A topographic map of the Sutter Butte Flood Control Agency area. The map shows the Sutter River and Sutter Butte. A blue shaded area outlines the agency's jurisdiction, covering parts of Colusa, Yuba, and Sutter counties. Major cities and towns shown include Biggs, Gridley, Live Oak, Marysville, Yuba City, and Sutter. The Sutter River is labeled 'SUTTER RIVER' and 'SUTTER BASIN'. The Sutter Butte is labeled 'SUTTER BUTTE'. The map also shows various roads, including State Routes 99, 20, and 299, and local roads like 'WYOMING' and 'HONG'.

# FINAL ENGINEER'S REPORT

## SUTTER BUTTE FLOOD CONTROL AGENCY

**Prepared for:**  
Sutter Butte Flood Control Agency

**Prepared by:**  
Parsons Brinckerhoff

**July 14, 2010**

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APPENDIX E:	Draft Assessment Roll

# **1. Background**

## **1.1 General**

The Sutter Butte Flood Control Agency (SBFCA) was formed in September 2007 through a Joint Exercise of Powers Agreement (JPA) by the Counties of Sutter<sup>1</sup> and Butte, Cities of Yuba City, Live Oak, Gridley and Biggs, and Levee Districts 1 and 9. The purpose of SBFCA is to plan, finance and construct a flood control program, and coordinate regional flood control improvements, to protect lives and property in the Yuba City Basin (sometimes called the Sutter Basin). The Flood Control Agency's goal is to protect public safety against the ongoing threat of flooding from Sierra storms and snow packs that run off into the region's rivers systems.

## **1.2 Flood Risk in Yuba City Basin**

The Yuba City Basin is an area subject to inundation from flood flows in the Sutter Bypass, Feather, Yuba and Bear Rivers. The first organized responses to seasonal floods were simple dirt levees, generally built by farmers to protect their crops and farm properties. The early settler's levees were often no more than berms of loose dirt, sometimes built over old lake beds. Today's levees are frequently built on top of those older leaky foundations of porous, unstable and sandy soils.

After major floods in the early part of the 20th century, the US Army Corps of Engineers (USACE) constructed a comprehensive and connected set of levees and bypasses (or overflow channels) to contain the river runoff. Eventually, dams were also built that act as shock absorbers, storing sudden storm water and snow melt surges to help prevent overtopping levees.

Despite efforts to ward off inundation, levee breaches in 1917, 1955, 1986 and 1997 have resulted in major flooding that have affected the region, resulting in dozens of deaths and millions of dollars in property damage.

Many Central Valley levees are now under scrutiny. Some leak and slump because of water pressure forcing water through the levee; others fail because of seepage underneath because the levees were originally built on sandy, porous soils. Figure 2-1 illustrates the potential mechanisms for levee failure. New federal rules will call for upgrading levees, and may mandate flood insurance and land use controls.

California weather is changing, perhaps as a result of global climate change. More precipitation is falling in the mountains as rain, and less as snow pack. This change will increase the stress on the region's flood control system.

The State of California's agency that looks at flood protection, the Department of Water Resources, recently conducted new engineering tests of the levees that surround the Yuba City Basin, including sophisticated ground radar and soil borings. The Sutter Butte Flood Control Agency hired an independent geotechnical engineering company to look closely at the data from those studies. The geotechnical engineers believe that the entire levee along the west side of the Feather River must be rehabilitated.

The levees along the Feather River and Sutter Bypass are the Yuba City Basin's first line of defense against invasion by runoff from big Sierra storms. Levees provide a specific level of flood protection, and no levee system provides full protection from all flooding to the people and

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<sup>1</sup> Sutter County Board of Supervisors also sits as the Sutter County Water Agency, a non-voting member of the JPA.

property located behind it. There's always a bigger flood coming some day. The potential for a flood disaster remains an unpredictable threat to our communities. Federal law, carried out by FEMA's National Flood Insurance Program, requires flood insurance for those who carry a federally-insured mortgage on property in a high risk flood zone. Many private lenders also require flood insurance.

Studies on different segments of Feather River levees show that areas once thought to be protected could fall into higher-risk zones because those levees do not provide adequate protection against 100-year in-channel flood flows. Accordingly, the Federal Emergency Management Agency (FEMA) will revise their estimates of flood risks in different portions of the Yuba City Basin. Then FEMA will issue new Flood Insurance Rate Maps that show more flood-prone areas and increase flood insurance rates accordingly. Already FEMA released a series of draft maps, heard comments, and set final requirements in the southern portions of Sutter County (generally south of Stewart Road). Recently, FEMA started a similar procedure for Biggs, Gridley and unincorporated portions of Butte County, and has signaled that the rest of Sutter County (including Live Oak and Yuba City) will follow.

### **1.3 Purpose of Engineer's Report**

The purpose of this Engineer's Report is to support the creation of a new special benefit assessment district to provide the local share of the cost of constructing the Feather River levee improvements. Based on current engineering and information, the levee improvements are needed to provide the urban portion of the basin protection against 200-year flood flows within the Feather River and provide protection against 100-year flood flows within the Feather River for the remainder of the basin. This new special benefit assessment district, which would be known as the Sutter Butte Flood Control Agency Assessment District (the "District"), would include all properties located within the JPA boundaries except as noted in Section 4.3.

This Engineer's Report proposes a financial structure for the District. Section 2 of the report identifies the improvements that would be funded and provides an estimate of the total cost of these improvements; Section 3 describes a financing plan for providing the local cost share; and Section 4 describes the assessment methodology, including the boundaries of the District and the flood damage reduction benefits that are used to proportionally spread the assessments among the properties in the District, the assessment equations that guide this spread, and sample calculations. An Assessment Roll (Appendix E) has been prepared that identifies the proposed initial annual assessments for each individual parcel within the District.

### **1.4 Authority**

The proposed District is being formed by SBFCA under the Benefit Assessment Act of 1982<sup>2</sup> (the 1982 Act) and Article 4 (commencing with Section 6584 of the Government Code) of the Joint Exercise of Powers Act. Government Code Section 54710.5 in the 1982 Act authorizes agencies that are authorized to provide flood control services, which include the member jurisdictions of SBFCA, to levy assessments to finance the cost of installation and improvement of facilities. Section 54710 of the 1982 Act authorizes such agencies to levy assessments to finance the operations cost of flood control services. The SBFCA may exercise these assessment powers. The assessments authorized under the 1982 Act are levied annually based on a budget for expenditures. Government Code Section 6588 authorizes SBFCA to issue revenue bonds secured by assessments.

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<sup>2</sup> Government Code Sections 54703 – 54719)

## **2. Description of Proposed Funded Activities**

### **2.1 General**

The District would provide the local share of the funding to complete the activities necessary to provide 200-year protection from flood flows within the Feather River for the basin from Yuba City to the north. South of Yuba City SBFCA would provide 100-year protection from flood flows within the Feather River which, in combination with future improvements to the Sutter Bypass east levee by the California Department of Water Resources, would provide 100-year protection from external flooding sources. The features are described below. The descriptions are intended to be general enough to authorize any necessary or appropriate additional elements that may be required to accomplish the flood control objectives of the effort, along with associated operation of SBFCA to achieve these features. Proposed levee improvements and cost estimates considered herein are based on the following reports:

- Preliminary Problem Identification and Conceptual Alternatives Analysis Report, Feather River West Levee Evaluation, Thermalito Afterbay to Yuba City, Butte and Sutter Counties, California (Kleinfelder, September 2009)
- Preliminary Design Report for the Feather River West Levee Early Implementation Project (Peterson Brustad Inc, September 2009)
- Technical Memorandum: SBFCA Feather River Levee Improvements, EIP Cost Analysis (Peterson Brustad Inc, March 15, 2010)

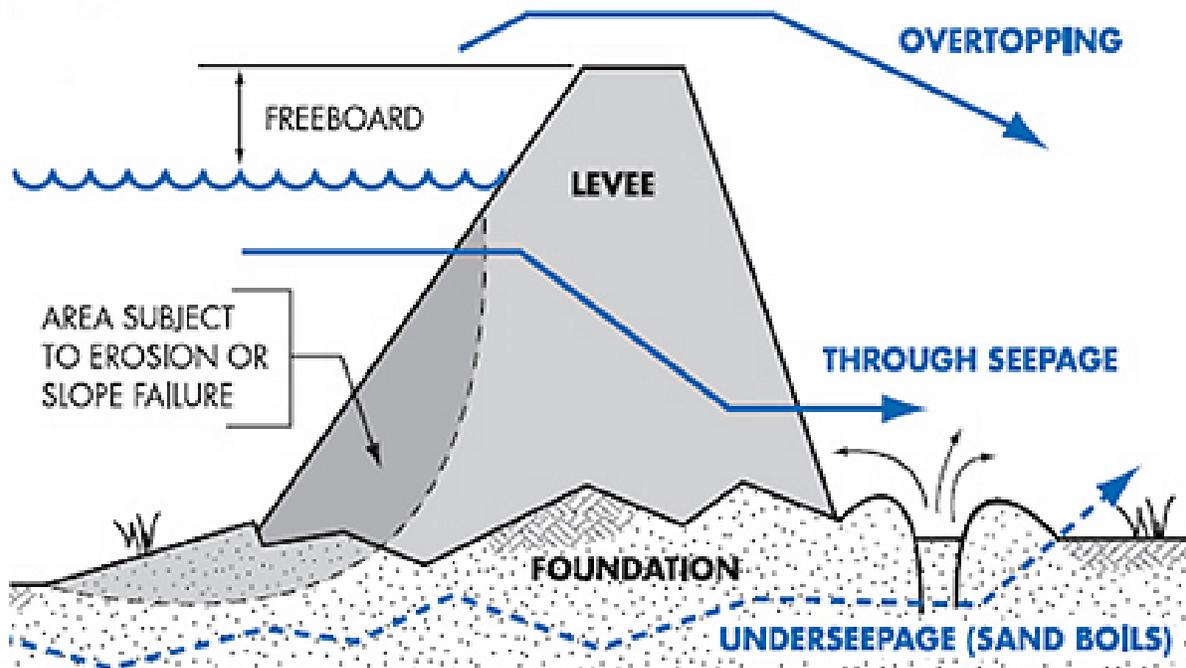
### **2.2 Types of Levee Improvements**

Figure 2-1 illustrates the several ways a levee can fail. The preliminary studies evaluated the project levees according to the latest USACE criteria for stability, seepage, erosion, geometry and freeboard. Levee improvements to correct for existing deficiencies may include the following:

#### Cutoff Walls

Cutoff walls reduce levee through-seepage and underseepage by providing a barrier of low permeability material through the levee and levee foundation where sandy or gravelly soils of higher permeability can transmit seepage during high water stages. Cutoff walls are installed to depths sufficient to minimize seepage both through the levee and beneath it. The depths for cutoff walls necessary to limit underseepage at the design water surface elevation to gradients specified by the USACE are determined by geotechnical analysis. Cutoff walls for underseepage are generally installed to depths that will tie in with existing impervious or lower permeability soil layers beneath the levee foundation. For cutoff walls up to 80 feet in depth a conventional soil-cement-bentonite (SCB) or soil-bentonite (SB) slurry wall is used. Where cutoff walls greater than 80 feet are required, a deep soil mixing (DSM) wall is used.

**FIGURE 2-1: POTENTIAL CAUSES OF LEVEE FAILURE**



#### Seepage Berms

Seepage berms are wide embankments placed outward from the levee landside toe to lengthen the underseepage path and thereby lower the exit gradient of seepage through permeable layers under the levees to acceptable levels. Seepage berms typically extend 100 to 400 feet from the levee. The berm thickness depends on the severity of the seepage pressure, but generally berms are 5 feet thick near the landside toe and taper to a thickness of 3 feet at the prescribed distance from the toe. A seepage collection ditch likely will be constructed at the landward toe of all seepage berms.

#### Stability Berms

Stability berms are extensions of the landside levee slope, constructed to enhance levee stability when geotechnical analysis indicates the potential for shallow foundation and embankment type failures. Stability berms can be drained or undrained.

#### Seepage Relief Trenches

Seepage relief trenches provide protection against levee underseepage by providing a path for underseepage to exit to the ground surface at the landside toe of the levee without creating sand boils or piping levee foundation materials. Seepage relief trenches are constructed near the levee landside toe to provide pressure relief and collect underseepage. The bottom of the trench is typically overlain by a drainage blanket consisting of sand and rock layers. A perforated collector pipe is placed in the bottom of the trench to collect and convey seepage to an external drainage system. The trench is then backfilled with random fill.

#### Relief Wells

Relief wells provide protection against levee underseepage by providing a path for underseepage to exit to the ground surface at the landside toe of the levee without creating sand boils or piping levee foundation materials. Relief wells are an option for addressing

underseepage in reaches where continuous sand and gravel layers have been identified by the geotechnical analysis. Relief wells are constructed near the levee landside toe to provide pressure relief beneath surficial fine-grained soils. The wells are constructed using soil boring equipment to bore a hole vertically through the fine-grained blanket layer and into the coarse-grained aquifer layer beneath. Pipe casings and filters are installed to allow the pressurized water to flow to the ground surface, thereby relieving the pressures beneath the clay blanket. Relief wells either may discharge onto open ground or may require conveyance to a stormwater drainage system or a pump station. The wells require regular maintenance to ensure proper operation.

#### Levee Reshape and Slope Repair

Where the waterside slopes are steeper than deemed acceptable by the slope stability evaluation, the waterside slopes are laid back to meet USACE requirements of 3H:1V slope and to provide additional stability assurance. The crown width will remain the same, but may be shifted towards the landside if possible. The landside slope will be built out from the new crown hinge point. This will include acquiring additional permanent easement at the landside toe to accommodate the increased levee footprint.

Slope repair involves taking any stone revetment off the waterside slope of the levee and excavating a 12 foot wide section. Imported material is used to rebuild the levee to meet the required slopes and the revetment placed back onto the slope.

### **2.3 Funded Activities**

Based on the geotechnical investigations and engineering studies to date, improvements to rehabilitate and restore the Feather River levee have been identified. This rehabilitation has been divided into seven levee segments (Figure 4-2) for benefit assessment purposes. The improvements and estimated cost for levee segments 1 to 7 are provided in Table 2-1. Only preliminary analyses have been completed to date. The specific type and extent of improvements for each segment are subject to change as more detailed engineering evaluations are conducted during the design phase for any project. Estimated costs include construction contingencies. Additional program contingencies are discussed in Section 3.3.

### **2.4 District Administration**

The administration component of the District assessment would be used to fund the costs for operation of the District associated with the rehabilitation elements discussed herein, including the annual updating of the assessment rolls for submittal to the County Auditors, staffing associated with continuing to pursue a federally authorized project to be constructed by the USACE, audits, insurance, and other activities. The estimated annual budget for administration is \$750,000.

**TABLE 2-1:  
PROGRAM FEATURES AND COST ESTIMATES**

<b>Levee Segment</b>	<b>Length (Feet)</b>	<b>Type of Improvement Assumed for Cost Estimating Purposes<sup>1,2</sup></b>	<b>Estimated Cost</b>
1	31,900	Seepage Berms & Stability Berms	\$ 30,000,000
2	31,800	Seepage Berms & Stability Berms	\$ 33,000,000
3	31,800	Slurry cutoff walls & Stability Berms	\$ 46,000,000
4	31,800	Slurry cutoff walls	\$ 56,000,000
5	31,600	Slurry cutoff walls, relief wells & misc. improvements	\$ 20,000,000
6	31,300	Slurry cutoff walls, stability berms & misc. improvements	\$ 39,100,000
7	45,100	Slurry cutoff walls & misc. improvements	\$ 24,700,000
<b>TOTAL</b>			<b>\$ 250,000,000</b>

Footnotes

- 1 For Segments 1-4, the type of improvements assumed for cost estimating purposes is based upon preliminary analysis and design performed for SBFCA by Kleinfelder Inc & Peterson Brustad Inc.
- 2 For Segments 5-7, the type of improvements assumed and associated costs were provided by Levee District 1.

### **3. Financing Plan**

#### **3.1 General**

In order to determine the annual financing requirements necessary to fund SBFCA's share of the total cost of the activities covered by the Assessment District, a cash flow analysis and financing plan was developed representing the likely timing for carrying out the activities and the resulting funding demands on the Agency. The key assumptions supporting this analysis are outlined below.

#### **3.2 Key Assumptions**

The most important assumption in the cash flow analysis is that all of the funded improvements will be subject to State cost sharing. These improvements are part of a proposed Early Implementation Project to rehabilitate, restore, and as necessary improve the west levee of the Feather River from Thermalito Afterbay to the Sutter Bypass. The Department of Water Resources (DWR) is responsible for the Early Implementation Program (EIP) authorized under the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Proposition 1E), and the Safe Drinking, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Proposition 84). Under this program, funding will be available to local agencies for (a) repair, rehabilitation, reconstruction or replacement of levees, weirs, bypasses, and facilities of the State Plan of Flood Control, and (b) improving or adding facilities to the State Plan of Flood Control to increase levels of flood protection for urban areas.

The cash flow analysis assumes that under the EIP the State cost share will be 71% for all of the funded improvements to the Feather River levees and the local share will be 29%. The total cost for Feather River levee work is estimated at \$250 million (Table 2-1). Assuming a 71% cost share, the State share would be \$177.5 million and the local share \$72.5 million. District administration costs are 100% local funded and as discussed in Section 2.4 are estimated as \$750,000 per year.

The cash flow analysis also assumes 100% State funding for work to the Sutter Bypass levees. Water Code section 8361 provides that operation and maintenance of these levees are the sole responsibility of the State of California. DWR's guidelines for EIP projects provides that where the State has sole operation and maintenance responsibility for flood protection facilities under Section 8361, the State shall be responsible for all costs to rehabilitate the levees back to the design level for which the State provided assurances to the USACE. For purposes of its program, SBFCA assumes this funding will be actually available and that rehabilitation of these levees will meet all criteria for any DWR funding program.

The duration of the Assessment District is assumed to be 30-years from the issuance of construction bonds, which is anticipated to be in the fourth year of the Assessment District.

#### **3.3 Contingency Planning**

As noted in Section 2.3, the \$250 million budget includes funds to cover construction contingencies. The SBFCA team developed these construction contingencies to be adequate to cover the typical range of construction challenges, including change orders for changed conditions, schedule slip, and other related issues. However, one challenge in developing the budget for the SBFCA program is that the budget is based only upon reconnaissance level data and analysis. This must be the case because it is only after passage of the assessment district that SBFCA will have the resources to mount the full investigation and design effort necessary to hone the scope and budget for the program.

To minimize the inherent uncertainties in developing a budget at this stage of the program development, SBFCA retained MBK Engineers to perform a peer review of the benefit map analysis and the cost estimates. The peer review further highlighted the minimal data available and the unknowns associated with developing a budget at this stage of the plan. In particular, MBK Engineers identified certain SBFCA program cost estimates that may be low, if unit measures (e.g., cost per levee mile) for this program are compared to other levee improvements in the region. SBFCA staff has evaluated the results of the peer review and concurs with the MBK Engineers' conclusions, but believes that it is still possible for the program to be constructed at a lower cost per levee mile than other projects for a number of reasons, including the fact that setback levees and adjacent levees are not likely to be proposed for construction; many miles of the SBFCA levees have little water pressure against them in a 200-year flood event; Segments 1-4 of the Feather River levees are substantially shorter levees than those being improved in other projects; a number of sub-reaches of Segments 5 and 6 have been improved by USACE and LD1 to correct seepage and stability problems, and there is increased certainty about how to develop and design these types of programs, as compared to some of the earlier projects in the region.

Nonetheless, in order to assure adequate contingencies for construction, SBFCA has developed some additional contingency plans. First, by structuring the cash flow analysis (as described below) with a series of short-term bonds followed by a long-term bond, SBFCA is able to generate an additional \$16 million in local funds. When coupled with State cost shared funds, this creates a total of \$56 million in additional program contingency funding, which could be used for any aspect of the program including higher construction costs, higher design costs, higher environmental mitigation costs, and/or higher financing costs.

Second, SBFCA has assumed a 29% local cost share for all portions of the Feather River levee rehabilitation. However, Water Code section 8361(l) provides that the State shall operate and maintain the "levee on the west bank of Feather River extending a distance of about two miles southerly from the Sutter-Butte Canal headgate." As noted above, under DWR's guidelines for EIP projects, the State will pay 100% of the cost of rehabilitation to facilities listed in this water code section. Thus, there is the potential that the State will pay all of the costs associated with this levee segment, which may free up additional local funds for additional contingency.

Third, the Department of Water Resources has shown a willingness to revise its cost sharing guidelines to be responsive to issues being faced by local agencies. One example is the Department's current efforts to provide additional cost share for disadvantaged communities, of which SBFCA will be able to take advantage. In the event that additional funds are required for the SBFCA program, SBFCA will attempt to work with the Department to develop additional State cost share to assist with the program. By way of example, a 5 percent increase in State cost share, when applied to the various local funds above, provides for a total program cost of nearly \$370 million. While such an additional State cost share cannot be guaranteed, it remains part of the SBFCA contingency plan.

