



# **San Joaquin Area Flood Control Agency**

## **Preliminary 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**

**MARCH 2024  
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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 27<sup>th</sup> day of March, 2024.

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

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## Introduction

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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<sup>1</sup> 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).

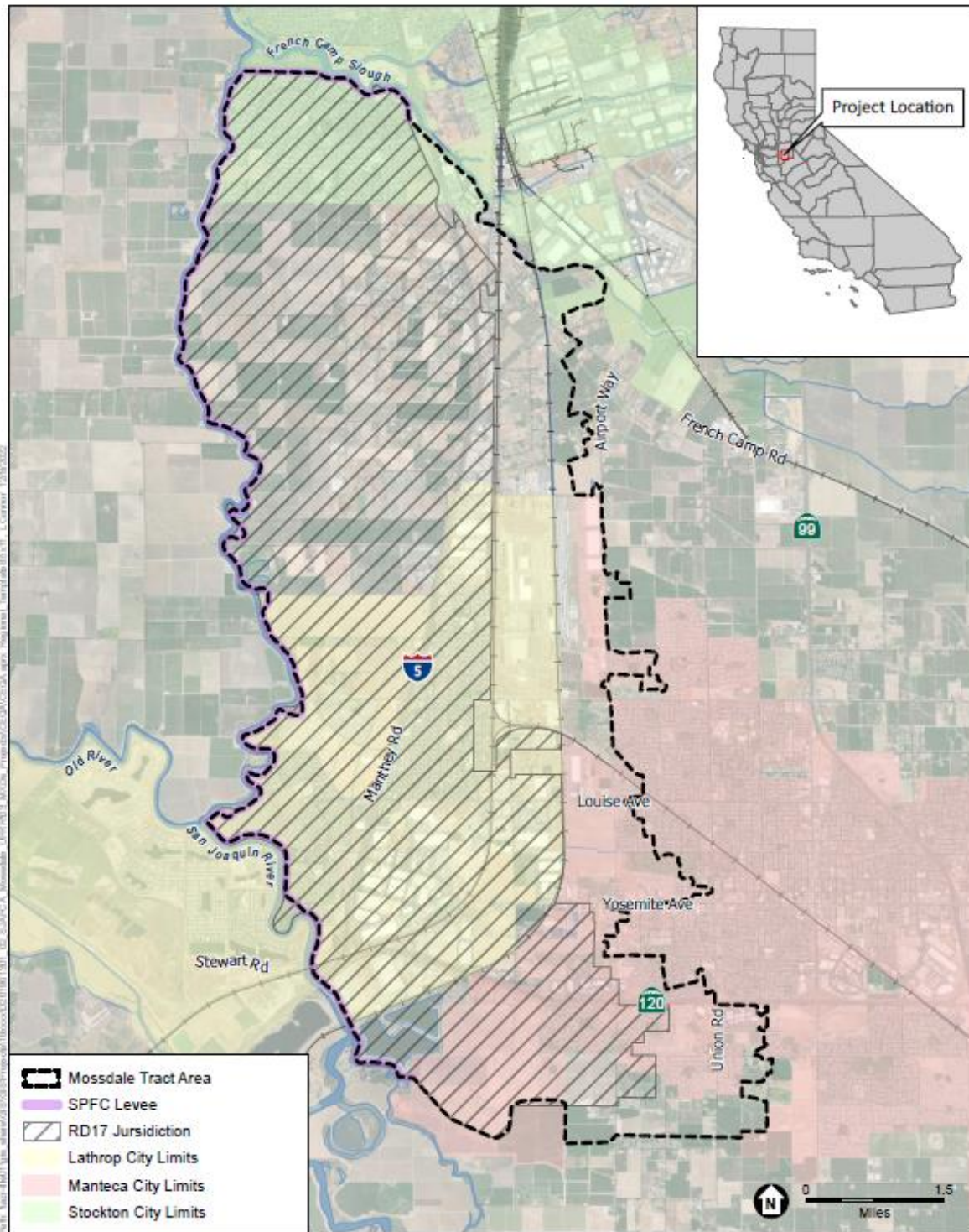
State and USACE levee standards and criteria continue to evolve and impact SJAFCA's priorities going forward. For the Mossdale Tract Area, SJAFCA continues to work with San Joaquin County, local cities (Stockton, Lathrop, and Manteca), and Reclamation District No. 17 ("RD 17") to address flood protection 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).

