
SJR_60_R		x					x	0.43
SJR_70_R		x					x	0.75
French Camp Slough (right bank)								**1.84**
FCS_10_R		x					x	1.84
Duck Creek (right bank)								**0.84**
DC_10_R		x					x	0.15
DC_20_R	x	x					x	0.43
DC_30_R	x	x					x	0.27
Totals:	**2.01**	**21.51**	**3.94**	**0.94**	**3.48**	**4.86**	**22.45**	**22.45**

Notes:

*(1) The evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough is **not** included in this summary.*

A list of the major assumptions utilized in this evaluation are summarized below in Table 2.

Table 2 - Major Assumptions

Proposed Measure	Reference	Assumption
New levee	DWR Report (Table 5.1)	• For an urban levee on the Lower San Joaquin River / Delta South, the operations and maintenance costs are $50,000 per levee mile, and the repair, replace, and rehabilitate costs are $18,000 per levee mile in 2017$.
Seepage cutoff wall	USACE Report (Section 8.1.3)	• "*Cutoff wall(s) will not change long-term maintenance or replacement costs*."
Levee reshaping	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Modifying the existing levee geometry, such as widening the levee crown and flattening the levee slopes to increase stability, will increase the vegetation management footprint.
Seismic fix	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Degrading a portion of the existing levee, constructing a grid of deep soil mixing columns, and constructing a stability berm at the landside levee toe will increase the vegetation management footprint.
Levee raising	USACE Report (Section 8.1.3)	• "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." • Extending the landside levee toe landward to support raising the levee crown will increase the vegetation management footprint.
Erosion protection	n/a	• Furnish and place 25 tons of supplemental RSP per levee mile per year.
Subsidence mitigation	n/a	• Furnish and place engineered levee fill and aggregate base on the levee crown periodically to maintain the minimum top of levee elevation over time.

Where necessary, costs have been escalated to 2023 dollars based on the Construction Cost Index (CCI) published monthly by Engineering News-Record (ENR). The CCI is an indicator of general construction costs and includes labor and materials components. ENR uses the CCI to measure how much it costs to purchase a hypothetical package of goods and services and compare it to what it was in a prior year.

A breakdown of the present-day unit costs used in this evaluation is included in Exhibit 2.

4. Approach

The approach for each of the proposed measures is described below in further detail.

4.1 New Levees

Pursuant to Table 5.1 of the DWR Report for an urban levee on the Lower San Joaquin River / Delta South, the operations and maintenance costs are $50,000 per levee mile, and the repair, replace, and rehabilitate costs are $18,000 per levee mile. The combined amount of $68,000 was escalated to 2023 dollars based on ENR CCIs. The CCIs that were used in this assessment are summarized below in Table 3.

Table 3 - ENR CCIs and Escalation Factor for New Levee O&M Costs

Comparison Data		Current Data		Escalation
Date	ENR CCI	Date	ENR CCI	Factor
January 2017	10,531.68	January 2023	13,175.03	1.2510

Therefore, the O&M cost attributed to a new levee in 2023 dollars was determined to be $85,067 per levee mile per year.

4.2 Seepage Cutoff Wall

Pursuant to Section 8.1.3 of the USACE Report, "*Cutoff wall(s) will not change long-term maintenance or replacement costs*." Therefore, the incremental O&M cost attributed to seepage cutoff walls was determined to be zero.

4.3 Levee Reshaping, Seismic Fix, and Levee Raising

Levee reshaping, seismic fix, and levee raising remediation measures all include an element of widening the levee footprint in order to improve levee stability and/or the minimum top of levee. Pursuant to Section 8.1.3 of the USACE Report, "*Right-of-way will be increased; so maintenance costs will increase to cover a larger vegetation management footprint*." As a result, all three proposed remediation measures incorporate an increase in the levee vegetation management footprint. Therefore, the following approach was developed to evaluate the incremental O&M costs associated with the increase to vegetation management for levee reshaping, seismic fix, and levee raising remediation measures:

- Establish a baseline annual cost attributed to only vegetation management.
- Calculate a project footprint modifier that represents the percent increase in project footprint associated with the increased vegetation management.
- Calculate the incremental O&M costs associated with the increased vegetation management.

In order to establish a baseline annual cost attributed to only vegetation management, ten years of claims from the DWR Delta Levees Subventions Maintenance Program for the 28 reclamation districts in which KSN is the District Engineer were analyzed. The annual costs for "Levee Vegetation Control and Management" from Fiscal Year 2011-12 to Fiscal Year 2020-21 for each reclamation district was tallied and adjusted to 2023 dollars using ENR CCI values as per Table 4 below.

Table 4 - ENR CCIs and Escalation Factors for Baseline Vegetation O&M Costs

Comparison Values		Current Values		Escalation
Date	ENR CCI	Date	ENR CCI	Factor
June 2011	9,290.00	January 2023	13,175.03	1.4182
June 2012	9,542.33	January 2023	13,175.03	1.3807
June 2013	9,800.38	January 2023	13,175.03	1.3443
June 2014	10,036.38	January 2023	13,175.03	1.3127
June 2015	10,337.05	January 2023	13,175.03	1.2745
June 2016	10,702.81	January 2023	13,175.03	1.2310
June 2017	11,068.35	January 2023	13,175.03	1.1903
June 2018	11,268.48	January 2023	13,175.03	1.1692
June 2019	11,436.23	January 2023	13,175.03	1.1520
June 2020	12,112.05	January 2023	13,175.03	1.0878

An average annual baseline cost attributed to only vegetation management was calculated to be $3,635 per levee mile. A breakdown of the annual costs per reclamation district for said ten-year period is included in Exhibit 3.

Assumptions were made regarding the increased levee footprint width associated with levee reshaping, seismic fix, and levee raise measures. Levee widths for both pre- and post-project conditions and project footprint modifiers are summarized below in Table 5, and the basis of footprint calculations is described in Exhibit 4.

Table 5 - Increase in Project Footprint Associated with Increased Vegetation Management

Remediation Measure	Pre-Project Width (feet)	Post-Project Width (feet)	Project Footprint Modifier
Levee reshaping	108	164	+51.9%
Seismic fix	148	221	+49.3%
Levee raising	130	154	+18.5%

The incremental O&M costs associated with increased vegetation management were calculated by multiplying the baseline vegetation management costs (i.e., $3,655 per levee mile per year) and the project footprint multipliers shown in Table 5. Therefore, the incremental O&M costs attributed to levee reshaping, seismic fix, and levee raising in 2023 dollars were calculated and are summarized below in Table 6.

Table 6 - Incremental O&M Costs Associated with Levee Reshaping, Seismic Fix, and Levee Raising Measures

Remediation Measure	Incremental O&M Cost (per levee mile per year)
Levee reshaping	$1,885
Seismic fix	$1,793
Levee raising	$671

4.4 Erosion Protection

Erosion protection measures were assumed to include the placement of Rock Slope Protection (RSP) consisting of 18-inch minus quarry stone riprap on the levee slope. The incremental O&M costs associated with erosion protection were calculated based on furnishing and placing a standard truck load (i.e., 25 tons) of supplemental RSP per levee mile per year. Based on a unit cost of $159 per ton of RSP, the incremental O&M cost attributed to erosion protection in 2023 dollars was determined to be $3,985 per levee mile per year.

4.5 Subsidence Mitigation

Pursuant to Section 8.1.3 of the USACE Report, "*Localized ground subsidence may require periodic placement of levee fill to maintain the levee crest elevation*." The approach for evaluating the incremental O&M costs associated with subsidence mitigation was developed assuming that new engineered levee fill and aggregate base will need to be furnished and placed on the levee crown periodically to maintain the minimum top of levee elevation over time. The assumptions used in the calculations of new materials are summarized below in Table 7.

Table 7 - New Materials Associated with Subsidence Mitigation

Material	Width (feet)	Thickness (inches)	Quantity (cubic yards per mile)	Frequency (years)	Quantity (tons per mile per year)
Engineered levee fill	20	6	1,956	50	70.4
Aggregate base	20	4	1,304	50	52.1

Based on a unit cost of $75 per ton of engineered levee fill and a unit cost of $90 per ton of aggregate base, the incremental O&M cost attributed to subsidence mitigation in 2023 dollars was determined to be $9,974 per levee mile per year.

5. Results

The incremental O&M unit costs associated with each of the proposed measures is summarized below in Table 8.

Table 8 - Summary of Incremental O&M Unit Costs

Remediation Measure	Incremental O&M Cost (per levee mile per year)
New levee	$85,067
Seepage cutoff wall	$0
Levee reshaping	$1,885
Seismic fix	$1,793
Levee raising	$671
Erosion protection	$3,985
Subsidence mitigation	$9,974

The overall incremental O&M annual cost was then calculated by multiplying the incremental O&M unit costs for each proposed measure by the levee miles for each levee reach. A breakdown of the overall incremental O&M annual cost on a levee reach-by-reach basis is summarized below in Table 9. A more detailed breakdown is included in Exhibit 5.

Table 9 - Summary of Overall Incremental O&M Annual Costs

Levee Reach	Levee Length (miles)	Incremental O&M Annual Cost
Mosher Slough (left bank)		**$20,840**
MC_10_L	1.22	$12,979
MC_20_L	0.74	$7,861
Shima Tract (right bank)		**$17,475**
ST_10_R	0.47	$6,577
ST_20_R	0.78	$10,897
Fivemile Slough (right bank)		**$4,291**
FS_10_R	0.31	$4,291
Fourteenmile Slough (left bank)		**$138,403**
FM_60_L	0.31	$4,527
FM_40_L	0.27	$3,979
FM_30_L	1.31	$129,896

Levee Reach	Levee Length (miles)	Incremental O&M Annual Cost
Tenmile Slough (left bank)		**$31,973**
TS_30_L	1.14	$18,016
TS_20_L	0.27	$4,737
TS_10_L	0.68	$9,220
Calaveras River (right bank)		**$42,783**
CR_10_R	0.42	$4,175
CR_20_R	0.26	$2,618
CR_30_R	0.71	$7,038
CR_40_R	0.54	$5,434
CR_50_R	1.22	$12,135
CR_60_R	0.25	$2,539
CR_70_R	0.30	$3,000
CR_80_R	0.59	$5,844
Calaveras River (left bank)		**$43,072**
CR_10_L	0.33	$3,279
CR_20_L	0.90	$8,993
CR_30_L	0.49	$4,870
CR_40_L	1.20	$14,289
CR_50_L	0.32	$3,149
CR_60_L	0.27	$2,731
CR_70_L	0.58	$5,761
San Joaquin River (right bank)		**$40,717**
SJR_10_R	0.53	$5,595
SJR_20_R	0.42	$4,460
SJR_30_R	0.65	$7,699
SJR_40_R	0.79	$7,884
SJR_50_R	0.33	$3,332
SJR_60_R	0.43	$4,301
SJR_70_R	0.75	$7,446
French Camp Slough (right bank)		**$18,317**
FCS_10_R	1.84	$18,317
Duck Creek (right bank)		**$67,470**
DC_10_R	0.15	$1,500
DC_20_R	0.43	$40,680
DC_30_R	0.27	$25,290
Totals:	**22.45**	**$425,340**

Notes:

*(1) The evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough is **not** included in this summary.*

6. Conclusions

The overall incremental O&M annual cost attributed to the LSJRP amounts to $425,402 per year, with one exception. For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structures at Smith Canal and Fourteenmile Slough was **not** performed.

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 1

Proposed Remediation Measures

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
MC_10_L	Mosher Slough	Left	Southern levee along Mosher Slough with heavy amounts of vegatation, neighboring residential area.	SJCFCWCD[2]		X			X			X			X	1.22
MC_20_L	Mosher Slough	Left	Southern levee along Mosher Slough with heavy amounts of vegatation, neighboring residential area.	SJCFCWCD		X			X			X			X	0.74
ST_10_R	Shima Tract	Right	Dry land levee along east end of Shima Tract between agricultural land (west) and a residential area (east).	SJCFCWCD		X			X				X		X	0.47
ST_20_R	Shima Tract	Right	Dry land levee along east end of Shima Tract between agricultural land (west) and a residential area (east).	SJCFCWCD		X			X				X		X	0.78
FS_10_R	Fivemile Slough	Right	Northern levee along Fivemile Slough along south end of Shima Tract with minimal amounts of vegatation, neighboring agricultural area.	RD 2115 Shima Tract		X			X				X		X	0.31
FM_60_L	Fourteenmile Slough	Right	North levee along Fourteenmile Slough along south end of Shima Tract.	RD 2115 Shima Tract		X			X			X	X		X	0.31
FM_50_L	Fourteenmile Slough	Left	Fourteen Mile Slough Closure Structure	n/a										X[3]		0.00
FM_40_L	Fourteenmile Slough	Left	Levee with future plan of implementing Fourteen Mile Slough Closure Structure. Levee will be implemented inland on Wright-Elmwood Tract.	n/a		X			X			X	X		X	0.27
FM_30_L	Fourteenmile Slough	Left	Western levee along Fourteenmile Slough along the east end of Wright-Elmwood Tract. Village West Marina Resort East of Fourteenmile Slough.	n/a			X	X	X				X		X	1.31
TS_30_L	Tenmile Slough	Left	Eastern levee along Tenmile Slough along the boundary between Wright-Elmwood Tract and Sargen-Barnhart Tract. Residential area east of levee.	RD 2074 Sargent-Barnhart Tract		X			X		X			X	X	1.14
TS_20_L	Tenmile Slough	Left	Levee transitioning from Tenmile Slough.	RD 2074 Sargent-Barnhart Tract		X				X	X			X	X	0.27
TS_10_L	Tenmile Slough	Left	Eastern levee along San Joaquin River along the west end Sargent-Barnhart Tract. Residential area east of levee.	RD 2074 Sargent-Barnhart Tract		X				X	X				X	0.68
CR_10_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.42
CR_20_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.26
CR_30_R	Calaveras River	Right	Northern levee along Calaveras River along the south end of Sargent-Barnhart Tract. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.71
CR_40_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee.	SJCFCWCD	X				X						X	0.54
CR_50_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee.	SJCFCWCD	X				X						X	1.22
CR_60_R	Calaveras River	Right	Northern levee along Calaveras River . Residential area north of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.25
CR_70_R	Calaveras River	Right	Northern levee along Calaveras River . Residential area north of levee with church facilities close to levee.	SJCFCWCD	X				X						X	0.30

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
CR_80_R	Calaveras River	Right	Northern levee along Calaveras River. Residential area north of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.59
CR_10_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.33
CR_20_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.90
CR_30_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.49
CR_40_L	Calaveras River	Left	Southern levee along Calaveras River along the north end of Smith Tract. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X	X					X	1.20
CR_50_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.32
CR_60_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with school facilities close to levee.	SJCFCWCD	X				X						X	0.27
CR_70_L	Calaveras River	Left	Southern levee along Calaveras River. Residential area south of levee with residential homes close to levee.	SJCFCWCD	X				X						X	0.58
SC_30	Smith Canal		Smith Canal Closure Structure	n/a										X[4]		0.00
SJR_10_R	San Joaquin River	Right	Area west of Smith Canal Gate adjacent to Stockton Golf & Country Club.	RD 1614 Smith Tract		X			X			X			X	0.53
SJR_20_R	San Joaquin River	Right	Area east of Smith Canal Gate along Dad's Point connecting to Louis Park.	n/a		X			X			X			X	0.42
SJR_30_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract		X			X	X					X	0.65
SJR_40_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.79
SJR_50_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.33
SJR_60_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Port of Stockton facilities east of levee.	RD 404 Boggs Tract	X				X						X	0.43
SJR_70_R	San Joaquin River	Right	Eastern levee along San Joaquin River along the west end of Boggs Tract. Residential area east of levee with former Van Buskirk Park close to levee.	RD 404 Boggs Tract	X				X						X	0.75
FCS_10_R	French Camp Slough	Right	Northern levee along French Camp Slough along the south end of Boggs Tract. Residential area north of levee with former Van Buskirk Park close to levee.	RD 404 Boggs Tract	X				X						X	1.84

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

PROPOSED REMEDIATION MEASURES

Levee Reach	Waterway	Bank	Reach Description	Current LMA[1]	Levee Type			Proposed Remediation Measure								Length (miles)
					Federal Levee	Non-Fed to Become Fed	New Levee to Become Fed Levee	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	
DC_10_R	Duck Creek	Right	Northern levee along Duck Creek east of I-5. Commercial and residential areas north of levee.	SJCFCWCD	X				X						X	0.15
DC_20_R	Duck Creek	Right	Northern levee along Duck Creek. Commercial and residential areas north of levee.	n/a			X	X	X						X	0.43
DC_30_R	Duck Creek	Right	Northern levee along Duck Creek. Commercial and residential areas north of levee.	n/a			X	X	X						X	0.27
				Levee Mile Totals:	**12.67**	**7.77**	**2.01**	**2.01**	**21.51**	**3.94**	**0.94**	**3.48**	**4.86**	**0.00**	**22.45**	**22.45**

Notes:

(1) LMA = Local Maintaining Agency
(2) SJCFCWCD = San Joaquin County Flood Control and Water Conservation District
*(3) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Fourteenmile Slough was **not** performed*
*(4) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Smith Canal was **not** performed*

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 2

Unit Cost Calculations

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

UNIT COST CALCULATIONS

ROCK SLOPE PROTECTION
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$94,300**
1.	Mobilization			3%	$2,700
2.	Erosion Control			3%	$2,700
3.	Clearing and Grubbing	0.22	AC	$5,000	$1,100
4.	Quarry Stone Riprap	1,000	TN	$70	$70,000
5.	Miscellaneous			25%	$17,800
Soft Costs				30%	**$28,300**
Contingency				30%	**$36,800**
				Total Cost:	**$159,400**
				Unit Cost:	**$159**

LEVEE FILL
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$44,500**
1.	Mobilization			3%	$1,300
2.	Erosion Control			3%	$1,300
3.	Clearing and Grubbing	0.69	AC	$5,000	$3,500
4.	Levee Fill	1,000	TN	$30	$30,000
5.	Miscellaneous			25%	$8,400
Soft Costs				30%	**$13,400**
Contingency				30%	**$17,400**
				Total Cost:	**$75,300**
				Unit Cost:	**$75**

AGGREGATE BASE
OPINION OF PROBABLE COSTS

Item	Description	Qty	Unit	Unit Price	Total
Construction					**$53,000**
1.	Mobilization			3%	$1,500
2.	Erosion Control			3%	$1,500
3.	Aggregate Base	1,000	TN	$40	$40,000
4.	Miscellaneous			25%	$10,000
Soft Costs				30%	**$15,900**
Contingency				30%	**$20,700**
				Total Cost:	**$89,600**
				Unit Cost:	**$90**

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 3

Summary of Vegetation Management Costs
Delta Levees Subventions Maintenance Program
FY 2011-12 to FY 2020-21

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

SUMMARY OF VEGETATION MANAGEMENT COSTS
DWR DELTA LEVEES SUBVENTIONS MAINTENANCE PROGRAM
FY 2011-12 TO FY 2020-21

RD No.	RD Name	Vegetation Management Costs per Fiscal Year[1]										Levee Miles
		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
1	Union - East	$74,116	$118,742	$108,702	$108,063	$84,222	$104,544	$45,335	$65,573	$61,268	$81,357	14.0
2	Union - West	$12,224	$7,399	$38,411	$36,221	$16,123	$0	$49,939	$12,195	$27,855	$13,313	16.2
307	Lisbon	$49,800	$32,010	$16,320	$18,000	$20,840	$29,107	$24,999	$25,585	$25,217	$26,803	6.6
403	Rough & Ready	$0	$0	$0	$0	$0	$0	$0	$93	$0	$1,713	6.8
404	Boggs	$499	$1,401	$1,746	$1,565	$1,379	$6,284	$1,733	$1,269	$1,814	$8,225	0.7
501	Ryer	$25,633	$61,642	$31,432	$31,377	$32,540	$7,379	$27,212	$38,469	$31,230	$48,406	20.6
524	Middle Roberts	$18,800	$17,725	$54,262	$33,905	$34	$19,033	$20,860	$37,574	$22,611	$86,512	9.7
544	Upper Roberts	$119,393	$7,069	$0	$44,499	n.r. [2]	$0	$211,413	$52,812	$46,646	$81,895	15.0
563	Tyler	$66,117	$46,868	$40,013	$40,372	$63,964	$87,344	$68,675	$68,182	$49,581	$41,744	22.9
773	Fabian	$21,145	$22,829	$13,770	$38,572	$121,726	$16,092	$59,719	$97,485	$100,003	$83,732	18.8
800	Byron	$39,401	$40,919	$35,991	$37,180	$32,522	$28,932	$52,156	$52,625	$54,139	$47,568	9.7
828	Weber	n.r.	n.r.	$0	$0	$31,022	$32,903	$14,462	$34,581	$3,711	$2,540	1.7
1601	Twitchell	$36,910	$28,303	$35,388	$27,723	$22,720	$29,925	$12,806	$32,291	$38,439	$11,536	11.9
1608	Lincoln Village West	n.r.	n.r.	n.r.	$46,662	$15,342	$17,657	$23,424	$18,554	$71,668	$56,577	3.6
1614	Smith	$15,713	$13,909	$0	$73	$324	$0	$0	$0	$1,894	$1,844	2.8
2023	Venice	$20,975	$42,138	$52,695	$7,577	$1,674	$24,653	$23,577	$21,132	$57,944	$39,065	12.3
2027	Mandeville	$30,290	$24,262	$18,990	$34,370	n.r.	$32,836	$46,170	$38,847	$30,548	$32,854	14.3
2030	McDonald	$13,132	$27,269	$18,468	$35,712	$59,194	$51,898	$34,906	$45,349	$28,870	$74,148	13.7
2040	Victoria	$20,204	$52,456	$129,191	$61,294	$19,596	$20,002	$9,781	$46,446	$21,470	$13,412	15.1
2042	Bishop	$18,770	$25,335	$16,404	$0	$12,823	$29,175	$17,632	$55,709	$56,888	$82,489	7.8
2089	Stark	$11,275	$18,250	$6,850	$7,450	$31,925	$503	$8,167	$320	$41	$1,073	3.5
2090	Quimby	$35,232	$30,419	$8,020	$19,821	n.r.	$438	n.r.	n.r.	n.r.	n.r.	7.0
2111	Dead Horse	$0	$0	n.r.	n.r.	$0	$0	$0	$0	$0	$0	2.6
2113	Fay	$32,478	$32,725	$10,982	$8,712	$7,988	$8,245	$7,740	$12,426	$18,633	$48,533	1.6
2115	Shima	$0	n.r.	n.r.	n.r.	$0	$381	$0	$0	$0	$0	6.6
2117	Coney	n.r.	n.r.	n.r.	n.r.	n.r.	$0	$8,164	$20,558	$37,892	$14,259	5.4
2119	Wright-Elmwood	$8,350	$16,642	$23,401	$20,886	$15,501	$21,982	$22,130	$10,243	$26,970	$16,938	7.1
2126	Atlas	$7,170	$300	$16,769	$34	$9,344	$6,497	$11,086	$8,687	$30,504	$14,132	3.0
Subtotal Cost (cost year varies)[3]:		**$677,629**	**$668,611**	**$677,804**	**$660,068**	**$600,802**	**$575,811**	**$802,085**	**$797,005**	**$845,834**	**$930,667**	**261.0**
ENR CCI (cost year varies):		9,290.00	9,542.33	9,800.38	10,036.38	10,337.05	10,702.81	11,068.35	11,268.48	11,436.23	12,112.05	
ENR CCI (Jan 2023):		13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	13,175.03	
Escalation Factor:		1.4182	1.3807	1.3443	1.3127	1.2745	1.2310	1.1903	1.1692	1.1520	1.0878	
Total Cost (2023$)[4]:		**$961,009**	**$923,147**	**$911,198**	**$866,490**	**$765,749**	**$708,817**	**$954,748**	**$931,853**	**$974,437**	**$1,012,344**	**261.0**
Cost per Levee Mile (2023$):		***$3,839***	***$3,788***	***$3,753***	***$3,517***	***$3,492***	***$2,716***	***$3,759***	***$3,669***	***$3,836***	***$3,986***	
Average (2023$):						***$3,635 per levee mile per year***						

Notes:

(1) Annual costs were derived from the "Levee Vegetation Control and Management" costs as shown in the final claims from 28 reclamation districts within the Delta through the DWR Delta Levees Subventions Maintenance Program.

(2) n.r. = not recorded. Not all records were available for all reclamation districts and all years.

(3) Subtotal costs are based on dollars specific to each fiscal year shown and have not been escalated.

(4) Total costs have been escalated to 2023 dollars using ENR-published Construction Cost Indecies (CCIs).