Finally, if funds are required beyond those identified above, SBFCA could elect to construct the program in two phases, the first constructed by SBFCA, and the second constructed by the USACE. As with construction in Natomas, West Sacramento, and Yuba County, other local agencies have developed plans to construct significant portions of their programs using local and State resources, and then relying on USACE to complete construction. This two phased approach does contain a number of uncertainties, as it requires that USACE will complete its Feasibility Study and concur that there is a Federal interest in the locally preferred plan, and that Congress will authorize the construction and then appropriate necessary design and

construction funds. However, because the local agencies will have already constructed such significant portions of their programs (for example, in Natomas the entire west and north side of the program, and in Yuba County the entire RD 784 perimeter) that construction will count as the non-federal share for Federal construction, which normally would be paid for in cash by the State and the local agencies. While uncertainties do exist regarding USACE's ability to participate in this program (as discussed herein), this also remains part of the SBFCA contingency plan.

In conclusion, the SBFCA staff remains hopeful that the \$250 million preliminary budget represents a fair approach to the program, as opposed to an assessment which has the potential to raise more money than is needed from the beneficiaries. However, if additional funds are needed, a further plan for \$56 million in contingency is now provided. If still additional funds are necessary, SBFCA may be able to free up additional local funds and will seek further support from the State of California and/or partnership with USACE.

### **3.4 Cash Flow Analysis**

A cash flow analysis was developed for years 2009-10 through 2042-43. Costs were allocated over time. Environmental and design is assumed completed in two years (2010/11 and 2011/12). Construction of the improvements would take place over three years (2012/13 to 2014/15). In order to fund SBFCA's share of the total cost of the activities covered by the Assessment District, the cash flow analysis assumes (1) an annual assessment of \$6.65 million, and (2) that SBFCA will issue a series of at least three annual short-term bond anticipation notes, followed by a 30-year construction bond. For financing plan purposes, the bonding assumed in the cash flow is:

- \$5,210,000 bond issued in September 2010, 3-year maturity, provides \$5 million for costs
- \$5,205,000 bond issued in September 2011, 2-year maturity, provides \$5 million for costs
- \$5,205,000 bond issued in September 2012, 1-year maturity, provides \$5 million for costs
- \$78,625,000 bond issued in September 2013, 30-year maturity, provides \$56,037,000 for costs

Table 3.1 shows the cash flow for years 2009/10 to 2021/22. Years 2022/23 through 2042/43 would be identical to 2021/22.

Although the cash flow analysis assumes an annual assessment of \$6.65 million, the actual annual assessment may vary. As parcel characteristics (building square footage, land use) change over time, or are corrected in the assessment database based on new information, the actual assessment may increase or decrease slightly. What will remain constant is the assessment rate and assessment methodology, which is described in Chapter 4.

**TABLE 3.1 CASH FLOW ANALYSIS**

CASH FLOW ANALYSIS								
(\$ million)								
Project Activity	Agency	Total Cost	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15
<b>Levee Segments 1 to 6</b>								
Environmental and Design	State	9.0		4.5	4.5			
	SBFCA	9.0		4.5	4.5			
	Total	18.0	0.0	9.0	9.0	0.0	0.0	0.0
Construction, R/W	State	144.4				43.9	60.3	40.2
	SBFCA	53.7				12.6	24.6	16.4
	Total	198.0	0.0	0.0	0.0	56.6	84.9	56.6
Total	State	153.4	0.0	4.5	4.5	43.9	60.3	40.2
	SBFCA	62.7	0.0	4.5	4.5	12.6	24.6	16.4
	Total	216.0	0.0	9.0	9.0	56.6	84.9	56.6
<b>Levee Segment 7</b>								
Environmental and Design	State	1.3		0.6	0.6			
	SBFCA	1.3		0.6	0.6			
	Total	2.5	0.0	1.3	1.3	0.0	0.0	0.0
Construction, R/W	State	22.9					8.0	14.9
	SBFCA	8.6					2.5	6.1
	Total	31.5	0.0	0.0	0.0	0.0	10.5	21.0
Total	State	24.2	0.0	0.6	0.6	0.0	8.0	14.9
	SBFCA	9.9	0.0	0.6	0.6	0.0	2.5	6.1
	Total	34.0	0.0	1.3	1.3	0.0	10.5	21.0
<b>Total Capital Project</b>								
	State	177.5	0.0	5.1	5.1	43.9	68.2	55.1
	SBFCA	72.5	0.0	5.1	5.1	12.6	27.1	22.5
	Total	250.0	0.0	10.3	10.3	56.6	95.4	77.6
District Administration	SBFCA		0.00	0.75	0.75	0.75	0.75	0.75
<b>Program Contingency</b>		16.26						16.26
<b>SBFCA Financing - Annual Debt Service</b>								
Sept. 1, 2010 Bond	5.21			0.118	0.118	0.118		
Sept. 1, 2011 Bond	5.205				0.13	0.13		
Sept. 1, 2012 Bond	5.205					0.11		
Sept. 1, 2013 Bond	78.625						5.90	5.90
<b>SBFCA Annual Revenue</b>								
	Assessments			6.65	6.65	6.65	6.65	6.65
	Bonds			5.00	5.00	5.00	56.04	
	Prior Year Balance			0.00	5.71	11.34	9.46	38.76
	Total		0.00	11.65	17.36	22.99	72.14	45.41
<b>SBFCA Annual Balance</b>								
	Expenditures		0.00	6.00	6.13	13.63	33.77	45.41
	Balance		0.00	5.65	11.23	9.36	38.37	0.00
	Interest		0.00	0.06	0.11	0.09	0.38	0.00
	Year End Balance		0.00	5.71	11.34	9.46	38.76	0.00

**TABLE 3.1 CASH FLOW ANALYSIS (CONTINUED)**

CASH FLOW ANALYSIS								
(\$ million)								
Project Activity	Agency	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
<b>Levee Segments 1 to 6</b>								
Environmental and Design	State							
	SBFCA							
	Total							
Construction, R/W	State							
	SBFCA							
	Total							
Total	State							
	SBFCA							
	Total							
<b>Levee Segment 7</b>								
Environmental and Design	State							
	SBFCA							
	Total							
Construction, R/W	State							
	SBFCA							
	Total							
Total	State							
	SBFCA							
	Total							
<b>Total Capital Project</b>								
	State							
	SBFCA							
	Total							
District Administration	SBFCA	0.75	0.75	0.75	0.75	0.75	0.75	0.75
<b>Program Contingency</b>								
<b>SBFCA Financing - Annual Debt Service</b>								
Sept. 1, 2010 Bond	5.21							
Sept. 1, 2011 Bond	5.205							
Sept. 1, 2012 Bond	5.205							
Sept. 1, 2013 Bond	78.625	5.90	5.90	5.90	5.90	5.90	5.90	5.90
<b>SBFCA Annual Revenue</b>								
	Assessments	6.65	6.65	6.65	6.65	6.65	6.65	6.65
	Bonds							
	Prior Year Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Total	6.65	6.65	6.65	6.65	6.65	6.65	6.65
<b>SBFCA Annual Balance</b>								
	Expenditures	6.65	6.65	6.65	6.65	6.65	6.65	6.65
	Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Interest	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Year End Balance	0.00	0.00	0.00	0.00	0.00	0.00	0.00

## 4. Assessment Methodology

### 4.1 Discussion of General and Special 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. XIID § 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 general public or to property outside the assessment district. 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. *Silicon Valley Taxpayers’ Assn., Inc. v. Santa Clara County Open Space Authority*, 44 Cal. 4th 431, 450 (2008).

A special benefit is a particular and distinct benefit over and above the general benefits conferred on real property located in the district or to the public at large. The total cost of the improvements must be apportioned among the properties being assessed based on the proportionate special benefit these properties will receive. Moreover, the governmental agency must demonstrate through a balloting process, weighted to reflect these special benefits, 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 financial obligation of the affected property.

In this instance, the properties within Sutter Butte Flood Control Agency’s (SBFCA) proposed Assessment District will receive a special flood protection benefit in the form of a substantial reduction in expected flood damages. For a relatively wide range of flood events, these properties will escape all of the pre-project damages to structures, the contents of structures and the land comprising the property they could have otherwise suffered.

The special flood damage reduction benefit provided by these flood control improvements will vary based on the size and use of the affected structures, and the relative size and location of the affected property. Moreover, because portions of the proposed levee improvements will protect some but not necessarily all the properties in the Assessment District, there are geographically distinct relative risks of flooding associated with the proposed levee improvements. To reflect this condition while adhering to Proposition 218’s special benefit requirement, the Assessment District will be divided into benefit areas that will reflect the geographically distinct relative risks of flooding.

Flood control projects, such as the one proposed, provide only special benefits and not general benefits. As noted above, special benefits are benefits “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. XIID § 2(i). Because flood control works protect particular identifiable parcels (including residents of the parcel and any appurtenant facilities or improvements) from damage due to inundation or force by arising floodwaters, the benefits are provided directly to those parcels, and to none other. By contrast, general benefits provided to the public at large are 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. XIID §§ 2(i), 6(2)(b)(5); *Silicon Valley Taxpayers*, 44 Cal. 4th 431, 450–56.

The issue of general benefits merits further discussion, however, because flood control works have an obvious indirect relationship to the provision of general benefits and may, upon first

blush, appear to be general benefits. For example, the activities to be funded by the assessment would protect parks that are used by people regardless of whether they own property within the basin or not. But this indirect relationship does not mean that these activities would themselves provide any general benefits. Rather, they will provide special benefits to all parcels within the basin, including special benefits to public parcels (such as parks) that are themselves used in the provision of general benefits.

More to the point, the public at large will be paying for the special benefits provided to this 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 roads, parks and other parcels used in the provision of general benefits. Assessing agencies are required by law to levy the assessment on all specially benefited property, including publicly owned property, within the assessment district. Cal. Const. art. XIID § 4(a). 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 and other public revenue to pay their assessments.

## **4.2 Flood Damage Reduction Benefit**

The special flood damage reduction benefit that will be provided to all of the properties in the Assessment District is based on avoidance of damage to structures, to the contents of the structures, and to land.

### **4.2.1 Structure and Content Damage**

USACE has defined potential flood damages to structures and contents by land use category:

- Industrial – losses and destruction of industrial properties, including warehouses, from inundation consist of fixtures and equipment, inventory, and structure.
- Commercial – structure value and content value including equipment and furniture, supplies, merchandise, and other items used in the conduct of business.
- Residential – physical damages to dwelling units (single-family, multi-family, and mobile homes) and to residential contents including household items and personal property.
- Agricultural – Non-residential structures on agricultural properties would experience damages to equipment, tools, Ag chemicals, livestock feed and other agricultural related content.

To reflect relative differences in the exposure of structures and their contents to flood-related damages, a structure and content damage factor has been calculated based on the following:

- Relative structure values and content values for residential, commercial and industrial were determined using USACE data developed in connection with a regional flood control study<sup>3</sup>. Content values for agricultural structures were derived from a recent USACE technical report for a regional flood control study<sup>4</sup>. These values represent gross averages for the different land uses based on the USACE estimates for structure replacement costs and content damages. They do not represent assessed value or current market value for any

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<sup>3</sup> US Army Corps of Engineers, *American River Watershed Investigation, California: Feasibility Report*, Sacramento District, December 1991.

<sup>4</sup> US Army Corps of Engineers, *Draft Economic Reevaluation Report*, American River Watershed Project, California, Appendix D, Attachment II, Technical Report: *Content Valuation and Depth-Damage Curves for Non-Residential Structures*, Sacramento District, May 2007.

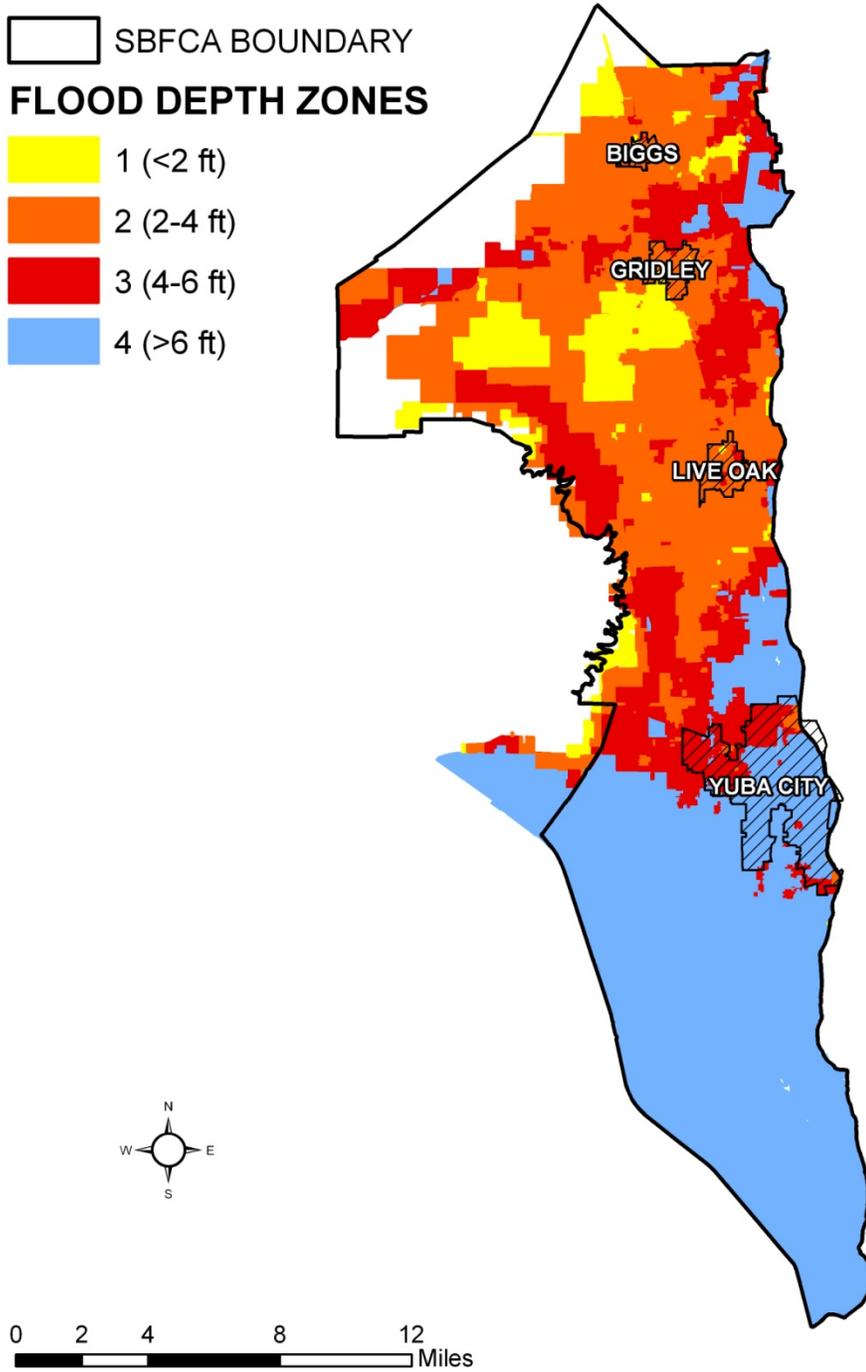
individual structure. Relative structure and content values in Table 4.1 are used in the assessment methodology to reflect the relative structure and content value relationships between land use categories.

**TABLE 4.1: RELATIVE STRUCTURE AND CONTENT VALUE**

Land Use	Relative Structure Value (\$/SF)	Relative Content Value (\$/SF)
Residential	60	30
Residential – Mobile Home	30	15
Commercial	70	75
Industrial	50	58
Agricultural	50	30

- Relative flood depths for the 200-year event were established by dividing the Assessment District into four depth zones (less than 2 feet, 2 to 4 feet, 4 to 6 feet and 6 feet or greater), as shown in Figure 4.1. The flood depth map was derived from maps, flood elevation data and flood depths developed by hydraulic modeling of possible levee failures at several locations along the proposed levee improvements.

FIGURE 4.1: FLOOD DEPTH ZONES



- The relationship between depth of flooding and damages to structure and contents was calculated for each land use category with structures (residential, commercial, industrial and agricultural) and flood depth zone in the Assessment District using the depth-damage curves established for the USACE American River Watershed Investigation. Curves for one story and two story residential, based on 1988 Federal Insurance Administration (FIA) depth-damage relationships for residential structures, were averaged together and applied to all residential structures.<sup>5</sup> USACE damage surveys of flood damaged structures conducted immediately after the storm of February 1986 confirmed the reasonableness of these 1988 FIA depth-damage relationships. The commercial and industrial curves were based on depth-damage relationships developed by the Tennessee Valley Authority (TVA) for the Department of Housing and Urban Development (HUD). For the USACE Morrison Creek Investigation, interviews with owners and managers of commercial buildings established depth-percent damage relationships that were very similar to those in the HUD study.

The resulting damages to structure and contents, expressed as a percent of the structure value, are shown in Table 4.2.

**TABLE 4.2: PERCENT DAMAGE TO STRUCTURE AND CONTENTS**

Percent Damage To Structure and Contents Expressed as A Percent <sup>6</sup> of Structure Value				
Land Use	Flood Depth Zones			
	Less than 2 ft	2 to 4 ft	4 to 6 ft	Greater than 6 ft
Residential	16%	35%	44%	64%
Commercial	34%	81%	109%	126%
Industrial	65%	77%	90%	108%
Agricultural	38%	49%	59%	74%

Flood damages to structures and their contents were calculated for each property in the Assessment District using the actual square footage 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 example, the relative structure and contents damages of a single-family residential structure with a square footage of 1,700 square feet (sf) located in flood depth zone 2 to 4 ft would be calculated as follows: \$60/sf x 1700 sf x 35% = \$35,700

<sup>5</sup> Neither Sutter County's nor Butte County's Assessor's Office contained information reflecting the split between one and two story residential structures. Because a survey of more than 20,000 structures was impracticable, the averaging of the one and two story depth-damage curves was deemed an appropriate method to reflect the variety of structure types present.

<sup>6</sup> Because percentage values represent damages to both structure and contents, they may exceed 100% of structure value.

#### 4.2.2 Damage to Land

There are a number of factors that 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, reduced cost of development, the ability to secure financing for urban development projects, reduced cost of flood insurance, changes in highest and best land use, preservation of land values, and avoidance of damage to crops, orchards and related impacts to agricultural operations.

Based on a determination in a similar regional flood study by a certified real estate appraiser, all parcels in the Assessment District would be subject to a ten-percent land damage factor. This is considered a conservatively low estimate of the assumed land damages that would occur in recognition that the affected parcels could be inundated by a major flood event.

As part of a regional flood benefit assessment<sup>7</sup> for the Sacramento Area Flood Control Agency (SAFCA), also located in the Central Valley, nearly 300,000 properties were assigned a land value based on land use, geographic location, parcel size and zoning. These base value estimates considered land alone, exclusive of any building improvements. The values derived were not assessed value or market value for any individual parcel of land. Rather they represented the value relationships between various land use classifications.

A weighted average land value was calculated for all parcels within the SAFCA flood benefit assessment boundary. For example, previously derived land values for approximately 68,000 parcels classified as single-family residential were summed and then divided by the total area of all such parcels. The result was a single land use value per acre for the single-family residential land use category. Values for the other land use categories were similarly derived. The resulting relative land use values were multiplied by the ten-percent land damage factor to define the relative land damage values. For agricultural land, locally representative land values for orchard and non-orchard lands were used. The values of relative land damage provided in Table 4.3 are utilized in the benefit calculation.

Accordingly, for the SBFCA Assessment District, the amount of flood damages to land for a particular property is calculated using the actual parcel acreage and the appropriate relative land damage value. For example, the flood damage benefit to land for a single-family residential property with a parcel area of 0.2 acres would be calculated as follows: \$25,100/acre x 0.2 acres = \$5,020

#### 4.2.3 Total Relative Flood Damage Reduction Benefit

The total relative flood damage reduction benefit for each parcel in the Assessment District is the sum of the structure and content damages and the land damages associated with that parcel. For example, the single-family residential property used in the above example calculations would have total flood damage reduction benefits of \$35,700 + \$5,020 = \$40,720.

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<sup>7</sup> Parsons Brinckerhoff Quade & Douglas, Inc., *Engineer's Report for SAFCA Operation and Maintenance Assessment for Assessment District No. 1*, June 20, 1991.