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<sup>1</sup> 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 XIII D ("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 XIID, 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

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### 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.<sup>2</sup>
- 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.

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<sup>2</sup> 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

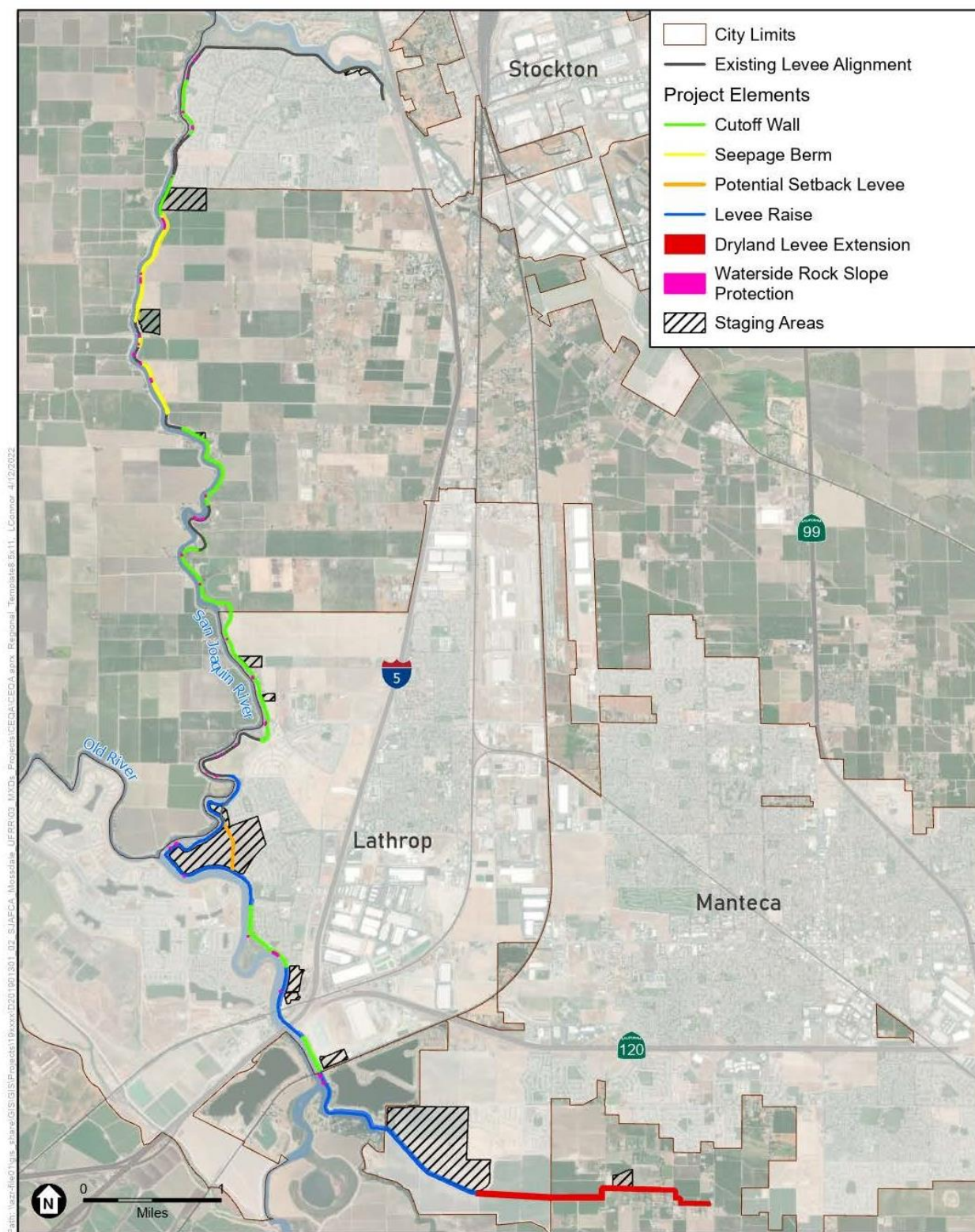
Flood risk reduction components of the proposed Project include: (1) fix in place and potential setback levee improvements; and (2) a dryland levee extension. Each of these components, along with associated construction techniques are described in detail below. Details of the Project sites are described 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 <sup>(1)</sup>	Cutoff Wall	-	-	-
10 <sup>(2)</sup>	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 <sup>(3)</sup>	Erosion Repairs	-	-	-
14 <sup>(4)</sup>	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 <b>not</b> include a construction component.				