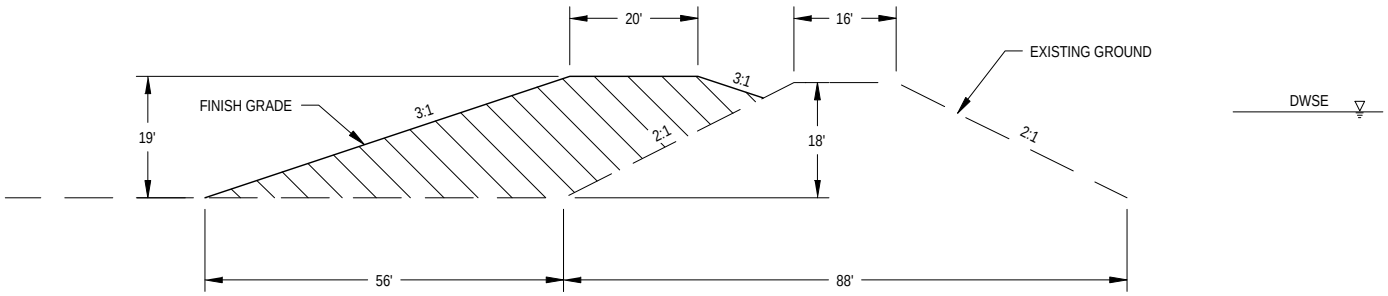
Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 4

Basis of Levee Footprint Calculations

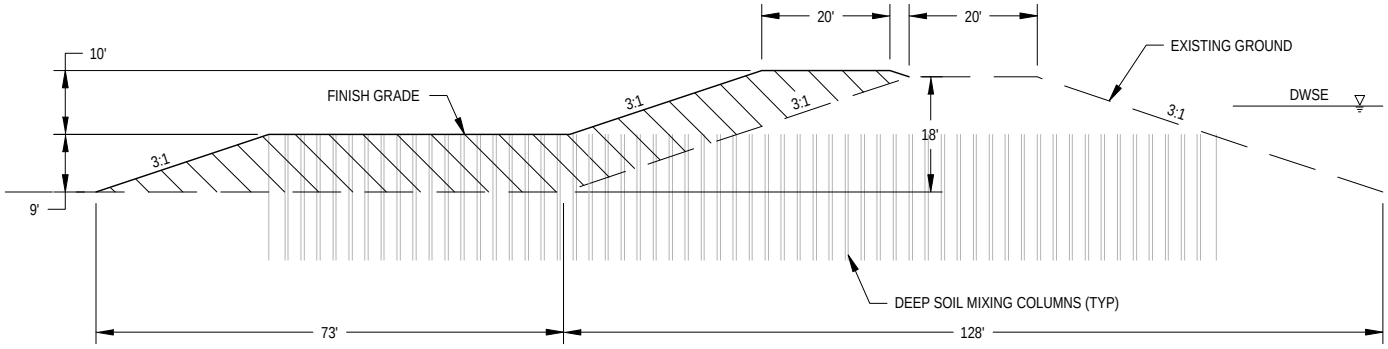
LEVEE RESHAPING



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	88 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	108 FEET
POST-CONSTRUCTION WIDTH:	88 FEET + 56 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	164 FEET
DIFFERENCE:	+51.9%	

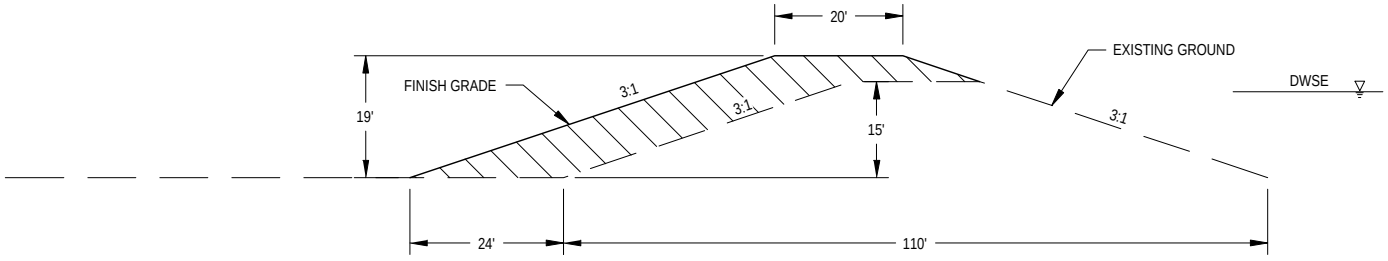
SEISMIC FIX



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	128 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	148 FEET
POST-CONSTRUCTION WIDTH:	128 FEET + 73 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	221 FEET
DIFFERENCE:	+49.3%	

LEVEE RAISE



FOOTPRINT CALCULATIONS:

PRE-CONSTRUCTION WIDTH:	110 FEET + 20 FEET LANDSIDE RIGHT-OF-WAY =	130 FEET
POST-CONSTRUCTION WIDTH:	110 FEET + 24 FEET + 20 FEET LANDSIDE RIGHT-OF WAY =	154 FEET
DIFFERENCE:	+18.5%	

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SJAFCA / SJCFCWCD
ZONE 9 OVERLAY ASSESSMENT
LOWER SAN JOAQUIN RIVER PROJECT O&M
BASIS OF FOOTPRINT CALCULATIONS

DRAWING SCALE: N.T.S.

ORIG. DRAWING SCALE: 0 ¼" ½"

EXHIBIT NO. 1

PAGE NO. 1

Levee Construction and Maintenance Assessment District

Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

EXHIBIT 5

Overall Incremental O&M Annual Costs

LCMA District
Incremental Operations and Maintenance Costs
Lower San Joaquin River Project

OVERALL INCREMENTAL O&M ANNUAL COSTS

				Incremental O&M Annual Cost per Proposed Remediation Measure									
Levee Reach	Waterway	Bank	Length (miles)	New Levee	Seepage Cutoff Wall	Levee Reshaping	Seismic Fix	Levee Raising	Erosion Protection	New Closure Structure	Subsidence Mitigation	Total Incremental O&M Annual Cost
MC_10_L	Mosher Slough	Left	1.22	$0	$0	$0	$0	$818	$0	$0	$12,161	$12,979
MC_20_L	Mosher Slough	Left	0.74	$0	$0	$0	$0	$496	$0	$0	$7,365	$7,861
ST_10_R	Shima Tract	Right	0.47	$0	$0	$0	$0	$0	$1,878	$0	$4,700	$6,577
ST_20_R	Shima Tract	Right	0.78	$0	$0	$0	$0	$0	$3,111	$0	$7,786	$10,897
FS_10_R	Fivemile Slough	Right	0.31	$0	$0	$0	$0	$0	$1,225	$0	$3,066	$4,291
FM_60_L	Fourteenmile Slough	Right	0.31	$0	$0	$0	$0	$208	$1,233	$0	$3,087	$4,527
FM_50_L	Fourteenmile Slough	Left	0.00	$0	$0	$0	$0	$0	$0	$0[(1)]	$0	$0[(1)]
FM_40_L	Fourteenmile Slough	Left	0.27	$0	$0	$0	$0	$183	$1,084	$0	$2,713	$3,979
FM_30_L	Fourteenmile Slough	Left	1.31	$111,586	$0	$0	$0	$0	$5,227	$0	$13,083	$129,896
TS_30_L	Tenmile Slough	Left	1.14	$0	$0	$2,144	$0	$0	$4,531	$0	$11,341	$18,016
TS_20_L	Tenmile Slough	Left	0.27	$0	$0	$506	$482	$0	$1,070	$0	$2,679	$4,737
TS_10_L	Tenmile Slough	Left	0.68	$0	$0	$1,273	$1,211	$0	$0	$0	$6,736	$9,220
CR_10_R	Calaveras River	Right	0.42	$0	$0	$0	$0	$0	$0	$0	$4,175	$4,175
CR_20_R	Calaveras River	Right	0.26	$0	$0	$0	$0	$0	$0	$0	$2,618	$2,618
CR_30_R	Calaveras River	Right	0.71	$0	$0	$0	$0	$0	$0	$0	$7,038	$7,038
CR_40_R	Calaveras River	Right	0.54	$0	$0	$0	$0	$0	$0	$0	$5,434	$5,434
CR_50_R	Calaveras River	Right	1.22	$0	$0	$0	$0	$0	$0	$0	$12,135	$12,135
CR_60_R	Calaveras River	Right	0.25	$0	$0	$0	$0	$0	$0	$0	$2,539	$2,539
CR_70_R	Calaveras River	Right	0.30	$0	$0	$0	$0	$0	$0	$0	$3,000	$3,000
CR_80_R	Calaveras River	Right	0.59	$0	$0	$0	$0	$0	$0	$0	$5,844	$5,844
CR_10_L	Calaveras River	Left	0.33	$0	$0	$0	$0	$0	$0	$0	$3,279	$3,279
CR_20_L	Calaveras River	Left	0.90	$0	$0	$0	$0	$0	$0	$0	$8,993	$8,993
CR_30_L	Calaveras River	Left	0.49	$0	$0	$0	$0	$0	$0	$0	$4,870	$4,870
CR_40_L	Calaveras River	Left	1.20	$0	$0	$2,271	$0	$0	$0	$0	$12,017	$14,289
CR_50_L	Calaveras River	Left	0.32	$0	$0	$0	$0	$0	$0	$0	$3,149	$3,149
CR_60_L	Calaveras River	Left	0.27	$0	$0	$0	$0	$0	$0	$0	$2,731	$2,731
CR_70_L	Calaveras River	Left	0.58	$0	$0	$0	$0	$0	$0	$0	$5,761	$5,761
SC_30	Smith Canal		0.00	$0	$0	$0	$0	$0	$0	$0[(2)]	$0	$0[(2)]
SJR_10_R	San Joaquin River	Right	0.53	$0	$0	$0	$0	$353	$0	$0	$5,242	$5,595
SJR_20_R	San Joaquin River	Right	0.42	$0	$0	$0	$0	$281	$0	$0	$4,178	$4,460
SJR_30_R	San Joaquin River	Right	0.65	$0	$0	$1,224	$0	$0	$0	$0	$6,475	$7,699
SJR_40_R	San Joaquin River	Right	0.79	$0	$0	$0	$0	$0	$0	$0	$7,884	$7,884
SJR_50_R	San Joaquin River	Right	0.33	$0	$0	$0	$0	$0	$0	$0	$3,332	$3,332
SJR_60_R	San Joaquin River	Right	0.43	$0	$0	$0	$0	$0	$0	$0	$4,301	$4,301
SJR_70_R	San Joaquin River	Right	0.75	$0	$0	$0	$0	$0	$0	$0	$7,446	$7,446
FCS_10_R	French Camp Slough	Right	1.84	$0	$0	$0	$0	$0	$0	$0	$18,317	$18,317
DC_10_R	Duck Creek	Right	0.15	$0	$0	$0	$0	$0	$0	$0	$1,500	$1,500
DC_20_R	Duck Creek	Right	0.43	$36,411	$0	$0	$0	$0	$0	$0	$4,269	$40,680
DC_30_R	Duck Creek	Right	0.27	$22,636	$0	$0	$0	$0	$0	$0	$2,654	$25,290
	Totals:		**22.45**	**$170,634**	**$0**	**$7,418**	**$1,693**	**$2,338**	**$19,360**	**$0**	**$223,898**	**$425,340**

Notes:

*(1) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Fourteenmile Slough was **not** performed*

*(2) For the purposes of this Technical Memorandum, the evaluation of O&M costs attributed to the new closure structure at Smith Canal was **not** performed*

San Joaquin Area
Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix B
LCMA Cash Flow and Financing Analysis

SAN JOAQUIN
COUNTY
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San Joaquin Area Flood Control Agency

Date: June 15, 2023

Appendix B
Levee Capital and Maintenance Assessment (LCMA)
Cash Flow and Financing Plan Analysis ($1,000's)

	Total	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049
N/C Stockton Flood Program - Beginning Balance [1]		2,218	1,904	5,359	7,468	9,285	7,581	5,905	5,643	4,101	3,447	5,499	4,967	13,968	7,521	8,975	6,949	5,878	62,927	38,095	20,763	19,259	12,595	5,871	-594	-337	519	1,578	3,245
LSJRP - USACE Authorized Program Expenditures																													
Funding Implementation Costs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SJAFCA Net Contribution Required [2]	119,750	134	1,507	452	1,038	4,680	4,696	3,417	4,730	3,610	960	3,692	4,175	9,025	1,278	4,913	4,120	6,164	23,991	16,663	1,012	6,352	6,597	6,528	0	0	0	0	0
Operational Soft Costs [3]	24,270	180	450	800	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	600	600	200	200
Operations and Maintenance																													
Incremental O&M for LSJRP	36,165	0	90	374	383	415	526	552	682	1,081	1,196	1,225	1,388	1,467	1,502	1,539	1,576	1,614	1,653	1,693	1,734	1,776	1,819	1,863	1,909	1,955	2,002	2,051	2,100
Smith Canal Gate [4]																													
SCAAD Assessment Revenue Bond Redemption	24,498	0	24,498	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Expenditures	204,683	314	26,544	1,626	2,421	6,094	6,221	4,969	6,412	5,691	3,157	5,917	6,563	11,492	3,780	7,452	6,696	8,778	26,644	19,357	3,746	9,129	9,417	9,392	2,909	2,555	2,602	2,251	2,300
State Sources																													
State TBD for N-C Stockton Additional Flood Program	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Local Sources																													
Proposed LCMA Assessment Net Revenues for Capital Services [4]	220,274	0	0	6,200	6,349	6,501	6,657	6,817	6,981	7,148	7,320	7,495	7,675	7,859	8,048	8,241	8,439	8,642	8,849	9,061	9,279	9,501	9,730	9,963	10,202	10,447	10,698	10,954	11,217
Total LSJR Revenues	220,274	0	0	6,200	6,349	6,501	6,657	6,817	6,981	7,148	7,320	7,495	7,675	7,859	8,048	8,241	8,439	8,642	8,849	9,061	9,279	9,501	9,730	9,963	10,202	10,447	10,698	10,954	11,217
Program Financing: Assessment District Borrowing																													
Proceeds from Bond Issuance [5]	100,000	0	30,000	0	0	0	0	0	0	0	0	0	10,000	0	0	0	0	60,000	0	0	0	0	0	0	0	0	0	0	0
Debt Service Costs [6]	-112,939	0	0	-2,466	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,111	-2,814	-2,814	-2,814	-2,814	-2,814	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037	-7,037
N/C Stockton Program - Preliminary Ending Balance		1,904	5,359	7,468	9,285	7,581	5,905	5,643	4,101	3,447	5,499	4,967	13,968	7,521	8,975	6,949	5,878	62,927	38,095	20,763	19,259	12,595	5,871	-594	-337	519	1,578	3,245	5,125

[1] Beginning balance in 2022 is based on annual FY 2022/23 budget adopted by SJAFCA

[2] Combination of cash, LERRDs contribution net of funding provided (cash to USACE under DA totals $666,192.46 thru 4/30/2021), and expected credit (e.g. Smith Canal Gate); LERRDs split at NFS cost share amounts; Internal SJAFCA cost, G&A, and consultant costs are credit not accounted for as part of this line item but the upfront cash requirement is captured under "Operational Soft Costs"

[3] Soft costs include SJAFCA staff and consultants (e.g. CEQA, project management, technical review and assistance) for costs not likely to be creditable to the Federal Project; Assume 4 FTEs at peak and tapers following project completion; Assume no assessment administration which would be captured in the LCMA budget; Assumes no long-term G&A costs.

[4] Annual escalation assumed at 2.4% (consistent with the authorized escalation described in the Engineer's Report.)

[5] Assumes SJAFCA will issue new debt secured by LCMA revenues to redeem outstanding SCAAD series 2019 bonds.

[6] Assumes three Bond Issues in 2023, 2033, 2038, that generate net proceeds of $30M, $10M, and $60M, respectively.

[7] Assumes level debt service for all bond issuances.

Source Model: 1820000_2023 0123_N-C_Stockton_LSJRP_Financing_Model

San Joaquin Area
Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix C
LCMA Floodplain Analysis, March 16, 2023
(Prepared by R&F Engineering)

SAN JOAQUIN COUNTY
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SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023

Levee Construction and Maintenance Assessment (LCMA) Floodplain Analysis

Prepared for: San Joaquin Area Flood Control Agency

Date: March 16, 2023

Prepared by: Brittney O'Connell, PE and Baron Creager, PE

Reviewed by: Mike Rossiter, PE

Introduction

The San Joaquin Area Flood Control Agency (SJAFCA) is advancing a combined assessment district, known as the Levee Construction and Maintenance Assessment (LCMA) District, to fund the (1) additional Operations & Maintenance (O&M) needs of the San Joaquin County Flood Control and Water Conservation District Zone 9 (Zone 9) maintained project levees and (2) the local cost share component associated with the flood risk reduction measures being implemented as part of the U.S. Army Corps of Engineers (USACE) Lower San Joaquin River Project (LSJRP).

As part of the assessment district formation process, R&F Engineering Inc. (R&F) was retained by Larsen Wurzel & Associates (LWA) to assist with floodplain analyses to inform the proportionate level of special benefit that each parcel within the proposed assessment will receive from the activities being funded by LCMA.

The floodplain analysis will be used to identify: which parcels would potentially be flooded from a breach on a LSJRP levee or a Zone 9-maintained project levee, to what extent would the parcel be flooded, what flood depths would the parcel experience, and how many levee miles is each parcel relying on to protect it from flooding.

This Technical Memorandum (TM) outlines the data sources and methodology of R&F's floodplain analyses. Throughout the TM, the O&M of Zone 9 project levees will be referred to as the "O&M services" and the work being completed as part of the USACE LSJRP will be referred to as "capital improvements".

Baseline Data

To the extent available, existing analyses were used to estimate the floodplain depths and extents for this effort. The following subsections summarize the data sources that were used for the floodplain analyses as part of defining the benefit areas for the O&M services and the capital improvements.

O&M Services

The floodplains for the O&M analysis originated from two sources: the California Department of Water Resources (DWR) Central Valley Floodplain Evaluation and Delineation (CVFED) Task Order (TO) 306 analysis[1] and the Peterson Brustad Inc. (PBI) floodplain analysis[2].

As part of DWR's TO306 work, a hydraulic model was developed and various levee breach scenarios were analyzed. The model and levee breach scenarios covers a large portion of the SJAFCA LCMA study area. The primary resources used for this DWR analyses include:

- DWR Central Valley Floodplain evaluation and Delineation (CVFED) TO306 FLO2D model
- DWR's CVFED TO24 and HEC-RAS v4.1 model[3]
- United States Army Corps of Engineers (USACE) Lower San Joaquin River Feasibility Study (LSJRFS)[4] hydrologic analysis

For the portion of the LCMA study area that was not covered by the CVFED analyses, PBI developed a 1D/2D HEC-RAS 5.0 model from the DWR CVFED HEC-RAS 4.1 model to perform additional levee breach scenarios.

PBI breach parameters were set to match the parameters used in the CVFED analyses. Breach formation time was set to be instant, breach width set to be equal to 50 times the levee height, and breaches were set to erode to the elevation of the landside toe of the levee. The 1D reaches from the DWR HEC-RAS 4.1 model were not altered when updating to the 1D/2D HEC-RAS 5.0 model. The modifications to the model included converting overbank areas to a 2D mesh using the following steps:

- Importing DWR's 1-meter resolution CVFED LiDAR ground elevation data[5] into the model
- Converting 1D storage areas to 2D gridded flow areas at 250ft x 250ft resolution

[1] DWR. CVFED TO 306: Technical Memorandum- Hydraulic Analysis for 200-Year Floodplain Inundation Data in Technical Support of Local Communities, prepared by HDR, Inc., December 2014.
[2] PBI. FloodCALM Assessment District Floodplain Analysis. August 2019.
[3] DWR. CVFED Program for the Lower San Joaquin River: Task Orders 24 and 25, Technical Memorandum Lower San Joaquin River System HEC-RAS Model Development, Prepared by HDR, Inc., February 2010.
[4] USACE Lower San Joaquin River Feasibility Study F3 Hydrology Appendix, prepared by PBI, July 2012.
[5] HDR Engineering, Inc. CVFED LiDAR Data, Task Order 20, "Secondary LiDAR Post Processing in Support of Hydraulic Model Development", June 2010.

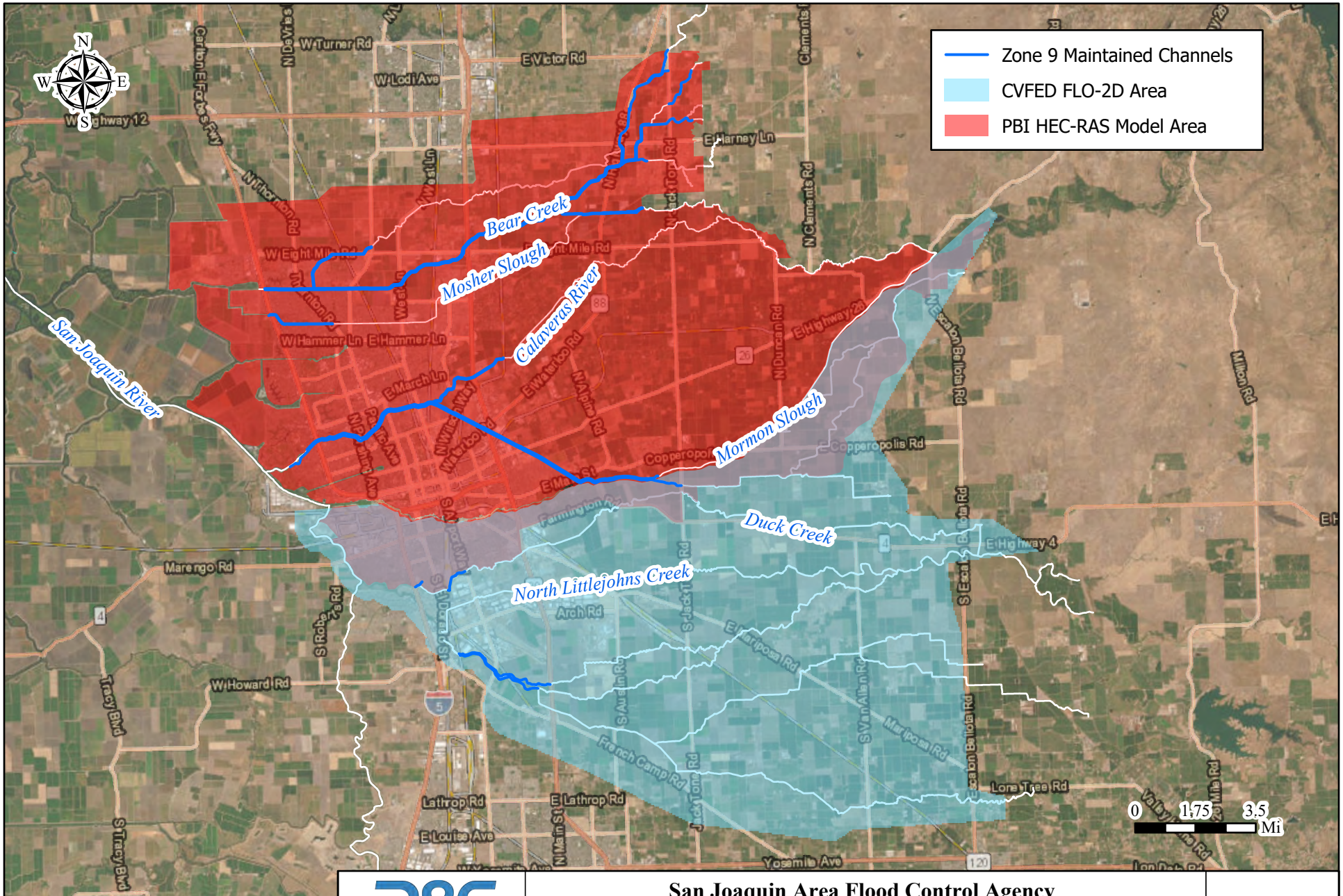
- Assigning Manning's n values for the overland 2D areas based on land use type. San Joaquin County zoning GIS data[6] was used to identify land use types in the floodplain. Guidance from the DWR CVFED FLO2D analysis was used in assigning n-values to the various land use types.

Figure 1 shows the extents of the CVFED and PBI modeling that was used to support the O&M floodplain analysis.

Capital Improvements

The floodplains for the USACE LSJRP capital improvement area originated from the USACE Risk and Uncertainty (R&U) composite floodplains developed as part of the USACE Lower San Joaquin River Feasibility Study (LSJRFS)[7]. The USACE composite floodplains were developed to compare the extents of flooding with- and without the LSJRP (Phase 1) improvements in place.

[6] San Joaquin County. "Zoning.shp". GIS Shapefile Acquired July 2015.
[7] USACE. Integrated Interim Feasibility Report/ Environmental Impact Statement/ Environmental Impact Report. San Joaquin River Basin, Lower San Joaquin River.



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San Joaquin Area Flood Control Agency

O&M Services
Models Supporting Evaluation of Benefit from O&M

Figure 1

Date: 2/3/2023

Path: C:\Users\NickMcGuire\R&F Engineering, Inc\R&F Engineering - Documents\4.0 GIS\Project\SJAFCA\LSJR-O&M Assessment\APRX\Presentation Model Extent Figure.aprx

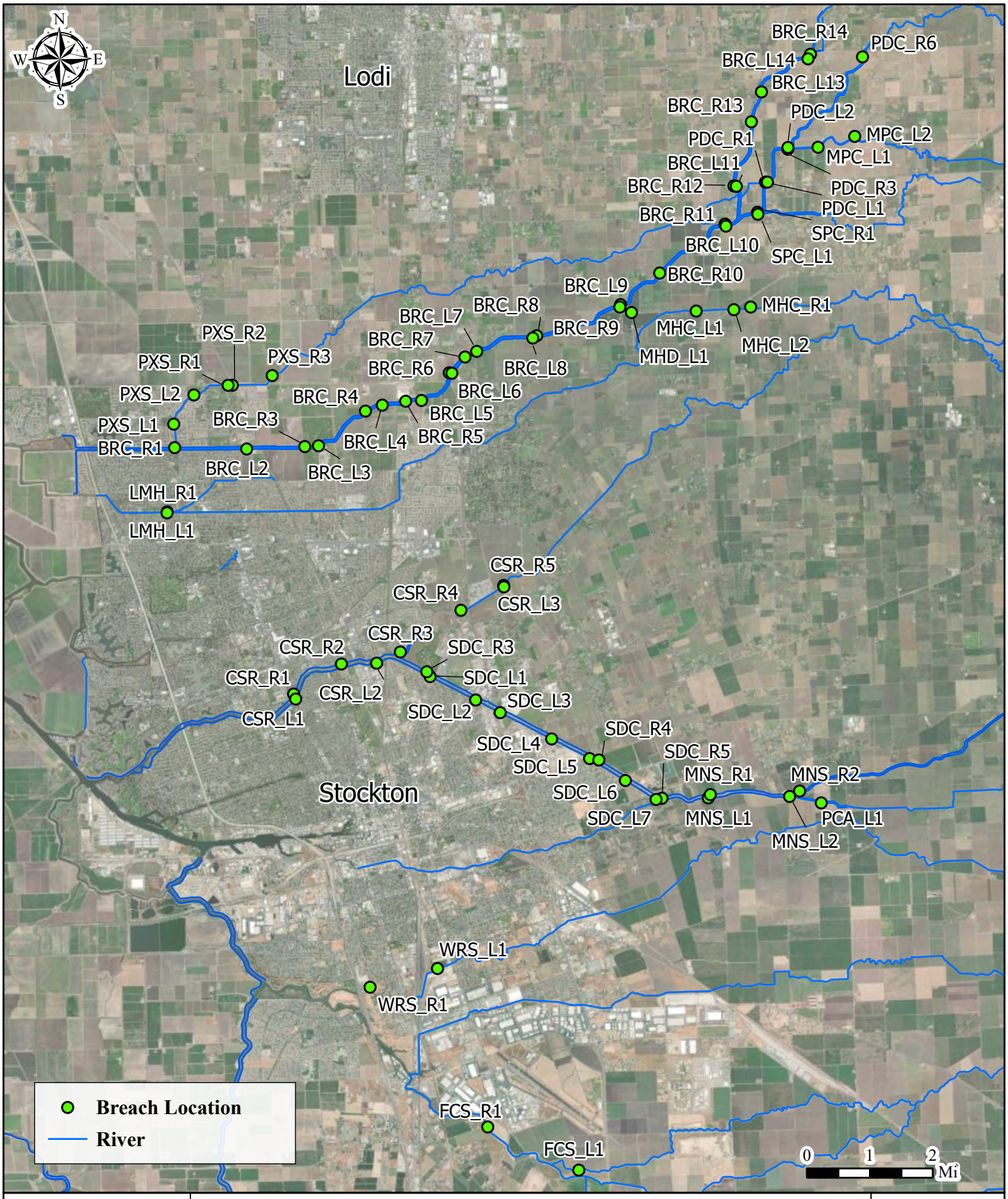
Methodology

The following subsections summarize the methodology used to help identify proportionate benefit provided to each parcel from the O&M services and from the USACE LSJRP capital improvements.