**TABLE 4.3: RELATIVE LAND DAMAGE**

<b>Land Use</b>	<b>Relative Land Damage (\$/Acre)</b>
Single-Family Residential	25,100
Multi-Family Residential	27,800
Commercial	55,400
Industrial	23,300
Vacant Residential	12,100
Vacant Commercial	33,000
Vacant Industrial	6,700
Agricultural Orchard	1,000
Agricultural	500

### **4.3 District Boundaries and Benefit Areas**

The Assessment District would fund the local share of the cost of the improvements along the west levee of the Feather River from Thermalito Afterbay to the confluence with the Sutter Bypass. Areas within the Assessment District from Yuba City to north of Biggs will receive protection from a “200-year” flood. Areas south of Yuba City within the Assessment District would receive flood risk reduction benefits from improvements to the west levee of the Feather River which, in combination with future California Department of Water Resources improvements to the Sutter Bypass, will provide “100-year” flood protection. Accordingly, all properties within the SBFCA’s jurisdictional boundary would be included in the Assessment District except for the following:

- Properties adjacent to Cherokee Canal/Butte Sink that would remain in a residual floodplain. The Cherokee Canal levee provides only a 25-year level of flood protection.
- Properties north of Sutter Buttes in the far westerly portion of SBFCA’s jurisdictional boundary that will remain in a residual floodplain (the Butte Sink).
- High ground areas above the 200-year floodplain around the easterly base of Sutter Buttes and in the far northerly portion of SBFCA’s jurisdictional boundary.

An area near the Town of Sutter at the confluence of Wadsworth Canal and Sutter Bypass would receive a flood risk reduction benefit from the activities proposed to funded by the assessment. This area is currently outside SBFCA’s jurisdictional boundary. Because these parcels benefit from the improvements, the area is included in the proposed Assessment District. If approved by the member jurisdictions, the SBFCA jurisdictional boundary would be modified to include this area prior to levying of assessments.

The proposed Assessment District boundary reflects SBFCA’s best judgment as to the maximum number of properties benefiting from each segment of the improved levee system based upon a “200-year” flood along the Feather River, assuming a variety of levee failure

locations along each levee segment. Approximately 34,000 parcels are within the Assessment District boundary, with about 24,000 parcels being single-family residential.

In order to properly allocate benefit to the properties in the proposed Assessment District, the levees to be rehabilitated were divided into seven approximately equal length benefit segments. Levee failures in each benefit segment were individually hydraulically modeled and the resulting 200-year flood inundation areas determined. This analysis resulted in eleven benefit areas being identified. Each benefit area has a unique relative flood risk associated with levee failures in various combinations of benefit segments. There are a maximum of seven possible levee segments that could affect each benefit area. The relative risk of flooding is defined as the number of levee segments that could result in a benefit area being flooded divided by the total number of levee segments. Relative risk could range from 1/7 (14.3%) to 7/7 (100.0%). Benefit areas south of Yuba City receive only a 100-year level of flood protection compared to 200-year protection for the remainder of the Assessment District. To reflect this reduced flood protection benefit a 0.5 adjustment factor is applied to the relative risk calculation for benefit areas south of Yuba City.

As shown in Figure 4.2, the benefit areas are defined as follows:

1. Benefit Area "A" would consist of the 200-year floodplain area in Butte County north of Biggs with a total of 333 parcels and 6,593 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segment 1. The relative risk in Benefit Area "A" is 1/7 or 14.3%;
2. Benefit Area "B" would consist of the 200-year floodplain area that includes the Cities of Biggs and Gridley with a total of 5,741 parcels and 58,080 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1 and 2. The relative risk in Benefit Area "B" is 2/7 or 28.6%;
3. Benefit Area "C" would consist of the 200-year floodplain area that includes the City of Live Oak with a total of 3,332 parcels and 8,729 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1, 2 and 3. The relative risk in Benefit Area "C" is 3/7 or 42.9%;
4. Benefit Area "D" would consist of the 200-year floodplain area in Sutter County between Live Oak and Yuba City with a total of 712 parcels and 15,385 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1, 2, 3 and 4. The relative risk in Benefit Area "D" is 4/7 or 57.1%;
5. Benefit Area "E1" would consist of the 200-year floodplain area that includes the northeast portion of Yuba City with a total of 4,267 parcels and 1,383 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 4 and 5. The relative risk in Benefit Area "E1" is 2/7 or 28.6%;
6. Benefit Area "E2" would consist of the 200-year floodplain area that includes the northwest portion of Yuba City with a total of 5,779 parcels and 7,778 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1, 2, 3, 4 and 5. The relative risk in Benefit Area "E2" is 5/7 or 71.4%;

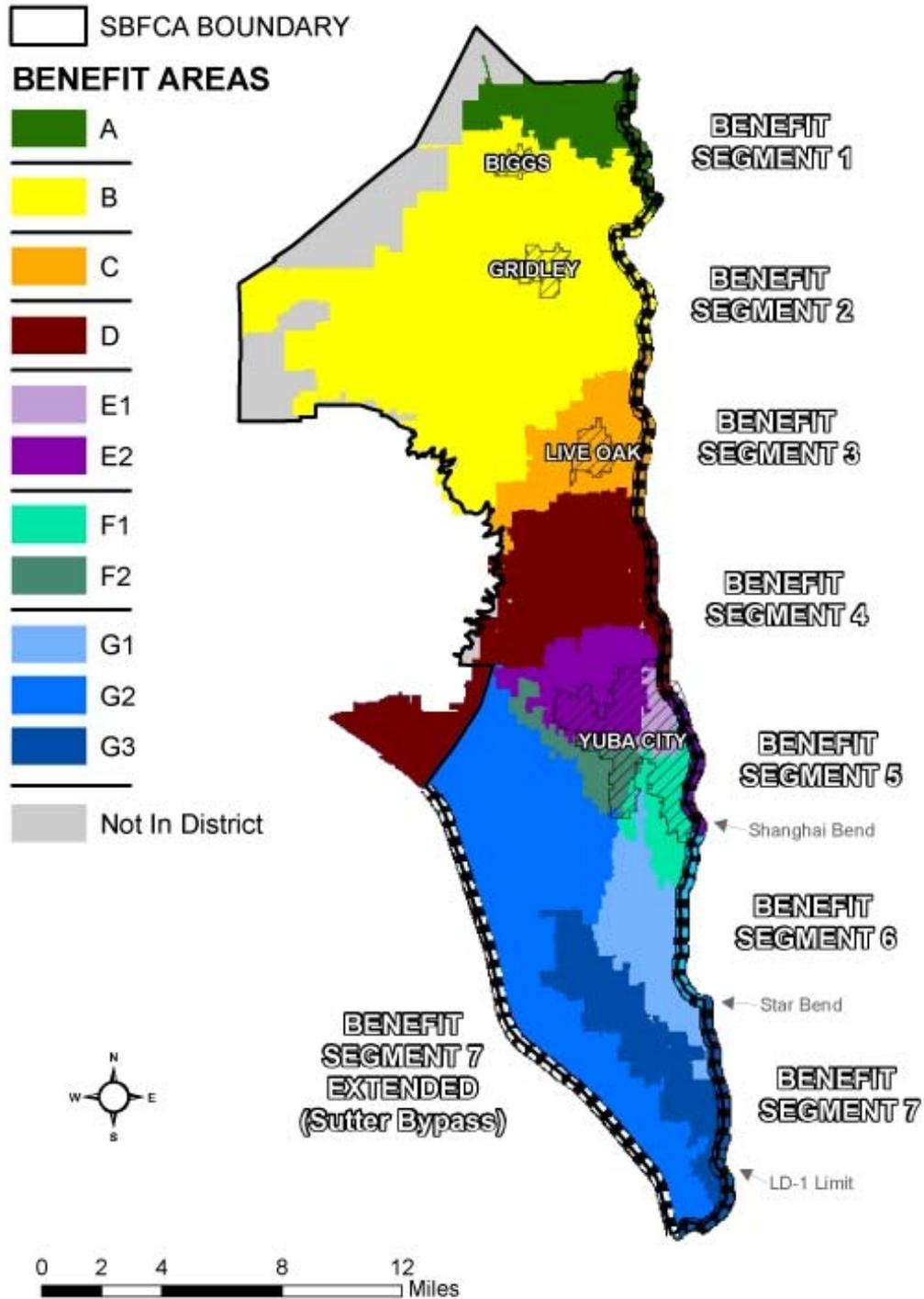
7. Benefit Area "F1" would consist of the 200-year floodplain area that includes the southeast portion of Yuba City with a total of 7,408 parcels and 4,494 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 4, 5 and 6. The relative risk in Benefit Area "F1" is  $3/7$  or 42.9%;
8. Benefit Area "F2" would consist of the 200-year floodplain area that includes the southwest portion of Yuba City with a total of 4,076 parcels and 3,477 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1, 2, 3, 4, 5 and 6. The relative risk in Benefit Area "F2" is  $6/7$  or 85.7%;
9. Benefit Area "G1" would consist of the 100-year floodplain area that includes the southeast portion of Sutter County south of Yuba City with a total of 834 parcels and 8,799 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 4, 5, 6 and 7. The relative risk in Benefit Area "G1" is  $(4/7) \times 0.5$  or 28.6%;
10. Benefit Area "G2" would consist of the 100-year floodplain area that includes the southwest portion of Sutter County south of Yuba City with a total of 1,062 parcels and 32,544 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 1, 2, 3, 4, 5, 6 and 7. The relative risk in Benefit Area "G2" is  $(7/7) \times 0.5$  or 50.0%;
11. Benefit Area "G3" would consist of the 100-year floodplain area that includes the south-central portion of Sutter County south of Yuba City with a total of 494 parcels and 10,774 acres. This area reflects all parcels benefited from improvements to specific levee segments (measured by the maximum extent of flooding possible) from levee failures in only levee segments 2, 4, 5, 6 and 7. The relative risk in Benefit Area "G3" is  $(5/7) \times 0.5$  or 35.7%;

Relative Risk Factors are summarized in Table 4.4.

**TABLE 4.4: RELATIVE RISK FACTORS**

<b>Benefit Area</b>	<b>Location</b>	<b>Subject to Levee Failures in Segments</b>	<b>Relative Risk</b>
A	Butte County	1	$1/7 = 14.3\%$
B	Biggs/Gridley	1, 2	$2/7 = 28.6\%$
C	Live Oak	1, 2, 3	$3/7 = 42.9\%$
D	Sutter North	1, 2, 3, 4	$4/7 = 57.1\%$
E1	Yuba City NE	4, 5	$2/7 = 28.6\%$
E2	Yuba City NW	1, 2, 3, 4, 5	$5/7 = 71.4\%$
F1	Yuba City SE	4, 5, 6	$3/7 = 42.9\%$
F2	Yuba City SW	1, 2, 3, 4, 5, 6	$6/7 = 85.7\%$
G1	Sutter SE	4, 5, 6, 7	$4/7 \times 0.5 = 28.6\%$
G2	Sutter SW	1, 2, 3, 4, 5, 6, 7	$7/7 \times 0.5 = 50.0\%$
G3	Sutter South Central	2, 4, 5, 6, 7	$5/7 \times 0.5 = 35.7\%$

FIGURE 4.2: BENEFIT AREAS



#### 4.4 Assessment Spread

The amount of the annual assessments collected from the Assessment District is sized to be sufficient to cover the local share of the cost of the improvements and the District's administrative costs associated with these improvements.

- For the local share of the cost of levee improvements, the relative flood damage reduction benefit for each parcel was multiplied by the relative risk factor for the Benefit Area containing the parcel and summed for all parcels in the Assessment District. This total risk adjusted flood damage reduction benefit was then divided by \$5.90 million,<sup>8</sup> the annual amount needed for levee improvements. The result is 0.00306805, the improvements rate portion of the total assessment rate.
- For the administrative cost of the District, the relative flood damage reduction benefit for each parcel was summed for all parcels in the Assessment District without consideration of the relative risk factor. The relative risk factor was not used for the administrative costs because the administrative costs must be paid to allow for the existence of the assessment district, and hence the activities to be funded by the assessment, and thus the benefit affects all parcels such as to make the relative risk factor irrelevant. This total flood damage reduction benefit was then divided by \$750,000, the annual amount needed for administration of the District. The result is 0.00018860, the administration rate portion of the total assessment rate.
- The annual assessment is calculated by multiplying each parcel's risk adjusted flood damage benefit by the improvement rate, multiplying each parcel's flood damage benefit by the administration rate, and adding the two amounts together. This insures parcel assessments are in proportion to the relative flood damage reduction benefits they receive from the activities to be funded by the assessment.

The details of applying the assessment rates to calculate an individual parcel's assessment are illustrated in Appendix C. Alternatively, an equivalent simplified formula to calculate assessments for all parcels can be expressed as follows:

$$[(\text{Building Rate}) \times (\text{Building Square Footage})] + [(\text{Parcel Rate}) \times (\text{Parcel Acreage})] = \text{Annual Assessment}$$

- Building Rate is a function of Benefit Area, Land Use, and Flood Depth Zone

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<sup>8</sup> Much of the data being used by SBFCA to generate the rates comes from the County Assessors for Sutter and Butte Counties. Because this data is not maintained by the Assessors in a form designed to support this 218 assessment effort, SBFCA staff has worked to refine the data so it properly reflects the conditions on the ground. However, throughout this formation period (and indeed even after formation of the assessment district), data errors have and will continue to come to light that require modification of the database. Changes in the data without a corresponding change in the rates established by this report will, by definition, change the total amount raised in any one year. For example, If the data assumes the existence of a house that has since burned down 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 as between the Draft Preliminary Engineer's Report, 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 amount will roughly offset each other. Therefore, although minor changes to the database have been and are continuing 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 is slightly less than or slightly more than \$ 6.65 million (\$5.9 million for debt service plus \$775,000 for administration).

- Parcel Rate is a function of Benefit Area and Land Use
- Square Footage for the first and second stories of all residential structures and for the first story of all commercial, industrial and agricultural structures was determined for each improved parcel in the Assessment District using data available from the County Assessor's records or other sources
- Parcel Acreage was obtained from the County Assessor's records
- Land Use categories were assigned to each parcel based on the County Assessor's Land Use Codes (Appendix B) and the assignments provided in Appendix D.
- Benefit Areas are as shown in Figure 4.2
- Flood Depth Zones are as defined in Figure 4.1
- Table 4.4 contains the Building Rate and Parcel Rate multipliers for the various Land Use categories, Benefit Areas and Flood Depth Zones. The use of Table 4.4 is demonstrated in the example assessment calculations below.

#### 4.5 Example Assessment Calculations

Using the assessment formula, Table 4.4 and the steps listed below, an individual parcel's assessment for either a current land use or potential future land use can be calculated.

- Step 1 – using Figure 4.2, determine the Benefit Area for the property
- Step 2 – determine the appropriate Land Use category for the property
- Step 3 – using Figure 4.1, determine the Flood Depth Zone for the property
- Step 4 – using Table 4.4, determine the appropriate Parcel Rate and Building Rate multipliers.
- Step 5 – insert the actual parcel acreage and appropriate building square footage into the assessment formula and calculate the assessment

The following examples illustrate such calculations.

##### Example 1

Assume a single-family residential property located in the Benefit Area "B", Flood Depth Zone 2 to 4 feet, parcel size is 0.2 acres and building total square footage is 1,700 square feet. From Table 4.4, Parcel Rate = 26.758 and Building Rate = 0.022387. The assessment is calculated as:

$$(0.022387 \times 1,700 \text{ sf}) + (26.758 \times 0.2 \text{ ac}) = \$43$$

##### Example 2

Assume a commercial property located in Benefit Area "C", Flood Depth Zone 4 to 6 feet, parcel size is 0.4 acres and building first-floor square footage is 5,000 square feet. From Table 4.4, Parcel Rate = 83.365 and Building Rate = 0.114815. The assessment is calculated as:

$$(0.114815 \times 5,000 \text{ sf}) + (83.365 \times 0.4 \text{ ac}) = \$607$$

##### Example 3

Assume an industrial property located in Benefit Area "E1", Flood Depth Greater than 6 feet, parcel size is 1.0 acres and building first floor square footage is 10,000 square feet. From Table 4.4, Parcel Rate = 24.839 and Building Rate = 0.057567. The assessment is calculated as:

$$(0.057567 \times 10,000 \text{ sf}) + (24.839 \times 1.0 \text{ ac}) = \$601$$

Example 4

Assume an agricultural-residential (non-orchard) property located in Benefit Area "G3", Flood Depth Zone greater than 6 feet, parcel size is 40.0 acres, residential building total square footage is 2,000 square feet, and additional building first floor square footage is 5,000 square feet.

From Table 4.4, Parcel Rate = 0.642, Residential Building Rate = 0.049301, and Additional Building Rate = 0.047504. The assessment is calculated as:

$$(0.049301 \times 2,000 \text{ sf}) + (0.047504 \times 5,000 \text{ sf}) + (0.642 \times 40.0 \text{ ac}) = \$362$$

**TABLE 4.5: BUILDING AND PARCEL RATES BY LAND USE AND BENEFIT AREA**

SCENARIO 6C		Benefit Area		A				B				C			
		Flood Depth Range		< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <
		Flood Depth Zone		1	2	3	4	1	2	3	4	1	2	3	4
Land Use	Rate														
Single-Family Residential (2)	Parcel (per Acre) (1)	15.746	15.746	15.746	15.746	26.758	26.758	26.758	26.758	37.770	37.770	37.770	37.770		
	Building (per Building Sq Ft)	0.006022	0.013174	0.016561	0.024089	0.010234	0.022387	0.028144	0.040937	0.014446	0.031601	0.039726	0.057784		
Residential Mobile Home (2)	Parcel (per Acre) (4)	15.746	15.746	15.746	15.746	26.758	26.758	26.758	26.758	37.770	37.770	37.770	37.770		
	Building (per Building Sq Ft)	0.003011	0.006587	0.008281	0.012045	0.005117	0.011194	0.014072	0.020468	0.007223	0.015800	0.019863	0.028892		
Multi Family Residential (2)	Parcel (per Acre)	17.440	17.440	17.440	17.440	29.636	29.636	29.636	29.636	41.833	41.833	41.833	41.833		
	Building (per Building Sq Ft)	0.006022	0.013174	0.016561	0.024089	0.010234	0.022387	0.028144	0.040937	0.014446	0.031601	0.039726	0.057784		
Agricultural Residential (Orchard)	Parcel (per Acre)	0.627	0.627	0.627	0.627	1.066	1.066	1.066	1.066	1.505	1.505	1.505	1.505		
	Residential Building (per Sq Ft)	0.006022	0.013174	0.016561	0.024089	0.010234	0.022387	0.028144	0.040937	0.014446	0.031601	0.039726	0.057784		
	Additional Building (per Sq Ft)	0.011919	0.015369	0.018506	0.023211	0.020255	0.026118	0.031449	0.039444	0.028591	0.036867	0.044391	0.055677		
Agricultural Residential (Non-Orchard)	Parcel (per Acre)	0.314	0.314	0.314	0.314	0.533	0.533	0.533	0.533	0.752	0.752	0.752	0.752		
	Residential Building (per Sq Ft)	0.006022	0.013174	0.016561	0.024089	0.010234	0.022387	0.028144	0.040937	0.014446	0.031601	0.039726	0.057784		
	Additional Building (per Sq Ft)	0.011919	0.015369	0.018506	0.023211	0.020255	0.026118	0.031449	0.039444	0.028591	0.036867	0.044391	0.055677		
Agricultural (Orchard)	Parcel (per Acre)	0.627	0.627	0.627	0.627	1.066	1.066	1.066	1.066	1.505	1.505	1.505	1.505		
	Building (per FF Sq Ft)	0.011919	0.015369	0.018506	0.023211	0.020255	0.026118	0.031449	0.039444	0.028591	0.036867	0.044391	0.055677		
Agricultural (Non-Orchard)	Parcel (per Acre)	0.314	0.314	0.314	0.314	0.533	0.533	0.533	0.533	0.752	0.752	0.752	0.752		
	Building (per FF Sq Ft)	0.011919	0.015369	0.018506	0.023211	0.020255	0.026118	0.031449	0.039444	0.028591	0.036867	0.044391	0.055677		
Institutional/Government	Parcel (per Acre)	34.754	34.754	34.754	34.754	59.060	59.060	59.060	59.060	83.365	83.365	83.365	83.365		
	Building (per FF Sq Ft)	0.014930	0.035569	0.047865	0.055330	0.025372	0.060445	0.081340	0.094026	0.035814	0.085321	0.114815	0.132722		
Commercial	Parcel (per Acre)	34.754	34.754	34.754	34.754	59.060	59.060	59.060	59.060	83.365	83.365	83.365	83.365		
	Building (per FF Sq Ft)	0.014930	0.035569	0.047865	0.055330	0.025372	0.060445	0.081340	0.094026	0.035814	0.085321	0.114815	0.132722		
Industrial	Parcel (per Acre)	14.617	14.617	14.617	14.617	24.839	24.839	24.839	24.839	35.062	35.062	35.062	35.062		
	Building (per FF Sq Ft)	0.020388	0.024152	0.028230	0.033876	0.034647	0.041043	0.047973	0.057567	0.048906	0.057934	0.067715	0.081258		
Vacant Residential	Parcel (per Acre) (3)	7.591	7.591	7.591	7.591	12.899	12.899	12.899	12.899	18.208	18.208	18.208	18.208		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0		
Vacant Commercial	Parcel (per Acre)	20.702	20.702	20.702	20.702	35.180	35.180	35.180	35.180	49.658	49.658	49.658	49.658		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0		
Vacant Industrial	Parcel (per Acre)	4.203	4.203	4.203	4.203	7.143	7.143	7.143	7.143	10.082	10.082	10.082	10.082		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0		
Vacant Public	Parcel (per Acre)	0.314	0.314	0.314	0.314	0.533	0.533	0.533	0.533	0.752	0.752	0.752	0.752		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0		