Source : Environmental Science Associates (ESA) 2022

**FIGURE 2 — PROJECT LEVEES**



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

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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	
<b>ULOP Program Planning &amp; Implementation</b>	
Pre-Project Expenses (Actuals)	\$ 3,200,000
SJAFCA Program Management	\$ 3,600,000
Funding Implementation	\$ 1,500,000
Feasibility Study & Planning	\$ 3,200,000
<b>Subtotal: ULOP Program Planning &amp; Implementation</b>	<b>\$ 11,500,000</b>
<b>SJAFCA ULOP Project Costs</b>	
Soft Costs including Administration	\$ 90,610,000
<b>Construction Costs</b>	<b>\$ 183,500,000</b>
Right-of-Way	\$ 94,900,000
<b>Contingency</b>	<b>\$ 59,690,000</b>
Multi-Benefit Improvements	\$ 44,170,000
<b>Subtotal: SJAFCA ULOP Project Costs</b>	<b>\$ 472,870,000</b>
<b>Total: ULOP Program Planning &amp; Project Costs</b>	<b>\$ 484,370,000</b>
<b>(less) USACE Implemented Improvements</b>	<b>\$ (248,800,000)</b>
<b>Net SJAFCA ULOP Project Costs</b>	<b>\$ 235,570,000</b>

## 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	
<b>Non-Local / State Funding</b>	
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
<b>Subtotal: Non-Local / State Funding</b>	<b>\$ 113,800,000</b>
<b>SJAFCA Project Funding</b>	
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)
<b>Subtotal: SJAFCA Project Funding</b>	<b>\$ 132,490,000</b>
<b>Total: Project Funding Sources</b>	<b>\$ 246,290,000</b>
<b>Net SJAFCA ULOP Project Costs</b>	<b>\$ (235,570,000)</b>
<b>Total Project Sources less Uses</b>	<b>\$ 10,720,000</b>

## 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 \$2,625,000. 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

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### 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 SJAFC'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.