O&M Services

To identify the areas protected by Zone 9-maintained project levees, a levee breach modeling analysis was conducted to identify flood extents and depths that would result in a levee failure scenario on these levees. A total of 72 breach scenarios were completed to represent flooding that could occur if a Zone 9-maintained levee were to fail at a specific location within the system. A 200-year flow event was used as the basis of the breach analysis to show the potential floodplains in a scenario where the system was flowing full. Figure 2 provides an overview of the breach locations included in this analysis

The DWR CVFED modeling covered 54 breach scenarios throughout the study area. A portion of the levee on the Calaveras River downstream of Brookside Road is maintained by others and that portion was excluded from the breach analysis. The PBI model covered the 18 additional breach locations (for a total of 72 breach scenarios) . A channel overtopping scenario was also included in this analysis to determine flood depths that result without levee breaches when the channels exceed their capacity. As the channel overtopping is not prevented by Levee O&M services, this additional scenario was ultimately not utilized in LWA's analysis of special benefits.



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Breach Location Overview for Zone 9 O&M Project Levees

Figure 2

Date: 2/3/2023

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During the analysis, it was observed that some of the floodplains from the DWR CVFED FLO2D model needed to be refined due to the coarse resolution of the model grid cells (250ft x 250ft). Parcels adjacent to levees and waterways were not captured as being within the floodplain due to the model's grid cell size. Refinements were made within GIS to assign flood depths to these areas by interpolating adjacent flooded cells. An example of this correction is shown below in Figures 3 & 4.

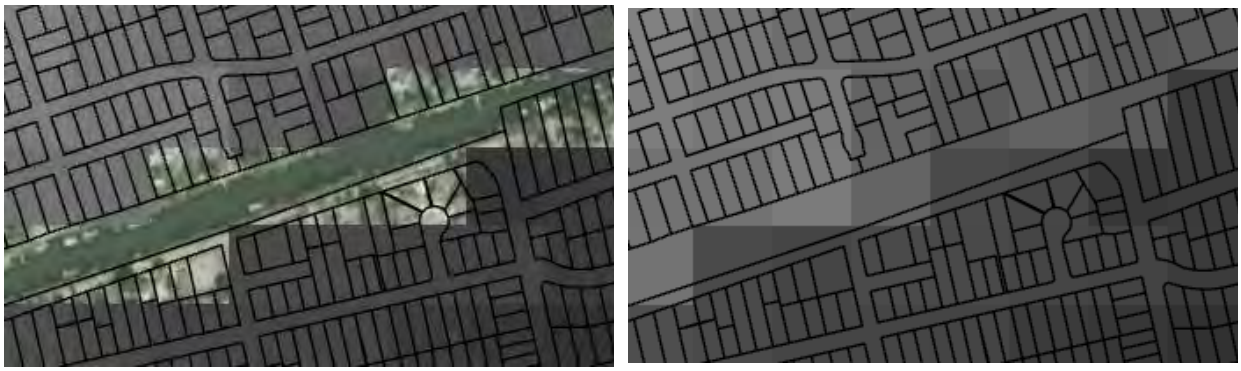


Figure 3 (left) & Figure 4 (right): FLO2D Floodplain Shows No Flooding in Various Parcels Along the landside levee toes (Left). And Modified Floodplain to More Accurately Estimate Flooding in Parcels Along the Levee toes (Right).

To generate flooding statistics for each parcel in the study area, GIS shapefiles with parcel-level data were generated for the 72 levee breach scenarios. The parcel-level data include the average floodplain depth (feet) and total wetted area (acres) for each parcel and each scenario, as described in Attachment A.

Additionally, levee reaches (and the corresponding breach scenarios) were categorized by whether they were FEMA accredited, cost-shared with other public entities, and/or if they are USACE Project Levees.

Capital Improvements

To assist in the determination of the proportionate benefit provided to each parcel by the USACE LSJRP capital improvements, floodplain modeling from the USACE LSJRFS for the 100-year flow scenario was used.

A "composite" floodplain was created from the individual levee breach scenarios that were modeled by USACE on levees that are part of the USACE LSJRP. The composite floodplain captures the anticipated worst-case scenario of flooding of all the breach scenarios for each parcel.

Similar to the O&M analysis, GIS shapefiles with parcel-level flooding data were generated and to identify the average floodplain depth (feet) and total wetted area (acres) for each parcel, as presented in Attachment B.

Floodplain Analyses Results

The following subsections and figures summarize the results of the floodplain analyses.

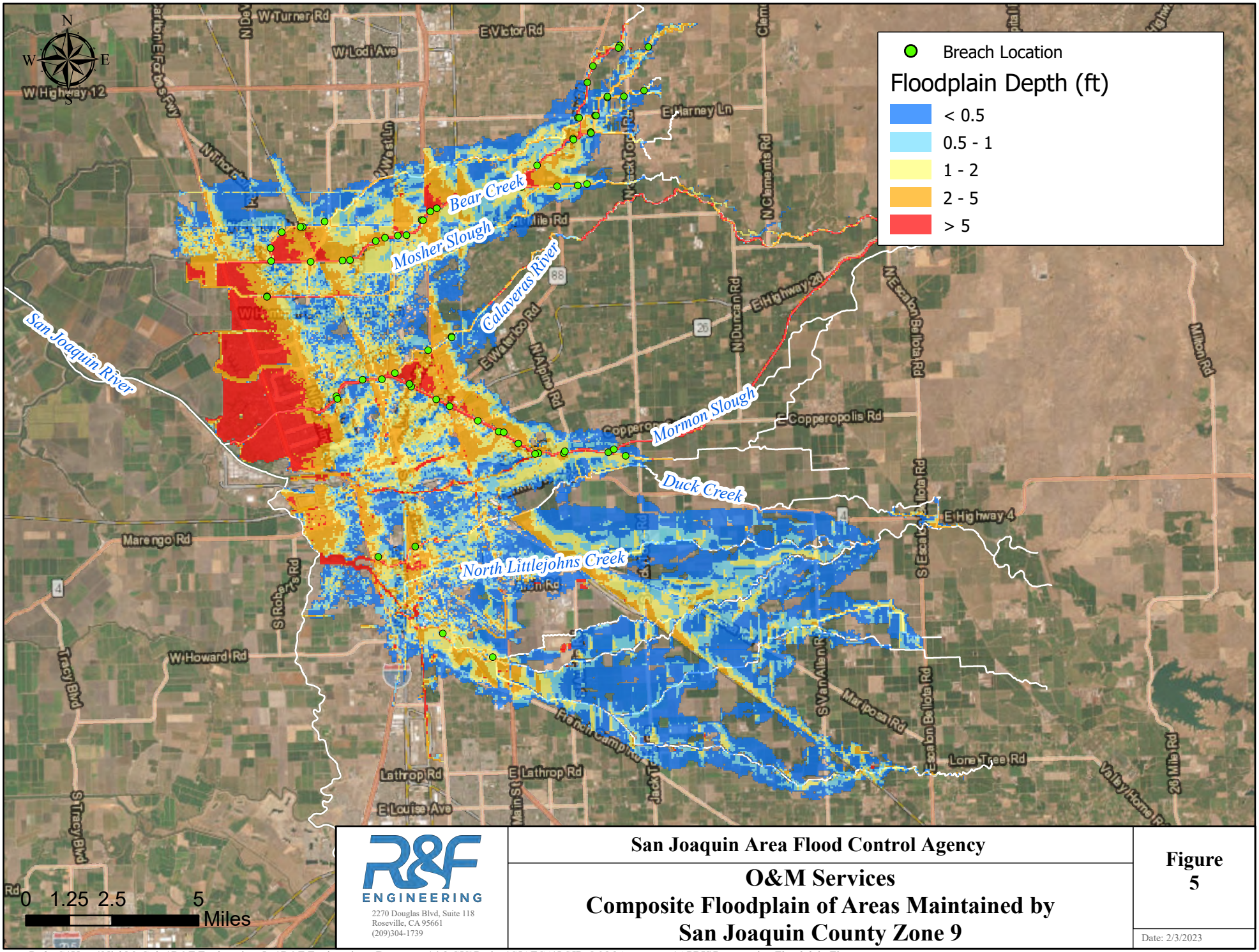
O&M Services

The results of the O&M floodplain analysis are shown in Figure 5 which includes a composite of the 72 individual levee breach scenarios located on Zone 9 maintained Project levees. The map also includes flooding in areas where channels exceed capacity and are overtopped, however this “overtopping” flooding was backed out of LWAs assessment analysis as channel overtopping is not prevented by Levee O&M services.

Capital Improvements

The results of the capital improvement levee breach analysis are shown in Figure 6, which are areas that could be inundated if a levee breach were to occur on a USACE LSJRP levee.

Summaries of parcel-level flooding data for the O&M Services and the USACE LSJRP capital improvements were generated in GIS and are included in Attachments A and B, respectively.



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O&M Services
Composite Floodplain of Areas Maintained by San Joaquin County Zone 9

Figure 5

Date: 2/3/2023

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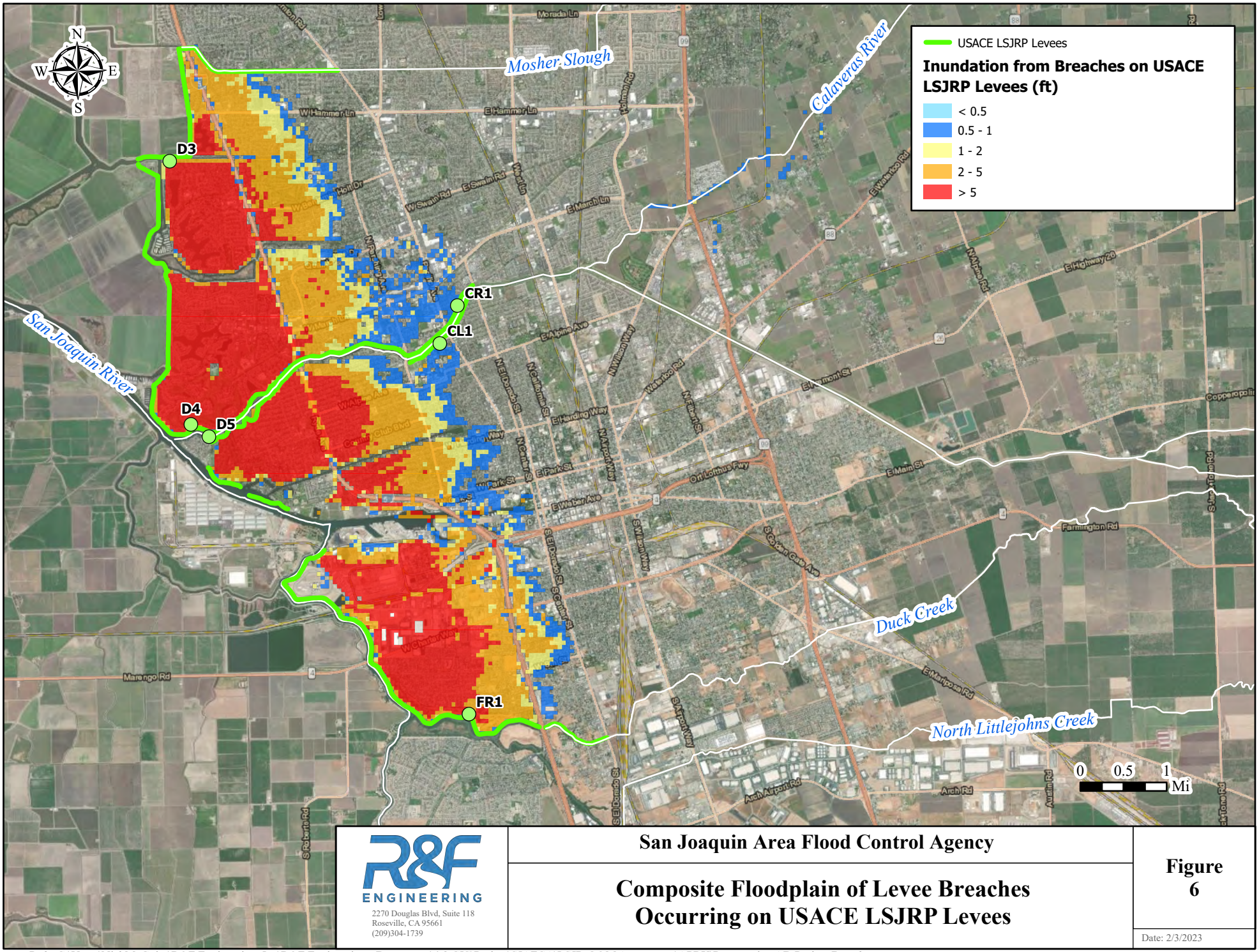

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Composite Floodplain of Levee Breaches Occurring on USACE LSJRP Levees

Figure 6

Date: 2/3/2023

Path: C:\Users\NickMcGuire\R&F Engineering, Inc\R&F Engineering - Documents\4.0 GIS\Project\SJAFCA\LSJR-O&M Assessment\APRX\Presentation AD Project Breaches.aprx

Assessment Boundary Delineations

The Proposed Assessment Boundary encompasses all properties that receive a special benefit from Zone 9 O&M Services and from the USACE LSJRP. The floodplain analyses discussed above were used as a starting point in developing a proposed benefit area for the LCMA District. The following subsections summarize the process that was used to delineate the final area of benefit.

O&M Assessment Boundary

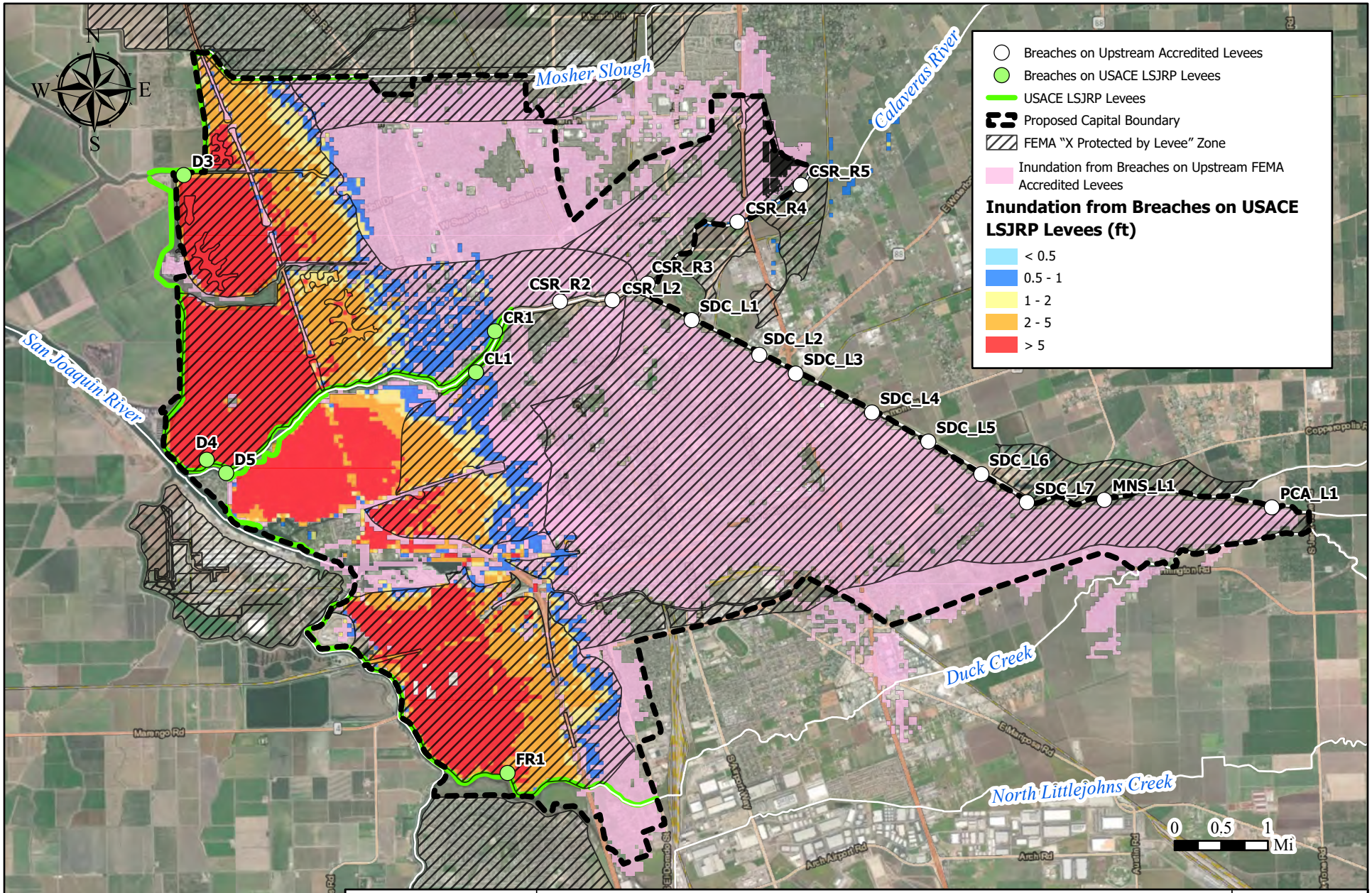
As described in the previous sections, to determine areas that benefit from the Levee O&M Services on the Zone 9 Project levees, modeling of various levee breach scenarios was performed to identify properties that would be inundated if those levees were to break. From these analyses, a composite floodplain was developed (previously shown in Figure 5). The resulting floodplain from each breach was overlaid in GIS onto the San Joaquin County parcel database to identify the average flood depth, total area of flooding, and length of levee that is providing protection for each parcel. The final assessment boundary for Levee O&M Services was delineated based on the boundaries of the parcels that are flooded from levee breaches on Zone 9 maintained Project levees.

Capital Assessment Boundary

Properties receiving special benefit from the USACE LSJRP (and associated incremental levee O&M for the LSJRP) were identified using a combination of floodplain mapping that included:

a) The 100-year composite without project floodplain based on breaches of levees to be improved by the USACE LSJRP (previously shown in Figure 6);
b) The FEMA Shaded Zone X mapping for north and central Stockton; and,
c) Additional hydraulic modeling showing the extent of the inundation from breaches of upstream FEMA Accredited Levees.

Benefits to properties can be due to avoidance of actual flood damage and/or avoidance of regulatory impacts. The composite without-project floodplain map, utilizing USACE floodplain mapping data, was prepared to identify the specific area benefiting from the improvements on the LSRJP levees. To further acknowledge the risk of regulatory impacts and the need to continue FEMA accreditation of this area, the extent of the floodplain for properties benefiting from FEMA Accredited levees in the same levee system was overlaid onto the composite breach floodplain (see Figure 7). To further confirm the extents of flooding that would result from a break on the upstream FEMA-accredited levees, modeling of breaches on these levees is also included on Figure 7.



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Overlay of Capital Improvement Floodplain Boundaries

Figure 7

Date: 3/16/2023

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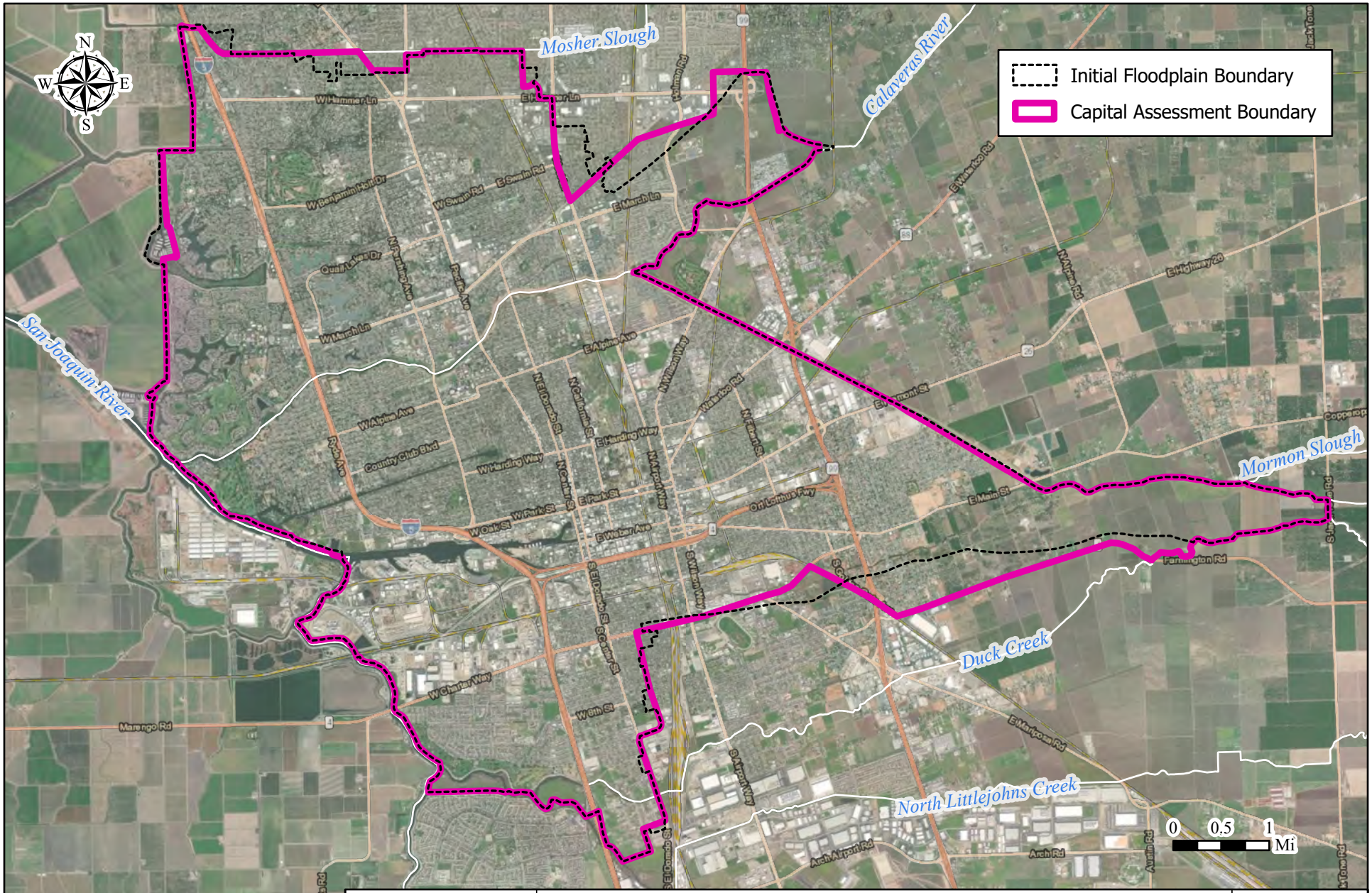
The three described components designate the full extent of the area benefiting from Levee Capital Services for FEMA Accredited Levees. Because different sources of floodplain mapping were combined, the floodplain mapping associated with the FEMA Accredited levee breaches was only utilized to inform the extent of the benefit area from Levee Capital Services, not floodplain depths. The final capital assessment boundary (Figure 8) follows the impacted parcel boundaries.



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Capital Assessment Boundary

Figure 8

Date: 3/16/2023

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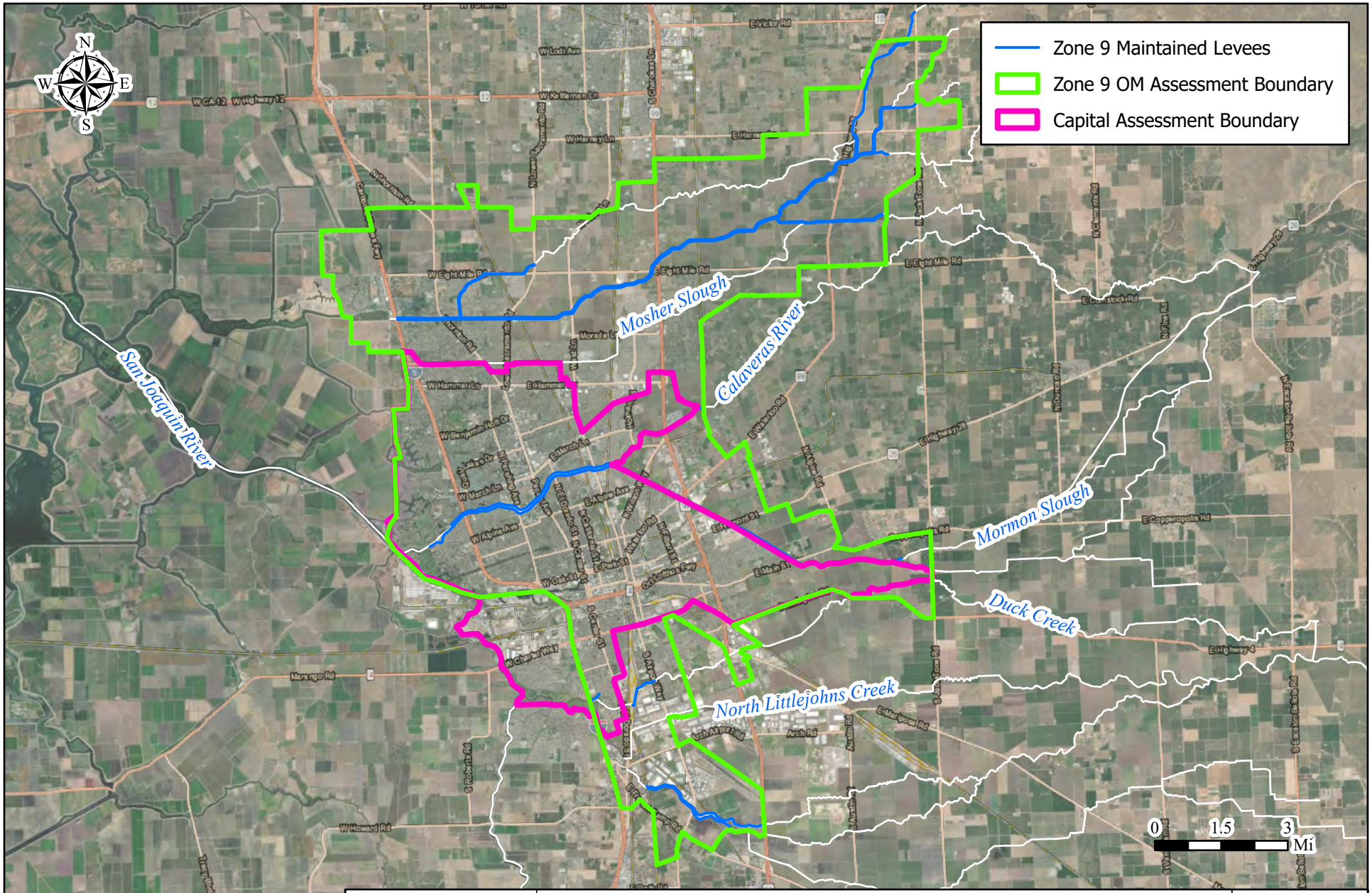
LCMA District Boundary

The area of special benefit from O&M Services and from the USACE LSJRP capital improvements were combined (Figure 9). The final LCMA Boundary is presented in Figure 10.