(1) For large lot Single Family Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.  
 (2) Total Building SF not including garage area  
 (3) For large lot Vacant Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.  
 (4) For large lot Residential Mobile Home parcels (parcel area greater than 0.5 acres and building square footage less than 3,000), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

**TABLE 4.5: BUILDING AND PARCEL RATES BY LAND USE AND BENEFIT AREA  
(CONTINUED)**

SCENARIO 6C		Benefit Area Flood Depth Range Flood Depth Zone	D				E1				E2			
			< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <
Land Use	Rate	1	2	3	4	1	2	3	4	1	2	3	4	
Single-Family Residential (2)	Parcel (per Acre) (1)	48.705	48.705	48.705	48.705	26.758	26.758	26.758	26.758	59.717	59.717	59.717	59.717	
	Building (per Building Sq Ft)	0.018628	0.040749	0.051228	0.074513	0.010234	0.022387	0.028144	0.040937	0.022840	0.049963	0.062810	0.091361	
Residential Mobile Home (2)	Parcel (per Acre) (4)	48.705	48.705	48.705	48.705	26.758	26.758	26.758	26.758	59.717	59.717	59.717	59.717	
	Building (per Building Sq Ft)	0.009314	0.020375	0.025614	0.037257	0.005117	0.011194	0.014072	0.020468	0.011420	0.024981	0.031405	0.045680	
Multi Family Residential (2)	Parcel (per Acre)	53.944	53.944	53.944	53.944	29.636	29.636	29.636	29.636	66.141	66.141	66.141	66.141	
	Building (per Building Sq Ft)	0.018628	0.040749	0.051228	0.074513	0.010234	0.022387	0.028144	0.040937	0.022840	0.049963	0.062810	0.091361	
Agricultural Residential (Orchard)	Parcel (per Acre)	1.940	1.940	1.940	1.940	1.066	1.066	1.066	1.066	2.379	2.379	2.379	2.379	
	Residential Building (per Sq Ft)	0.018628	0.040749	0.051228	0.074513	0.010234	0.022387	0.028144	0.040937	0.022840	0.049963	0.062810	0.091361	
	Additional Building (per Sq Ft)	0.036869	0.047541	0.057243	0.071797	0.020255	0.026118	0.031449	0.039444	0.045204	0.058290	0.070186	0.088030	
Agricultural Residential (Non-Orchard)	Parcel (per Acre)	0.970	0.970	0.970	0.970	0.533	0.533	0.533	0.533	1.190	1.190	1.190	1.190	
	Residential Building (per Sq Ft)	0.018628	0.040749	0.051228	0.074513	0.010234	0.022387	0.028144	0.040937	0.022840	0.049963	0.062810	0.091361	
	Additional Building (per Sq Ft)	0.036869	0.047541	0.057243	0.071797	0.020255	0.026118	0.031449	0.039444	0.045204	0.058290	0.070186	0.088030	
Agricultural (Orchard)	Parcel (per Acre)	1.940	1.940	1.940	1.940	1.066	1.066	1.066	1.066	2.379	2.379	2.379	2.379	
	Building (per FF Sq Ft)	0.036869	0.047541	0.057243	0.071797	0.020255	0.026118	0.031449	0.039444	0.045204	0.058290	0.070186	0.088030	
Agricultural (Non-Orchard)	Parcel (per Acre)	0.970	0.970	0.970	0.970	0.533	0.533	0.533	0.533	1.190	1.190	1.190	1.190	
	Building (per FF Sq Ft)	0.036869	0.047541	0.057243	0.071797	0.020255	0.026118	0.031449	0.039444	0.045204	0.058290	0.070186	0.088030	
Institutional/Government	Parcel (per Acre)	107.501	107.501	107.501	107.501	59.060	59.060	59.060	59.060	131.807	131.807	131.807	131.807	
	Building (per FF Sq Ft)	0.046183	0.110023	0.148056	0.171148	0.025372	0.060445	0.081340	0.094026	0.056624	0.134900	0.181531	0.209844	
Commercial	Parcel (per Acre)	107.501	107.501	107.501	107.501	59.060	59.060	59.060	59.060	131.807	131.807	131.807	131.807	
	Building (per FF Sq Ft)	0.046183	0.110023	0.148056	0.171148	0.025372	0.060445	0.081340	0.094026	0.056624	0.134900	0.181531	0.209844	
Industrial	Parcel (per Acre)	45.212	45.212	45.212	45.212	24.839	24.839	24.839	24.839	55.435	55.435	55.435	55.435	
	Building (per FF Sq Ft)	0.063065	0.074707	0.087320	0.104784	0.034647	0.041043	0.047973	0.057567	0.077323	0.091598	0.107063	0.128476	
Vacant Residential	Parcel (per Acre) (3)	23.479	23.479	23.479	23.479	12.899	12.899	12.899	12.899	28.788	28.788	28.788	28.788	
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Vacant Commercial	Parcel (per Acre)	64.035	64.035	64.035	64.035	35.180	35.180	35.180	35.180	78.513	78.513	78.513	78.513	
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Vacant Industrial	Parcel (per Acre)	13.001	13.001	13.001	13.001	7.143	7.143	7.143	7.143	15.941	15.941	15.941	15.941	
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0	
Vacant Public	Parcel (per Acre)	0.970	0.970	0.970	0.970	0.533	0.533	0.533	0.533	1.190	1.190	1.190	1.190	
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0	

(1) For large lot Single Family Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.  
 (2) Total Building SF not including garage area  
 (3) For large lot Vacant Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.  
 (4) For large lot Residential Mobile Home parcels (parcel area greater than 0.5 acres and building square footage less than 3,000), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

**TABLE 4.5: BUILDING AND PARCEL RATES BY LAND USE AND BENEFIT AREA  
(CONTINUED)**

SCENARIO 6C		Benefit Area				F1				F2				G1			
		Flood Depth Range															
		Flood Depth Zone															
		< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <
Land Use	Rate	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Single-Family Residential (2)	Parcel (per Acre) (1)	37.770	37.770	37.770	37.770	70.730	70.730	70.730	70.730	26.758	26.758	26.758	26.758				
	Building (per Building Sq Ft)	0.014446	0.031601	0.039726	0.057784	0.027052	0.059176	0.074393	0.108208	0.010234	0.022387	0.028144	0.040937				
Residential Mobile Home (2)	Parcel (per Acre) (4)	37.770	37.770	37.770	37.770	70.730	70.730	70.730	70.730	26.758	26.758	26.758	26.758				
	Building (per Building Sq Ft)	0.007223	0.015800	0.019863	0.028892	0.013526	0.029588	0.037196	0.054104	0.005117	0.011194	0.014072	0.020468				
Multi Family Residential (2)	Parcel (per Acre)	41.833	41.833	41.833	41.833	78.338	78.338	78.338	78.338	29.636	29.636	29.636	29.636				
	Building (per Building Sq Ft)	0.014446	0.031601	0.039726	0.057784	0.027052	0.059176	0.074393	0.108208	0.010234	0.022387	0.028144	0.040937				
Agricultural Residential (Orchard)	Parcel (per Acre)	1.505	1.505	1.505	1.505	2.818	2.818	2.818	2.818	1.066	1.066	1.066	1.066				
	Residential Building (per Sq Ft)	0.014446	0.031601	0.039726	0.057784	0.027052	0.059176	0.074393	0.108208	0.010234	0.022387	0.028144	0.040937				
	Additional Building (per Sq Ft)	0.028591	0.036867	0.044391	0.055677	0.053540	0.069039	0.083128	0.104263	0.020255	0.026118	0.031449	0.039444				
Agricultural Residential (Non-Orchard)	Parcel (per Acre)	0.752	0.752	0.752	0.752	1.409	1.409	1.409	1.409	0.533	0.533	0.533	0.533				
	Residential Building (per Sq Ft)	0.014446	0.031601	0.039726	0.057784	0.027052	0.059176	0.074393	0.108208	0.010234	0.022387	0.028144	0.040937				
	Additional Building (per Sq Ft)	0.028591	0.036867	0.044391	0.055677	0.053540	0.069039	0.083128	0.104263	0.020255	0.026118	0.031449	0.039444				
Agricultural (Orchard)	Parcel (per Acre)	1.505	1.505	1.505	1.505	2.818	2.818	2.818	2.818	1.066	1.066	1.066	1.066				
	Building (per FF Sq Ft)	0.028591	0.036867	0.044391	0.055677	0.053540	0.069039	0.083128	0.104263	0.020255	0.026118	0.031449	0.039444				
Agricultural (Non-Orchard)	Parcel (per Acre)	0.752	0.752	0.752	0.752	1.409	1.409	1.409	1.409	0.533	0.533	0.533	0.533				
	Building (per FF Sq Ft)	0.028591	0.036867	0.044391	0.055677	0.053540	0.069039	0.083128	0.104263	0.020255	0.026118	0.031449	0.039444				
Institutional/Government	Parcel (per Acre)	83.365	83.365	83.365	83.365	156.112	156.112	156.112	156.112	59.060	59.060	59.060	59.060				
	Building (per FF Sq Ft)	0.035814	0.085321	0.114815	0.132722	0.067066	0.159776	0.215007	0.248540	0.025372	0.060445	0.081340	0.094026				
Commercial	Parcel (per Acre)	83.365	83.365	83.365	83.365	156.112	156.112	156.112	156.112	59.060	59.060	59.060	59.060				
	Building (per FF Sq Ft)	0.035814	0.085321	0.114815	0.132722	0.067066	0.159776	0.215007	0.248540	0.025372	0.060445	0.081340	0.094026				
Industrial	Parcel (per Acre)	35.062	35.062	35.062	35.062	65.657	65.657	65.657	65.657	24.839	24.839	24.839	24.839				
	Building (per FF Sq Ft)	0.048906	0.057934	0.067715	0.081258	0.091582	0.108490	0.126806	0.152167	0.034647	0.041043	0.047973	0.057567				
Vacant Residential	Parcel (per Acre) (3)	18.208	18.208	18.208	18.208	34.097	34.097	34.097	34.097	12.899	12.899	12.899	12.899				
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0				
Vacant Commercial	Parcel (per Acre)	49.658	49.658	49.658	49.658	92.991	92.991	92.991	92.991	35.180	35.180	35.180	35.180				
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0				
Vacant Industrial	Parcel (per Acre)	10.082	10.082	10.082	10.082	18.880	18.880	18.880	18.880	7.143	7.143	7.143	7.143				
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0				
Vacant Public	Parcel (per Acre)	0.752	0.752	0.752	0.752	1.409	1.409	1.409	1.409	0.533	0.533	0.533	0.533				
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0	0	0	0	0				

- (1) For large lot Single Family Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.
- (2) Total Building SF not including garage area
- (3) For large lot Vacant Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.
- (4) For large lot Residential Mobile Home parcels (parcel area greater than 0.5 acres and building square footage less than 3,000), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

**TABLE 4.5: BUILDING AND PARCEL RATES BY LAND USE AND BENEFIT AREA  
(CONTINUED)**

SCENARIO 6C		Benefit Area		G2				G3			
		Flood Depth Range		< 2ft	2 - 4ft	4 - 6ft	6 ft <	< 2ft	2 - 4ft	4 - 6ft	6 ft <
		Flood Depth Zone		1	2	3	4	1	2	3	4
Land Use	Rate										
Single-Family Residential (2)	Parcel (per Acre) (1)	43.238	43.238	43.238	43.238	32.226	32.226	32.226	32.226		
	Building (per Building Sq Ft)	0.016537	0.036175	0.045477	0.066149	0.012325	0.026962	0.033895	0.049301		
Residential Mobile Home (2)	Parcel (per Acre) (4)	43.238	43.238	43.238	43.238	32.226	32.226	32.226	32.226		
	Building (per Building Sq Ft)	0.008269	0.018087	0.022739	0.033074	0.006163	0.013481	0.016947	0.024651		
Multi Family Residential (2)	Parcel (per Acre)	47.889	47.889	47.889	47.889	35.692	35.692	35.692	35.692		
	Building (per Building Sq Ft)	0.016537	0.036175	0.045477	0.066149	0.012325	0.026962	0.033895	0.049301		
Agricultural Residential (Orchard)	Parcel (per Acre)	1.723	1.723	1.723	1.723	1.284	1.284	1.284	1.284		
	Residential Building (per Sq Ft)	0.016537	0.036175	0.045477	0.066149	0.012325	0.026962	0.033895	0.049301		
	Additional Building (per Sq Ft)	0.032730	0.042204	0.050817	0.063737	0.024394	0.031455	0.037875	0.047504		
Agricultural Residential (Non-Orchard)	Parcel (per Acre)	0.861	0.861	0.861	0.861	0.642	0.642	0.642	0.642		
	Residential Building (per Sq Ft)	0.016537	0.036175	0.045477	0.066149	0.012325	0.026962	0.033895	0.049301		
	Additional Building (per Sq Ft)	0.032730	0.042204	0.050817	0.063737	0.024394	0.031455	0.037875	0.047504		
Agricultural (Orchard)	Parcel (per Acre)	1.723	1.723	1.723	1.723	1.284	1.284	1.284	1.284		
	Building (per FF Sq Ft)	0.032730	0.042204	0.050817	0.063737	0.024394	0.031455	0.037875	0.047504		
Agricultural (Non-Orchard)	Parcel (per Acre)	0.861	0.861	0.861	0.861	0.642	0.642	0.642	0.642		
	Building (per FF Sq Ft)	0.032730	0.042204	0.050817	0.063737	0.024394	0.031455	0.037875	0.047504		
Institutional/Government	Parcel (per Acre)	95.433	95.433	95.433	95.433	71.127	71.127	71.127	71.127		
	Building (per FF Sq Ft)	0.040998	0.097672	0.131436	0.151935	0.030557	0.072796	0.097961	0.113239		
Commercial	Parcel (per Acre)	95.433	95.433	95.433	95.433	71.127	71.127	71.127	71.127		
	Building (per FF Sq Ft)	0.040998	0.097672	0.131436	0.151935	0.030557	0.072796	0.097961	0.113239		
Industrial	Parcel (per Acre)	40.137	40.137	40.137	40.137	29.915	29.915	29.915	29.915		
	Building (per FF Sq Ft)	0.055985	0.066321	0.077518	0.093021	0.041726	0.049430	0.057775	0.069330		
Vacant Residential	Parcel (per Acre) (3)	20.844	20.844	20.844	20.844	15.535	15.535	15.535	15.535		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0		
Vacant Commercial	Parcel (per Acre)	56.846	56.846	56.846	56.846	42.368	42.368	42.368	42.368		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0		
Vacant Industrial	Parcel (per Acre)	11.542	11.542	11.542	11.542	8.602	8.602	8.602	8.602		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0		
Vacant Public	Parcel (per Acre)	0.861	0.861	0.861	0.861	0.642	0.642	0.642	0.642		
	Building (per FF Sq Ft)	0	0	0	0	0	0	0	0		

(1) For large lot Single Family Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

(2) Total Building SF not including garage area

(3) For large lot Vacant Residential parcels (parcel area greater than 0.5 acres), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

(4) For large lot Residential Mobile Home parcels (parcel area greater than 0.5 acres and building square footage less than 3,000), multiply area greater than 0.5 acre by Agricultural (Orchard) parcel rate.

## **4.6 Special Procedures**

Public Parcels. Consistent with the requirements of Proposition 218, all publicly owned parcels are assessed proportionately to the special flood damage reduction benefit they receive from the improvements. That is, public parcels are treated the same as privately owned parcels for assessment calculation purposes. As shown in Appendix D, County Assessor's land use codes were used to classify privately owned properties into land use categories (e.g., single-family residential, multi-family residential, commercial, industrial, agricultural and corresponding vacant categories). For public parcels, however, the Assessor's land use codes only designate the type of public ownership. Therefore, to calculate assessments for these parcels, a land use category was assigned to each public parcel based on its assumed current use.

Minimum Assessments. The minimum annual assessment will be \$1.50 to reflect SBFCA's cost to administer the Assessment District roll. All annual assessments calculated to be less than \$1.50 will be raised to the \$1.50 minimum.

Updating Assessment Rolls. Recalculating assessments on an annual basis would accommodate changes in the Assessment District over time. These changes can result from development activity such as recordation of subdivision maps, zoning changes, conditional use permits, and lot splits. An increase in building square footage, placement of a structure on an undeveloped parcel, or other such changes would trigger a recalculation of the assessment on the underlying property.

It is recognized that when dealing with the thousands of parcels that will be part of the Assessment District, using information from the Sutter and Butte County Assessor's Office as the primary source of data for individual parcel characteristics may lead to some errors and some circumstances that do not precisely fit the intent of the new district. Where such circumstances are discovered, either by the persons administering the Assessment District or by the owners of the properties affected, the Executive Director of SBFCA (or his designee) shall review such circumstances. The Executive Director (or his designee) shall determine if corrections or adjustments are appropriate, any such corrections or adjustments being consistent with the concept, intent and parameters of the Assessment District as set forth herein. Unless such proposed changes are appealed to the SBFCA Board of Directors, they will be incorporated into the assessment roll.

## **4.7 Typical Assessments**

Table 4.5 presents a comparison of assessments for a "typical" single family residential (SFR) parcel across all benefit areas and flood depth zones. Table 4.6 and Table 4.7 provide similar comparisons of assessments for a "typical" commercial property and a "typical" industrial property, respectively. Table 4.8 provides assessments per acre for the two agricultural categories.

**TABLE 4.6: TYPICAL SINGLE FAMILY RESIDENTIAL ASSESSMENTS**

**Typical Single Family Residential Assessment by Flood Depth and Benefit Area**

<b>SCENARIO 6C</b>	<b>FLOOD DEPTH</b>			
<b>BENEFIT AREA</b>	<b>Less than 2ft</b>	<b>2ft - 4ft</b>	<b>4ft - 6ft</b>	<b>Greater than 6ft</b>
<b>A</b>	\$ 13	\$ 26	\$ 31	\$ 44
<b>B</b>	\$ 23	\$ 43	\$ 53	\$ 75
<b>C</b>	\$ 32	\$ 61	\$ 75	\$ 106
<b>D</b>	\$ 41	\$ 79	\$ 97	\$ 136
<b>E1</b>	\$ 23	\$ 43	\$ 53	\$ 75
<b>E2</b>	\$ 51	\$ 97	\$ 119	\$ 167
<b>F1</b>	\$ 32	\$ 61	\$ 75	\$ 106
<b>F2</b>	\$ 60	\$ 115	\$ 141	\$ 198
<b>G1</b>	\$ 23	\$ 43	\$ 53	\$ 75
<b>G2</b>	\$ 37	\$ 70	\$ 86	\$ 121
<b>G3</b>	\$ 27	\$ 52	\$ 64	\$ 90

NOTE: Parcel assessments based on a single family residential home having a building size of 1700 square feet (excluding garage) and a parcel size of 0.20 acres.

**TABLE 4.7: TYPICAL COMMERCIAL ASSESSMENTS**

**Typical COMMERCIAL Assessment by Flood Depth and Benefit Area**

<b>SCENARIO 6C</b>	<b>FLOOD DEPTH</b>			
<b>BENEFIT AREA</b>	<b>Less than 2ft</b>	<b>2ft - 4ft</b>	<b>4ft - 6ft</b>	<b>Greater than 6 ft</b>
<b>A</b>	\$ 89	\$ 192	\$ 253	\$ 291
<b>B</b>	\$ 150	\$ 326	\$ 430	\$ 494
<b>C</b>	\$ 212	\$ 460	\$ 607	\$ 697
<b>D</b>	\$ 274	\$ 593	\$ 783	\$ 899
<b>E1</b>	\$ 150	\$ 326	\$ 430	\$ 494
<b>E2</b>	\$ 336	\$ 727	\$ 960	\$ 1,102
<b>F1</b>	\$ 212	\$ 460	\$ 607	\$ 697
<b>F2</b>	\$ 398	\$ 861	\$ 1,137	\$ 1,305
<b>G1</b>	\$ 150	\$ 326	\$ 430	\$ 494
<b>G2</b>	\$ 243	\$ 527	\$ 695	\$ 798
<b>G3</b>	\$ 181	\$ 392	\$ 518	\$ 595

NOTE: Parcel assessments based on a commercial parcel having a building size of 5,000 square feet and a parcel size of 0.40 acres.