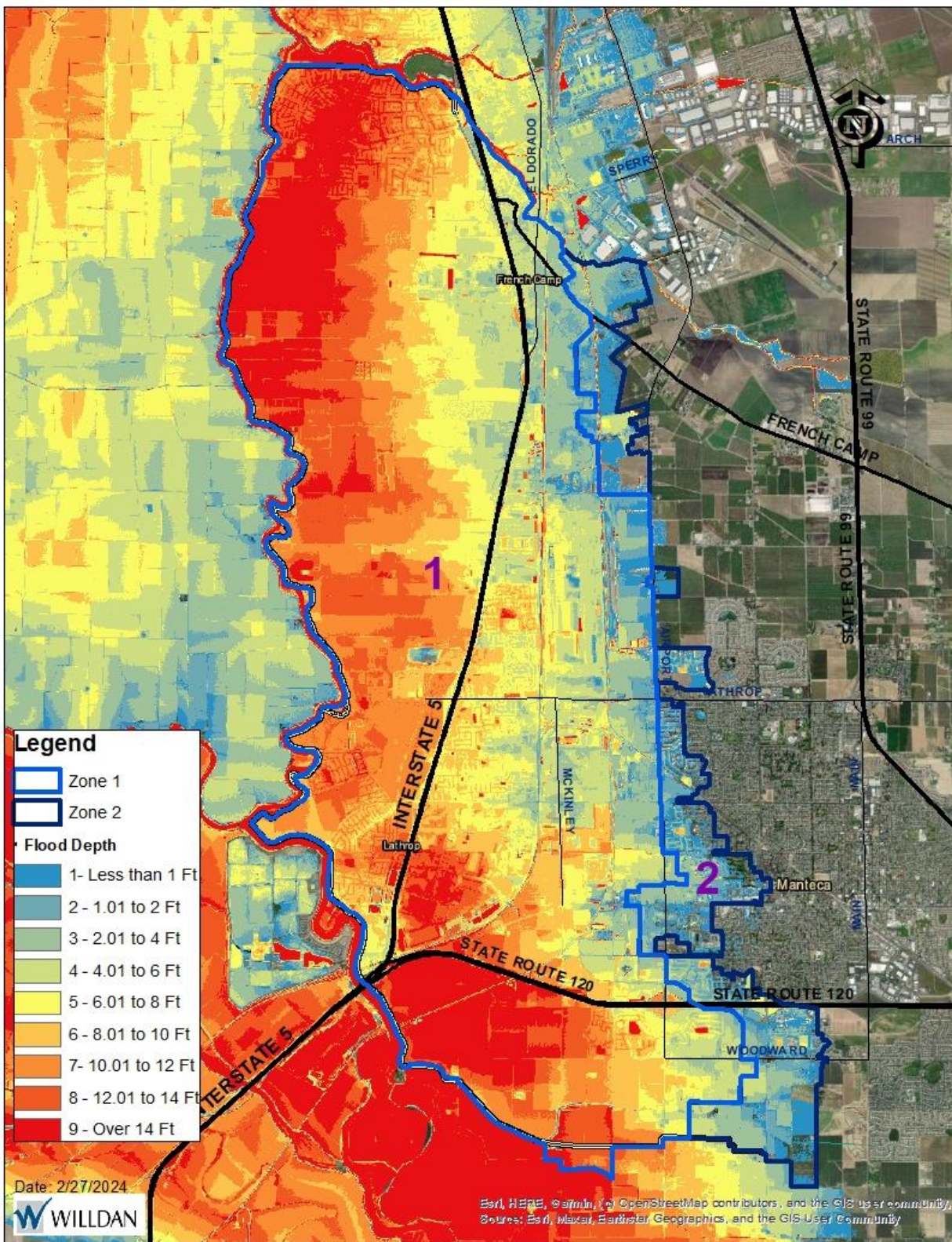
The total net benefit parcel acreage within the District boundaries is approximately 14,317 acres of which approximately 12,820 acres are assessed County Assessor designated parcels (APNs) with the remaining 1,497 acres being comprised of common area properties (shared interest by other assessed properties), 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)**

$$\text{Damages Avoided} = \text{Structure Damage} + \text{Content Damage} + \text{Land Damage}$$

**(Zone 2 Parcels)**

$$\text{Damages Avoided} = \text{Land Damage}$$

## 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 <sup>(1)</sup> and the content values for agricultural structures were derived from a related technical report <sup>(2)</sup>. 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

<sup>(1)</sup> US Army Corps of Engineers (USACE), American River Watershed Investigation, California Feasibility Report, Sacramento District, December 1991.

<sup>(2)</sup> US Army Corps of Engineers (USACE), Draft Economic Re-evaluation Report, American River Watershed Project, Appendix D, Attachment II, Technical Report, May 2007.