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SJAFCA LCMA

Combined Boundaries O&M Services & Capital Improvements

Figure 9

Date: 3/16/2023

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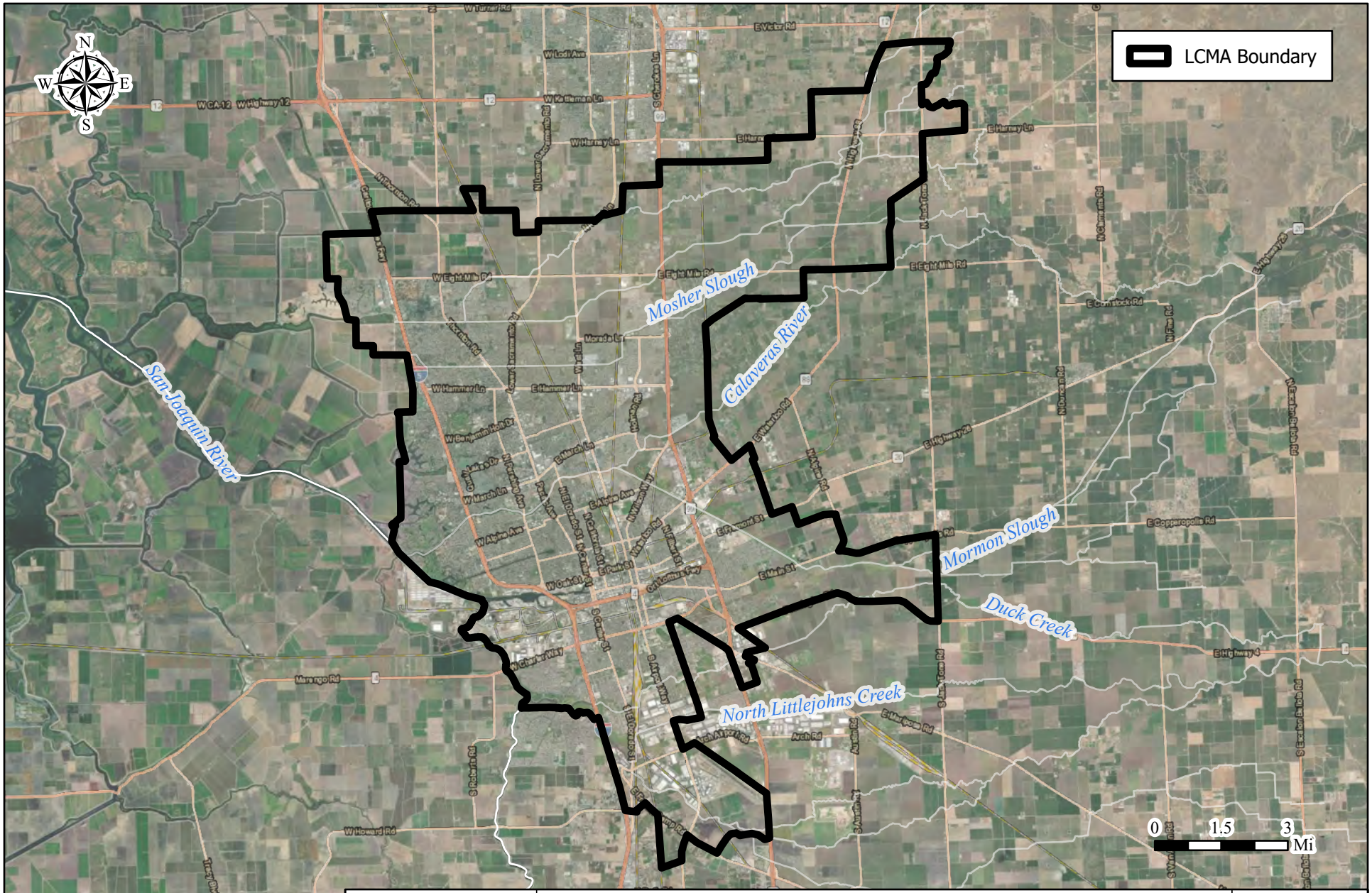

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SJAFCA Levee Construction and Maintenance Assessment

LCMA District Boundary

Figure 10

Date: 3/16/2023

Path: C:\Users\AndrewNisenberg\R&F Engineering, Inc\R&F Engineering - Documents\4.0 GIS\Project\SJAFCA\LSJR-O&M Assessment\APRX\Presentation LCMA Boundary Figure.aprx

ATTACHMENT A

Metadata for GIS Deliverables

for the O&M Assessment Analyses

Assessment Reaches.shp:

Description: All of the levees in the study area were broken down into segments. Each levee segment is associated with a modeled levee breach (see Breach Location Final.shp).

Brch_Rch: Name of reach

Breach Location Final.shp:

Description: 72 levee breaches were modeled for this study. This shapefile shows location and name/ID of each breach. It also indicates whether or not the breach location is on a Project levee, a SJAFCA levee, or a FEMA-accredited levee.

River: River the breach is located on
Code Name: Name of the breach. Note: some breaches are grouped together from original source.
Project: Is the breach on a Project or non-Project levee?
SJAFCA: Is the breach on a levee cost shared with SJAFCA?
FEMA: Is the breach on a FEMA accredited levee?

Parcel Ave Depth.shp:

Description: This shapefile shows the average depth of flooding on each parcel for each of the 72 levee breach scenarios that were run for this study. Levee breach locations were named according to the river that they are on and whether they're on the left bank or right bank levee. This shapefile also shows the average depth of flooding on each parcel for the no breach/overtopping only scenario in the PBI (HEC-RAS) model.

The average flood depth recorded is for the wetted area of the parcel only (zero depth/dry areas were not included in calculating the average depth of flooding).

The shapefile also has columns that show the total area of the parcel (acres) and the worst-case flood depth (feet) on each parcel.

Note: See the shapefile "Parcel Wetted Area.shp" which indicates how many acres of the parcel got wet for each breach scenario.

APN: APN

Area_acre: Total area of the parcel (in acres)

BRC_L2 through WRS_L1: The column headers are the name given to each breach location. Average depth of flooding (in feet) associated with each breach per the name of the field
NoBreach: Average depth of flooding (in feet) associated with the no breach/overtopping only scenario in the PBI (HEC-RAS) model

Parcel Wetted Area.shp:

Description: See description for the "Parcel Ave Depth.shp" shapefile. Everything is set up the same, except the values in this shapefile indicate how many acres of the parcel got wet for each breach scenario.

ATTACHMENT B

Metadata for GIS Deliverables

for the Capital Assessment Analyses

Parcel Average Depth.shp:

Description: This shapefile shows the average depth of flooding of each parcel for each of the 12 flood scenarios that were analyzed for this study. Scenarios are labeled according to "with project" and "without project" conditions and each return period event. The average flood depth recorded is for the wetted area of the parcel only (zero depth/dry areas were not included in calculating the average depth of flooding).

The shapefile also has columns that show: What is the total area of the parcel in acres? What is the worst-case flood depth on each parcel?

Notes:

1. There are no parcels with flooding for the 2-, 10-, and 25-year with-project events.
2. See the shapefile "Parcel Wetted Area.shp" which indicates how many acres of the parcel got wet for each flood scenario.

APN: APN
Area: Total area of the parcel (in acres)
Max: The worst-case average depth of flooding (in feet) across all scenarios
WP_2YR through WOP_200YR: The column headers are the name given to each flood scenario. Average depth of flooding (in feet) is associated with each scenario per the name of the field

Parcel Wetted Area.shp:

Description: See description for the "Parcel Ave Depth.shp" shapefile. Everything is set up the same, except the values in this shapefile indicate how many acres of the parcel got wet for each breach scenario

San Joaquin Area Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix D

Assessment District Boundary Diagram

(reduced from 18"x26" to 11"x17")

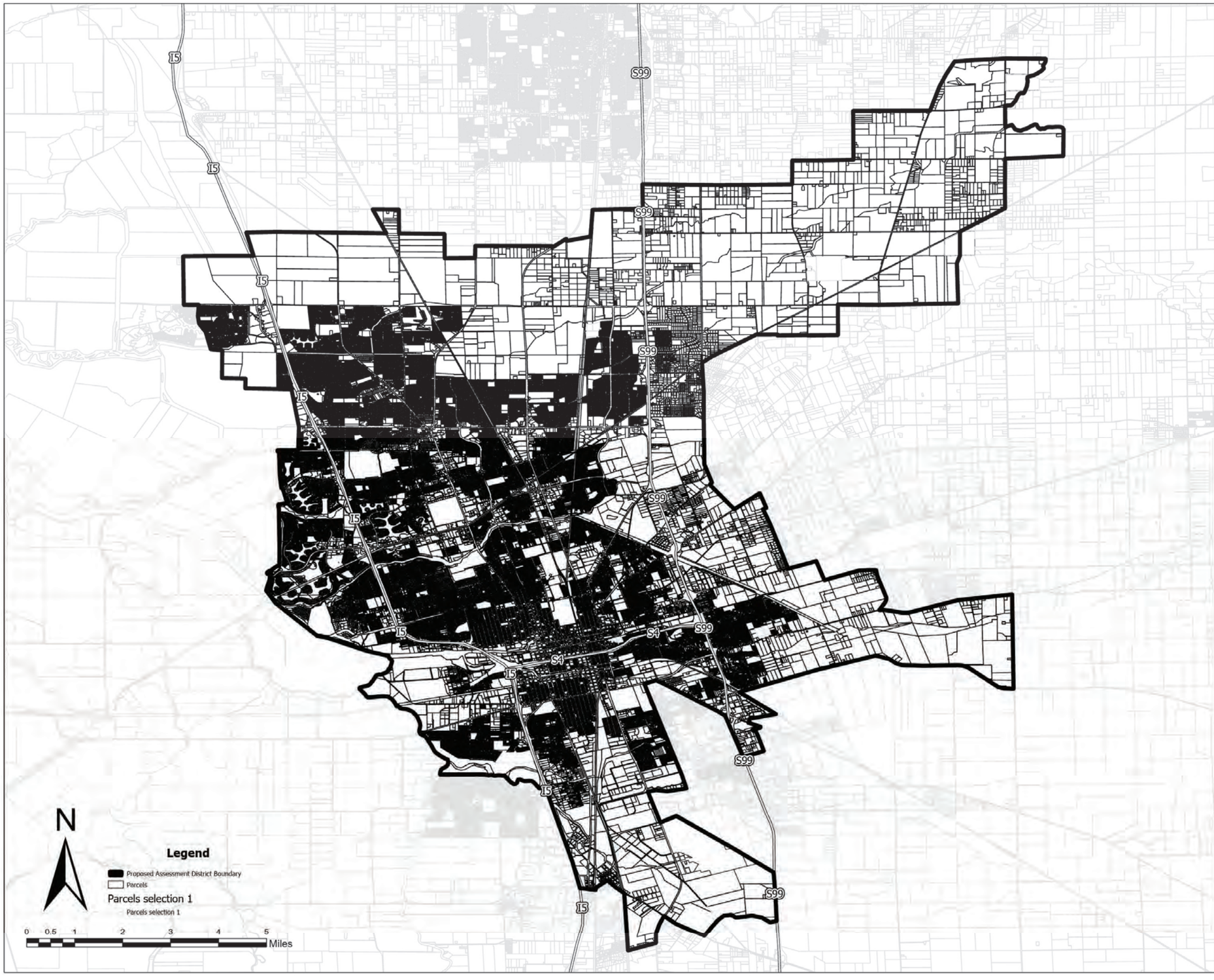
SAN JOAQUIN COUNTY

Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023



Proposed Boundaries of
SAN JOAQUIN AREA FLOOD CONTROL AGENCY
LEVEE CONSTRUCTON AND MAINTENANCE
ASSESSMENT DISTRICT

COUNTY OF SAN JOAQUIN
STATE OF CALIFORNIA

FILED IN THE OFFICE OF THE SECRETARY OF THE SAN JOAQUIN AREA FLOOD CONTROL AGENCY THIS ___ DAY OF _____, 20____.

_____
SECRETARY OF THE
SAN JOAQUIN AREA FLOOD CONTROL AGENCY

I HEREBY CERTIFY THAT THE WITHIN MAP SHOWING PROPOSED BOUNDARIES OF THE LEVEE CONSTRUCTION AND MAINTENANCE ASSESSMENT DISTRICT OF THE COUNTY OF SAN JOAQUIN, STATE OF CALIFORNIA, WAS APPROVED BY THE BOARD OF DIRECTORS OF THE SAN JOAQUIN AREA FLOOD CONTROL AGENCY AT A REGULAR MEETING THEREOF, HELD ON ___ DAY OF _____, 20___, BY ITS RESOLUTION NO. _____

_____
SECRETARY OF THE
SAN JOAQUIN AREA FLOOD CONTROL AGENCY

FILED THIS ___ DAY OF _____, 20___, AT THE HOUR OF _____ O'CLOCK ___M. IN BOOK _____ OF MAPS OF ASSESSMENT AND COMMUNITY FACILITIES DISTRICTS AT PAGE ___, IN THE OFFICE OF THE COUNTY RECORDER IN THE COUNTY OF SAN JOAQUIN, STATE OF CALIFORNIA

_____
COUNTY RECORDER OF
SAN JOAQUIN COUNTY

LWA
LARSEN WURZEL
& Associates, Inc.

San Joaquin Area
Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix E
San Joaquin County Use Codes
& Assessment Land Use Categories

SAN JOAQUIN COUNTY
Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
1	Vacant Residential Lot – Development with Utilities	Open Space - Developed
2	Vacant Lot with PROB. W/C Precludes Building A RE	Open Space
3	Vacant Lot – Totally Unusable (incurable)	Open Space
4	Vacant Residential Lot with miscellaneous Residential IMPRS (garage)	Open Space - Developed
5	Vacant Residential Subdivision Site	Open Space
6	Vacant Residential Lot- Undeveloped	Open Space
7	Potential Residential Subdivision	Open Space
10	Single-Family Dwelling (SFD)	Single-Family Residential
11	Condominium Unit	Multi-Family Residential
12	Planned Unit Residential Development (PURD)	Single-Family Residential
13	Single-Family Residence with Secondary Residential Square Footage	Single-Family Residential
14	SFD with Secondary Use (i.e., barber shop)	Single-Family Residential
15	Zero Lot Line Residential	Single-Family Residential
16	Residential Lot with Mobile Home	Mobile Home
17	Single-Family with Common Wall (duet, halfplex, etc.)	Single-Family Residential
20	Vacant Lot (zoned for two units)	Open Space
21	One Duplex – One Building	Single-Family Residential
22	Two SFDs On Single Parcel	Multi-Family Residential
30	Vacant Lot Zoned for 3 or 4 Units	Open Space
31	Single Triplex – (3 units, 1 structure)	Single-Family Residential
32	Three Units - 2 or More Structures	Multi-Family Residential
34	Single Fourplex	Multi-Family Residential
35	Four Units, 2 or More Structures	Multi-Family Residential
40	Vacant Lots Zoned for Apartments	Open Space
41	5-10 Residential Units – Single Building	Multi-Family Residential
42	5-10 Residential Units – 2 or more Buildings	Multi-Family Residential
43	11-20 Residential Units – One Structure	Multi-Family Residential
44	11-20 Residential Units – 2 or more Buildings	Multi-Family Residential
45	21-40 Units	Multi-Family Residential
46	41-100 Units	Multi-Family Residential
47	Over 100 Units	Multi-Family Residential
48	High-Rise Apartments	Multi-Family Residential
50	Rural Residential – Vacant Homesite	Agricultural
51	Rural Residence – 1 Residence	Rural Residential
52	Rural Residential – 2 or more residences	Rural Residential
53	Rural Residential – Vacant – Development with	Open Space - Developed
54	Rural Residences. - with Miscellaneous Residences. IMPS; Only	Open Space
55	Labor Camp	Rural Residential
56	Rural Residential with Mobil Home	Mobile Home

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
59	Residential Care Home (6 units or less)	Multi-Family Residential
60	Motels Less Than 50 Units	Commercial
61	Motels Over 50 Units	Commercial
62	Motels less than 50 units with some kitchens	Commercial
63	Motels over 50 Units with some Kitchens	Commercial
64	Motels Less Than 50 Units with Shops	Commercial
65	Motels Over 50 Units with Shops	Commercial
68	Resort Motels – Cabins, Etc.	Commercial
70	Hotel without Restaurant	Commercial
71	Hotel with Restaurant	Commercial
78	Rooming House – Convent – Rectory, Etc.	Commercial
80	Common Areas – No Structures	Open Space
81	Common Areas – with Structures	Open Space - Developed
82	Common Areas – Roads and Streets	Open Space
90	Mobile Home Park	Mobile Home
91	Overnight Type Trailer Park	Open Space
92	Mobile Home Park with Overnight Facilities	Mobile Home
93	Resort Type Trailer Park	Mobile Home
94	Mobile Home Condominium Lot	Mobile Home
95	Mobile Home Appurtenances	Mobile Home
96	Mobile Home	Mobile Home
100	Vacant Commercial Land – Undeveloped	Open Space
101	Vacant Commercial Land with Utilities	Open Space - Developed
102	Vacant Commercial Land with Miscellaneous IMPS	Open Space - Developed
107	Potential Commercial Subdivision	Open Space
110	Single-Story	Commercial
111	Multiple-Story Stories	Commercial
112	Multiple Stores in one Building	Commercial
113	Store with Residential Unit or Units	Commercial
114	Store Condo	Commercial
120	1 store and 1 office	Commercial
121	Multiple Combination of Offices, Shops	Commercial
130	1-Story Department Store	Commercial
131	2-Story Department Store	Commercial
140	Grocery Store	Commercial
141	Supermarkets	Commercial
142	Convenience Store	Commercial
143	Convenience Store with Gas Sales	Commercial
144	Fruit Stand	Commercial
150	Regional Shopping Center	Commercial
151	Community Shopping Center	Commercial
152	Neighborhood Shopping Center	Commercial

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
153	Individual Parcel Within Regional Shopping	Commercial
154	Individual Parcel Within Community Center	Commercial
155	Individual Parcel within neighborhood Shopping	Commercial
156	Shopping Center Common Area	Commercial
170	1-Story Office Building	Commercial
171	2-Story Office Building	Commercial
172	3 or More Story Office Building	Commercial
173	Office Building with Residential Unit or Units	Commercial
180	Assisted Living Residence	Multi-Family Residential
181	Congregate Seniors Housing	Multi-Family Residential
182	Continuing Care Retirement Community	Multi-Family Residential
183	Skilled Nursing Facility	Multi-Family Residential
184	Specialty Home (Developmentally Disable)	Multi-Family Residential
190	Medical Offices	Commercial
191	Dental Offices	Commercial
192	Medical Dental Complex	Commercial
193	Veterinary Hospitals	Commercial
194	One-Story Office Condo	Commercial
195	Two-Story Office Condo	Commercial
196	Medical Office Condo	Commercial
197	Dental Office Condo	Commercial
200	Commercial Common Area – Non Shopping C	Commercial
201	Miscellaneous Multiple Uses – None Fully Dominant	Commercial
202	Commercial Use	Commercial
203	Animal Training Facility	Commercial
204	Day Care Center	Commercial
210	Restaurants	Commercial
211	Fast Food Restaurants	Commercial
212	Food Preparation – Take Out Only	Commercial
213	Cocktail Lounge – Bars	Commercial
214	Restaurant with Residential Unit or Units	Commercial
230	Walk-In Theaters	Commercial
231	Multiple Screen Theaters	Commercial
240	Banks	Commercial
250	Full Service Stations	Commercial
251	Self Service. Station (has no facilities)	Commercial
252	Service Station with Car Wash	Commercial
253	Truck Terminals	Commercial
254	Bulk Plants	Commercial
255	Self Service Station with Mini Mart	Commercial
256	Convenience Store (mini-mart) with gas station	Commercial
260	Auto Sales with Service Center	Commercial

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
261	Auto Sales without Service Center	Commercial
262	Used Car Lot	Commercial
263	Other Sales Centers (Trailers, mobile home	Commercial
270	Farm or CONTS. Machine Sales and Service	Commercial
271	Farm or CONTS. Machine Sales Only	Commercial
272	Farm or CONST. Machine Sales Only	Commercial
280	Auto and Truck Repairs and Accessories	Commercial
281	Specialty Shops (Tires, Brakes, Etc.)	Commercial
282	Car Wash	Commercial
283	Self Service Car Wash	Commercial
284	Laundry	Commercial
285	Auto Body Shop	Commercial
290	Retail Nursery	Commercial
291	Commercial/Wholesale Nursery	Commercial
296	Commercial	Commercial
300	Vacant Industrial Land Undeveloped	Open Space
301	Vacant Industrial Land – Developed With	Open Space - Developed
302	Vacant Industrial Land with Miscellaneous IMPS	Open Space - Developed
307	Potential Industrial Subdivision	Open Space
310	Light Manufacturing and Light Industrial	Industrial
311	Light Industrial and Warehousing	Industrial
312	Light Industrial Warehouse Multiple Tenants	Industrial
313	Industrial Condo	Industrial
314	Shop-Work Area with Small Office	Commercial
320	Warehousing – Active	Industrial
321	Warehousing – Inactive	Industrial
323	Warehousing – Yard	Industrial
324	Mini Storage Warehousing	Industrial
330	Lumber Mills	Industrial
331	Retail Lumber Yards	Industrial
332	Specialty Lumber Products (Mouldings, SA	Industrial
340	Packing Plants	Industrial
341	Cold Storage or Refrigerated Warehouse	Industrial
350	Fruit and Vegetable	Industrial
351	Meat Products	Industrial
352	Large Winery	Industrial
353	Small/Boutique Winery	Commercial
355	Other Food Processing	Industrial
360	Feed and Grain Mills	Industrial
361	Retail Feed and Grain Sales	Industrial
362	Stockyards	Industrial
363	AG Chemical Sales and/or Application	Industrial

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
370	Heavy Industry	Industrial
371	Shipyard	Industrial
380	Mineral Processing	Industrial
381	Sand and Gravel – Shale	Industrial
390	Industrial Common Area	Industrial
391	Miscellaneous Industrial Multiple Uses – None Full	Industrial
392	Industrial Use (doesn't reasonably fit any	Industrial
393	Airport (private	Commercial
400	Irrigated Orchard	Agricultural
401	Irrigated Orchard with Residence	Agricultural
410	Irrigated	Agricultural
411	Irrigated	Agricultural
420	Irrigated Vineyard	Agricultural
421	Irrigated Vineyard with Residence	Agricultural
450	Irrigated Row Crops	Agricultural
451	Irrigated Row Crops with Residence	Agricultural
460	Irrigated Pasture	Agricultural
461	Irrigated Pasture with Residence	Agricultural
462	Horse Ranch	Agricultural
463	Horse Ranch with Residence	Agricultural
470	Dairy	Agricultural
471	Dairy with Residence	Agricultural
480	Poultry Ranch	Agricultural
481	Poultry Ranch with Residence	Agricultural
490	Feed Lots	Agricultural
500	Dry Farm	Agricultural
501	Dry Farm with Residence	Agricultural
510	Dry Graze	Agricultural
511	Dry Graze with Residence	Agricultural
520	Non-Irrigated Vineyards	Agricultural
521	Non-Irrigated Vineyards with Residence	Agricultural
530	Specialty Farms	Agricultural
540	Agricultural	Agricultural
550	Tree Farm	Agricultural
551	Tree Farm (with or without residence)	Agricultural
570	Agricultural	Agricultural
590	Waste Lands	Open Space
591	Berms	Open Space
610	Swim Centers	Commercial
611	Recreational Centers	Commercial
612	Marina or Yachting Club	Commercial
613	Racquetball Club	Commercial

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
614	Tennis Club	Commercial
615	Private Campground or Resort	Commercial
620	Privately Owned Dance Halls	Commercial
630	Bowling Alleys	Commercial
631	Arcades and Amusement Centers	Commercial
632	Skating Rink	Commercial
640	Clubs, Lodge Halls	Commercial
650	Privately Owned Auditoriums and Stadiums	Commercial
660	18-Hole Public Golf Course	Open Space
661	9-Hole Public Golf Course	Open Space
662	Country Club	Open Space
664	Driving Range	Open Space
670	Privately Owned Race Tracks	Commercial
680	Non-Profit Organizations Camps (Boy Scouts, Etc.)	Commercial
690	Privately Owned Parks	Open Space
710	Church, Synagogue or Temple	Commercial
711	Other Church Property	Commercial
720	Private School	School
721	Parochial School	School
722	Special School	School
730	Private Colleges	School
740	Full Service Hospital	Commercial
742	Clinic	Commercial
760	Orphanages	Commercial
770	Cemeteries (non-profit)	Open Space
771	Mortuaries and Funeral Homes	Commercial
772	Cemetery Taxable (profit)	Open Space
810	SBE valued	Open Space - Developed
811	Utility Water Company	Open Space
812	Mutual Water Company	Open Space
813	Cable TV	Open Space
814	Radio and TV Broadcast Site	Open Space
815	Pipeline Right-Of-Way	Open Space
816	Open Space	Open Space
850	Right-Of-Way	Open Space
851	Private Road	Open Space - Developed
860	Well Site	Open Space
861	Tank Site	Open Space
862	Springs and Other Water Sources	Open Space
870	Rivers and Lakes	Open Space
890	Parking Lots – Fee	Open Space - Developed
891	Parking Lots – No Fee	Open Space - Developed

Appendix E
Levee Capital and Maintenance Assessment (LCMA)
San Joaquin County Use Codes & Assessment Land Use Categories

Use Code	County Description	Land Use Category / Sub-Category
892	Parking Garages	Commercial
900	Vacant Federal Lands	Open Space
901	Federal Buildings	Commercial
902	Military Installation	Commercial
903	Miscellaneous Federal Property	Commercial
910	Vacant State Lands	Open Space
911	State Buildings	Commercial
912	State Shops & Yards	Commercial
913	State Parks and Other Recreational Facilities	Open Space - Developed
914	State Schools, Colleges	School
916	Miscellaneous State Property	Commercial
920	Vacant County Land	Open Space
921	County Buildings	Commercial
923	County Parks and Other Recreational Facilities	Open Space
924	County Hospitals	Commercial
925	Miscellaneous County Property	Commercial
930	Vacant City Lands	Open Space
931	City Buildings	Commercial
932	City Shops and Yard	Commercial
933	City Parks and Other Recreational Facilities	Open Space
934	Municipal Utility Prop. (reservoirs, sewer pipeline)	Open Space - Developed
935	Parking Lots – Garages	Open Space - Developed
936	Municipal Airports	Commercial
937	Miscellaneous City Property	Commercial
940	School District Properties	Commercial
941	Fire Districts	Commercial
942	Flood Control District Property	Open Space
943	Water District Property	Open Space
944	Miscellaneous District property	Open Space
950	Public Owned Land – Non- Taxable	Open Space
951	Public Owned Land – Taxable [Section 11]	Open Space
1000	Calaveras AG	Agricultural
1001	Stanislaus AG	Agricultural
1002	Blended	Blended

Source: ParcelQuest, San Joaquin County

San Joaquin Area Flood Control Agency

Levee Construction and Maintenance Assessment (LCMA)

Appendix F

List of Parcels and FY 2023/24 Assessment Roll

(Under Separate Cover)

SAN JOAQUIN COUNTY

Greatness grows here.