**TABLE 4.8: TYPICAL INDUSTRIAL ASSESSMENTS**

Typical INDUSTRIAL Assessment by Flood Depth and Benefit Area

<b>SCENARIO 6C</b>	<b>FLOOD DEPTH</b>			
<b>BENEFIT AREA</b>	<b>Less than 2ft</b>	<b>2ft - 4ft</b>	<b>4ft - 6ft</b>	<b>Greater than 6 ft</b>
<b>A</b>	\$ 218	\$ 256	\$ 297	\$ 353
<b>B</b>	\$ 371	\$ 435	\$ 505	\$ 601
<b>C</b>	\$ 524	\$ 614	\$ 712	\$ 848
<b>D</b>	\$ 676	\$ 792	\$ 918	\$ 1,093
<b>E1</b>	\$ 371	\$ 435	\$ 505	\$ 601
<b>E2</b>	\$ 829	\$ 971	\$ 1,126	\$ 1,340
<b>F1</b>	\$ 524	\$ 614	\$ 712	\$ 848
<b>F2</b>	\$ 981	\$ 1,151	\$ 1,334	\$ 1,587
<b>G1</b>	\$ 371	\$ 435	\$ 505	\$ 601
<b>G2</b>	\$ 600	\$ 703	\$ 815	\$ 970
<b>G3</b>	\$ 447	\$ 524	\$ 608	\$ 723

NOTE: Parcel assessments based on an industrial parcel having a building size of 10,000 square feet and a parcel size of 1.0 acre.

**TABLE 4.9: TYPICAL AGRICULTURAL ASSESSMENTS**

AG and AG\_ORCHARD (Typical) Assessments per Acre by Benefit Area (excluding structures)

<b>SCENARIO 6C</b>	<b>Typical Asmt (Excluding Structures)</b>	
<b>BENEFIT AREA</b>	<b>AGRICULTURAL</b>	<b>AGRICULTURAL_ORCHARD</b>
<b>A</b>	\$ 0.31	\$ 0.63
<b>B</b>	\$ 0.53	\$ 1.07
<b>C</b>	\$ 0.75	\$ 1.50
<b>D</b>	\$ 0.97	\$ 1.94
<b>E1</b>	\$ 0.53	\$ 1.07
<b>E2</b>	\$ 1.19	\$ 2.38
<b>F1</b>	\$ 0.75	\$ 1.50
<b>F2</b>	\$ 1.41	\$ 2.82
<b>G1</b>	\$ 0.53	\$ 1.07
<b>G2</b>	\$ 0.86	\$ 1.72
<b>G3</b>	\$ 0.64	\$ 1.28

NOTE: Actual parcel assessments will vary based on parcel acreage.

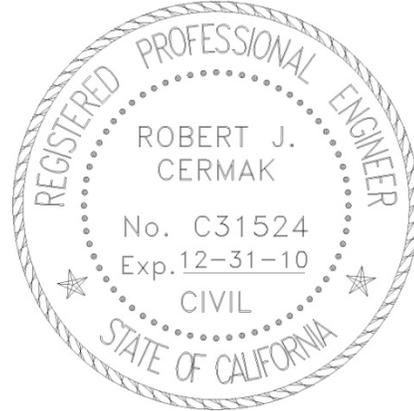
## 5. Conclusions

It is concluded that the proposed new assessments do not exceed the special benefit received by the properties assessed over and above the benefits conferred on the public at large. It is also concluded that the amount of each assessment is proportional to, and no greater than, the special benefits conferred on each property assessed.

*Robert J. Cermak*

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By: Robert J. Cermak, P.E.  
Parsons Brinckerhoff



## 6. Schedule

In order to have Fiscal Year 2010-11 assessments collected on the Sutter and Butte County tax bills, the assessment roll for the new assessment district must be endorsed and filed with the Sutter and Butte County Auditor/Tax Collector no later than August 15, 2010. A schedule to meet this requirement is as follows:

Date	Event
March 18, 2010	Draft Preliminary Engineer's Report provided to SBFCA Board
April 7, 2010	Preliminary Engineer's Report filed and delivered to SBFCA Board
April 14, 2010 and May 12, 2010	JPA Board Meeting/Public Hearing on the new assessment district: Board Action: Adopt Resolution of Intention to undertake a special capital assessment proceeding for the formation of the new assessment district, JPA Board Action: Adopt resolution tentatively approving the Preliminary Engineer's Report and setting the date, time and place for a public hearing to consider formation of the new assessment district.
May 14, 2010	Clerk of the JPA Board mails notice of hearing and assessment district ballots.
May 3 to May 11, 2010	SBFCA presents Community Workshops on the new assessment district.
June 30, 2010	JPA Board Meeting/Public Hearing on formation of the new assessment district: Open public hearing Opportunity for property owners to cast ballot or change ballot Consider any protests lodged against the new assessment district Determine whether any modifications need to be made to Engineer's Report Close public hearing Direct Clerk of JPA Board to tabulate the assessment ballots Adjourn JPA Board meeting to allow the Clerk time to tabulate the ballots, including any submitted at the hearing.
July 14, 2010	Reconvene JPA Board meeting: JPA Board Action: Receive and certify ballot tabulation JPA Board Action: Assuming no majority protest, adopt Resolution Confirming Final Engineer's Report (including any modifications to the report); ordering formation of the new assessment district and the levy and collection of assessments, and the sale of bonds as necessary to implement rehabilitation of facilities
August 15, 2010	If new assessment district is formed, assessment roll transmitted to Sutter and Butte County Auditor/Tax Collector for inclusion on County tax bills.
October 2010	Final day for property tax bills to be mailed.

## 7. References

- Kleinfelder, *Preliminary Problem Identification and Conceptual Alternatives Analysis Report, Feather River West Levee Evaluation, Thermalito Afterbay to Yuba City, Butte and Sutter Counties, California*, September 2009
- Peterson Brustad Inc., *Preliminary Design Report for the Feather River West Levee Early Implementation Project*, September 2009
- Peterson Brustad Inc., *Technical Memorandum: SBFCA Feather River Levee Improvements, EIP Cost Analysis*, March 15, 2010
- Parsons Brinckerhoff Quade & Douglas, Inc., *Engineer's Report for SAFCA Operation and Maintenance Assessment for Assessment District No. 1*, June 20, 1991.
- US Army Corps of Engineers, Sacramento District, *American River Watershed Investigation, California: Feasibility Report*, Parts I and II, Volumes 1 through 8, Appendixes A through T, December 1991.
- US Army Corps of Engineers, *San Joaquin River Basin, South Sacramento County Streams Investigation, California: Final Feasibility Report, Main Report*, March 1998.
- US Army Corps of Engineers, *Draft Economic Reevaluation Report*, American River Watershed Project, California, Appendix D, Attachment II, Technical Report: *Content Valuation and Depth-Damage Curves for Non-Residential Structures*, Sacramento District, May 2007

**APPENDIX A: BASE LAND VALUE  
APPRAISAL REPORT (SAFCA O&M ASSESSMENT  
DISTRICT)**

TABLE OF CONTENTS

Base Land Value Appraisal Report  
SAFCA Assessment District No. 1

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ADDENDA

- Exhibit A: Valuation Codes
- ~~Exhibit B: Sacramento County Use Code~~
- ~~Exhibit C: Sutter County Use Code~~

BASE LAND VALUE APPRAISAL REPORT  
SAFCA ASSESSMENT DISTRICT NO. 1

PURPOSE :

To provide appraisal services to establish base land values for various land use categories within SAFCA Assessment District No. 1 (District) area of influence in Sacramento County and a portion of South Sutter County.

This report and recommendation of base land values specifically addresses the following points:

1. All parcels within the District have been classified and valued for use in the benefit assessment process by county assessor's parcel number.
2. The respective base values will bear a relationship to the property area, usage and zoning as reflected in the classification system.
3. The valuation methodology will apply equally to all properties.
4. The benefit relationship as it applies to individual parcels will be administered by the District and is not addressed in this report.
5. The base value estimates consider land alone, exclusive of any building improvements.
6. The base value recommendations for each land area classification are not representative of fair market value.

LAND APPRAISAL SERVICES

General

The purpose of this report is to provide valuation data relative to the lands within the District that can be utilized by the Assessment Engineer and reviewed by the Valuation Assessment Commissioners.

The work required to prepare the requested information was completed in the following sequence:

Scope of Work

- Task 1 - All Impacted Parcels Have Been Identified
- Task 2 - Locations of Impacted Parcels Have Been Determined
- Task 3 - The Land Use Codes Established by the Respective County Assessor's Office Have Been Analyzed by Location and Number of Parcels
- Task 4 - Base Land Values by Land Use and Use Code Categories Have Been Established By Market Data Analysis
- Task 5 - A Land Value Report Has Been Prepared and Transmitted to the Assessment Engineer
- Task 6 - Appraisal Staff of Dutra Appraisal Service Has and Will Continue to Attend Meetings
- Task 7 - Dutra Appraisal Service Staff Will Plan To Advise and Review Issues Related to Disputed Values

### Task 1 - Listing of Impacted Parcels

The Assessment Engineer has provided the appraiser a current listing of all parcels that are being impacted by the formation of the proposed assessment District. This listing included the following information:

- A. Parcel Number in accordance with the respective County Tax Assessor offices.
- B. Parcel land use code, parcel size and zoning. The land use categories being used are five in number as follows:
  - 1. Agricultural
  - 2. Commercial
  - 3. Industrial
  - 4. Residential
  - 5. Miscellaneous
- C. Size of parcel in acreage or by square footage for all parcels.

### Task 2 - Locations of Impacted Parcels

The Assessment Engineer has provided locations of all parcels. Said identification was by assessor parcel number and County Assessor's parcel maps.

### Task 3 - Development of General Land and Use Code Value Categories

The appraiser has reviewed the existing land use and use code categories. This review included a study of market transactions for the 30-month period of July 1988 to December 1990. The resulting analysis indicated the following land use categories:

<u>Number</u>	<u>Classification</u>	<u>Sub-Classification</u>
1	Agricultural	A 1-6
2	Commercial	C 1-10
3	Industrial	I 1-3
4	Residential	R 0-11
5	Miscellaneous	Code based on predominant use of above classifications

The general use category and sub classification value system has been applied on a per-square-foot-of-land-area basis.

### Task 4 - Development of Land Values by Land Use Classification

The appraiser/consultant has employed recognized real estate appraisal techniques to:

- A. Develop a consistent and logical land use classification system with application to the specific task at hand.

- B. The principal basis of said classification system is a reflection of the market activity on lands within the confines of the District.
- C. The city and county use code were adhered to in the District valuation.
- D. An analysis of property size, particularly those parcels less than one acre, was conducted to ascertain proper and meaningful value estimates. All properties were valued on the basis of total square feet as determined by the County Assessor's Office or the Assessment Engineer.
- E. Sales data within the District was collected and analyzed. Said data determined the assigned value for each land classification.
- F. Upon completion of this sales analysis, unit values were assigned to each land classification. Value codes were based upon a per-square-foot basis. It was the appraiser's goal to insure a consistent and uniform application of the unit values within and between each class and category of property.

#### Task 5 - Prepare and Issue Reports

The appraiser has prepared and transmitted a valuation report that sets forth the methodology used in arriving at the selected land values by land use category. Said document is identified as the Base Land Value Appraisal Report. This report includes a "Property Inventory Listing." This listing is arranged in parcel number order. the significant entries include the following:

Parcel Number  
 Parcel Size  
 Classification  
 Use Code, Value Code  
 Property Value

#### Task 6 - Attend Meetings/Coordination

To maintain a consistency of action with other participants in the project, the appraiser has and will continue to attend the working committee meetings and most public meetings to be conducted in accordance with the District Assessment Requirements.

#### Task 7 - Advise and Review Issues Related to Disputed Values

The appraiser will be available to advise and review problems that develop due to errors of Area, Mapping, and Valuation issues. This service will apply to the current "Property Inventory Listing."

## VALUATION METHODOLOGY

To facilitate and simplify the process of valuing the property encompassed within the District and to provide the assessment data, three significant property characteristics were analyzed to develop a consistent valuation approach in an interrelated pattern as follows:

1. Use Code

The use code as determined by the Sacramento and Sutter County Assessors' office was used in the valuation process. In the instance where the use code differs from the zoning, as of March 1, 1990, the appraiser relied most heavily upon the use code classification.

2. Location

Land values are greatly influenced by the parcel location within the District. This was taken into account in determining the base land values.

3. Parcel Size

The parcel size in conjunction with the value code determined the base land value used in the valuation process.

The value sought in this analysis is based upon commonly accepted principles of real estate appraising in deriving fee simple market value. The exception of this principle is that the value derived is not market value for any one parcel of land being valued. The primary purpose of this phase is the establishment of value relationships between the various property classifications.

This value relationship is applicable to all of the properties within the District, i.e., approximately 303,600 parcels of land.

The estimation of a property's value involves a systematic process in which the appraisal problem is defined and the data required is gathered, analyzed and interpreted into an estimate of value. Traditionally, three methods of valuation have been used in appraising: the cost, market and income approaches.

However, due to the nature and purpose of the property being appraised, the cost and income approaches to value will not be utilized. This places the emphasis upon the market data approach to value.

The market data approach involves the comparison of the property or class of properties to similar properties that have been recently sold or that are offered for sale. These sales are reviewed for differences such as the date of sale, location of the site, physical characteristics, density, utility of use and other factors. The comparable properties are then adjusted to formulate a value range to the property being appraised.

The final step in the valuation approach is the estimate of the final value based upon the market activity and estimated future worth of that particular class of property as determined by the sales analysis.

The value estimate indicated by this approach is then reconciled into a final value conclusion for each class of property being valued within the SAFCA District.

The valuation process is based upon a six-part procedure:

1. County Assessor map books, ownership list and parcel data is furnished to the appraiser by the Assessment Engineer.
2. Sales data for the latest thirty-month period in a book, use code and parcel number listing is analyzed by the appraisal staff. Supplementing this source of information are the sales files of Dutra Appraisal Service. Said data has been analyzed in both a field and office situation to assist the appraiser in establishing the general level of value for the area.
3. The appraiser has determined the appropriate value code, reflecting the general characteristics of the property. The representative value for this code is applied to the square footage of each parcel by the Assessment Engineer and reviewed and confirmed by the Appraiser.
4. At the appraiser's discretion, audits of specific properties or use code types will be conducted to test the consistency and reliability of the value findings.
5. Based upon the test results, the original value submission may be changed or errors discovered in the process will be corrected.
6. At the conclusion of the testing period, values will be finalized.

The value codes and property values are organized on a general use concept as follows:

All Agricultural Properties

Value Codes	
A-1 - \$ .10/SF	\$ 5,000/Acre
A-2 - \$ .25/SF	\$10,750/Acre
A-3 - \$ .50/SF	\$21,750/Acre
A-4 - \$1.00/SF	\$43,500/Acre
A-5 - \$1.50/SF	\$65,000/Acre
A-6 - \$2.00/SF	\$87,120/Acre

Agricultural properties are found in the northern and southern areas of the District. The lower values are for those properties most remote from urban development having marginal potential for further development.

All Commercial Properties

C-1	- \$ 2.00/SF
C-2	- \$ 4.00/SF
C-3	- \$ 7.00/SF
C-4	- \$ 10.00/SF
C-5	- \$ 15.00/SF
C-6	- \$ 25.00/SF
C-7	- \$ 40.00/SF
C-8	- \$ 70.00/SF
C-9	- \$100.00/SF
C-10	- \$150.00/SF

Commercial properties are distributed throughout the District. The greatest concentration is in downtown Sacramento, but there are shopping centers, commercial strips, and isolated commercially used property almost everywhere.

The lower C-1 and C-2 value codes were applied to those properties located in marginal areas, i.e., "Mom and Pop" operations in disadvantaged neighborhoods. The highest, C-8, C-9 and C-10, value codes were limited to high-density multi-story properties in downtown Sacramento. The mid-range value codes were used in the shopping centers and commercial strip areas.

All Industrial Properties

M-1	- \$1.50/SF
M-2	- \$3.00/SF
M-3	- \$5.00/SF

Industrial use properties are found throughout the area. The lowest values for industrial land were found in the vacant industrial areas and where the industrial complex was sparsely developed over a large site. The highest value code was used in those areas of built-up planned industrial parks and in those industrial areas in transition to commercial use.

All Residential Properties

R-0	- \$ 1.00/SF
R-1	- \$ 2.00/SF
R-2	- \$ 3.00/SF
R-3	- \$ 4.00/SF
R-4	- \$ 5.00/SF
R-5	- \$ 6.00/SF
R-6	- \$ 7.00/SF
R-7	- \$ 8.50/SF
R-8	- \$10.00/SF
R-9	- \$12.50/SF
R-10	- \$15.00/SF
R-11	- \$25.00/SF

The lower value codes are predominate in areas of large parcel size properties or disadvantaged neighborhoods, or in areas removed from urban influences. The mid-range of value codes were scattered throughout the District and are representative of the majority of residential property. The extreme upper value codes are limited to quality condominium and planned unit developments characterized by small parcel sizes.

#### All Miscellaneous Properties

The value code for miscellaneous properties is based upon the predominate uses within the location or neighborhood of the property being valued.

A percentage of the district properties is exempt from property taxes; these include but are not limited to city, county, state and federally owned and used property, school and fire district property, some religious properties and non-useable types of property. This report similarly exempts those properties. However, they are listed to maintain an accurate inventory of the properties present within the district.

A second class of properties owned by the utilities, railroads and communication companies is included within this report. These properties are listed in County Assessor parcel order with the other district parcels. However, the property valuation has been established by the California State Board of Equalization as represented on the 1990-1991 Sacramento and Sutter County Property Tax Roll.

In summary, The Land Value Report emphasizes a consistency of valuation theory as it applies to all of the property, subject to benefit assessments within the District. These valuations do not represent market value for any one particular parcel.

## ASSUMPTIONS AND LIMITING CONDITIONS

This appraisal report and valuation contained herein are expressly subject to the following assumptions and/or conditions:

1. Title to the property is marketable.
2. No survey of the property has been made and property lines (actual or proposed) as they appear on the ground are assumed to be correct.
3. Data, maps and descriptive data furnished by the client or his representative are accurate and correct.
4. No responsibility is assumed for matters of law or legal interpretation.
5. No conditions exist that are not discoverable through normal, diligent investigation, which would affect the use and value of the property.
6. No responsibility is assumed for building permits, zone changes, engineering or any other service or duty connected with legally utilizing the respective properties.
7. The appraisal has been prepared on the premise that there are no encumbrances or other matters not of record prohibiting the utilization of the property under the governmental use code.
8. The estimate of value is subject to the purpose and date of appraisal outlined in the Engineer's Report.
9. The estimate of value is based upon information and data from sources believed reliable, correct and accurately reported.
10. The appraisal and report of the appraisal are to be considered in their entirety and use or dissemination of only a portion thereof without prior approval of the preparer and appropriate qualification will render them invalid.
11. Except as otherwise provided, possession of this report or a copy thereof, does not carry with it the right of publication or its use by other than the client or for purposes other than those for which it was prepared.
12. The appraiser shall not be required to give testimony or appear in court by reason of this appraisal with reference to the project described herein unless prior arrangements have been made.

CERTIFICATION

The staff of Dutra Appraisal Service is the originator of the parcel values as contained in the "property inventory listing." No individual site inspections were conducted other than random "field" drive-by viewing. This technique is characteristic of mass appraising.

I, the undersigned, do hereby certify that, except as otherwise noted in this appraisal report:

1. We have personally inspected the properties within the district which are the subject of this valuation report as in the manner noted above.
2. We have no personal interest or bias with respect to the subject matter of this appraisal report or the parties involved.
3. The professional fee for the appraisal service rendered is dependent solely upon completion of the service evidenced by delivery of this report and is in no way contingent upon the conclusion or value estimate reported.
4. To the best of our knowledge and belief the statement of fact contained in this appraisal report, upon which the analysis, opinions and conclusions expressed herein are based, are true and correct.
5. This appraisal report sets forth all of the limiting conditions (imposed by the terms of the assignment or by the undersigned) affecting the analysis, opinions and conclusions contained in this report.
6. This appraisal report has been made in conformity with and is subject to the requirements of the Code of Professional Ethics and Standards for Professional Conduct of the Appraisal Institute.
7. Appraisal Institute conducts a voluntary program of continuing education for its designated members. SRPA's who meet the standards of this program are awarded periodic educational certification. The undersigned, Alan J. Dutra, SRA, SRPA, is currently certified.
8. No appraisal firm other than the undersigned prepared the analysis, conclusions and opinions concerning the property valuations set forth in the property inventory listing.