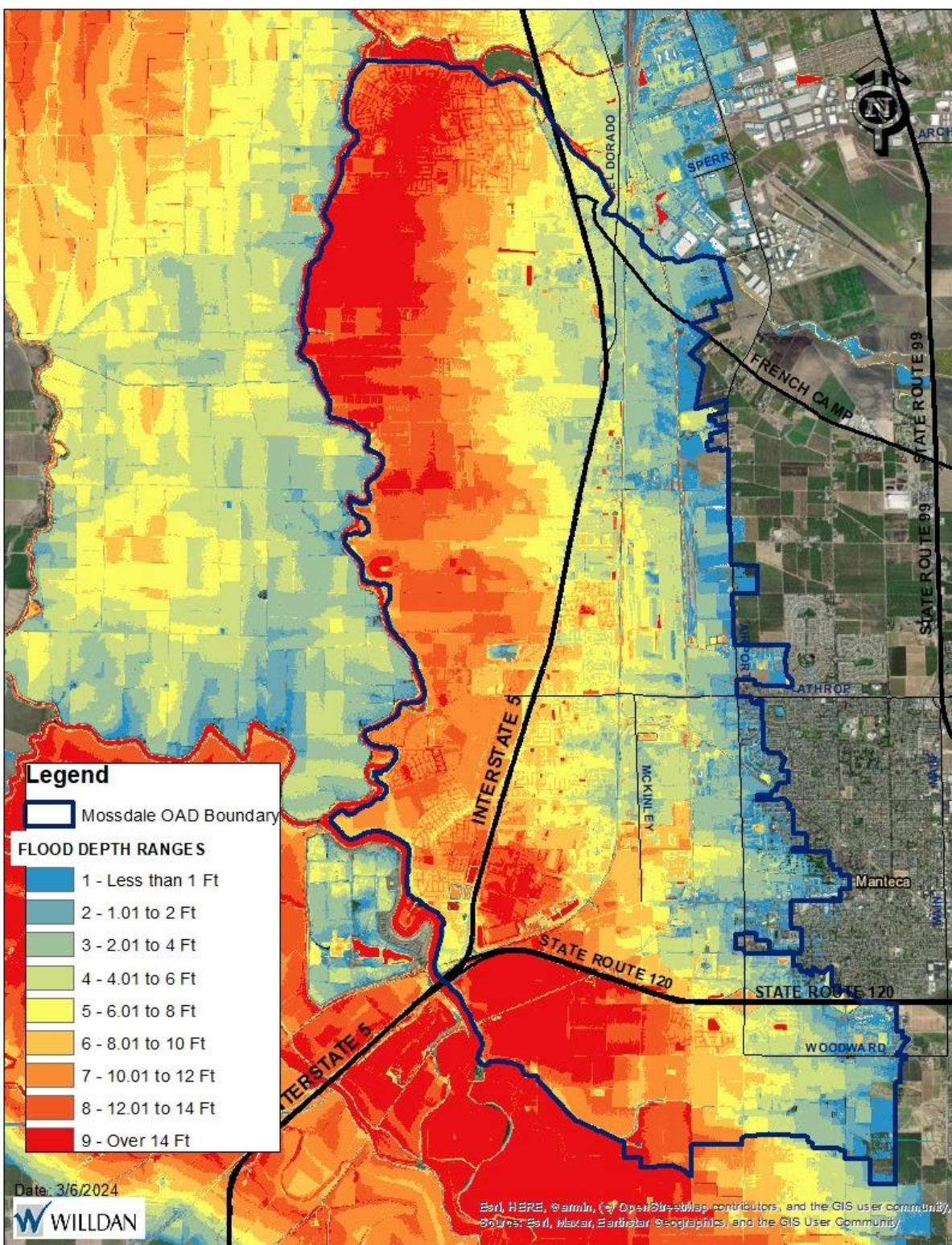
## Flood Depth Reduction

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 SJAFCFA 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**

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	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-foot 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-foot 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. 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 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:

$$\text{Structure Damage} = 2,000 \text{ sf} \times \$60/\text{sf} \times 55.90\% = \$67,080$$

+

$$\text{Content Damage} = 2,000 \text{ sf} \times \$30/\text{sf} \times 18.30\% = \$10,980$$

$$\text{Structure and Content Damage Avoided} = \$67,080 + \$10,980 = \$78,060$$

\$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.

$$\text{Land Damage Avoided} = \text{Acreage} \times \text{Relative Land Damage Factor}$$

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:

$$\text{Land Damage Avoided} = 0.179 \text{ Acres} \times \$80,100 / \text{Acre} = \$14,338$$

\$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:

$$\text{Flood Damage Reduction Benefit} = \text{Structure Damage} + \text{Content Damage} + \text{Land Damage}$$