SAN JOAQUIN AREA FLOOD CONTROL AGENCY

San Joaquin Area Flood Control Agency

Date: June 15, 2023

San Joaquin Area Flood Control Agency

Final Engineer's Report

Formation of: Mossdale Tract Overlay Assessment District (Mossdale OAD)

Commencing Fiscal Year 2024/2025

Intent Meeting: April 18, 2024

Public Hearing: June 20, 2024

JULY 2024
PREPARED BY
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ENGINEER'S REPORT AFFIDAVIT

San Joaquin Area Flood Control Agency

Formation of the

Mossdale Tract Overlay Assessment District

Fiscal Year 2024/2025

County of San Joaquin, State of California

This Engineer's Report ("Report") and the enclosed descriptions and diagrams outline the San Joaquin Area Flood Control Agency ("SJAFCA" or "Agency") proposed formation and establishment of annual assessments for the Mossdale Tract Overlay Assessment District (hereinafter referred to as "District") commencing with fiscal year 2024/2025. Said District incorporates each lot, parcel, and subdivision of land within San Joaquin County that receives special benefit from the construction and operation of flood risk reduction components in and adjacent to the Mossdale Tract Area within the boundaries of said District as defined by the District Diagram contained herein as Part IV and adopted at the time of the passage of the Resolution of Intention. Reference is hereby made to the San Joaquin County Assessor's maps for a detailed description of the lines and dimensions of each lot, parcel, and subdivision of land within said territory and District. The undersigned respectfully submits the enclosed Report that includes a general description of the plans and specifications, method of apportionment, budget and proposed special benefit assessments associated therewith as directed by the SJAFCA Board of Directors ("Board") and pursuant to the provisions of the Benefit Assessment Act of 1982, being Chapter 6.4 of the California Government Code, commencing with Section 54703.

Dated this 18th day of July, 2024.

Willdan Financial Services
Assessment Engineer
On Behalf of San Joaquin Area Flood Control Agency

By: _____
Jim McGuire
Principal Consultant, Project Manager

By: _____
Tyrone Peter
PE # C 81888

Table of Contents

Introduction

The San Joaquin Area Flood Control Agency (SJAFCA) is a Joint Powers Authority that was created in May 1995 between the City of Stockton, San Joaquin County and the San Joaquin County Flood Control and Water Conservation District for the purpose of addressing flood protection for the City of Stockton and surrounding County area.

On November 16, 2017, the Joint Exercise of Powers Agreement was amended to include the Cities of Lathrop and Manteca to address the requirements of California Senate Bill 5 within the area known as the Mossdale Tract. SJAFCA has a nine member Board of Directors with one (1) member of the San Joaquin County Flood Control and Water Conservation District; one (1) member of the San Joaquin County Board of Supervisors; two (2) members from Stockton City Council; two (2) members from Lathrop City Council; two (2) members from Manteca City Council; and one (1) member of the public.

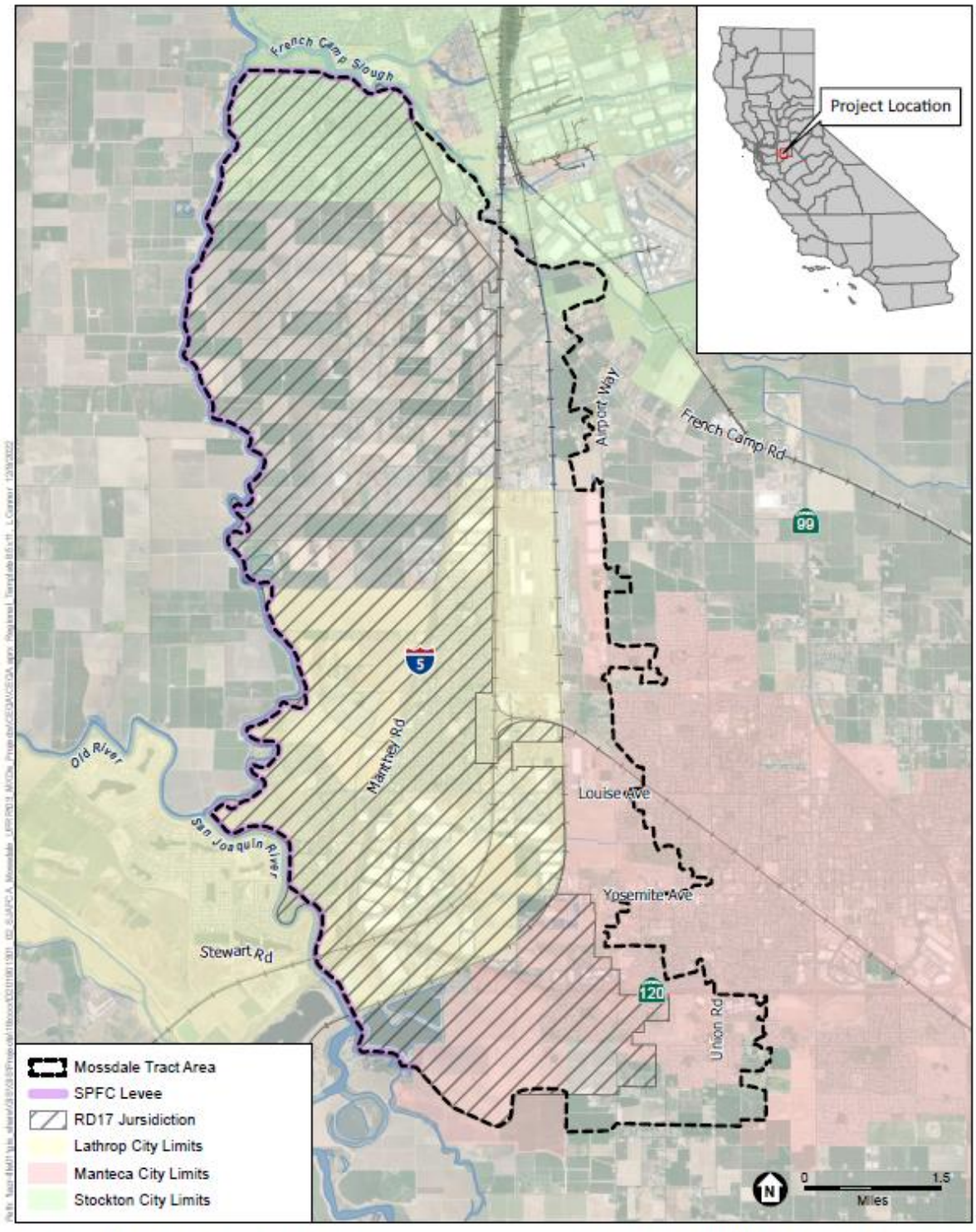
Following flooding disasters prompted by Hurricanes Katrina and Sandy, the Federal Emergency Management Agency (FEMA) and the US Army Corps of Engineers (USACE) embarked upon a comprehensive reevaluation of local flood risk and flood protection. FEMA has undertaken a Map Modernization Program that has resulted in a levee recertification program with new and more stringent levee standards. Other challenges involve State legislation that went into effect in 2007 (Senate Bill 5), which requires 200-year level of flood protection for urban or urbanizing areas[1] within California's Central Valley.

SB 5 defines Urban Level of Flood Protection (ULOP) as the "level of protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the California Department of Water Resources." Senate Bill 5 requires all cities and counties within the Sacramento-San Joaquin Valley, as defined in California Government Code § 65007(h), to make findings related to ULOP or the national Federal Emergency Management Agency (FEMA) standard of flood protection before: (1) entering into a development agreement for any property that is located within a flood hazard zone; (2) approving a discretionary permit or other discretionary entitlement, or a ministerial permit that would result in the construction of a new residence, for a project that is located within a flood hazard zone; or (3) approving a tentative map, or a parcel map for which a tentative map was not required, for any subdivision that is located within a flood hazard zone (see California Government Code § 65865.5, 65962, and 66474.5).

State and USACE levee standards and criteria continue to evolve and impact SJAFCA's priorities going forward. For the Mossdale Tract Area , SJAFCA continues to work with San Joaquin County, local cities (Stockton, Lathrop, and Manteca), and Reclamation District No. 17 ("RD 17") to address flood protection issues, levee standards and levee requirements that meet both State and Federal regulatory requirements (see Figure 1 on page 2 for a general overview illustration of the Mossdale Tract Area).

[1] Government Code § 65007 (l) and (h) define Urban Areas as developed areas where there are 10,000 or more residents and Urbanizing Areas as developed areas, or an area outside a developed area that is planned or anticipated to have 10,000 residents or more within the next 10 years.

FIGURE 1 — MOSSDALE TRACT AREA GENERAL OVERVIEW



SOURCE: MAXAR, 2021; KSN, 2022; PBI, 2022; ESA, 2022

Mossdale Tract Area Urban Flood Risk Reduction Project

Background

The Mossdale Tract Area is surrounded by approximately 19 miles of continuous levees that provide protection from floodwaters of streams, creeks, rivers, and bypasses that empty into the Sacramento-San Joaquin Delta, and from extreme high tides. The levees are operated and maintained by the local reclamation district, RD 17. The Mossdale Tract Area covers approximately 22,400 acres and is bounded by French Camp Slough to the north, the San Joaquin River to the west, and the Walthall Slough to the south. The Mossdale Tract Area spans an area that incorporates portions of the cities of Stockton, Lathrop, and Manteca that are highly urbanized, as well as portions of unincorporated San Joaquin County. RD 17 levees protect residential, commercial, industrial, as well as agricultural properties and they do not currently provide 200-year flood protection as required by Senate Bill 5.

The existing plan, as reported by SJAFCA annually since 2018 to the Central Valley Flood Protection Board, for meeting state requirements includes two components:

- RD 17's recently completed Levee Seepage Repair Project (LSRP); and
- Levee Improvements to achieve 200-year flood protection (the SJAFCA Project or Project).

In general, the SJAFCA Project consists of a fix-in-place levee improvement project and an extension of the existing dryland levee in Manteca.

The estimated Project cost is approximately $472.87 million with funding expected to come from the following sources:

- State Funding in the form of Grants to SJAFCA and cash contributions to the United States Army Corp of Engineers (USACE);
- Federal Funding in the form of implementation and construction of facilities by the USACE; and,
- Local Funding sources including, but not limited to:
  - ✓ Direct funding from the Cities of Stockton, Lathrop, and Manteca (Cities), and San Joaquin County;
  - ✓ The Mossdale Tract Area Regional Urban Level of Flood Protection Levee Impact Fee Program adopted by SJAFCA, the Cities and San Joaquin Count;
  - ✓ The Mossdale Tract Enhanced Infrastructure Financing District (EIFD); and,
  - ✓ The Mossdale Tract Overlay Assessment District (the focus of this Report).

Legislative Authority

Pursuant to the provisions of the Joint Exercise of Powers Act, Govt. Code Section 6500 et seq. ("JEP Act"). Agencies formed pursuant to the JEP Act may provide financing for any of their members or other local agencies in the State of California in connection with the acquisition, construction, improvement, and maintenance of public capital improvements, working capital requirements or insurance programs of such members or other local agencies.

Pursuant to the provisions of the Benefit Assessment Act of 1982, Government Code sections 54703-54719, ("1982 Act"), and in compliance with the substantive and procedural requirements

of the California State Constitution Article XIIID ("California Constitution"), the Board of Directors ("Board") of SJAFCA proposes to form and levy special benefit assessments for the district to be designated as:

Mossdale Tract Overlay Assessment District

(hereafter referred to as "District"), which includes all lots and parcels of land within portions of the cities of Lathrop, Manteca, and Stockton as well as portions of unincorporated San Joaquin County that receive a particular and distinct benefit (special benefit) from the operation, program planning, design, construction, installation, implementation, and maintenance of the proposed fix in place and potential levee setback improvements and the dryland levee extension to achieve and maintain 200-year ULOP for the Mossdale Tract Area , including related incidental expenses, and collectively referred to as "Project Services."

As required pursuant to Section 54716 of the 1982 Act, this Engineer's Report has been prepared in connection with the formation of said District and the levy and collection of annual assessments authorized pursuant to Section 54710.5 of the 1982 Act to finance the cost of installation and improvement of facilities related thereto, commencing in fiscal year 2024/2025.

The Board proposes to form the District, and annually levy and collect special benefit assessments on the San Joaquin County tax roll or directly bill properties owners to fund a portion of the improvement costs and expenses that are deemed necessary and essential requirements to minimize potential flood risks and provide a distinct and particular benefit to those assessed properties.

This Engineer's Report has been prepared on behalf of SJAFCA for the purpose of creating a new local funding mechanism to enhance flood protection facilities and services in the Mossdale Tract Area . It describes the funding objectives, apportionment methodology, formation process and collection of a new special benefit assessment district proposed to fund in part the flood control improvements and expenses to be constructed and installed to achieve and maintain 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area .

1982 Act

Section 54710(a) of the 1982 Act permits any local agency which is authorized by law to provide flood control may impose a benefit assessment pursuant to this chapter to finance the maintenance and operation costs of flood control services. In addition to maintenance and operation costs, Section 54710.5 authorizes agencies to finance the cost of installation and improvement of flood control facilities:

> *"Any local agency which is authorized by law to provide drainage services or flood control services may, in addition to imposing a benefit assessment for the purposes authorized pursuant to Section 54710, impose such an assessment to finance the cost of installation and improvement of facilities."*

Other provisions of 1982 Act worth noting include the following:

Section 54711 outlines certain prerequisites that must be met for the levy of benefit assessments:

(1) *"The amount of the assessment imposed on any parcel of property shall be related to the benefit to the parcel which will be derived from the provision of the service…"*

(2) *"The annual aggregate amount of the assessment shall not exceed the estimated annual cost of providing the service…"*

(3) *"The revenue derived from the assessment shall not be used to pay the cost of any service other than the service for which the assessment was levied..."*

Pursuant to Section 54716(a) an engineer's report shall be prepared and filed with the clerk of the local agency and contain all of the following information:

(1) *"A description of the service proposed to be financed through the revenue derived from the assessment."*

(2) *"A description of each lot or parcel of property proposed to be subject to the benefit assessment…"*

(3) *"The amount of the proposed assessment for each parcel."*

(4) *"The basis and schedule of the assessment."*

California Constitution

The costs of the proposed improvements addressed in this Report have been identified and allocated to the parcels within the boundaries of the District based on proportional special benefits as outlined by Article XIII D of the California Constitution.

Article XIII D Section 2(d) defines District as follows:

"District means an area determined by an agency to contain all parcels which will receive a special benefit from a proposed public improvement or property-related service."

Article XIII D Section 2(i) defines Special Benefit as follows:

"Special benefit" means a particular and distinct benefit over and above general benefits conferred on real property located in the district or to the public at large. General enhancement of property value does not constitute "special benefit."

Article XIII D Section 4(a) defines proportional special benefit assessments as follows:

"An agency which proposes to levy an assessment shall identify all parcels which will have a special benefit conferred upon them and upon which an assessment will be imposed. The proportionate special benefit derived by each identified parcel shall be determined in relationship to the entirety of the capital cost of a public improvement, the maintenance and operation expenses of a public improvement, or the cost of the property related service being provided. No assessment shall be imposed on any parcel which exceeds the reasonable cost of the proportional special benefit conferred on that parcel."

Ballot Proceedings

Pursuant to the provisions of Article XIIID, Section 4 of the California Constitution, the SJAFCA Board shall call for and conduct a property owner protest ballot proceeding (referred to as "Ballot Proceeding") for the proposed levy of the new assessments and the assessment range formula presented and described in this Report. In conjunction with this Ballot Proceeding, the Board will conduct a noticed public hearing to consider public testimonies, comments, and written protests regarding the levy of the proposed new assessments. Upon conclusion of the public hearing, property owner protest ballots received will be opened and tabulated to determine whether a majority protest exists:

"A majority protest exists if, upon the conclusion of the hearing, ballots submitted in opposition to the assessment exceed the ballots submitted in favor of the assessment. In tabulating the ballots, the ballots shall be weighted according to the proportional financial obligation of the affected property."

After completion of the ballot tabulation, the Board will confirm the results of the balloting. If a majority protest exists for the proposed new assessment, further proceedings to implement the new assessment for the District shall be abandoned. If tabulation of the ballots indicate that majority protest does not exist for the assessment and the assessment range formula (inflationary adjustment) presented in the ballots and described in the Report, the Board may adopt this Report (as submitted or amended), approve the assessment diagram, and confirm the assessments rate for fiscal year 2024/2025 ("Initial Maximum Assessment") and the assessment range formula (inflationary adjustment). Either in the same resolution or by a separate resolution, the Board may order the levy and collection of the District assessments commencing with fiscal year 2024/2025 as approved, and such assessments shall be submitted to the San Joaquin County Auditor/Controller for inclusion on the property tax roll for each affected parcel or be directly billed to the property owner if the County does not bill the parcel on the secured roll.

Engineer's Report

This Engineer's Report ("Report") has been prepared pursuant to Section 54716 of the 1982 Act and presented to the SJAFCA Board for its consideration and approval. This Report describes:

- The boundaries of the District that incorporates each lot or parcel of property determined to receive special benefit from the Project Services;
- An estimate of the total costs to fund the Project Services;
- The methodology for levying an assessment upon parcels that receive special benefit from the Project Services as defined within this Report; and,
- The levy and collection of the annual assessments to fund in part the costs and expenses to provide for the Project Services.

The budgeted expenses and assessments described in this Report are based on the anticipated annual funding required to support special benefit expenses associated with Project Services including incidental expenses associated with the formation and administration of the District. This Report does not address additional flood control improvements that may be installed and/or expanded within the Mossdale Tract Area by RD 17, nor significant modifications to or extension of the levee improvements and/or services identified in this Report.

The word "parcel," for the purposes of this Report, refers to an individual property assigned its own Assessor's Parcel Number (APN) by the San Joaquin County Assessor's Office. The San Joaquin County Auditor-Controller uses APNs and specific Fund Numbers to identify properties to be assessed on the tax roll for the District special benefit assessments.

If any section, subsection, sentence, clause, phrase, or portion of this Engineer's Report is, for any reason, held to be invalid or unconstitutional by the decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining provisions of the Engineer's Report and each section, subsection, subdivision, sentence, clause, phrase or portion thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses, phrases, or portions might subsequently be declared invalid or unconstitutional.

This Report consists of five (5) parts:

Part I

Plans and Specifications: This section provides an overall description of the Mossdale Tract Overlay Assessment District and the Project Services to be funded in part by the District's annual assessments. The assessments outlined in this Report are based on these improvements, materials, equipment, services, and activities authorized by the 1982 Act and that provide special benefit to the properties to be proportionally assessed. More detailed information regarding the specific improvements, facilities, operations, maintenance, services, and activities (specific plans and specifications) for the District are on file in the offices of SJAFCA and by reference are made part of this Report.

Part II

Estimate of Costs: An estimate of the total costs to fund the proposed Project and an estimate of the annual special benefit costs to be assessed to fund in part that Project. The budget outlined in this section includes an estimate of SJAFCA's overall program costs including the costs associated with Project planning and program administration as well as the direct costs of the improvements needed to achieve ULOP. The budget also provides a summary of the Project funding sources including USACE's portion of the Project (federal funding); state funding; and the local funding sources which includes, but is not limited to, Levee Impact Fees; EIFD Revenues; and Assessment Revenues from this District. Those Project Services and any other costs determined to be of general benefit shall not be assessed as special benefit costs and will be funded by one of the other revenue sources (Levee Impact Fees and/or EIFD Revenues) available to SJAFCA or its member agencies.

Part III

Method of Apportionment: This section includes a discussion of the general and special benefits associated with the Project Services to be provided within the District and outlines the method of calculating each parcel's proportional special benefit and corresponding assessment.

Part IV

Assessment Roll: The Assessment Roll contains a listing of each Assessor's Parcel Number to be assessed within the District for special benefits received ("Balloted Assessment") commencing in fiscal year 2024/2025. The Balloted Assessment amount for each parcel is based on the parcel's calculated proportional special benefit as outlined in "Part II – Method of Apportionment" and the annual assessment rate established by the estimated costs (budget) in "Part III – Estimate of Costs" of this Report. Due to the number of parcels within the District (over 23,000 parcels), the Assessment Roll for fiscal year 2024/2025 has been filed electronically with the SJAFCA Board Clerk rather than displayed in this Report and by reference the listing of the APNs and the corresponding assessment amounts are made part of this Report.

Part V

Assessment Diagram: This section of the Report contains a diagram showing the boundaries of the District, which incorporates the parcels determined to receive special benefits from the Project Services. The diagram also provides a visual depiction of the location and extent of the proposed project levees. Parcel identification, the lines, and dimensions of each lot, parcel, and subdivision of land within the District are shown on the San Joaquin County Assessor's Parcel Maps and shall include any subsequent lot line adjustments or parcel changes therein. Reference is hereby made to the San Joaquin County Assessor's Parcel Maps for a detailed description of the lines and dimensions of each lot and parcel of land within the District.

Part I — Plans and Specifications

District Overview

The primary flood risk in the Mossdale Tract Area is from geotechnical failure or outflanking of the existing levees. Levee overtopping is also a risk during large floods, which are anticipated to increase in both intensity and frequency over time due to the effects of climate change. Geotechnical failures caused by through-levee seepage or under-seepage are typically sudden and unpredictable and can produce large volumes of high velocity flood flows. These failures come with little warning, with minimal time for evacuation and emergency actions. Overtopping and flanking floods are much more predictable, so evacuation is more effective for these failure mechanisms.

The Mossdale Tract Area high water events generally occur during the winter months when colder air and water temperatures significantly increase the risk of death by exposure. The probability of unexpected levee failure (coupled with the consequence of basin-wide flooding) presents a continued threat to public safety, property, and critical infrastructure in the Mossdale Tract Area . To address this concern, in cooperation with and funding from the State of California, SJAFCA completed an Urban Flood Risk Reduction study (UFRR Study) of alternatives and has commenced the environmental review and preliminary design of the preferred flood risk reduction Project for the area which was identified as being at risk of flooding from a 200-year flood event, with this risk being significantly increased under future climate conditions. The UFRR Study included technical evaluations of hydraulics, geotechnical conditions, cost estimates of potential alternatives, levee performance, multi-benefit features, and others. The UFRR Study selected features of three initial alternatives to develop a hybrid alternative that could be evaluated and compared with the initial three alternatives. The California Department of Water Resources ("DWR") and local stakeholders each provided input for "Alternative 4". The differences were minor, but important, so Alternative 4 was presented with four minor permutations, represented as Alternatives 4a through 4d. The final selected alternative in the UFRR Study (Alternative 4a) is the proposed Project summarized below to be analyzed in an Environmental Impact Report (EIR), the preparation of which is ongoing and scheduled to be completed in 2025.

Separately, on September 30, 2022, SJAFCA executed a Feasibility Study Cost Share Agreement (FCSA) with the USACE to evaluate the Federal Interest in an array of alternatives to provide enhanced flood protection to the Lathrop and Manteca area. While Federal interest in the Mossdale Program is being evaluated, given the level of study and evaluation completed to date by SJAFCA and the State, SJAFCA continues to advance design and permitting of certain common features of the UFRR Study preferred alternative that will overlap with what is expected to be improvements authorized by Congress and constructed by USACE.

Project Location

The Mossdale Tract Area (proposed District) covers approximately 22,400 acres and includes RD 17 (16,110 acres), portions of the Cities of Stockton, Lathrop, Manteca, and unincorporated San Joaquin County (see Figure 1 on page 2 for a general overview of the jurisdictions within the Mossdale Tract Area). The existing RD 17 levee system is comprised of Federal Project levees (also referred to as State Plan of Flood Control [SPFC]) along the San Joaquin River and French Camp Slough, which form the west and north borders of RD 17, and a dryland levee to the south. The land generally slopes east to west and south to north, and there is no levee along the east

side of the RD 17 jurisdiction, so the interior drainage watershed extends to the east of RD 17. The proposed project area includes the SPFC levees, RD 17's dryland levee, the Mossdale Tract Area , and areas to the south and west along the San Joaquin River identified for the potential development of ecosystem restoration features.

The territory within the Mossdale Tract Overlay Assessment District is narrowly defined to include those parcels within San Joaquin County that have been identified as parcels that will receive a reduced flood risk as a result of the implementation of Project Services and the related flood control infrastructure improvements. The boundaries of the District and the parcels therein are based on hydrologic and hydraulic mapping (i.e., floodplain mapping), incorporating each of the parcels that have been identified as receiving a reduced risk of potential flood damages as a result of uncontrolled riverine flooding. Based on the floodplain mapping data, the District includes approximately 22,115 parcels located in portions of the cities of Lathrop, Manteca, Stockton, and unincorporated areas of San Joaquin County that are protected from flooding by the Project Services.

Project Objectives

To comply with State and Federal requirements, the overall objective of the proposed Project is to provide increased public safety benefits by improving and expanding flood risk reduction infrastructure to achieve a 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area . Objectives include:

- Modernize the flood risk reduction infrastructure to accommodate future performance and climate change resiliency goals identified in the Central Valley Flood Protection Plan and in SJAFCA's adopted Climate Change Adaptation Policy.[2]
- Improve long-term operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) over time.