Alan J. Dutra, SRA, SRPA

MARCH 1, 1991

Date

## VALUATION CODES

<u>Land Use</u>	<u>Appraisal Code</u>	<u>Code Value (\$/Acre)</u>
Agricultural	A1	5,000
	A2	10,750
	A3	21,750
	A4	43,500
	A5	65,000
	A6	87,000
<u>Land Use</u>	<u>Appraisal Code</u>	<u>Code Value (\$/Square Foot)</u>
Residential	R0	1.00
	R1	2.00
	R2	3.00
	R3	4.00
	R4	5.00
	R5	6.00
	R6	7.00
	R7	8.50
	R8	10.00
	R9	12.50
	R10	15.00
R11	25.00	
Commercial	C1	2.00
	C2	4.00
	C3	7.00
	C4	10.00
	C5	15.00
	C6	25.00
	C7	40.00
	C8	70.00
	C9	100.00
	C10	150.00
Industrial	M1	1.50
	M2	3.00
	M3	5.00

# APPENDIX B: COUNTY ASSESSOR'S LAND USE CODES

SUTTER COUNTY ASSESSOR

List of Property Use Codes

ASD:OPS-#18

(Rev 08/13/09)

## Property Use Codes

H#-###-###	Meridian Flood area
R#-###-###	Parcel within a page the railroad runs through
W#-###-###	Williamson Act Parcel
LL-LLL-LLL	Temporary use code for parcels in process of being added to the "Roll-in-Progress"
	<u>Used for Administrative Purposes</u>
<u>XX-120-LOT</u>	New Single Family – in subdivision state as lot
<u>XX-120-PCO</u>	Partial Complete of Subdivision on/off sites
<u>XX-120-PCB</u>	Partial Complete of new building structure

## INSTITUTIONAL

00-000-010	Schools
00-000-020	County Owned Property
00-000-030	Easement/right-of-way property
00-000-CA0	Common Area
00-000-IB0	Improvement belongs to others
00-000-II0	In ground Improvement
00-000-MR0	Mineral Rights
00-000-PC0	Partial complete – new construction
00-000-PI0	Possessory Interests
00-000-NI0	No Improvement value
00-000-NLO	No Land Value
00-000-NSF	No Square Footage
00-000-OIM	Vacant land with out buildings or septic system
00-000-PL0	Parking Lot
00-000-WC0	Water company
00-000-W30	Water right-of-way property
00-010-000	Lodge building or club house or school building
00-011-000	Privately owned schools
00-020-000	Funeral homes or mortuary
00-030-000	Churches & Temples
00-040-000	Cemetery or Mausoleum
00-050-000	Government Taxable
00-060-000	Government Non-taxable
00-000-990	Transitional property

## RESIDENTIAL

00-070-000	Manufactured home Lots with Licensed Mobile homes
<del>00-D70-000</del>	<del>Delinquent Mobile homes</del> discontinued use in 2006/07-see MH0

~~00-N70-000~~ ~~New Mobile homes~~ discontinued use in 2006/07-see  
MHO  
 00-MH0-000 Manufactured Homes  
 00-360-000 Manufactured Home Park  
 00-000-800 Manufactured home in a park - taxed  
 00-000-810 Manufactured home on owners land - taxed  
 00-000-820 Manufactured home not on owners land - taxed  
 00-000-830 Manufactured home licensed  
 00-000-840 Manufactured home licensed with fixed equipment  
 00-000-850 Manufactured home taxed with fixed equipment  
 00-000-860 Manufactured home on a foundation  
 00-000-870 Manufactured home owned by a third party – taxed

VACANT LAND

00-080-000 Vacant R-2  
 00-090-000 Vacant R-3 & R-4  
 00-100-000 Vacant R-1  
~~00-110-000 (Improved residence – 1955 or older – no longer used~~  
 00-120-000 Improved residence – ~~1956 or newer~~

SINGLE FAMILY RESIDENCES

00-130-000 Two (2) single family residence  
 00-131-000 Three (3) single family residences  
 00-132-000 Four (4) single family residences  
 00-133-000 Five (5) or greater single family residences

DUPLEXES

00-140-000 Multi-family residence – ~~Duplex 1955 or older~~  
 00-141-000 Multi-family residence – two (2) duplexes  
 00-142-000 Multi-family residence – three (3) duplexes  
 00-143-000 Multi-family residence – four (4) duplexes  
 00-150-000 Multi-family residence - ~~Duplex 1956 or newer – no longer used~~

APARTMENTS

~~00-160-000 Multi-family residence – Apartment 3 units 1955 or older~~  
 00-170-000 Multi-family residence - Apartment 3 units 1956 or new

OTHER TYPES

00-180-000 Single-family residence – Half-plexes  
 00-190-000 Single-family residence - Condominium

AGRICULTURAL

00-000-110 Peaches  
 00-000-120 Prunes  
 00-000-130 Walnuts  
 00-000-140 Almonds

00-000-150	Olives (formerly Pears)
00-000-160	Pomegranates (formerly Fiejoas)
00-000-170	Kiwi
00-000-180	Other: apples, oranges, cherimoya)
00-000-190	Persimmons
00-000-200	Tree farming or nursery stock
00-000-210	MIX - peaches predominately
00-000-220	MIX - Prunes predominately
00-000-230	MIX - Walnuts predominately
00-000-240	MIX - Almonds predominately
00-000-250	Pistachios
00-000-270	Unknown
00-200-000	Open land over 15 acres – no residence
00-201-000	Open land over 15 acres w/one (1) SFR
00-202-000	Open land over 15 acres w/two (2) SFR
00-203-000	Open land over 15 acres w/three (3) SFR
00-204-000	Open land over 15 acres w/four (4) SFR
00-205-000	Open land over 15 acres w five (5) or greater SFR
00-220-000	Home site or small ranch under 15 acres – no SFR
00-221-000	Home site or small ranch under 15 acres w/one (1) SFR
00-222-000	Home Site or small ranch under 15 acres w/two (2) SFR
00-223-000	Home site or small ranch under 15 acres w/three (3) SFR
00-224-000	Home site or small ranch under 15 acres w/four (4) SFR
00-290-000	Orchard under 15 acres w/no single family residence *****new
00-230-000	Orchard over 15 acres w/no single family residence
00-231-000	Orchard over 15 acres w/one (1) single family residences
00-232-000	Orchard over 15 acres w/two (2) single family residences
00-233-000	Orchard over 15 acres w/three (3) single family residences
00-234-000	Orchard over 15 acres w/four (4) single family residences
00-235-000	Orchard over 15 acres w/five (5) or mover single family residences
	<b><u>LAND OVER 15 ACRES</u>      ** NEW CATEGORY**</b>
00-240-000	Ag Business – vacant land or orchard and no SFR
00-241-000	Ag Business – orchard w/one (1) SFR
00-242-000	Ag Business – orchard w/two (2) SFR
00-243-000	Ag Business – orchard w/three (3) SFR
00-244-000	Ag Business – orchard w/four (4) SFR
00-245-000	Ag Business – orchard w/five (5) SFR
00-260-000	Dry farming or grazing land
00-280-000	Duck Clubs

### COMMERCIAL

00-290-000	Horse stables
00-300-000	Vacant commercial land
00-310-000	Improved commercial - store type
00-311-000	Improved commercial – service type
00-320-000	Improved commercial - shopping center
00-321-000	Restaurant/bars
00-322-000	Fast food restaurant
00-329-000	Medical building
00-330-000	Office building
00-331-000	Mixed use
00-332-000	Mini-storage building
00-333-000	Mini-mart-gas
00-334-000	Small grocery store
00-335-000	Misc. and special use
00-340-000	Auto services
00-350-000	Motels
00-360-000	Mobile home parks
00-370-000	Rest homes/Skilled Nursing
00-375-000	Rice Dryers
00-377-000	Dairy
00-380-000	Marinas
00-390-000	Hospitals

### INDUSTRIAL

00-400-000	Vacant industrial land
00-410-000	Improved industrial land
00-415-000	Steel Buildings
00-420-000	Airport, crop dusting
00-430-000	Mines and quarries
00-600-000	Recreational
00-610-000	Water companies
00-620-000	Private roads
00-700-000	Gas wells

### MISCELLANEOUS

00-000-500	Solar heat - pool, residence & hot water
00-000-510	Solar heat - hot water
00-000-520	Solar heat - pool
00-000-530	Solar heat - residence & hot water
00-000-540	Solar heat - pool & hot water
00-000-550	Solar heat - sauna or spa
00-000-590	Swimming pool - solar hot water
00-000-600	Swimming pool
00-000-700	Fixed equipment
00-000-800	Manufactured home in a park - taxed
00-000-810	Manufactured home on owners land - taxed
00-000-820	Manufactured home <u>not</u> on owners land - taxed
00-000-830	Manufactured home licensed
00-000-840	Manufactured home licensed with fixed equipment
00-000-850	Manufactured home <u>taxed</u> with fixed equipment

<b>00-000-860</b>	<b>Manufactured home on a foundation</b>
<b>00-000-870</b>	<b>Manufactured home owned by a third party - taxed</b>
<b>00-000-900</b>	<b>Mineral Rights No Assessed Value</b>
<b>00-000-910</b>	<b>Abandoned alley ways</b>
<b>00-000-990</b>	<b>Transitional property</b>

## BUTTE COUNTY ASSESSOR'S LAND USE CODE

Parcel Land Use Code and Quantity		
Number of Parcels	Land Use Code	Description
17	00	VALID 0 VALUE
92	99	NOT YET DEFINED
5	9999	NOT YET DEFINED
870	AA	ALMONDS
58	AB	MIXED NUTS
12	AC	CITRUS
84	AD	DRY FARMING
1	AE	PEARS
100	AF	FIELD & ROW CROPS
979	AG	GRAZING
88	AI	IRRIGATED PASTURE
61	AJ	PEACHES
67	AK	KIWIS
64	AM	MIXED FRUIT CROPS
76	AN	MIXED FRUIT/NUT CROPS
189	AO	OLIVES
197	AP	PRUNES
1	AQ	CHRISTMAS TREES
947	AR	RICE
612	AT	TIMBER
9	AU	PISTACHIOS
84	AV	VINES
338	AW	WALNUTS
88	AY	MIXED AGRICULTURAL
214	AZ	MISCELLANEOUS
874	CC	SERVICE (GARAGE SHOP MINI ST)
375	CI	INSTITUTIONAL (CHURCH HOS)
869	CP	COMMERCIAL PROF (BANK, ETC)
224	CR	RESIDENTIAL (MOTEL,HOTEL,MH PK
884	CS	COMMERICAL RETAIL (STORES ETC)
68	CT	RECREATIONAL (THEATRE,GOLF ETC
105	CU	UTILITIES
762	CV	COMMERCIAL VACANT
426	CZ	COMMERCIAL-MISC
148	IM	MANUFACTURING
276	IV	INDUSTRIAL VACANT
286	IW	WAREHOUSE/WHOLESALE OPERATIONS
134	IZ	MISCELLANEOUS INDUSTRIAL
102	MZ	TIMBER OIL & GAS RIGHTS
980	R2	DUPLEX
211	R3	TRIPLEX
418	R4	FOURPLEX
2660	R7	MULTIPLE RES, NOT MATCHING
545	RA	FIVE OR MORE UNIT-APARTMENTS
1663	RC	CONDOMINIUM
10042	RM	SINGLE FAMILY DWEL-PROP TAX MH
1576	RN	SINGLE FAMILY DWEL-LIC FEE MH
3041	RP	PERMANENT FOUND. MH
156	RQ	SINGLE FAMILY DWEL-MH UNK STAT
51235	RS	SINGLE FAMILY DWEL-STICK BUILT
10363	RV	VACANT
151	RW	MODULAR
1719	RZ	MISCELLANEOUS
11	UU	NOT USABLE (DITCHES ETC)

## APPENDIX C: ASSESSMENT EQUATIONS

The assessment equations are, in general:

Improvements portion of assessment =  $\{[(\text{Relative Land Damage Value}) \times (\text{Parcel Acreage})] + [(\text{Relative Structure Value}) \times (\text{Building Square Footage}) \times (\text{Percent Damage})]\} \times \text{Risk Factor} \times \text{Improvements Rate}$

Administration portion of assessment =  $\{[(\text{Relative Land Damage Value}) \times (\text{Parcel Acreage})] + [(\text{Relative Structure Value}) \times (\text{Building Square Footage}) \times (\text{Percent Damage})]\} \times \text{Administration Rate}$

Total assessment = Improvements portion + Administration portion

Where:

- Relative Land Damage Value is as defined in Table 4.3 by land use category.
- Parcel Acreage is a particular parcel's acreage.
- Relative Structure Value is the unit structure cost as defined in Table 4.1 by land use category.
- Building Square Footage is the first and second stories of all residential structures, the first story of all commercial and industrial structures, and the first story of all additional structures on agricultural lands.
- Percent Damage is the flood damage to structure and contents expressed as a percent of structure value as defined in Table 4.2 by flood depth zone. Flood depth zones are shown in Figure 4.1.
- Risk Factor as defined for each Benefit Area in Table 4.4.
- Improvements Rate is 0.00306805
- Administration Rate is 0.00018860.

The example assessment calculations provided in Section 4.5 illustrated the use of the equivalent simplified assessment formula presented Section 4.4. The following assessment calculation demonstrates the use of the assessment equations defined in this Appendix.

Example 1 (same as Example 1 in Section 4.5)

Assume a single-family residential property located in Benefit Area "B", Flood Depth Zone 2 to 4 ft, with parcel size 0.2 acres and building square footage of 1,700 square feet.

- From Table 4.3, Relative Land Damage Value is \$25,100 per acre.
- From Table 4.1, Relative Structure Value is \$60 per square foot.
- From Table 4.2, Percent Damage to Structure and Contents is 35-percent.
- From Table 4.4, the Risk Factor for Benefit Area "B" is 28.6%
- Improvements portion of assessment =  $[(\$25,100/\text{ac} \times 0.2 \text{ ac}) + (\$60/\text{sf} \times 1,700 \text{ sf} \times 0.35)] \times 0.286 \times 0.00306805 = \$36$
- Administration portion of assessment =  $[(\$25,100/\text{ac} \times 0.2 \text{ ac}) + (\$60/\text{sf} \times 1,700 \text{ sf} \times 0.35)] \times 0.00018860 = \$8$
- Total Assessment =  $\$36 + \$8 = \$44$

## APPENDIX D: LAND USE CATEGORY ASSIGNMENTS

For assessment calculation purposes, all parcels in the proposed Assessment District were assigned to one of the following land use categories: single-family residential, multi-family residential, commercial, industrial, vacant residential, vacant commercial, vacant industrial, agricultural orchard and agricultural. The assignment was based on the Sutter and Butte County Assessor's Land Use Codes (defined in Appendix B) and the following pairings:

**TABLE D-1: LAND USE CATEGORY ASSIGNMENT FROM COUNTY ASSESSOR'S LAND USE CODES**

Assessment Land Use Category	Sutter County Assessors Land Use Code (see Appendix B for definitions)	Butte County Assessors Land Use Code (see Appendix B for definitions)
Single-Family Residential (SFR)	## -130- #### to ## -133- ####	RS,RW
Multi-Family Residential (MFR)	## -140- #### to ## -150- ####	R2,R3,R4,R7,RA,RC
Residential Mobile Home (RES_MH)	NONE - STRANGE- CHECK THIS OUT--	RM,RN,RP,RQ
Commercial (COM)	## -310- #### to ## -390- ####	CC,CI,CP,CR,CS,CT,CZ
Industrial (IND)	## -410- #### to ## -600- ####	IM,IW,IZ,
Institution / Government	(## -000- 010 to ## -000- 030), (## -010- #### to ## -060- ####)	RZ
Vacant Residential (VAC RES)	## -080- #### to ## -100- ####	RV
Vacant Commercial (VAC COM)	## -300- ####	CV
Vacant Industrial (VAC IND)	## -400- ####	IV
Agricultural Orchard (AG-ORC)	(## -000- 110 to ## -000- 270), ## -230- ####, ## -290- ####	AA,AB,AC,AD,AE,AJ,AK,AM,AN,AO,AP,AQ,AU, AV,AW
Agricultural Orchard Residential (AG-ORC RES)	(## -000- 110 to ## -000- 270), (## -231- #### to ## -235- ####), (## -241- #### to ## -245- ####)	
Agricultural (AG)	## -200- ####, ## -220- ####, ## -260- ####, ## -280- ####	AD,AF,AG,AI,AR,AY,AZ
Agricultural Residential (AG-RES)	(## -201- #### to ## -205- ####), (## -221- #### to ## -224- ####)	

Public parcels with structures were assigned to the commercial category. Those without a building were classified as vacant commercial. An exception was the redevelopment agency parcels, which were classified as single-family residential or vacant residential as appropriate. Where the County Assessor's Land Use Codes were inconsistent with other information available for the parcel from the County Assessor or other sources, a determination was made as to the appropriate Land Use Category to assign to the parcel. Such assignments could differ from Table D-1.

**APPENDIX E: DRAFT ASSESSMENT ROLL**  
**(TO BE PROVIDED UNDER SEPARATE COVER)**

**SUTTER BUTTE FLOOD CONTROL AGENCY  
RESOLUTION 2012-14**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF  
THE SUTTER BUTTE FLOOD CONTROL AGENCY  
ORDERING LEVY OF ASSESSMENTS WITHIN THE SUTTER-BUTTE FLOOD CONTROL AGENCY  
ASSESSMENT DISTRICT FOR FISCAL YEAR 2012-2013 AND APPROVING ADDENDUM TO FINAL  
ENGINEER'S REPORT**

WHEREAS, the Sutter Butte Flood Control Agency ("Agency") is a Joint Powers Authority created in 2007 to finance and construct levee improvements in the Sutter Basin; and

WHEREAS, the Board of Directors of the Agency, after a public hearing and voter election in compliance with Proposition 218, adopted Resolution 10-004 approving the Final Engineer's Report ("Engineer's Report") for the Sutter Butte Flood Control Agency Assessment District ("Assessment District"), formed the Assessment District and ordered the levy of assessments in Fiscal Year 2010-11 at the rates specified in the Engineer's Report.

WHEREAS, on September 14, 2011, the Board of Directors of the Agency adopted Resolution 2011-16 ordering the levy of assessments within the Assessment District for Fiscal Year 2011-12 at the rates specified in the Engineer's Report.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The above recitals are true and correct.
2. The Board of Directors hereby approves the attached Addendum to the Final Engineer's Report, which, in order to insure that all parcels receiving benefit from the Agency's levee project are assessed in a manner that is proportional to benefits received, incorporates into the District 19 parcels unintentionally omitted at the time the District was created.
3. The assessments for fiscal year 2012-13 shall be levied at the rate as specified in the Engineer's Report, using the method for apportioning such assessments as provided in the Engineer's Report. The assessments are levied without regard to property valuation.
4. The Agency staff is directed to file or cause to be filed and to take or cause to be taken all actions necessary to allow collection of the assessment, including the filing of a certified copy of this Resolution with the Auditor/Controller of Sutter and Butte Counties (the "County Auditor/Controller"). Upon such filing, the County Auditor/Controller shall enter on the County tax roll opposite each lot or parcel of land in the Assessment District the amount of assessment thereupon as shown in the Engineer's Report and described in this Resolution. The benefit assessment shall be collected at the same time and in the same manner as County ad valorem taxes are collected and all laws providing for the collection and enforcement of County ad valorem taxes shall apply to the collection and enforcement of the assessments. After collection by the Counties Tax Collectors, the net amount of the assessments, after deduction of any compensation due the Counties for collection, shall be paid to the Agency for the purposes of the Assessment District.

5. For parcels within the Assessment District that are owned by public agencies, utilities or for other reasons are not included in the Direct Levy Secured Roll by the County Auditor/Controller, the Agency staff is directed to direct bill such assessments.

6. The monies representing assessments collected shall be deposited in a separate fund or funds designated for the Assessment District. Amounts deposited to such fund(s) shall be expended only for the services and other activities that specially benefit the lands within the Assessment District as described in the Engineer's Report.

7. The assessment, as it applies to any parcel, may be corrected, cancelled or a refund granted as appropriate, by order of the Board or by order of the Executive Director of The Agency. Any such corrections, cancellations or refunds shall be limited to current or future fiscal years and shall not be granted retroactively.

**ADOPTED** as a resolution of the Board of Directors of the Sutter Butte Flood Control Agency at a regular meeting duly held on the 8<sup>th</sup> day of August, 2012.