#### Example:

Single Story Single-Family Residence

Parcel Acreage: 0.179 acres

Building Square Feet: 2,000

Flood Depth 5 Feet

$$\text{Structure Damage} = 2,000 \text{ sf} \times \$60/\text{sf} \times 55.90\% = \$67,080$$

+

$$\text{Content Damage} = 2,000 \text{ sf} \times \$30/\text{sf} \times 18.30\% = \$10,980$$

+

$$\text{Land Damage} = 0.179 \text{ Acres} \times \$80,100 / \text{Acre} = \$14,338$$

$$\text{Flood Damage Reduction Benefit} = \$67,080 + \$10,980 + \$14,338 = \$92,398$$

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 3,551,333,222 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 <sup>(5)</sup>**

Land Use	Structure Damage Reduction Benefit	Content Damage Reduction Benefit	Land Damage Reduction Benefit	Total Damage Reduction Benefit
Agriculture	-	-	13,324,475	13,324,475
Agriculture - Single Family	2,378,820	3,345,621	7,549,927	13,274,367
<b>Sub-Total Agriculture</b>	<b>2,378,820</b>	<b>3,345,621</b>	<b>20,874,402</b>	<b>26,598,843</b>
Commercial - Developed	61,166,719	151,360,257	64,221,493	276,748,468
Commercial - Vacant	-	-	41,655,760	41,655,760
<b>Sub-Total Commercial</b>	<b>61,166,719</b>	<b>151,360,257</b>	<b>105,877,252</b>	<b>318,404,228</b>
Industrial - Developed	179,629,179	412,616,130	38,448,984	630,694,294
Industrial - Vacant	102,741	-	9,928,898	10,031,639
<b>Sub-Total Industrial</b>	<b>179,731,920</b>	<b>412,616,130</b>	<b>48,377,882</b>	<b>640,725,933</b>
Public - Developed	30,116,470	86,383,799	36,965,088	153,465,358
Public - Vacant	-	-	17,511,996	17,511,996
<b>Sub-Total Public</b>	<b>30,116,470</b>	<b>86,383,799</b>	<b>54,477,085</b>	<b>170,977,354</b>
Residential - Mobile Home	1,082,961	698,323	5,773,047	7,554,331
Residential - Multi Family	6,382,350	1,009,567	7,927,830	15,319,748
Residential - Single Family	1,064,404,020	531,446,917	324,381,130	1,920,232,067
Residential - Vacant	797,492	124,868	100,353,360	101,275,721
<b>Sub-Total Residential</b>	<b>1,072,666,823</b>	<b>533,279,675</b>	<b>438,435,368</b>	<b>2,044,381,866</b>
Planned Commercial Development	94,298,100	216,578,297	9,428,576	320,304,973
Planned Industrial Development	5,094	18,812	5,836,723	5,860,628
Planned Residential Development	12,670,915	1,956,563	9,451,920	24,079,398
<b>Sub-Total Planned Development</b>	<b>106,974,109</b>	<b>218,553,672</b>	<b>24,717,219</b>	<b>350,244,999</b>
<b>Total Special Benefit</b>	<b>1,453,034,860</b>	<b>1,405,539,154</b>	<b>692,759,209</b>	<b>3,551,333,222</b>
<b>General Benefit</b>	<b>-</b>	<b>-</b>	<b>21,461,107</b>	<b>21,461,107</b>
<b>Grand Total</b>	<b>1,453,034,860</b>	<b>1,405,539,154</b>	<b>714,220,316</b>	<b>3,572,794,330</b>

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 \$2,625,000 (in fiscal year 2024/2025 dollars), of which approximately \$15,766 is calculated to be General Benefit costs with approximately \$2,609,234 being identified as special benefit costs. The proportional assessment rate to generate the estimated \$2,625,000 in Total Benefit Expenses (Special and General Benefits) is approximately **\$0.00073472** per Flood Damage Reduction Benefit ( $\$2,625,000 / 3,572,794,330 \text{ FDRB} = \$0.00073472 \text{ per FDRB}$ ).

## 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

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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

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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)**