Proposed Project

The proposed Project would include the construction and operation of flood risk reduction components in and adjacent to the Mossdale Tract Area . As an outcome of the UFRR Study, preliminary plans have been developed to achieve the stated Project objectives. Each of the preliminary identified components, as conceptualized in the UFRR Study, are described in more detail in the following. It should be noted that, as the identified Project advances through environmental review and design, the current identified components of the Project may change and be refined to meet the stated Project Objectives. Project Services include the final designed Project to be implemented, that meets the stated Project Objectives. The Project described herein and by reference, including all attributes of the Project such as cost estimates and schedule for implementation, is reflective of the best information currently available to SJAFCA and the assessment engineer.

[2] San Joaquin Area Flood Control Agency Resolution No. 19-06: Resolution to Adopt Policy on Adapting Design Standards for the Mossdale Tract Area of SJAFCA in Light of Climate Change

Flood Risk Reduction Components

Flood risk reduction components of the proposed Project include: (1) fix in place and potential setback levee improvements; and (2) a dryland levee extension. Each of these components, along with associated construction techniques are described in detail below. Details of the Project sites are described in **Table 1** below and illustrated in **Figure 2** on page 12 that follows.

TABLE 1 — PROJECT FEATURES

Project ID	Main Project Feature	Station Begin	Station End	Length (feet)
1	Cutoff Wall	119+50	148+00	2,850
2	Cutoff Wall	172+45	192+00	1,955
3	Seepage Berm	190+50	247+00	5,650
4	Seepage Berm	255+50	259+50	400
5	Seepage Berm	270+00	297+75	2,775
6	Cutoff Wall	311+00	362+50	5,150
7	Cutoff Wall	388+00	518+50	13,050
8.a	Levee Raise @ San Joaquin River / Cutoff Wall	570+00	758+00	18,800
8.b	Levee Raise / Floodwall @ San Joaquin River	758+00	769+01	1,101
8.c	Levee Raise / Floodwall @ San Joaquin River	770+75	778+50	775
8.d	Levee Raise @ San Joaquin River / Cutoff Wall	778+50	799+61	2,111
8.e	Levee Raise @ San Joaquin River	799+79	822+80	2,301
9(1)	Cutoff Wall	-	-	-
10(2)	Cutoff Wall	-	-	-
11	Levee Raise @ Walthall Slough	822+80	853+96	3,116
12	Levee Raise & Seepage Berm @ Dryland Levee	853+96	908+60	5,464
13(3)	Erosion Repairs	-	-	-
14(4)	Right-of-Way Acquisition	-	-	-
15	Dryland Levee Extension	908+60	1030+50	12,190

Notes:

(1) Project ID 9 consists of a cutoff wall and is included as a component of Project ID 8.a.

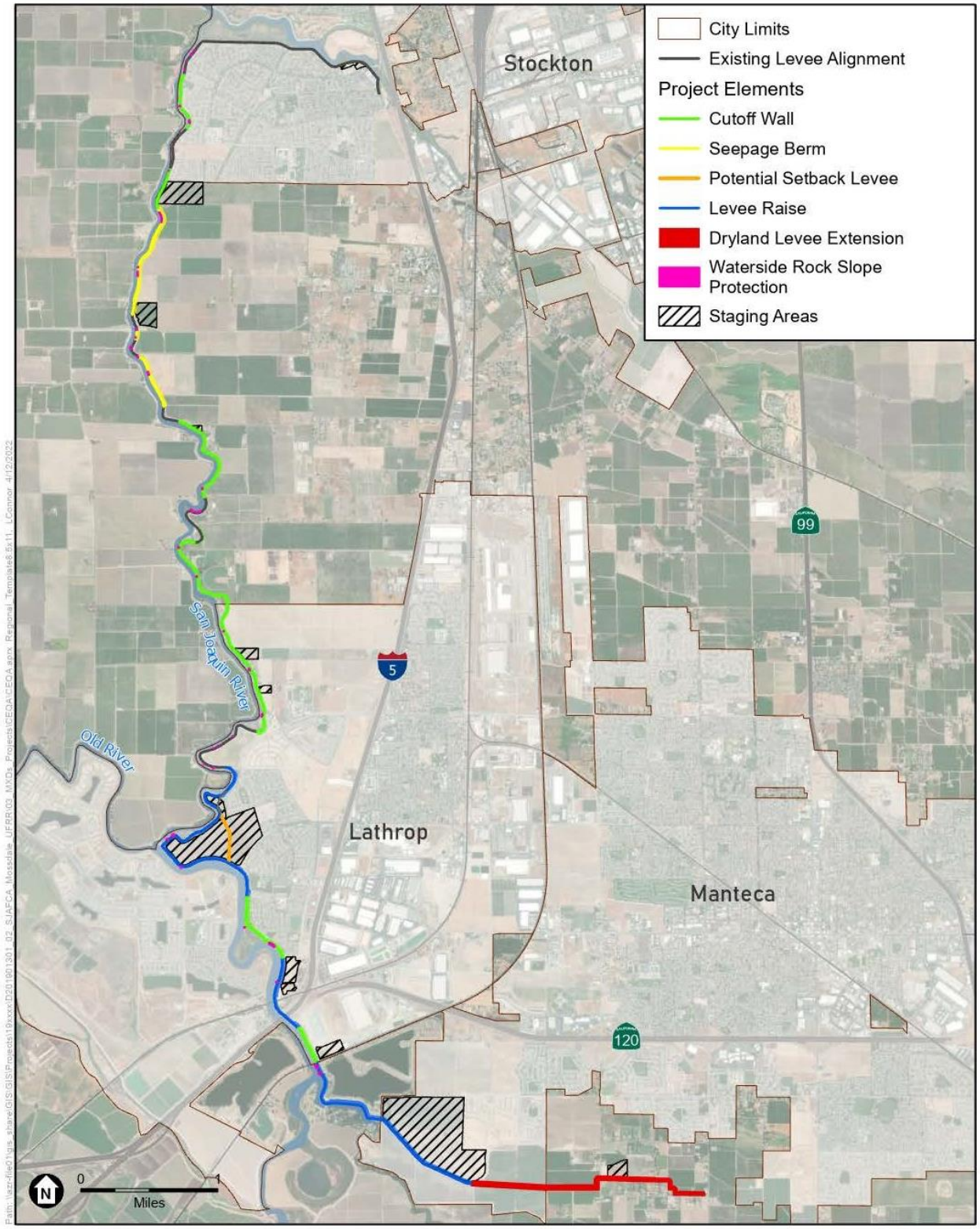
(2) Project ID 10 consists of a cutoff wall and is included as a component of Project ID 8.d.

(3) Project ID 13 consists of various erosion repair sites along the existing RD 17 levee. The individual erosion repair sites have been incorporated into the other adjacent projects.

(4) Project ID 14 consists of right-of-way acquisition for existing RD 17 facilities in order to comply with ULDC requirements. It does **not** include a construction component.

Source : Environnemental Science Associates (ESA) 2022

FIGURE 2 — PROJECT LEVEES



SOURCE: MAXAR, 2021; KSN, 2022; PBI, 2022; ESA, 2022

Mossdale Tract Area Urban Flood Risk Reduction Project

Fix in Place and Potential Setback Levee Improvements

The fix in place levee improvements that would be constructed, operated, and maintained within the levee rights-of-way and easements under the proposed Project currently include:

- Reconstruction (raising and widening) or replacement of the existing dryland levee, including the construction of seepage control measures such as a drained seepage berm or cutoff wall, and reconstruction of pipe penetrations that cross the levee.
- Installation of a traditional soil-bentonite slurry cutoff wall of varying depth along portions of the existing levee alignment.
- Installation of a drained seepage berm of varying width along portions of the existing levee alignment.
- Placement of riprap rock slope protection on the waterside of the levee along portions of the existing levee alignment.
- Removal of high hazard encroachments.
- Reconstruction of pipe penetrations that cross the levee.
- Raising the height of levee along portions of the existing levee alignment and extension of the landside toe to meet levee slope design standards.
- Construction of a dryland levee extension, including the construction of seepage control measures such as a drained seepage berm or cutoff wall.
- Construction of a potential setback levee to meet ULOP standards at a designated sharp bend in the San Joaquin River and connecting to existing levee segments.

Part II — Estimate of Costs

In January 2018, after the SJAFCA Joint Exercise of Powers Agreement was amended to include the Cities of Lathrop and Manteca, SJAFCA took over the role of the Local Flood Management Agency (LFMA) for the Mossdale Tract Area and the associated responsibility for annually reporting on the status of Adequate Progress toward ULOP for the Area to the CVFPB. Government Code §65007 (a) et. seq. defines Adequate Progress and sets forth the requirement of the LFMA to annually report to the CVFPB. The definition of Adequate Progress includes the requirement that revenues (i.e., sources of funding) have been identified to support implementation of the flood protection facilities. SJAFCA has interpreted this requirement to mean that its Annual Reports must present a financing plan that lays out and demonstrates that the identified revenues are sufficient to cover the costs of implementing the Project that has been developed to meet appropriate standard of protection within the identified schedule.

SJAFCA's most recent "Mossdale Tract Program: 2023 Annual Adequate Progress Report Update for Urban Level of Protection" ("Annual APR") being prepared will identify the costs and sources of revenues for the overall program being advanced by SJAFCA. The costs of the program, which make up the Project, sources of revenues, as well as the financing plan presented in Annual APR are hereby incorporated into this Engineer's Report by reference. The Project costs presented in the Annual APR are summarized below.

Proposed Project Budget

The following table (**Table 2**) summarizes the Mossdale Tract Program Costs identified activities and improvements included within the Project Services.

TABLE 2: MOSSDALE TRACT PROGRAM COSTS

Project Budget Costs	
ULOP Program Planning & Implementation	
Pre-Project Expenses (Actuals)	$ 3,200,000
SJAFCA Program Management	$ 3,600,000
Funding Implementation	$ 1,500,000
Feasibility Study & Planning	$ 3,200,000
Subtotal: ULOP Program Planning & Implementation	**$ 11,500,000**
SJAFCA ULOP Project Costs	
Soft Costs including Administration	$ 90,610,000
Construction Costs	$ 183,500,000
Right-of-Way	$ 94,900,000
Contingency	$ 59,690,000
Multi-Benefit Improvements	$ 44,170,000
Subtotal: SJAFCA ULOP Project Costs	**$ 472,870,000**
Total: ULOP Program Planning & Project Costs	**$ 484,370,000**
(less) USACE Implemented Improvements	**$ (248,800,000)**
Net SJAFCA ULOP Project Costs	**$ 235,570,000**

Proposed Project Funding

The following table (**Table 3**) summarizes the Project Funding Sources identified within the Annual APR to pay the Project Costs and provide Project Services. The Project Funding Sources include the assessment revenues to be generated by the District as well as the proceeds of debt planned to be incurred by SJAFCA (assumed to be Assessment Revenue Bonds) net of the associated principal and interest costs (i.e., debt service carry).

TABLE 3: PROJECT FUNDING SOURCES

Project Funding Sources	
Non-Local / State Funding	
State UFRR Funding (PED Only)	$ 3,800,000
State Funding (BCP - 0000743)	$ 75,000,000
State Funding (Future Share of NFS -LPPA)	$ 35,000,000
Subtotal: Non-Local / State Funding	**$ 113,800,000**
SJAFCA Project Funding	
Developer Advances / City Funding	$ 3,560,000
Development Fee Program	$ 67,350,000
SJAFCA Overlay Assessment District	$ 33,370,000
Net EIFD Revenues	$ 21,640,000
Future Assessment Overlay Financing (Bond Proceeds)	$ 31,890,000
Assessment Overlay Financing (Debt Service Carry)	$ (25,320,000)
Subtotal: SJAFCA Project Funding	**$ 132,490,000**
Total: Project Funding Sources	**$ 246,290,000**
Net SJAFCA ULOP Project Costs	$ (235,570,000)
Total Project Sources less Uses	**$ 10,720,000**

Financing Plan / Assessment Budget

The Annual APR presents a plan prepared for the implementation of the Program. The Annual APR identified the following underlying financing plan assumptions.

- SJAFCA has established the following funding mechanisms:
  - ✓ A Regional DIF program collecting revenues in 2018 and updated in 2022.
  - ✓ A new EIFD covering the properties directly benefiting from the project. The EIFD has a base year of fiscal year 2021/2022 and started receiving revenues in fiscal year 2022/2023.

- The District would be in place to commence collecting revenues in fiscal year 2024/2025.

The above revenues would be utilized, on a pay-as-you-go basis, to fund the design, federal feasibility study cost share, work in kind, right of way acquisition, and advance improvements. State Grant Funding would be available from the Department of Water Resource to cost share match the above soft costs and implementation action ahead of Federal authorization and USACE construction of improvements.

SJAFCA would approve the issuance of bonds leveraging District revenues in fiscal year 2025/26. The proceeds from the bond would be used to fund land acquisition and construction costs of Dryland Levee and advance improvements in partnership with State Grant funding.

Based on the Cash Flow Analysis included within the Annual APR, which is based on a schedule of expenses and available revenues, given the best available information at the time of formation of the District, the resulting budget needed to come from the District in fiscal year 2024/25 is $2,265,000. This amount of revenue would provide the needed revenues on an annual basis going forward, to ensure that the Project's projected expenditures needs can be met to provide Project Services.

Authorized Term / Use of Revenues

Because the financing plan assumption contemplates the use of debt financing, the District revenues secured to meet cash flow and debt service needs must be authorized through the final year of the term of the financing. Because a Bond issuance is expected to take place in fiscal year 2025/26, the assessments will be levied through fiscal year 2055/56. The assessments would cease to be levied after July 1, 2056.

Assessment revenues, after the completion of the Project, would be utilized to fund both debt service (principal and interest) as well as the annual costs of administration of the District and ongoing operations and maintenance of the Project improvements.

Part III — Method of Apportionment

Benefit Analysis

The nearly twelve and a half miles (12.39 miles) of proposed fix in place and potential setback levee improvements (cutoff walls, seepage berms, and raised levees along the San Joaquin River; and the two miles (2.31 miles) dryland levee extension levees to the south are the first line of defense against riverine flooding from the San Joaquin River for the Mossdale Tract Area . The proposed project levee improvements and services are intended to provide a level of flood protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the California Department of Water Resources and which will ultimately reduce potential flooding and damage to properties within the District boundaries.

The analysis and findings outlined in this Report and the resulting method of apportionment and assessment rate structure is focused on establishing a reasonable and appropriate benefit nexus (both general and special benefits) consistent with the provisions of the 1982 Act, Proposition 218 (Article XIII D of the California Constitution), and case law regarding assessments. The method of apportionment and resulting proportional special benefit assessments for this District are based on the premise that the proposed Project Services are necessary and essential to minimize potential flood risks and associated flood damages to the land, structure, and contents of parcels within the Mossdale Tract Area . Therefore, the formulas used for calculating assessments as described herein reflect both the composition and characteristics of each parcel within the District, the reduced flood level and the resulting calculated flood damage reduction benefits to those parcels that directly result from the Project Services to be funded in part by the special benefit assessments.

To levy an assessment for these property-related flood control services, the California Constitution requires the local agency imposing the assessment (SJAFCA) to comply with the following:

- Identify and include in the District all parcels that will have special benefits conferred on them by the improvements, facilities and/or services.
- Only special benefits are assessable, and the agency shall separate the general benefits from the special benefits conferred on a parcel.
- Calculate the proportional special benefit for each parcel in relationship to the entirety of the capital cost, the maintenance, and operation expenses of a public improvement, and/or the cost of the property related service being funded.
- No assessment shall be imposed on any parcel which exceeds the reasonable cost of the proportional special benefit conferred on that parcel.

Special Benefit

Essentially, the primary function of SJAFCA and the Mossdale Tract Overlay Assessment District is to provide a collective and coordinated benefit funding source to support a portion of the cost to construct and enhance the levee improvements, necessary to ensure reduced potential flood damages to structures, the contents of those structures, and the land associated with the parcels within the Mossdale Tract Area that receive a particular and distinct benefit from the Project Services. As previously noted, the District boundary has been narrowly defined based on

floodplain mapping data to include each identified parcel that will receive a reduced risk of flood damages as a result of the Project implementation. The proposed Project Services are intended to provide 200-year protection to parcels within the District due to flood flows from the San Joaquin River or its tributaries based on the ULDC Design floodplain which includes an additional factor of safety to account for future climate uncertainty. The Project Services also incorporate necessary geotechnical improvements and expansion of the easements and/or rights-of-way along the levees that incorporate added project resiliency beyond the ULDC Design floodplain event, as prescribed in SJAFCA's Climate Adaptation policy.

The special benefits to parcels (avoided flood risk) within the District associated the Project Services that complies with strict State and Federal standards and regulations include but are not limited to:

- Continued level of flood protection for the areas protected by the Project Services.
- Continued assurance of reduced potential flood damages to structures, content of those structures, and land.
- Continued avoidance of costs associated with failure to meet regulatory requirements, such as mandated flood insurance for any property with a federally backed mortgage and/or building restrictions.
- Allowance for best and full use of properties within the District by permitting local governments to implement general plans for urban and urbanizing areas with appropriate levels of flood protection.
- Protection of the local economy by creating construction jobs and related spending, sustaining property values, and allowing for responsible residential, commercial, and industrial development.
- Retention of Federal assistance during or following a flood emergency or repair of levee break.

Ultimately, both public and privately owned parcels within this narrowly defined District boundary will receive a particular and distinct benefit over and above any general benefits the Project Services provide to the general public or properties in general. It is clear the assessed parcels directly benefit from the proposed Project Services and while the majority of the funding is coming from other sources, without the proposed special benefit assessment revenue, the Project Services will lack the funding required to construct the improvements and the parcels within the District could be negatively impacted by the following:

- Greater flood risk resulting in increased risk of property damage and loss of life due to flooding.
- Loss of FEMA low-to-moderate risk flood zone designation would result in higher FEMA National Flood Insurance Program (NFIP) premiums, mandatory flood insurance, and building restrictions.
- Loss of federal assistance during or following a flood emergency, such as repair of a levee break.
- The inability to comply with Senate Bill 5 and Urban Level of Flood protection requirements resulting in development restrictions.

While properties within the District will derive substantially similar special benefits from the Project Services (improvements, services and activities necessary to ensure reduced flood damages to structures, the contents of structures, and land), the special benefit (particular and distinct benefit)

for each parcel is proportional to the potential flood damages specifically and directly related to each parcel's potential flood depth and development characteristics (i.e. land use, structure size, and land size).

General Benefit

Based on the proposed Project Services and activities to be funded by District assessments and relationship to properties to be assessed, it is evident that the improvements are necessary and directly impact developed properties, agricultural properties, as well as the potential development of properties. Furthermore, because the flood control improvements protect identifiable parcels from damage due to inundation or force by arising floodwaters, the benefits are direct and particular to those parcels (special benefit), and to none other. In addition, because the flood control improvements to be funded by the District assessments protect specific parcels (narrowly defined boundaries) from potential flood damage and the fact that the flood damage benefit for each parcel is measurable, the benefits to these assessed parcels are clearly direct and display particular benefit (proportional special benefits). However, it is also recognized that flood mitigation services and activities also directly or indirectly provide some measure of benefit to properties in general and to the public at large (general benefit) in the form of continued safe access and travel through the District area.

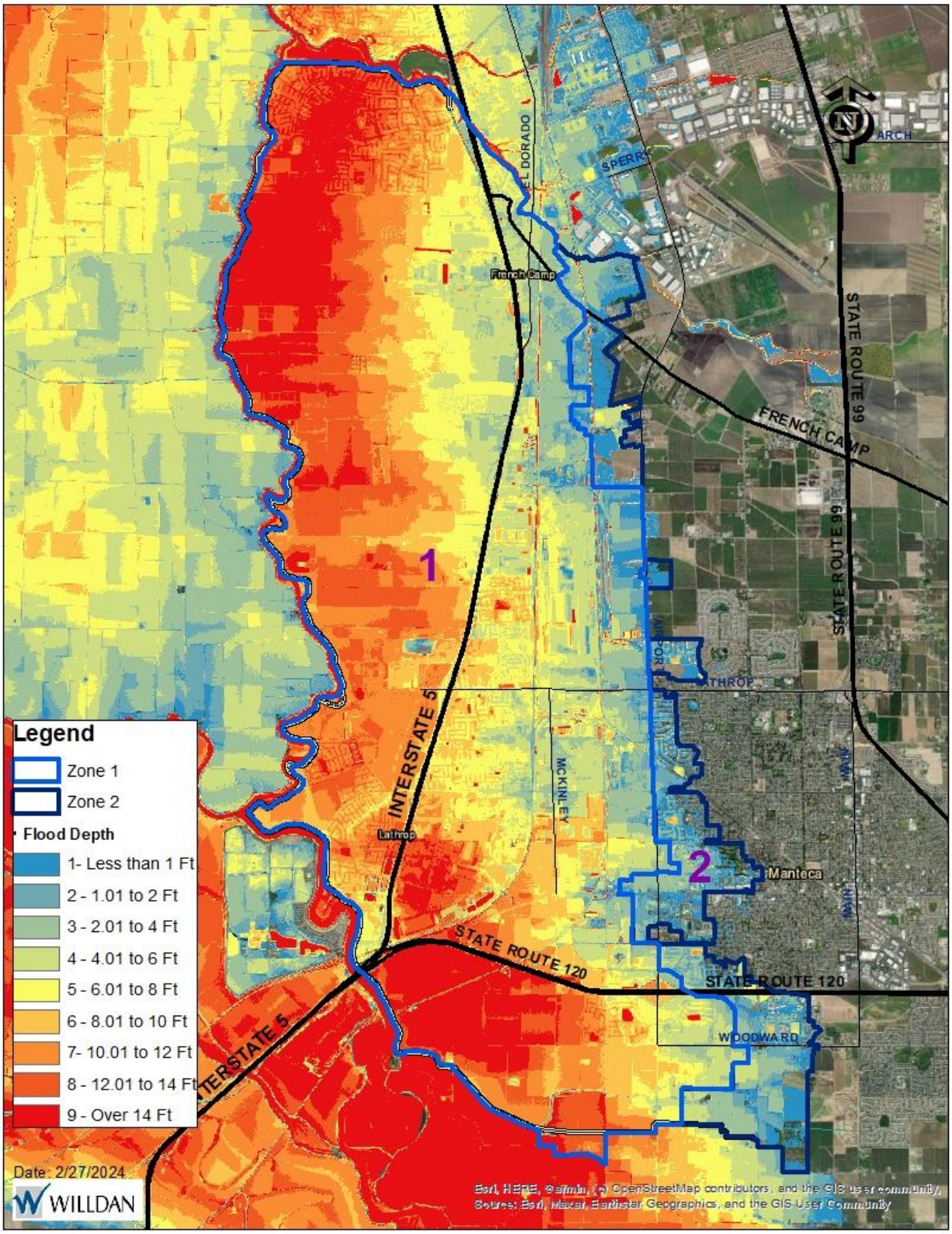
The Project Services will provide a general benefit to real property, residents, and the public generally in the form of continued safe access and travel through the District area. Prevention of flooding of public infrastructure within the District, such as roads, easements, and various rights-of-way, benefit the assessed parcels generally with respect to access and travel, and also facilitates general public services such as police and fire protection access. Protection of such infrastructure through Project Services therefore provides a general benefit both to people and properties within and outside of the District. Property associated with such public infrastructure improvements and facilities are typically not assigned Assessor's Parcel Numbers. The acreage associated with most of these public infrastructures, compared to the acreage of Assessor assigned parcels within the District, provides a reasonable and quantifiable measure of the proportional general benefit and general benefit costs associated with the Project Services.

The total net benefit parcel acreage within the District boundaries is approximately 14,317 acres of which approximately 12,820 acres are assessed County Assessor designated parcels (APNs) with the remaining 1,497 acres being comprised of common area properties (shared interest by other assessed properties), public infrastructure improvements and facilities that may include, but is not limited to: public streets, easements, rights-of-way, and other public-lands including wetlands, canals, channel ways, open spaces, preserves, and other similar restricted-use public areas or properties that are subject to the State Board of Equalization restrictions. Such properties are considered to receive no direct or quantifiable flood risk reduction from the Project Services and these 1,497 acres or approximately 10.46% of the total 14,317 acres, reflects a reasonable and quantifiable measure of the proportional general benefit both to people and properties within the District and the proportional general benefit costs associated with the Project Services. These general benefit costs shall be excluded from the special benefit assessment funding and not assessed to the parcels within the District.

Assessment Methodology (Special Benefit Calculations)

To assess benefits equitably it is necessary to calculate each property's relative share of the special benefits conferred by the funded improvements and service. The proposed flood control improvements to be constructed as part of Project Services to be funded in part by the assessments are intended to provide long-term avoidance of damage to structures, content within the structures, and land for all parcel potentially flooded based on the ULDC Design floodplain hydrology (Zone 1 parcels). However, based on SJAFCA's adopted Climate Adaptation policy and the associated resulting floodplain hydrology, additional parcels (Zone 2 parcels) could also be impacted if flood levels exceed the ULDC Design event. Consistent with the Climate Adaptation Policy, geotechnical and right of way design criteria are based on a more conservative Climate Adaptation floodplain hydrology thereby allowing for the height of the levees to be increased more readily in the future as needed based on evolving climate science and future flood flow projections. The assessment engineer has determined that the relative share of the Damages Avoided (special benefits) conferred to these Zone 2 parcels by the funded improvements and services is best reflected by the land damage associated with those parcels only. Based on combined ULDC Design floodplain and Climate Adaptation floodplain, the overall uncontrolled riverine flooding for the Mossdale Tract Area without the Project Services is illustrated in **Figure 3**, on page 22 that follows. This figure also illustrates the boundaries of Zone 1 (parcels incorporated in the District based on ULDC Design floodplain hydrology) and the boundaries of Zone 2 (parcels incorporated in the District based on Climate Adaptation floodplain hydrology).

Figure 3: Without Project Flood Depth Ranges



The Damages Avoided method of assessment apportionment is utilized in this District and establishes a Total Damages Avoided for each parcel based on the combined Structure Damage, Content Damage, and Land Damage reduction benefit calculated for each parcel In Zone 1 and Total Damages Avoided for each parcel in Zone 2 based on the Land Damage reduction benefit calculated for those parcels. The proportional special benefit calculation for each parcel considers these three factors independently. The benefit calculation can be summarized as follows:

Special Benefits = Damages Avoided

(Zone 1 Parcels)

Damages Avoided = Structure Damage + Content Damage + Land Damage

(Zone 2 Parcels)

Damages Avoided = Land Damage

Structure and Content Damage

The damage avoided to structures and the content of those structures is derived by determining the amount of flood depth reduction experienced by each particular parcel and the protection provided as a result of the Project Services.