John S. Miller  
John Miller, CHAIRMAN

APPROVED AS TO FORM:

Scott Shapiro  
Scott Shapiro

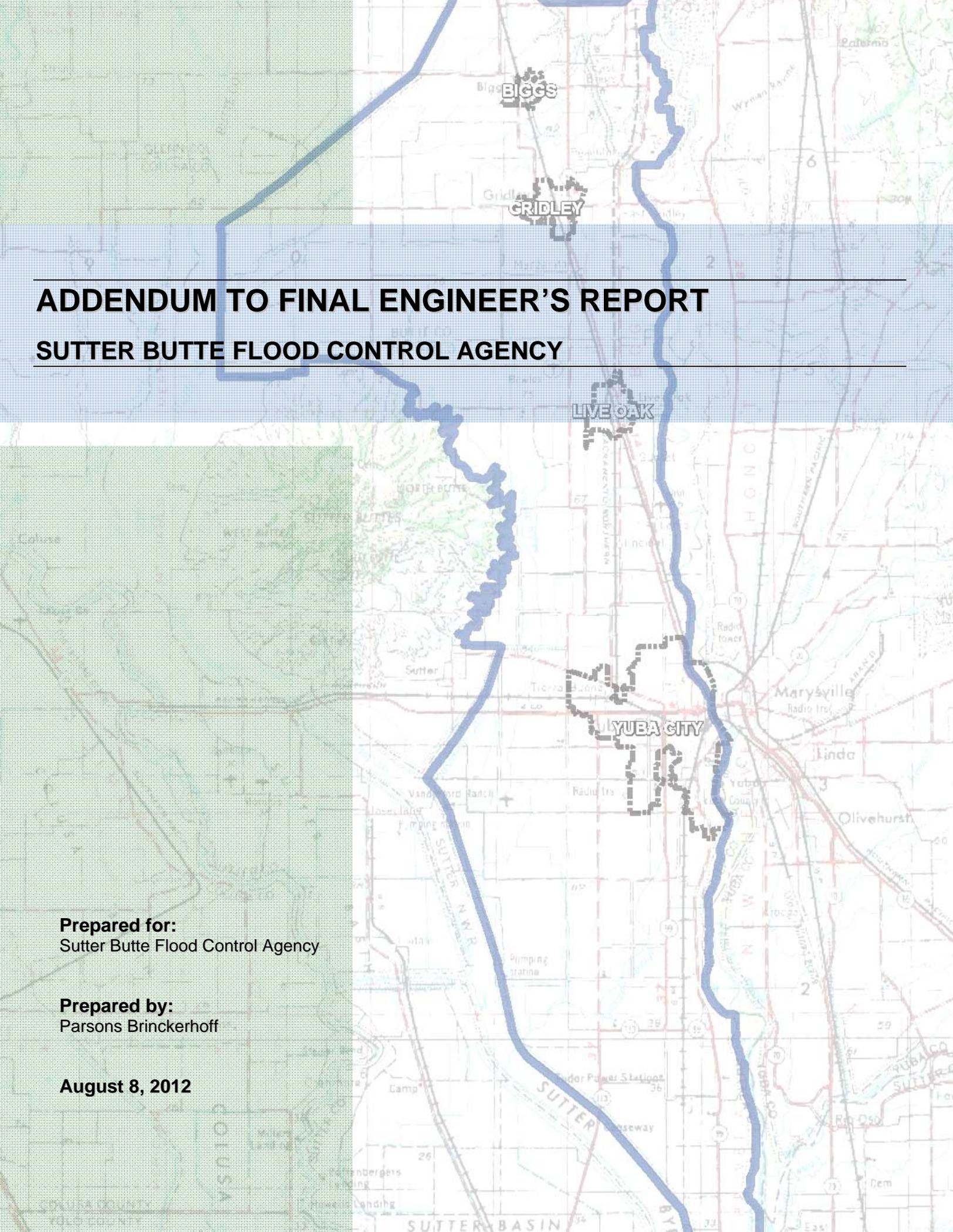
ATTEST:

Sarah Modeste  
BOARD SECRETARY

STATE OF CALIFORNIA )  
COUNTY OF SUTTER )  
SUTTER BUTTE FLOOD CONTROL AGENCY )

I, Sarah Modeste, Secretary of the Board of Directors of the Sutter Butte Flood Control Agency, do hereby certify that the foregoing is a true and correct copy of Resolution No. 2012-14 adopted by the Board of Directors of the Sutter Butte Flood Control Agency, California, at a regular meeting thereof, held on the 8<sup>th</sup> day of August, 2012 by the following vote:

AYES: Gary Baland, Owen Stiles, Barbara LeVake, Francis Silva, David Lamon,  
Larry Montna, James Gallagher, Bill Connelly, John Miller, John Dukes, Mike  
Boerff  
NOES:  
ABSENT: Chris Schmidt, Steve Lambert  
Sarah Modeste  
SECRETARY



The map displays the Sutter Butte Flood Control Agency's jurisdiction area, outlined in blue. It covers a region in Yuba County, California, including the cities of Biggs, Gridley, Live Oak, and Yuba City. The Sutter River is shown flowing through the area, with various agricultural fields and infrastructure like roads and railroads visible. The map is overlaid with a grid and includes labels for various locations and features.

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# ADDENDUM TO FINAL ENGINEER'S REPORT

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## SUTTER BUTTE FLOOD CONTROL AGENCY

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**Prepared for:**  
Sutter Butte Flood Control Agency

**Prepared by:**  
Parsons Brinckerhoff

**August 8, 2012**

## **1. Background**

### **1.1 Assessment District Formation**

On July 14, 2010 the Board of Directors of the Sutter Butte Flood Control Agency (“SBFCA”), after a public hearing and voter election in compliance with Proposition 218, adopted Resolution No. 10-004 approving the Final Engineer’s Report (“Engineer’s Report”) for the Sutter Butte Flood Control Agency Assessment District (“Assessment District”) and formed the Assessment District.

### **1.2 Engineer’s Report**

The Engineer’s Report describes the assessment methodology, including the boundaries of the Assessment District (Figure 1), the flood damage reduction benefits that are used to proportionally spread the assessments among the properties in the Assessment District, the assessment equations that guide this spread, and sample calculations. The Assessment District includes all properties located within the SBFCA JPA boundaries except as noted in Section 4.3 of the Engineer’s Report.

### **1.3 Authority**

The Assessment District was formed by SBFCA under the Benefit Assessment Act of 1982<sup>1</sup> (the 1982 Act) and Article 4 (commencing with Section 6584 of the Government Code) of the Joint Exercise of Powers Act. Government Code Section 54710.5 in the 1982 Act authorizes agencies that are authorized to provide flood control services, which include the member jurisdictions of SBFCA, to levy assessments to finance the cost of installation and improvement of facilities. Section 54710 of the 1982 Act authorizes such agencies to levy assessments to finance the operations cost of flood control services. The SBFCA may exercise these assessment powers. The assessments authorized under the 1982 Act are levied annually based on a budget for expenditures. Government Code Section 6588 authorizes SBFCA to issue revenue bonds secured by assessments.

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<sup>1</sup> Government Code Sections 54703 – 54719)

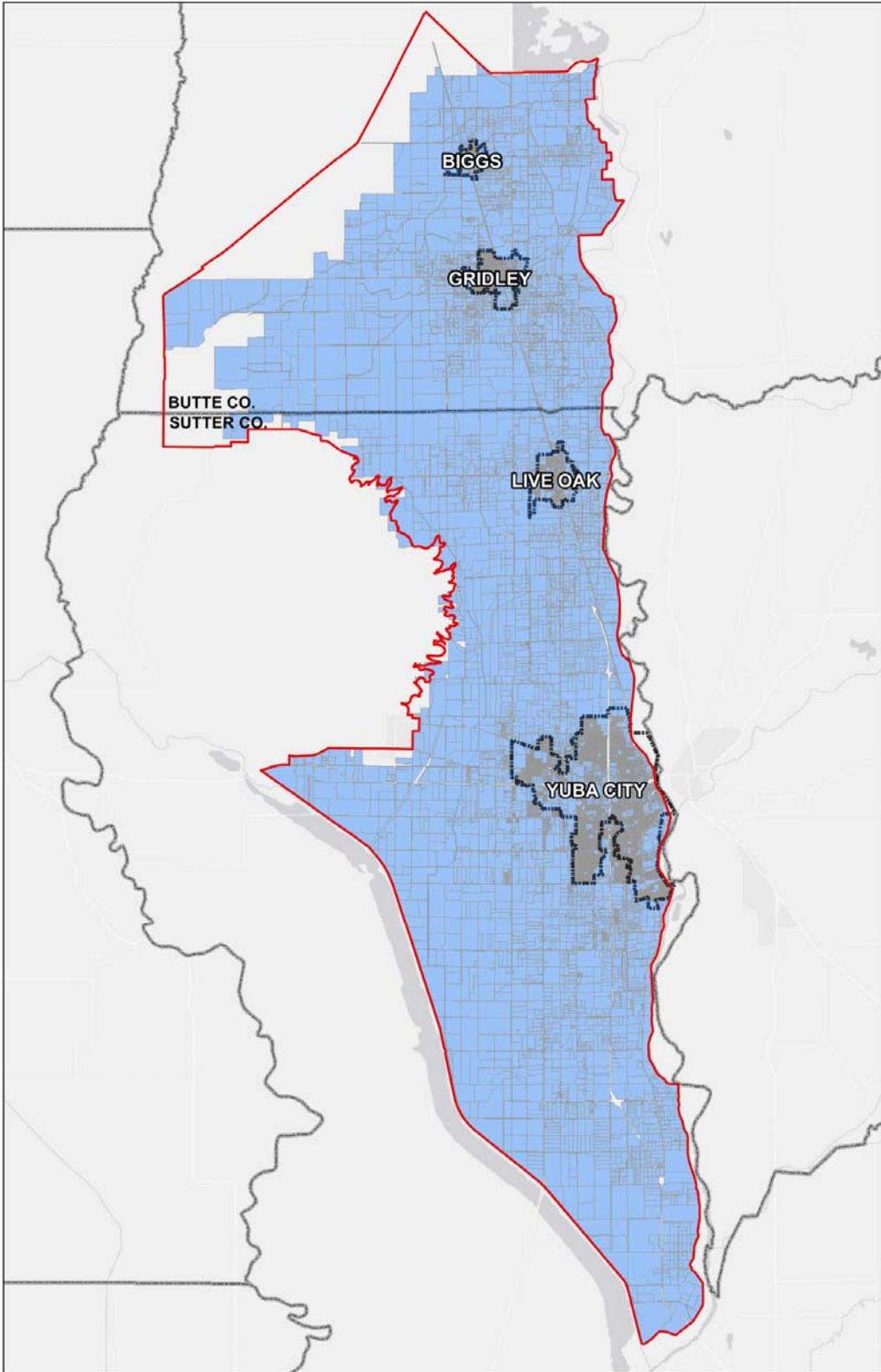


Figure 1

## **2. Addendum to the Engineer's Report**

### **2.1 Assessment District Boundary**

The parcels included in the Assessment District were all parcels located within the District Boundary as defined in the Engineer's Report. For parcels along the boundary that were not entirely within the boundary, a 50% rule was followed. If 50% or more of the parcel acreage was within the Assessment District boundary, then the entire parcel was considered within the District. If less than 50% of the parcel acreage was within the Assessment District boundary, then the parcel was not included in the Assessment District.

Subsequent to the approval of the Engineer's Report and formation of the District, it was determined that a few parcels along the Feather River Levee boundary of the District were not included because more than 50% of the parcel acreage extended to the waterside of the levee. However, it was subsequently determined that the landside portion of these parcels, which was within the District, included residential and other structures. These structures were receiving the flood protection benefits of the Project but the parcels were not being assessed their proportional share of the Project costs. To correct this unintentional omission and insure that all parcels receiving the benefit of the project are assessed proportional to their benefit, these parcels are to be included in the Assessment District and their assessments will be levied beginning with the 2012-13 Sutter County and Butte County tax bills. Only the portion of the parcel acreage that is within the District Boundary, and structures on the landside of the levee, will be used in the assessment calculation. The location of the four parcels added to the District for this reason is shown on Figure 2.

### **2.2 Flood Depth Corrections**

All parcels within the Assessment District were assigned to relative flood depth zones for the 200-year flood event. These relative flood depths were used to calculate the flood damage avoidance benefit to structures and thus the assessments on parcels. For a few parcels located along the Feather River Levee boundary of the District and addressed herein, the flood depths were unintentionally omitted during the initial assessment calculation when the District was formed and, therefore, these parcels were not included in the assessment rolls for 2010-11 and 2011-12. These few parcels are exposed to potential flood depths and do receive the flood damage avoidance benefit from the Project. To correct this unintentional omission and insure that all parcels receiving the benefit of the Project are assessed proportional to their benefit, these parcels are to be included in the Assessment District and their assessments will be levied beginning with the 2012-13 Sutter County and Butte County tax bills. The location of the fifteen parcels added to the District for this reason is shown on Figure 3.

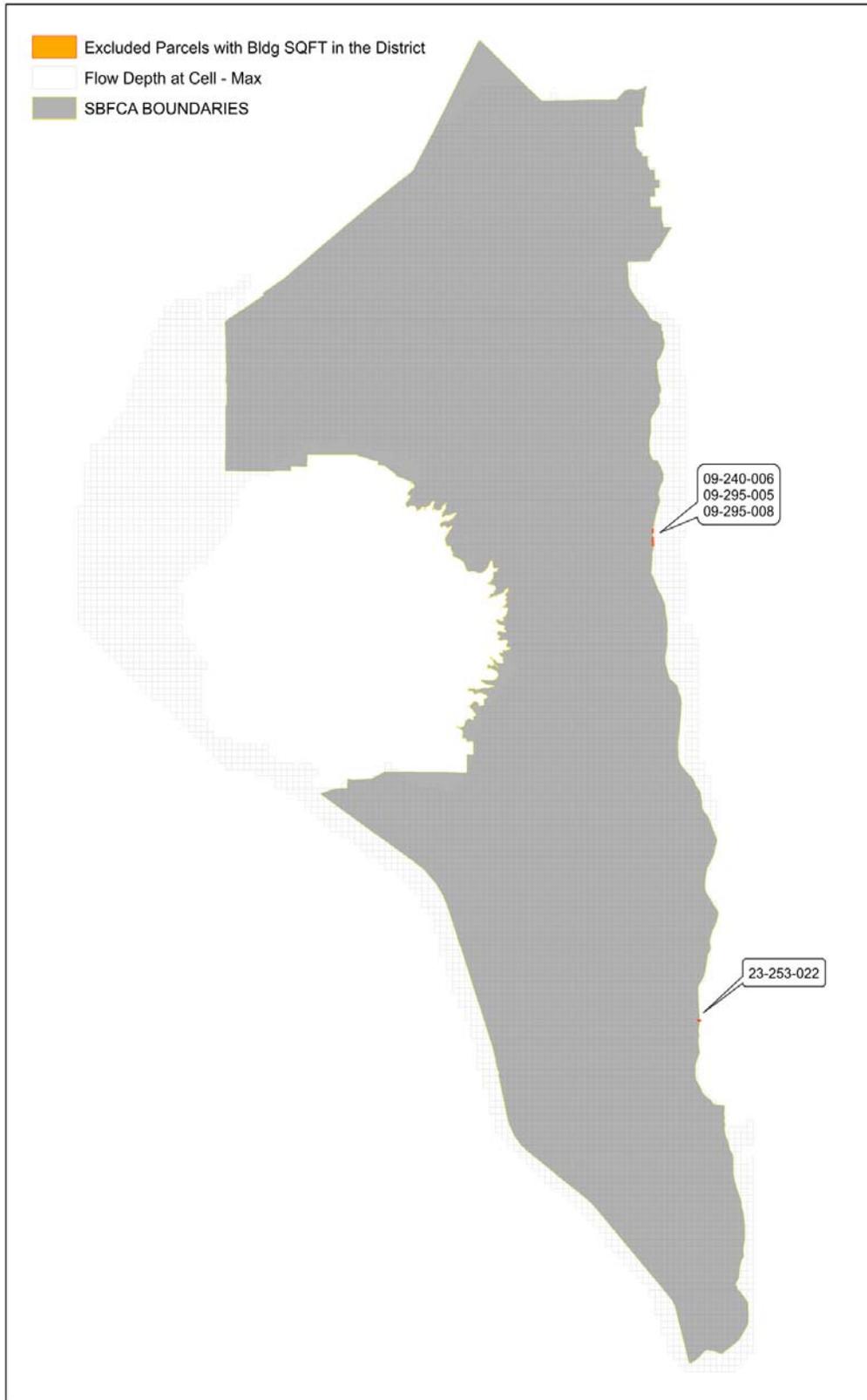


Figure 2

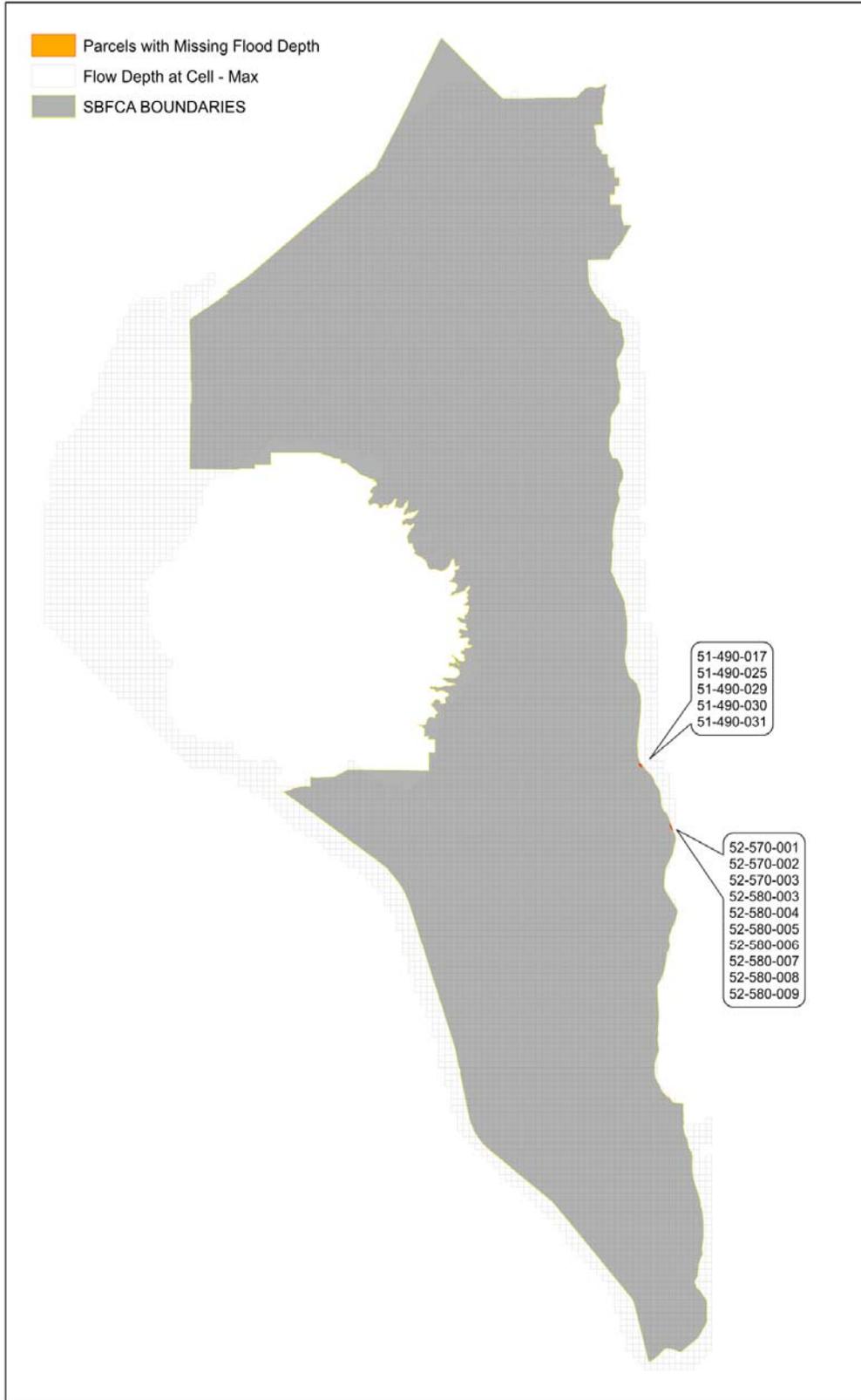


Figure 3

**SUTTER BUTTE FLOOD CONTROL AGENCY**

**RESOLUTION NO. 2015-11**

**A RESOLUTION OF THE BOARD OF DIRECTORS OF  
THE SUTTER BUTTE FLOOD CONTROL AGENCY  
APPROVING ADDENDUM NO. 2 TO FINAL ENGINEER'S REPORT**

WHEREAS, the Sutter Butte Flood Control Agency ("Agency") is a Joint Powers Authority created in 2007 to finance and construct levee improvements in the Sutter Basin; and

WHEREAS, on July 14, 2010, the Board of Directors of the Agency, after a public hearing and property owner election in compliance with Proposition 218, adopted Resolution No 10-004 forming the Sutter Butte Flood Control Agency Assessment District ("Assessment District"); and

WHEREAS, on August 8, 2012, the Board of Directors of the Agency adopted Resolution 2012-14 approving an addendum to the Final Engineer's Report (Addendum No. 1) supporting the Assessment District; and

WHEREAS, the area bounded by the Sutter Bypass, Wadsworth Canal, Interceptor Canal and the Assessment District Boundary along the town of Sutter is referred to as the "Sutter Triangle;"

WHEREAS, during an annual review of property assessments, staff identified an error that was reflected in the calculation of annual assessments. As a result, parcels in the Sutter Triangle area were mistakenly placed in a benefit area that led to assessments that were higher than appropriate; and

WHEREAS, to correct this error, and in compliance with applicable law, the Agency wishes to refund, with interest, any overcharged and collected assessments since the first year of assessment collection.

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The above recitals are true and correct.
2. The Board of Directors hereby approves the attached Addendum No. 2 to the Final Engineer's Report, which, in order to ensure that all parcels receiving benefit from the Agency's levee projects are assessed in a manner that is proportional to benefits received, changes the benefit area for the parcels in the Sutter Triangle area.
3. The Board of Directors hereby directs staff to issue refunds for any overcharged and collected assessment with interest in accordance with applicable law based upon recalculated assessments for Fiscal Years 2010-11 through 2014-15. Staff shall reimburse any overcharged and collected assessment with interest in accordance with applicable law for the current Fiscal Year 2015-16 after April 10, 2015.