Determining the avoided damages to structures and contents requires considering the following factors:

- Relative Structure and Content Value
- Flood Depth Reduction
- Percentage of Flood Damage Reduction
- Structure Size

Relative Structure and Content Value

The United States Army Corps of Engineers (USACE) has identified the potential flood damages to structures by the following general land use categories:

- Residential — Physical damages to dwelling units (single-family, multifamily, and mobile homes) and to residential contents, including household items and personal property.
- Commercial — Structure value and content value damages (to commercial and public buildings), including equipment and furniture, supplies, merchandise, and other items used in the conduct of business.
- Industrial — Losses from inundation of industrial properties, including warehouses, consisting of fixtures and equipment, inventory, and structure.
- Agricultural — Non-residential structures on agricultural properties would experience damage to equipment, tools, supplies, livestock, feed, seed, chemicals, and other items used for agricultural purposes and business.

To reflect differences related to flood damages to structures and their content, Relative Structure and Content Values for residential, commercial, industrial, and agricultural structures shown in the following table (**Table 4**) are utilized. The residential, commercial, and industrial structure and content values were originally determined using USACE data developed in connection with an

American River Watershed Investigation [1] and the content values for agricultural structures were derived from a related technical report [2]. The Relative Structure Values shown in **Table 4** are used in the assessment methodology to reflect the relative structure and content value relationships between land use categories (proportional benefit). These values represent gross averages for the different land uses and do not represent assessed values or current market values for an individual structure.

TABLE 4: RELATIVE STRUCTURE AND CONTENT VALUE

Land Use	Relative Structure Value ($/Sqft)	Relative Content Value ($/Sqft)
Residential	60	30
Residential - Mobile Home	30	15
Commercial (Public & Private)	70	75
Industrial (Public & Private)	50	58
Agricultural	50	30

[1] US Army Corps of Engineers (USACE), American River Watershed Investigation, California Feasibility Report, Sacramento District, December 1991.

[2] US Army Corps of Engineers (USACE), Draft Economic Re-evaluation Report, American River Watershed Project, Appendix D, Attachment II, Technical Report, May 2007.

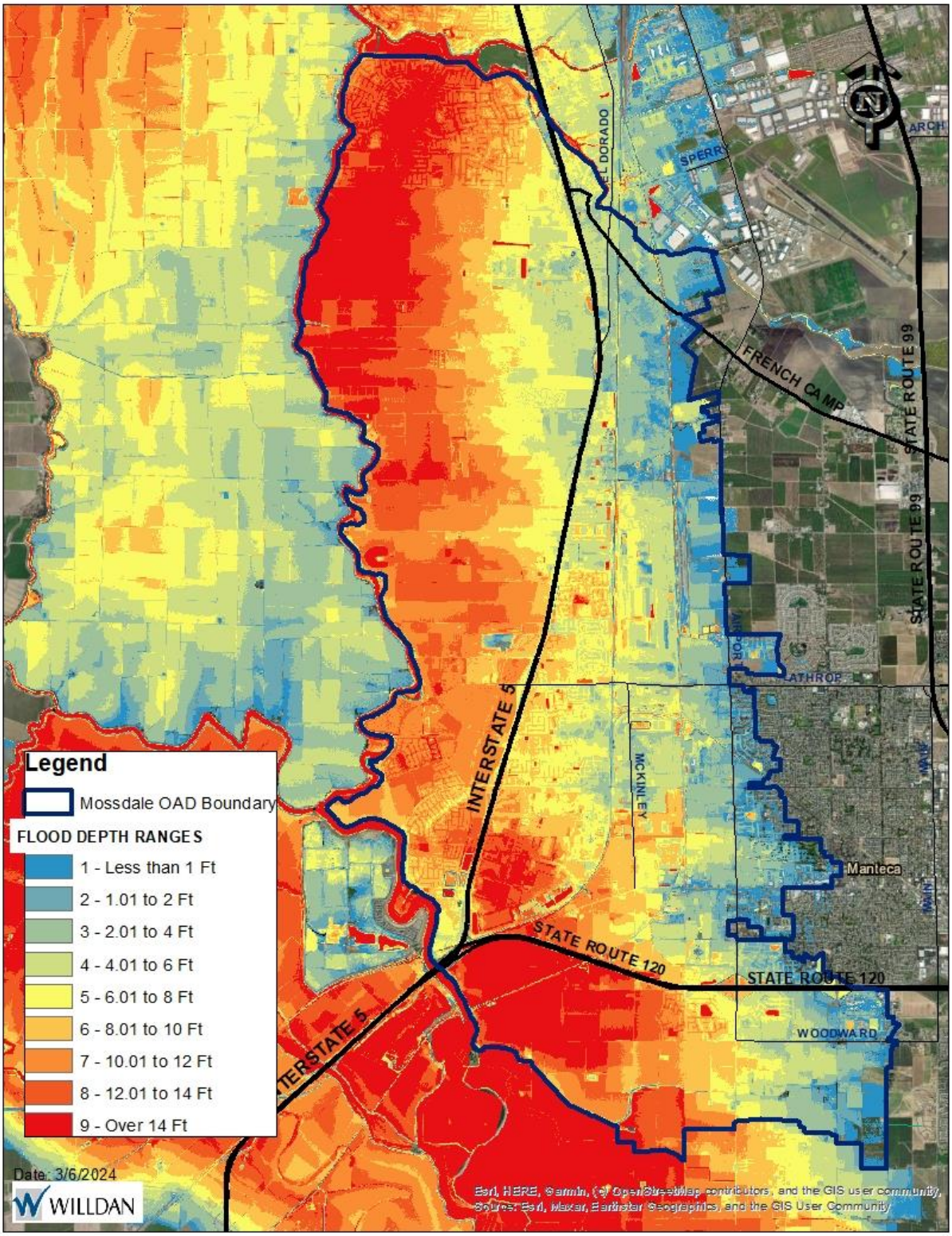
Flood Depth Reduction

The proposed Project Services for the Mossdale Tract Area will be designed to provide 200-year protection with additional project resiliency to account for future climate uncertainties. Accordingly, both the boundaries of the proposed District and the flood depth reductions attributed to the benefiting parcels within those boundaries have been determined using hydraulic models to estimate the floodplains associated with the ULDC Design event and Climate Adaptation event. The floodplain estimates were prepared by R&F Engineering, Inc., a consulting engineering firm retained by SJAFCA to complete hydraulic modeling for the Mossdale Tract Area .

The relative flood depths of each parcel in the ULDC Design Floodplain event were determined and categorized by establishing 2-foot flood depth ranges for the Zone 1 boundary. Using the GIS information to determine parcel elevations, parcels were able to be slotted into 2-foot flood depth ranges. The overall boundaries of the District and the flood depth ranges shown in **Figure 4**, on page 25 that follows, were derived from parcel elevation data, flood elevation data, and flood depths developed by hydraulic modeling of possible levee failures along the proposed levee system. Based on this mapping and the underlying data, relative flood depths were established by grouping every parcel into one of nine flood depth ranges (flood depth ranges 1-9) based on the flood depth map.

The nine flood depth ranges include depths two feet or less (0.00 to 2.00 feet); greater than two feet and up to four feet (2.01 to 4.00 feet); greater than four feet and up to six feet (4.01 to 6.00 feet); greater than six feet and up to eight feet (6.01 to 8.00 feet); greater than eight feet and up to ten feet (8.01 to 10.00 feet); greater than ten feet and up to twelve feet (10.01 to 12.00 feet); greater than twelve feet and up to fourteen feet (12.01 to 14.00 feet); and greater than fourteen feet (14.01 feet or greater).

Figure 4: Flood Depth Ranges



Percentage of Flood Damage Reduction

The relationship between depth of flooding and damages to structure and contents is calculated for each land use category with structures (residential, commercial, industrial, and agricultural) and flood depth ranges within the District were compiled by Willdan based on Peterson Brustad Inc (PBI)'s analysis in their Mossdale Tract Area Urban Flood Risk Reduction Economic and Life Loss Evaluation, November 7, 2019. The estimated depth of flooding (Flood Depth Range) for the District parcels were determined using average elevations of the parcels and water surface elevations in the event of flooding with no improvements implemented. Structure and Content Damage Percentages for each land use category were taken directly from the 2012 Central Valley Flood Protection Plan, which originally were developed by the US Army Corps of Engineers (USACE, 2008). The relation between depth of flooding and damage to structures is illustrated in **Table 5** below and in **Table 6** on the next page for damage to contents within those structures.

TABLE 5: PERCENT DAMAGE TO STRUCTURE

	Flood Depth Ranges								
Land Use	1 Less than or equal to 1	2 1.01 to 2	3 2.01 to 4	4 4.01 to 6	5 6.01 to 8	6 8.01 to 10	7 10.01 to 12	8 12.01 to 14	9 Over 14.01
Single Family 1 Story	10.58%	27.70%	43.60%	55.90%	65.20%	71.85%	76.30%	79.00%	80.20%
Single Family 2 Story or more	7.70%	18.06%	28.85%	38.45%	46.85%	54.05%	60.05%	64.85%	67.70%
Multifamily 1 Story	10.58%	27.70%	43.60%	55.90%	65.20%	71.85%	76.30%	79.00%	80.20%
Multifamily 2 Story or more	7.70%	18.06%	28.85%	38.45%	46.85%	54.05%	60.05%	64.85%	67.70%
Mobile Home	8.00%	57.75%	96.00%	96.00%	96.00%	96.00%	96.00%	96.00%	96.00%
Commercial - Auto	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Grocery Store	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Hospital	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Hotel	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Medical	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Office 1 Story	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Office 2 Story	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Restaurants	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Fast Food	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Retail	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Service Auto	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Shopping Center	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Day Care	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - Elder Care	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Commercial - MISC	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Industrial - Heavy Manufacturing	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Industrial - Light Manufacturing	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Industrial - Warehouse	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Public - Fire Station	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Public - Misc.	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Public -GOV	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Public - Recreation	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
SCHOOL	7.00%	24.25%	31.25%	34.20%	43.00%	51.80%	63.60%	76.40%	86.00%
Agriculture	9.33%	20.51%	28.68%	35.34%	43.04%	45.29%	47.15%	48.48%	49.92%

Source: PBI Technical Memorandum, Appendix B "Mossdale Tract Area Urban Flood Risk Reduction Economic and Life Loss Evaluation," November 7, 2019, as compiled by Willdan Financial Services. Depth Damage percent were grouped into 2-feet flood depth ranges.

TABLE 6: PERCENT DAMAGE TO CONTENTS

Land Use	Flood Depth Ranges								
	1 Less than or equal to 1	2 1.01 to 2	3 2.01 to 4	4 4.01 to 6	5 6.01 to 8	6 8.01 to 10	7 10.01 to 12	8 12.01 to 14	9 Over 14.01
Single Family 1 Story	2.80%	7.90%	13.10%	18.30%	20.65%	22.50%	22.50%	22.50%	23.40%
Single Family 2 Story or more	1.50%	5.30%	9.35%	13.70%	16.50%	18.40%	19.50%	20.50%	21.60%
Multifamily 1 Story	2.80%	7.90%	13.10%	18.30%	20.65%	22.50%	22.50%	22.50%	23.40%
Multifamily 2 Story or more	1.50%	5.30%	9.35%	13.70%	16.50%	18.40%	19.50%	20.50%	21.60%
Mobile Home	42.50%	88.50%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%	99.00%
Commercial - Auto	17.50%	85.48%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Grocery Store	61.04%	90.86%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Hospital	50.00%	87.75%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Hotel	47.36%	95.67%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Medical	50.00%	57.75%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Office 1 Story	48.39%	98.39%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Office 2 Story	42.89%	49.38%	55.97%	55.97%	55.97%	66.87%	68.08%	98.16%	100.00%
Commercial - Restaurants	47.36%	95.67%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Fast Food	45.10%	93.90%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Retail	42.71%	87.31%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Service Auto	17.15%	85.48%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Shopping Center	86.18%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Day Care	76.45%	97.76%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Elder Care	76.45%	97.96%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Commercial - Misc.	86.18%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Industrial - Heavy Manufacturing	22.44%	61.88%	88.74%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Industrial - Light Manufacturing	66.50%	94.59%	99.49%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Industrial - Warehouse	62.76%	97.21%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Public - Fire Station	68.89%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Public - Misc.	68.89%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Public -GOV	72.58%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Public - Recreation	73.97%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
SCHOOL	68.89%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Agricultural	12.89%	42.96%	87.36%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%

Source: PBI Technical Memorandum, Appendix B "Mossdale Tract Area Urban Flood Risk Reduction Economic and Life Loss Evaluation," November 7, 2019, as compiled by Willdan Financial Services. Depth Damage percent were grouped into 2-feet flood depth ranges.

The above functional relationships between flood depth and structure and content damages provides a reasonable and proportional measurement for the flood-damage reduction benefit received by developed properties as a result of the Project Services.

For example, in the case of a single story single-family residential home on a parcel that experiences a flood-depth reduction of 5 feet, the damage reduction can be determined by looking at the depth-damage percentage for a single story single-family residential structure in the range that includes 5 feet. The damage percentage at 4.01 to 6-foot range is 55.90 percent for the structure and 18.30 percent for contents.

Structure Size

Flood damages to structures and their contents are calculated for each benefiting parcel in the District using the actual structural square footage, up to one hundred thousand square feet (100,000 sf), for the first and second stories of residential structures, the first story of commercial, industrial, and agricultural structures, and appropriate structure value and depth-percent damage relationships for the particular land use. For Planned Residential, Planned Commercial, and Planned Industrial properties (collectively "Planned Development" properties) the assigned structure square footages were initially based on Development Absorption Projections (DAP) referenced in the Mossdale Tract Area Regional Urban Level of Flood Protection Levee Impact Fee Final Nexus Study, dated November 8, 2018. The assigned square footages were further updated based on the Draft Technical Memorandum for the SJAFCA Mossdale Tract Area Financing Plan Implementation, Updated Development Absorption Projections dated May 29, 2020 and further reviewed based on input by SJAFCA member land use agency community development department staff.

Upon review of the overall benefiting parcels within the District, it has been determined that less than five-tenths of a percent (0.47%) of the parcels have structures that exceed 100,000 sf and the potential flood level reduction for these parcels can vary significantly. Therefore, the Assessment Engineer has determined that the overall potential damages to structure and contents for square footages in excess of 100,000 sf becomes less a function of the building square footage and more a function of flood depth reduction and it is reasonable and appropriate to limit the square footage used to calculate proportional special benefit for structure and content damages to one hundred thousand square feet.

Structure size was determined for each benefiting parcel within the boundaries of the District based on data obtained from the County Assessor's parcel data either directly or through third party sources. For the Planned Development properties, the assigned structure square footage is based upon the Development Absorption Projections previously referenced. For those properties identified with a structure or structures, based on either aerial imagery, or assessed improvement values being assigned by the County Assessor, for which no specific structure detail information was available, the footprint of the structure or structures were measured by Willdan using GIS and available aerial imagery.

Application of Structure and Content Damage Calculation

As stated above, both the relative structure and content damage are calculated for each individual parcel in the proposed District based on the specific attributes for the parcel, i.e., land use type, structure size, and flood-depth reduction.

Structure and Content Damage Avoided = Structure Damage + Content Damage

Structure Damage = Building SF x Relative Structure Value x Depth %

Content Damage = Building SF x Relative Content Value x Depth %

For example, the relative structure and contents damages of a single story single-family residential structure with a square footage of 2,000 square feet (sf) located in flood depth range 4.01 to 6 foot would be calculated as follows:

Structure Damage = 2,000 sf x $60/sf x 55.90% = $67,080

+

Content Damage = 2,000 sf x $30/sf x 18.30% = $10,980

Structure and Content Damage Avoided = $67,080 + $10,980 = $78,060

$78,060 would represent the relative structure and content damage benefit experienced by the example parcel presented. This benefit plus the relative land damage benefit is used to determine the total relative benefit of the parcel proportional to other parcels in the benefit area (the District).

Land Damage

There are several factors that may contribute to the flood damage reduction benefit to land, both vacant and improved. These include, but are not limited to, avoidance of physical damage to the land during a flood, the ability to secure financing for development projects, reduced cost of flood insurance, changes to the full and best land use of the property, preservation of land values, avoidance of damage to crops or other related impacts to agricultural operations, reduced cost of improvements, and the ability to access the property. The factors that impact the land damage calculation include:

- Relative Land Damage Factor
- Parcel Size

Relative Land Damage Factor

The benefit to land in the District is proportional to the relative land value. To account for the benefit received by the land and to weight this benefit appropriately with respect to the relative structure and content damage benefit, each benefiting property in the District is assigned a relative land damage per acre or a Land Damage Factor. This Land Damage Factor is based on the average land value within a given land use classification multiplied by a land value percentage, which is a weighted ratio of the average land value within that land use classification to the total property value of those same types of properties. Benefiting parcels in the District can be categorized into five of the six broader land use classifications which have been identified for structural and content damages including residential, commercial, industrial, agricultural, and public properties. (For purposes of calculating land damages, each vacant parcel is assigned to an appropriate land use classification based on county use code designation assigned by the County Assessor's Office or other available sources and all residential properties including residential mobile homes are grouped together as residential).

Relative Land Damage per Acre = Land Damage Factor

Land Value Percentage = Total Land Value / Total land and Improvement Value
(for all parcels in each land use classification)

Average Land Value = Total Land Value / Total Acreage
(for all parcels in each land use classification)

Land Damage Factor = Average Land Value x Land Value Percentage

Table 7 below displays the results of the above Relative Land Damage Factor per Acre or Land Damage Factor calculation for each land use calculation:

TABLE 7: RELATIVE LAND DAMAGE PER ACRE

Land Use	Relative Land Damage/Acre ($)/acre
Residential	80,100
Commercial (Public & Private)	91,600
Industrial (Public & Private)	27,100
Argricultural	7,000
General Benefit	30,000

Source: San Joaquin County Secured Roll, July 2019 as compiled by Willdan Financial Services.

The applicable Relative Land Damage Factor per Acre above is multiplied by each parcel's acreage, up to twenty acres, to establish the parcel's land damage avoided value. These land damage factor value estimates considered land alone, exclusive of any building or structural improvements. The values derived are not actual assessed values or market values for any individual parcel of land; rather, they represent the relative value relationship between various land use classifications for the property in the benefit area (the District). Similar to the building square footage limit applied for structural and content damage reduction benefits above, based on a review of the overall benefiting parcels within the District, less than nine-tenths of a percent (0.82%) of the parcels within the District have acreage that exceed twenty acres (20.00 acres) and the potential flood level reduction for these parcels varies significantly. Therefore, the Assessment Engineer has determined that the proportional land damages for acreage in excess of 20.00 acres becomes less a function of the acreage and more a function of the parcel's flood depth reduction and the acreage used to calculate proportional special benefit has been limited to 20.00 acres.

Parcel Size

Flood damages to land are calculated for each benefiting parcel in the District using the acreage for the parcel in question and the associated land use code as identified by the respective County Assessor's records or other available sources including GIS measurements if the County Assessor's records provide no acreage information. To the extent that a parcel may only be partially within the benefit area, only the portion of the parcel's acreage in the area is included in the land damage calculation.

Application of Land Damage Calculation

As stated above, land damage is calculated for each individual parcel in the District based on the specific attributes for the parcel, i.e., land use type and parcel size/acreage.

Land Damage Avoided = Acreage x Relative Land Damage Factor

As an example:

The Land Damage Avoided for a residential single-family property on a 7,800 square foot lot (0.179 acres) would be calculated as follows:

Land Damage Avoided = 0.179 Acres x $80,100 / Acre = $14,338

$14,338 represents the relative Land Damage benefit experienced by the example parcel presented. This benefit plus the structure and content damage benefit are used to determine the total relative benefit of the parcel as compared to other parcels in the benefit area.

Total Proportional Flood Damage Reduction Benefit

The total relative flood damage reduction benefit for each parcel in the benefit area is the sum of the structure damage, content damage, and the land damage associated with that parcel. Given the single story single-family residential property examples used in the preceding discussions, the resulting total relative flood damage reduction benefit is calculated as follows:

Flood Damage Reduction Benefit = Structure Damage +Content Damage + Land Damage

Example:

Single Story Single-Family Residence
Parcel Acreage: 0.179 acres
Building Square Feet: 2,000
Flood Depth 5 Feet

Structure Damage = 2,000 sf x $60/sf x 55.90% = $67,080
+
Content Damage = 2,000 sf x $30/sf x 18.30% = $10,980
+
Land Damage = 0.179 Acres x $80,100 / Acre = $14,338

Flood Damage Reduction Benefit = $67,080 + $10,980 + $14,338 = $92,398

Specific to parcels identified as Planned Development (Commercial, Industrial and Residential), a fifty percent (50%) reduction has been applied to each of the calculated Flood Damage Reduction Benefits to reflect the proportional special benefit (avoided flood risk) these Planned Development parcels receive from the Project Services in light of Senate Bill 5 and Urban Level

of Flood Protection requirements. Specifically, each of these parcels receives a special benefit because OAD funding supports Adequate Progress toward an Urban Level of Flood Protection which will allow development of these parcels which will otherwise not be able to develop. The proportionate special benefit as between the parcels in this category is achieved by applying the standard calculated Flood Damage Reduction Benefits for the basin, and then applying a 50% reduction in light of the future construction. The following provides an example calculation for a Planned Residential Development parcel:

Example:

Planned Residential Development (Multifamily 1 Story)
Parcel Acreage: 1.470 acres
Building Square Feet: 5,750 (DAP)
Flood Depth: 11 Feet

Structure Damage = 5,750 sf x $60/sf x 76.30% x 50% = $131,617
+
Content Damage = 5,750 sf x $30/sf x 22.50% x 50% = $19,406
+
Land Damage = 1.470 Acres x $80,100/Acre x 50% = $ 58,874

Flood Damage Reduction Benefit = $131,616 + $19,406 + $58,874 = $209,897

The analysis described above was performed for every parcel in the benefit area that was determined to receive special benefit. The sum of total Flood Damage Reduction Benefit (FDRB) for all assessed parcels is calculated to be 3,083,642,343 FDRB at the time this Report was prepared.

Table 8 that follows, provides a summary breakdown of the FDRBs for both special and general benefits for fiscal year 2024/2025.

TABLE 8: FLOOD DAMAGE REDUCTION BENEFITS BY LAND USE [5]

Land Use	Structure Damage Reduction Benefit	Content Damage Reduction Benefit	Land Damage Reduction Benefit	Total Damage Reduction Benefit
Agriculture	53,329	8,729	13,239,437	13,301,495
Agriculture - Single Family	2,747,386	3,312,401	7,773,507	13,833,295
Sub-Total Agriculture	**2,800,715**	**3,321,131**	**21,012,944**	**27,134,789**
Commercial Developed	65,835,779	162,441,132	62,913,811	291,190,721
Commercial Vacant	-	-	41,238,320	41,238,320
Sub-Total Commercial	**65,835,779**	**162,441,132**	**104,152,131**	**332,429,041**
Industrial Developed	180,388,248	414,259,850	38,682,153	633,330,250
Industrial Vacant	102,741	-	10,029,222	10,131,963
Sub-Total Industrial	**180,490,989**	**414,259,850**	**48,711,375**	**643,462,214**
Public Developed	56,055,923	137,426,471	68,177,309	261,659,703
Public Vacant	-	-	15,536,111	15,536,111
Sub-Total Public	**56,055,923**	**137,426,471**	**83,713,421**	**277,195,815**
Residential - Mobile Home	1,130,116	601,856	5,841,132	7,573,104
Residential - Multi Family	6,382,350	1,009,567	7,927,830	15,319,748
Residential - Single Family	1,072,620,629	173,767,278	322,555,891	1,568,943,798
Residential - Vacant	797,492	124,868	98,113,302	99,035,662
Sub-Total Residential	**1,080,930,587**	**175,503,569**	**434,438,156**	**1,690,872,312**
Planned Commercial Development	13,820,687	36,453,741	6,764,752	57,039,179
Planned Industrial Development	3,545,109	6,696,882	5,184,799	15,426,790
Planned Residential Development	5,195,620	1,198,933	7,882,357	14,276,910
Sub-Total Planned Development	**22,561,416**	**44,349,555**	**19,831,908**	**86,742,879**
Total Special Benefit	**1,408,675,408**	**937,301,708**	**711,859,934**	**3,057,837,050**
General Benefit	**-**	**-**	**25,805,293**	**25,805,293**
Grand Total	**1,408,675,408**	**937,301,708**	**737,665,228**	**3,083,642,343**

The Flood Damage Reduction Benefit data in the Table above is based on parcel information and characteristics at the time this Report was prepared and applicable to fiscal year 2024/2025.

Assessment Rate and Revenue

Proposition 218 requires assessments levied to be proportional to the benefits conferred by the improvements, facilities, and/or services provided. To ensure that the spread of assessments is proportional based upon the benefits calculated above, the annual special benefit costs of the improvements, facilities, and/or services are divided by the total benefits calculated for all benefiting parcels. The estimated Project Service revenue required annually is estimated to be $2,265,000 (in fiscal year 2024/2025 dollars), of which approximately $18,957 is calculated to be General Benefit costs with approximately $2,246,430 being identified as special benefit costs. The proportional assessment rate to generate the estimated $2,265,000 in Total Benefit Expenses (Special and General Benefits) is approximately **$0.00073472** per Flood Damage Reduction Benefit ($2,265,000 / 3,083,642,343 FDRB = $0.00073472 per FDRB).

Annual Inflationary Adjustment (Assessment Range Formula)

As part of the District formation and establishment of annual assessments to fund the Project Services, the proposed assessments described in this Report and to be submitted to the property owners of record in the Ballot Proceeding shall include an annual inflationary adjustment referred to as an Assessment Range Formula. To ensure that SJAFCA can provide the needed Project Services over time, it is important to allow for an increase of the assessment over time to address the rising costs of labor, supplies, and materials that are inevitably associated with providing such improvements and activities, thereby reducing the need for additional noticing and balloting procedures simply because of inflationary factors. The Assessment Range Formula for this District is defined by the following:

Commencing in the second fiscal year (Fiscal Year 2025/2026) and each fiscal year thereafter through the 30-year term of the assessments (Fiscal Year 2054/2055), pursuant to Government Code §53739(b), the initial authorized Maximum Assessment Rate per FDRB presented in this Report for Fiscal Year 2025/2026 and establishing the ballot assessments for the District, shall be adjusted annually based on the annual change in the Consumer Price Index February to February CPI-W for San Francisco-Oakland-Hayward all Items, with Base Period 1982-84 = 100, published by the U.S. Department of Labor, Bureau of Labor Statistics, subject to a minimum of zero percent and a maximum of 4% in any given year.

Each fiscal year the Agency shall identify the annual percentage change in the CPI-W, using the difference over a 12-month period between February to February This percentage difference shall then establish the range of increase to the maximum assessment rate allowed based on CPI. If the percentage change in the CPI is greater than four percent (4.0%), the maximum assessment rate shall be increased by four percent (4.0%). If the percentage change in the CPI is less than four percent (4.0%), the maximum assessment rate shall be increased by the percentage change in the CPI. However, if the percentage change in the CPI is negative (less than 0%) then the maximum assessment rate shall not be increased or decreased from the prior fiscal year. Therefore, the minimum annual adjustment to the Maximum Assessment Rate per FDRB is zero percent (0%) and the maximum annual adjustment is four percent (4%).

Should the Bureau of Labor Statistics revise such index or discontinue the preparation of such index, SJAFCA shall use the revised index or comparable system as approved by the SJAFCA Board for determining fluctuations in inflation.

Appeals Process

Any property owner who believes his or her property should be reclassified and the assessment adjusted may file a written appeal with the SJAFCA Executive Director. Any such appeal is limited to correction of an assessment during the then-current fiscal year and future years.

All appeals must include a statement of reasons why the property should be reclassified and may include supporting evidence. On the filing of any such appeal, the Executive Director will direct staff to promptly review the appeal and any information provided by the property owner and may investigate and assemble additional evidence necessary to evaluate the appeal. If the Executive Director finds that the assessment should be modified, the appropriate changes will be made to the assessment roll for the following fiscal year. Any such changes approved after the assessment roll has been filed with the County for collection will not result in a refund of the current or any prior year's assessments paid before the appeal was filed unless so directed by the Executive Director.

Part IV — Assessment Roll

Due to the number of parcels within the proposed Mossdale Tract Overlay Assessment District, the Assessment Roll for fiscal year 2024/2025 (a listing of the parcels to be assessed for special benefit within this District along with the balloted assessment amounts) has been filed with the Clerk of the San Joaquin Area Flood Control Agency, in an electronic format and is by reference made part of this Report. The proposed Assessment Roll shall be available for public inspection in the San Joaquin Area Flood Control Agency Office during normal office hours.

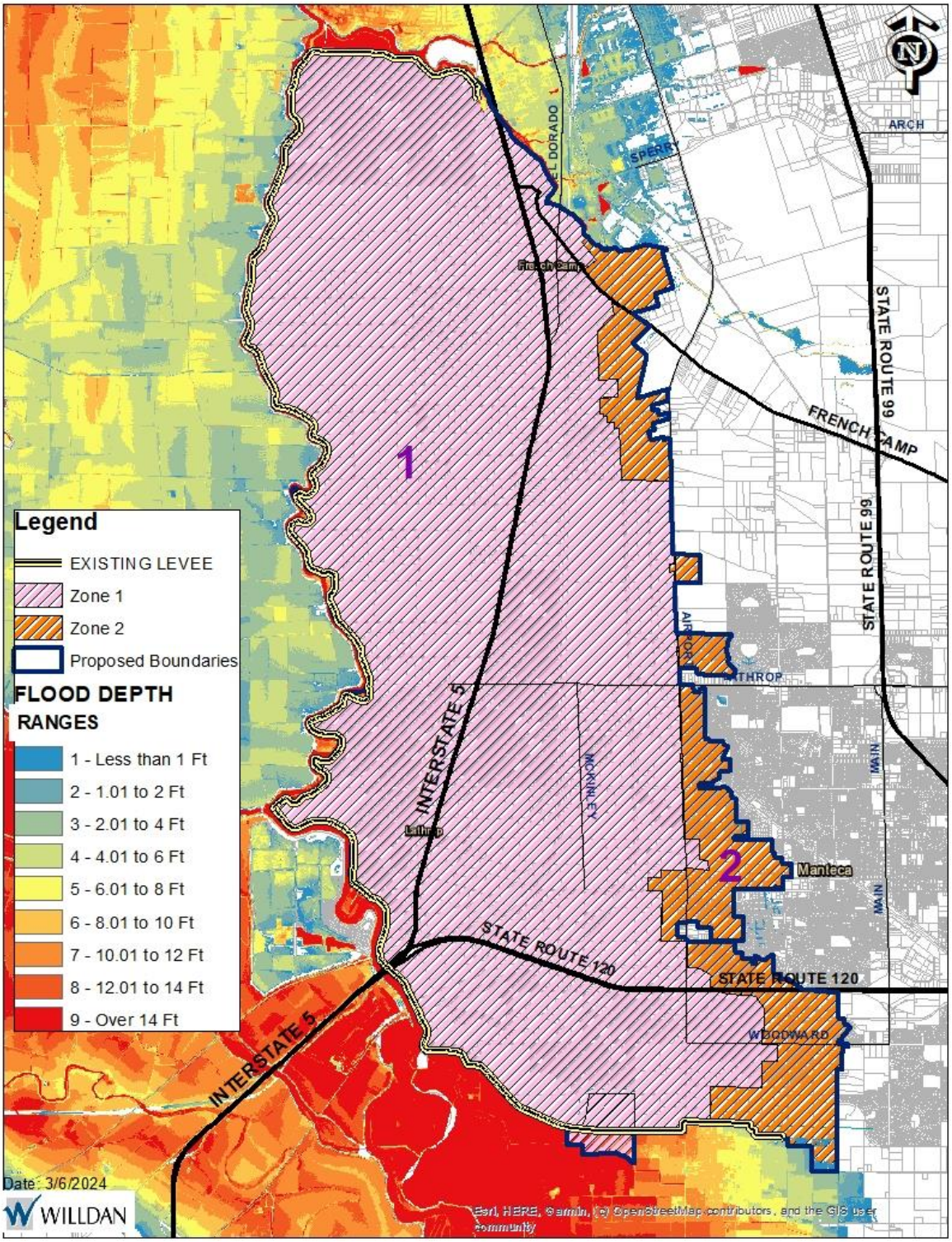
The Assessment Roll reflects all parcels identified within the District and the corresponding proportional special benefit assessment amount for fiscal year 2024/2025, which is also the amount being balloted for each parcel as part of the Ballot Proceeding. Each parcel listed on the Assessment Roll is currently shown and illustrated on the County Assessor's Roll and the County Assessor's Parcel Number Maps (APN maps). These records are, by reference, made part of this Report and shall govern for all details concerning the description of the lots and parcels. All assessments presented on the assessment roll are subject to change as a result of parcel changes made by the County including parcel splits, parcel merges or development changes that occur prior to the County Assessor's Office securing the final roll and generating tax bills for fiscal year 2024/2025.

Part V — Assessment Diagram

The territory within the Mossdale Tract Overlay Assessment District is narrowly defined to include those lots and parcels of land within the Mossdale Tract Area of San Joaquin County that have been identified as parcels receiving a reduction or elimination of potential uncontrolled riverine flooding from the San Joaquin River levees and related flood control infrastructure improvements that are to be constructed, operated, and maintained as part of the proposed Project Services. The boundary of the District and the parcels therein are based on hydrologic and hydraulic mapping (flood levels), incorporating each of the parcels within the Mossdale Tract Area that have been identified as parcels receiving a reduction or elimination of potential flood damages from inundation or force by floodwaters as a result of the construction and operation of flood risk reduction components in and adjacent to the Mossdale Tract Area which include fix in place and potential levee setback improvements as well as a dryland levee extension in Manteca.

The parcels within the District as identified on the Assessment Roll as referenced in Part IV of this Report and depicted in the Boundary and Flood Zone Diagram (Figure 5 on the following page) constitute the Assessment Diagram Mossdale Tract Overlay Assessment District. The Boundary and Flood Zone Diagram also shows the general location of the improvements associated with the Project Services for which properties identified on the Assessment Roll referenced in Part IV of this Report are being balloted for a new special benefit assessment to support a portion of Project Service costs. The parcels therein shall consist of and be dictated by the lines and dimensions as those lots, parcels and subdivisions of land listed on the Assessment Roll and shown on the San Joaquin County Assessor's parcel maps for fiscal year 2024/2025 and shall incorporate all subsequent parcel splits and merges and by reference the San Joaquin County Assessor's parcel maps are incorporated herein and made part of this Report.

Figure 5: Boundary and Zone Diagram (Assessment Diagram)



Technical Memorandum

To: SJAFCA Board of Directors
From: Willdan Financial Services

Date: June 12, 2025

Re: FY 2025/26 Mossdale Tract Overlay Assessment District ("Mossdale OAD")

Assessment District History

The Mossdale Tract Area covers approximately 22,400 acres and includes RD 17 (16,110 acres), portions of the Cities of Stockton, Lathrop, Manteca, and unincorporated San Joaquin County.

The Mossdale Tract Overlay Assessment District (the "District") was formed in 2024 to levy a special benefit assessment to fund the operation, program planning, design, construction, installation, implementation, and maintenance of the proposed fix-in-place and potential levee setback improvements and the dryland levee extension to achieve and maintain 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area, including related incidental expenses. To comply with State and Federal requirements, the overall objective of the Project is to provide increased public safety benefits by improving and expanding flood risk reduction infrastructure to achieve a 200-year Urban Level of Flood Protection ("ULOP") for the Mossdale Tract Area . Objectives include:

- Modernize the flood risk reduction infrastructure to accommodate future performance and climate change resiliency goals identified in the Central Valley Flood Protection Plan and in SJAFCA's adopted Climate Change Adaptation Policy.[1]
- Improve long-term operations, maintenance, repair, rehabilitation, and replacement (OMRR&R) over time.

Improvement and Services

As outlined in the adopted Final Engineer's Report for the Formation of the Mossdale Tract Overlay Assessment District (Mossdale OAD), Improvements to be funded by the assessment district will be the construction and operation of flood risk reduction components in and adjacent to the Mossdale Tract Area..

Flood risk reduction components include: (1) fix in place and potential setback levee improvements; and (2) a dryland levee extension.

The fix in place levee improvements that would be constructed, operated, and maintained within the levee rights-of-way and easements under the Project currently include:

- Reconstruction (raising and widening) or replacement of the existing dryland levee, including the construction of seepage control measures such as a drained seepage berm or cutoff wall, and reconstruction of pipe penetrations that cross the levee.
- Installation of a traditional soil-bentonite slurry cutoff wall of varying depth along portions of the existing levee alignment.
- Installation of a drained seepage berm of varying width along portions of the existing levee alignment.
- Placement of riprap rock slope protection on the waterside of the levee along portions of the existing levee alignment.
- Removal of high hazard encroachments.
- Reconstruction of pipe penetrations that cross the levee.

[1] San Joaquin Area Flood Control Agency Resolution No. 19-06: Resolution to Adopt Policy on Adapting Design Standards for the Mossdale Tract Area of SJAFCA in Light of Climate Change

- Raising the height of levee along portions of the existing levee alignment and extension of the landside toe to meet levee slope design standards.
- Construction of a dryland levee extension, including the construction of seepage control measures such as a drained seepage berm or cutoff wall.
- Construction of a potential setback levee to meet ULOP standards at a designated sharp bend in the San Joaquin River and connecting to existing levee segments.

The Project described herein and by reference, including all attributes of the Project such as cost estimates and schedule for implementation, is reflective of the best information currently available to SJAFCA and the assessment engineer.

District Budget

SJAFCA budgets for all of its Capital Programs on cumulative budget basis. Revenues are projected annually and the Expenditure Budget authorized each year augments the prior year cumulative authorization and carries over from year to year. The budget presented below is consistent with the Budget to be presented and approved by the Board of the Directors at its June 12, 2025 meeting. The Mossdale OAD Revenues for FY 2025/26 would be utilized, on a pay-as-you-go basis, to fund the design, federal feasibility study cost share, work in kind, right of way acquisition, and advance improvements consistent with the Final Engineer's Report.

Table 1 shows the budget for the District for FY 2025/26.

Table 1 – District Budget

SJAFCA Mossdale Tract Program Budget	Cumulative CIP Budget Through 6/30/2026 [1]
Revenues	
Climate Challenge Grant	$300,000
DWR Urban Flood Risk Reduction Grant Funding	8,295,000
Levee Impact Fee Revenues	18,402,105
Member Agency Seed Funding	310,000
Interest	936,451
Mossdale EIFD PFA Tax Increment Revenues	7,000,000
Mossdale Tract Overlay Assessment Revenues [2]	
FY 2024/25	2,241,807
FY 2025/26	2,302,156
Total Revenues	**$39,787,519**
Program Related Expenses	
Mossdale UFFR Feasibility Study	$358,759
Mossdale Program Management	7,090,630
Local Funding Implementation & Administration	2,415,649
Project Implementation	
State / Local Urban Flood Risk Reduction Project	
Planning Costs	8,472,545
Project Management	1,900,000
Lands, Easements and Rights of Way	5,250,000
Flood Risk Reduction Construction	4,000,000
Ecosystem Sites Implementation (Design & Construction)	700,000
Federal / State / Local Project	
Feasibility Study Local Costs	1,833,548
Payments to USACE	1,935,000
Climate Resiliency Grant Costs	300,000
Total Cumulative Program Expenditure Budget	**$34,256,131**

[1] The Capital Program Budget is presented as a cumulative budget authorized through the Fiscal Year.

[2] Annual Revenues for the Mossdale OAD are presented for each year to demonstrate the budgeted need for the Capital Improvement program.

Annual Assessment

Assessment Methodology

The Damages Avoided method of assessment apportionment is utilized in this District. As outlined in the adopted Final Engineer's Report for the Mossdale OAD), for those parcels contained within Zone 1, a Total Damages Avoided for each parcel is based on the combined Structure Damage, Content Damage, and Land Damage reduction benefit. For parcels within Zone 2, the Total Damages Avoided is based on the Land Damage reduction benefit calculated for those parcels. The proportional special benefit calculation for each parcel considers these three factors independently. The benefit calculation can be summarized as follows:

Special Benefits = Damages Avoided

(Zone 1 Parcels)

Damages Avoided = Structure Damage + Content Damage + Land Damage

(Zone 2 Parcels)

Damages Avoided = Land Damage

Reference is made to the Fiscal Year 2024/25 Engineer's Report for the tables depicting structures and content damage factors and land damage factors.

Assessment Rate and Annual Escalation

Commencing in the second fiscal year (Fiscal Year 2025/2026) and each fiscal year thereafter through the 30-year term of the assessments (Fiscal Year 2054/2055), pursuant to Government Code §53739(b), the initial authorized Maximum Assessment Rate of $0.00073472 per FDRB shall be adjusted annually based on the annual change in the Consumer Price Index February to February CPI-W for San Francisco-Oakland-Hayward all Items, with Base Period 1982-84 = 100, published by the U.S. Department of Labor, Bureau of Labor Statistics, subject to a minimum of zero percent and a maximum of 4% in any given year.

Should the Bureau of Labor Statistics revise such index or discontinue the preparation of such index, SJAFCA shall use the revised index or comparable system as approved by the SJAFCA Board for determining fluctuations in inflation.

For Fiscal Year 2025/2026, the annual increase in CPI-W is calculated to be 2.71% (rounded to two decimal places). This results in the Proportional Maximum Assessment Rate from the prior fiscal year (FY 2024/2025) being increased by $0.00001988 to $0.00075460 for Fiscal Year 2025/2026.

Table 2
SJAFCA Mossdale OAD
Assessment Rate Escalation

Item	Amount ($)
Initial Maximum Proportional Assessment Rate FY 2024/25	0.00073472
Maximum Proportional Assessment Rate FY 2025/26	0.00075460

Assessment Calculation

To determine the maximum proportional assessment rate for an individual parcel, the Total Damages Avoided, also known as Flood Damage Reduction Benefit (FDRB) for the parcel, are calculated as described in the procedures

outlined in the Assessment Methodology above and then each parcel's calculated FDRB is multiplied by the assessment rate shown in Table 2 above. The following example is based on the single-family residential example.

Proportional Assessment =Total Flood Damage Reduction Benefit (FDRB) x Assessment Rate

Example:

Single Story Single-Family Residence

Parcel Acreage: 0.179 acres

Building Square Feet: 2,000

Flood Depth 5 Feet

Structure Damage = 2,000 sf x $60/sf x 55.90% = $67,080

+

Content Damage = 2,000 sf x $30/sf x 18.30% = $10,980

+

Land Damage = 0.179 Acres x $80,100 / Acre = $14,338

Flood Damage Reduction Benefit = $67,080 + $10,980 + $14,338 = $92,398

Maximum Assessment Rate = $0.00075460

Maximum Not-To-Exceed Assessment = $92,398 x $0.00075460 = $69.72

Specific to parcels identified as Planned Development (Commercial, Industrial and Residential), a fifty percent (50%) reduction has been applied to each of the calculated Flood Damage Reduction Benefits to reflect the proportional special benefit (avoided flood risk) these Planned Development parcels receive from the Project Services in light of Senate Bill 5 and Urban Level of Flood Protection requirements. Specifically, each of these parcels receives a special benefit because OAD funding supports Adequate Progress toward an Urban Level of Flood Protection which will allow development of these parcels which will otherwise not be able to develop. The proportionate special benefit for parcels in this category is achieved by applying the standard calculated Flood Damage Reduction Benefits calculation for the estimated planned development, and then applying a 50% reduction in light of the future construction. The following provides an example calculation for a Planned Residential Development parcel:

Example:

Planned Residential Development (Multifamily 1 Story)

Parcel Acreage: 1.470 acres

Building Square Feet: 5,750 (DAP)

Flood Depth: 11 Feet

Structure Damage = 5,750 sf x $60/sf x 76.30% x 50% = $131,617

+

Content Damage = 5,750 sf x $30/sf x 22.50% x 50% = $19,406

+

Land Damage = 1.470 Acres x $80,100/Acre x 50% = $ 58,874

Flood Damage Reduction Benefit = $131,616 + $19,406 + $58,874 = $209,897

Maximum Assessment Rate = $0.00075460

Maximum Not-To-Exceed Assessment = $209,897 x $0.00075460 = $158.39

The analysis described above was performed for every parcel in the benefit area that was determined to receive special benefit. The sum of total Flood Damage Reduction Benefit (FDRB) for all assessed parcels is calculated to be 3,051,129,398 FDRB at the time this Report was prepared.

In future years, as land use changes occur and the benefits to parcels change, parcels may be reclassified and their assessments modified accordingly.

Summary of Assessments

The average assessment for all parcels in the District by general land use category is shown in table 3 below.

Table 3
SJAFCA Mossdale OAD
Summary of Average Assessment Rates

Land Use Type	Number of Parcels	Average Rate/FDRB	Maximum Rate/FDRB	Average Assessment	Total Assessment	Share of Total Assessment
Agricultural	218	$0.00075460	$0.00075460	$93.82	$20,452.84	0.89%
Commercial	410	$0.00075460	$0.00075460	$612.62	$251,173.82	10.91%
Industrial	296	$0.00075460	$0.00075460	$1,640.44	$485,570.76	21.09%
Planned Development	192	$0.00075460	$0.00075460	$337.35	$64,770.36	2.81%
Public	156	$0.00075460	$0.00075460	$1,314.29	$205,028.96	8.91%
Residential	21423	$0.00075460	$0.00075460	$59.52	$1,275,158.92	55.39%
All Parcels	22,695				$2,302,155.66	100.00%

Duration of the Assessment

Because the financing plan assumption contemplates the use of debt financing, the District revenues secured to meet cash flow and debt service needs must be authorized through the final year of the term of the financing. Because a Bond issuance is expected to take place in fiscal year 2025/26, the assessments will be levied through fiscal year 2055/56. The assessments would cease to be levied after July 1, 2056.

Assessment revenues, after the completion of the Project, would be utilized to fund both debt service (principal and interest) as well as the annual costs of administration of the District and ongoing operations and maintenance of the Project improvements.

Appeals Process

Any property owner who believes his or her property should be reclassified and the assessment adjusted may file a written appeal with the SJAFCA Executive Director. Any such appeal is limited to correction of an assessment during the then-current fiscal year and future years.

All appeals must include a statement of reasons why the property should be reclassified and may include supporting evidence. On the filing of any such appeal, the Executive Director will direct staff to promptly review the appeal and any information provided by the property owner and may investigate and assemble additional evidence necessary to evaluate the appeal. If the Executive Director finds that the assessment should be modified, the appropriate changes will be made to the assessment roll for the following fiscal year. Any such changes approved after the assessment roll has been filed with the County for collection will not result in a refund of the current or any prior year's assessments paid before the appeal was filed unless so directed by the Executive Director.

Assessment Roll

The Assessments have been levied in proportion to the estimated benefit that each parcel receives from the improvements in accordance with the method and formula of assessment as presented and approved upon formation of the District.

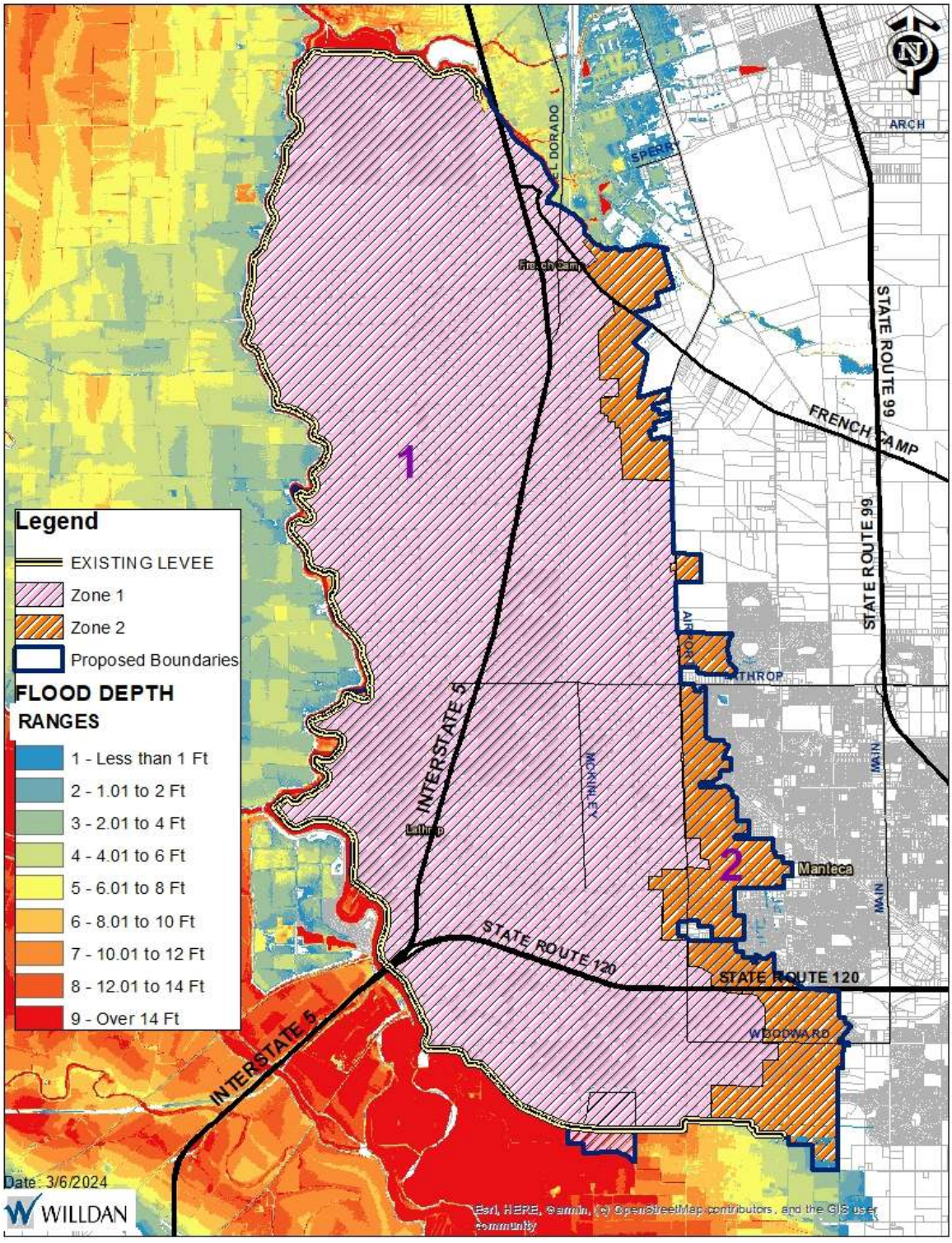
A listing of parcels of land, and the proposed assessment amount to each parcel is provided under a separate cover and by reference is made part of this Memorandum. For current ownership of each parcel of land, reference is made to the most recent equalized tax roll for the County of San Joaquin. The assessment amount for each parcel pursuant to approval of this Memorandum shall be submitted to the San Joaquin County Tax Collector for collection on the property tax bill for Fiscal Year 2025/26.

District Boundary

The territory within the Mossdale Tract Overlay Assessment District is narrowly defined to include those lots and parcels of land within the Mossdale Tract Area of San Joaquin County that were identified as parcels receiving a reduction or elimination of potential uncontrolled riverine flooding from the San Joaquin River levees and related flood control infrastructure improvements that are to be constructed, operated, and maintained as part of the proposed Project Services at the time the District was formed. The boundary of the District and the parcels therein are based on hydrologic and hydraulic mapping (flood levels) available at the time of formation, incorporating each of the parcels within the Mossdale Tract Area that have been identified as parcels receiving a reduction or elimination of potential flood damages from inundation or force by floodwaters as a result of the construction and operation of flood risk reduction components in and adjacent to the Mossdale Tract Area which include fix in place and potential levee setback improvements as well as a dryland levee extension in Manteca.

The parcels within the District as identified on the Assessment Roll as referenced in this Technical Memorandum and depicted in the Boundary and Flood Zone Diagram (Figure 1 on the following page) constitute the Assessment Diagram Mossdale Tract Overlay Assessment District. The Boundary and Flood Zone Diagram also shows the general location of the improvements associated with the Project Services for which properties identified on the Assessment Roll referenced in Part IV of this Report are being balloted for a new special benefit assessment to support a portion of Project Service costs. The parcels therein shall consist of and be dictated by the lines and dimensions as those lots, parcels and subdivisions of land listed on the Assessment Roll and shown on the San Joaquin County Assessor's parcel maps for fiscal year 2025/2026and shall incorporate all subsequent parcel splits and merges and by reference the San Joaquin County Assessor's parcel maps are incorporated herein and made part of this Technical Memorandum.

Figure 1


Legend
EXISTING LEVEE
Zone 1
Zone 2
Proposed Boundaries
FLOOD DEPTH RANGES
1 - Less than 1 Ft
2 - 1.01 to 2 Ft
3 - 2.01 to 4 Ft
4 - 4.01 to 6 Ft
5 - 6.01 to 8 Ft
6 - 8.01 to 10 Ft
7 - 10.01 to 12 Ft
8 - 12.01 to 14 Ft
9 - Over 14 Ft
1
2
INTERSTATE 5
STATE ROUTE 120
STATE ROUTE 99
FRENCH CAMP
ARCH
SPERRY
EL DORADO
French Camp
AIRPORT
LATHROP
MCKINLEY
MAIN
Manteca
WOODWARD
Date: 3/6/2024
WILLDAN
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