ADOPTED as a resolution of the Board of Directors of the Sutter Butte Flood Control Agency at a regular meeting duly held on the 18<sup>th</sup> day of November, 2015.

Kash Gill  
Kash Gill, CHAIRMAN

APPROVED AS TO FORM:

[Signature]  
Agency Counsel

ATTEST:

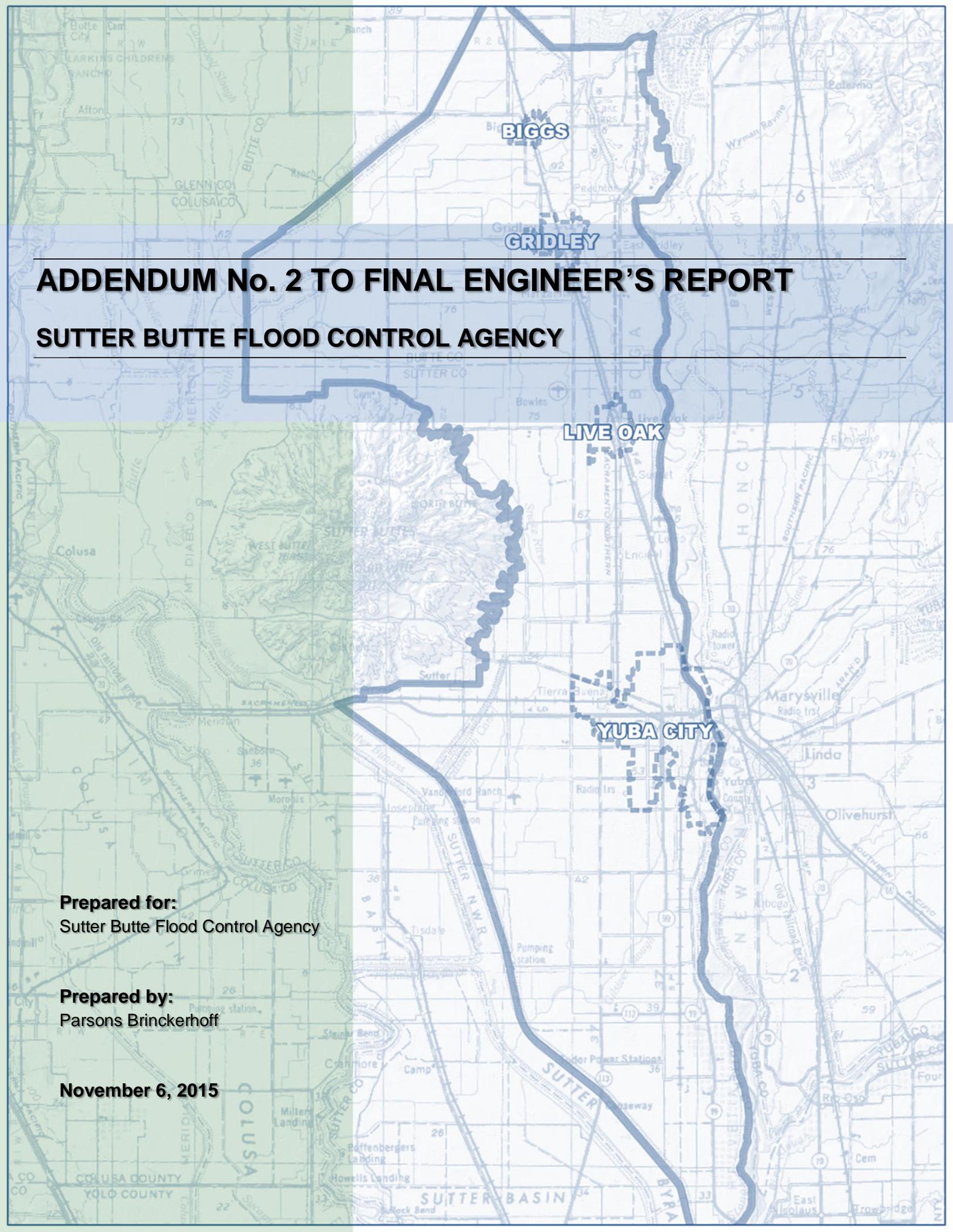
[Signature]  
BOARD SECRETARY

STATE OF CALIFORNIA )  
COUNTY OF SUTTER )  
SUTTER BUTTE FLOOD CONTROL AGENCY )

I, Sarah Modene Secretary of the Board of Directors of the Sutter Butte Flood Control Agency, do hereby certify that the foregoing is a true and correct copy of Resolution No. 2015-~~09~~ adopted by the Board of Directors of the Sutter Butte Flood Control Agency, California, at a regular meeting thereof, held on the 18<sup>th</sup> day of November, 2015 by the following vote:

AYES: Sheppard, Gill, Dukes, Lambert, Connelly, Silva, Hoppin, Baland, LeVake, Minger, Hall  
NOES: —  
ABSENT: Schmidt, Lamon

[Signature]  
SECRETARY



**ADDENDUM No. 2 TO FINAL ENGINEER'S REPORT**  
**SUTTER BUTTE FLOOD CONTROL AGENCY**

**Prepared for:**  
Sutter Butte Flood Control Agency

**Prepared by:**  
Parsons Brinckerhoff

**November 6, 2015**

## 1. Background

### 1.1 Assessment District Formation

On July 14, 2010 the Board of Directors of the Sutter Butte Flood Control Agency (“SBFCA”), after a public hearing and voter election in compliance with Proposition 218, adopted Resolution No. 10-004 approving the Final Engineer’s Report (“Engineer’s Report”) for the Sutter Butte Flood Control Agency Assessment District (“Assessment District”) and forming the Assessment District.

### 1.2 Engineer’s Report

The Engineer’s Report describes the assessment methodology, including the boundaries of the Assessment District (Figure 1), the flood damage reduction benefits that are used to proportionally spread the assessments among the properties in the Assessment District, the assessment equations that guide this spread, and sample calculations. The Assessment District includes all properties located within the SBFCA JPA boundaries except as noted in Section 4.3 of the Engineer’s Report. On August 8, 2012, the Board of Directors adopted Resolution No. 2012-14 approving an Addendum to the Final Engineer’s Report (“Addendum No. 1”).

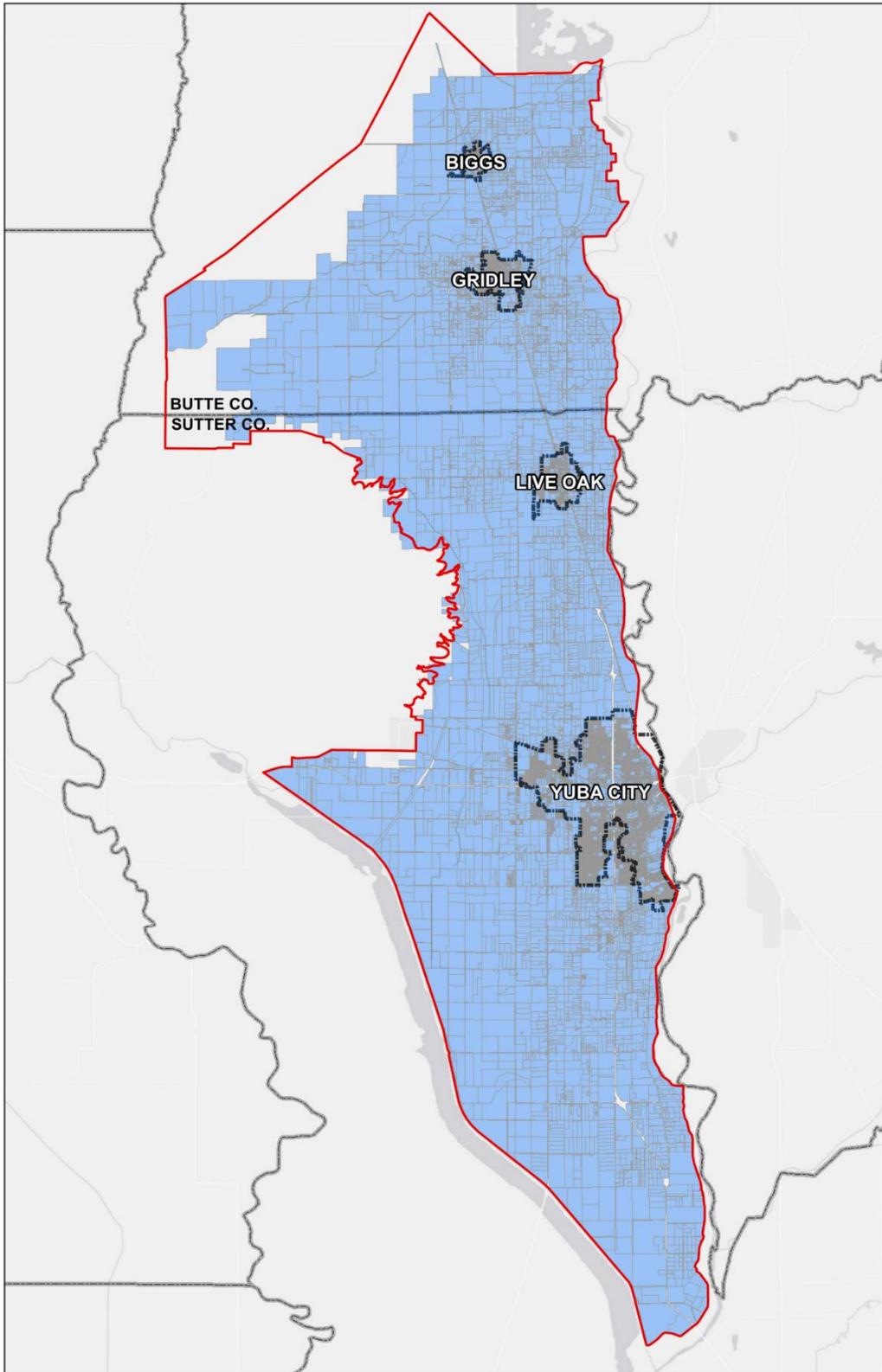
### 1.3 Authority

The Assessment District was formed by SBFCA under the Benefit Assessment Act of 1982<sup>1</sup> (the 1982 Act) and Article 4 (commencing with Section 6584 of the Government Code) of the Joint Exercise of Powers Act. Government Code Section 54710.5 in the 1982 Act authorizes agencies that are authorized to provide flood control services, which include the member jurisdictions of SBFCA, to levy assessments to finance the cost of installation and improvement of facilities. Section 54710 of the 1982 Act authorizes such agencies to levy assessments to finance the operations cost of flood control services. The SBFCA may exercise these assessment powers. The assessments authorized under the 1982 Act are levied annually based on a budget for expenditures.

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<sup>1</sup> Government Code Sections 54703 – 54719)

**Figure 1**  
**SBFCA Assessment District Boundary**



## 2. Modifications to the Engineer's Report

### 2.1 Benefit Area Assignment

The parcels in the area bounded by the Sutter Bypass, Wadsworth Canal, Interceptor Canal and the Assessment District Boundary along the town of Sutter are referred to as the "Sutter Triangle" (Figure 2). These parcels were assigned to Benefit Area "D" when the Assessment District was formed (Figure 3). Benefit Area "D" was intended to consist of parcels within the 200-year floodplain area in Sutter County between Live Oak and west of Yuba City that benefit from improvements to levee segments 1, 2, 3 and 4. The relative risk factor for Benefit Area "D", as defined in Section 4.3 of the Engineer's Report, is 4/7 or 57.1%

In addition to the relative risk factor, the Engineer's Report also applied an adjustment factor to reflect the relative level of flood protection to be provided by projects funded by the Assessment District. Benefit areas generally to the south and west of Yuba City will receive a 100-year level of protection as compared to the 200-year protection for the remainder of the Assessment District. To reflect the relative level of flood protection benefit a 0.5 adjustment factor was applied to the relative risk calculation for benefit areas south of Yuba City. These are Benefit areas G1, G2 and G3 (Figure 3).

The Sutter Triangle parcels were mistakenly placed in Benefit Area "D" and should have been placed in Benefit Area "G1". This is due to the fact that the parcels will only receive a 100-year year level of protection from the completion of projects funded by the Assessment District and once the State exercises its statutory responsibilities for the Sutter Bypass and Wadsworth Canal levees. To correct this error and ensure that all parcels receiving the benefit are assessed proportional to the benefit received, the Sutter Triangle parcels will have their Benefit Area changed to "G1". Their assessments will be calculated based on that classification beginning with assessments levied for Fiscal Year 2016-17 Sutter County tax bills.

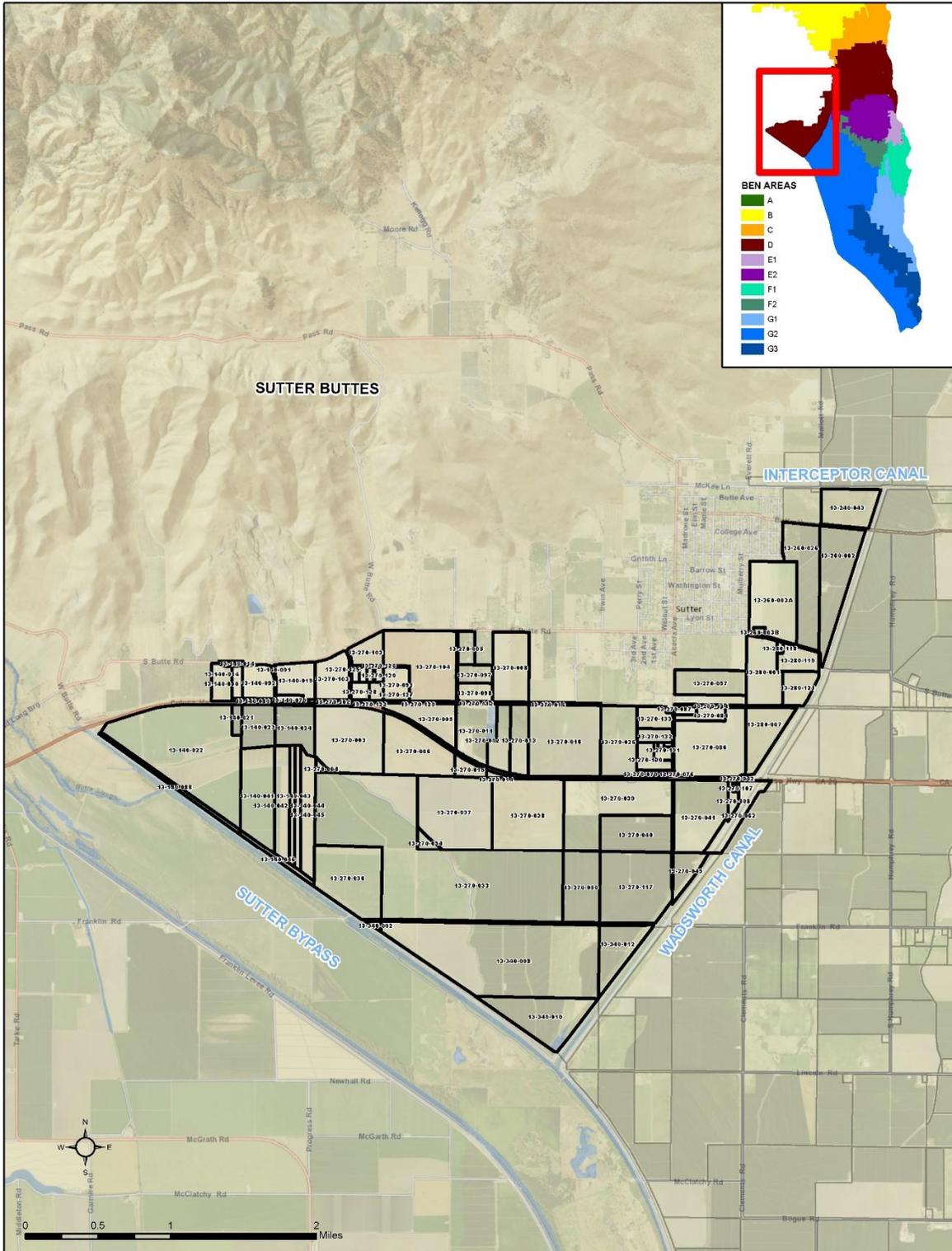
### 2.2 Assessment Correction

The corrected 2015/16 assessment for the Sutter Triangle parcels is listed in Table 1. Table 1 also shows the prior 2015/16 annual assessment and the change in the assessment for each Sutter Triangle Parcel.

### 2.3 Revised Benefit Area Map

The revised Benefit Area map for the Assessment District is shown in Figure 4 and reflects the change in Benefit Area for the Sutter Triangle from "D" to "G1."

**Figure 2**  
**Sutter Triangle Parcels**



**Figure 3  
Original Benefit Areas**

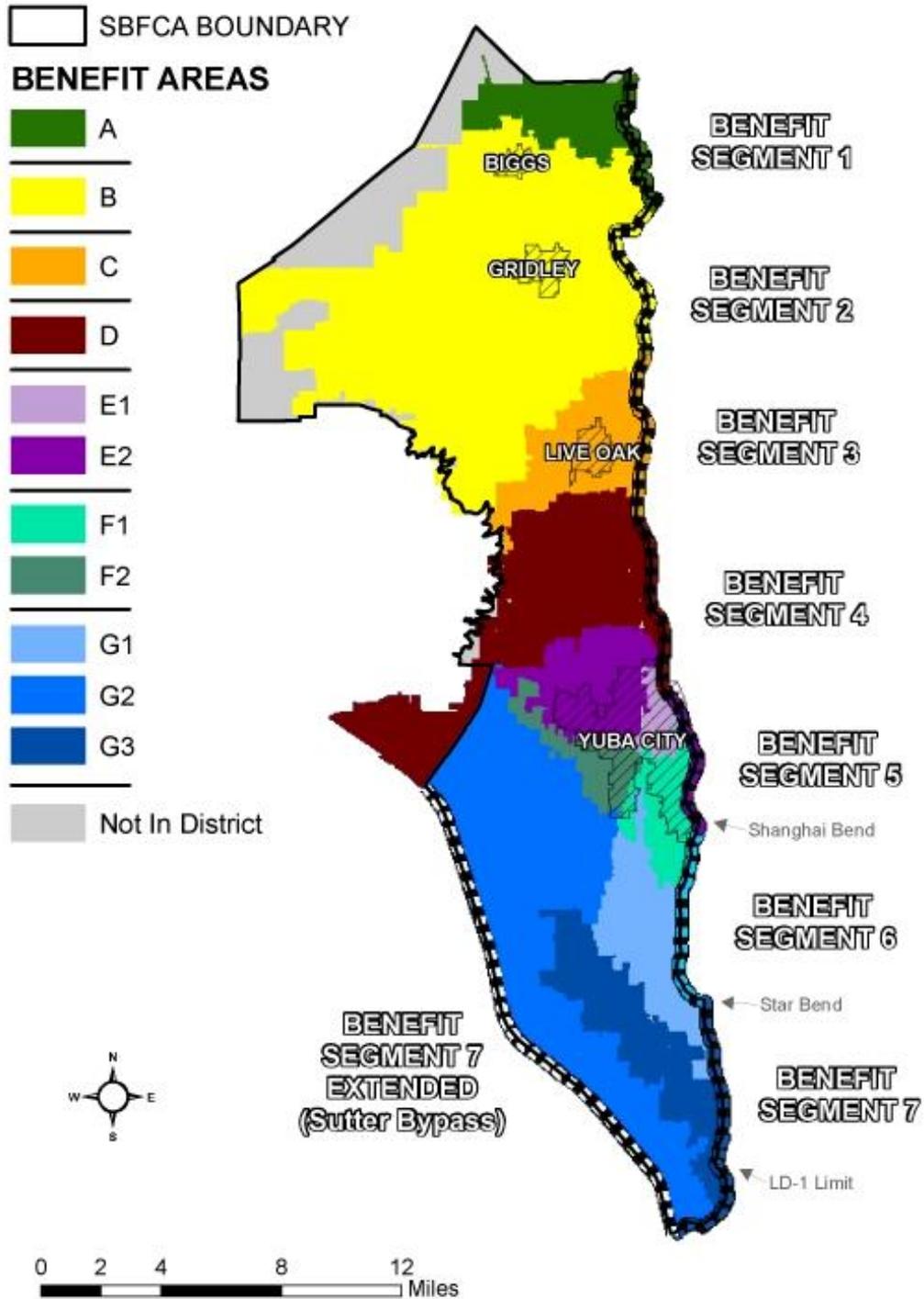


TABLE 1  
REVISED 2015/16 SUTTER TRIANGLE PARCEL ASSESSMENTS

APN	COUNTY	ORIGINAL 2015-16 ASMT	REVISED 2015-16 ASMT	CHANGE
13-270-006	SUTTER	\$95.56	\$52.50	\$43.06
13-140-088	SUTTER	\$16.68	\$9.16	\$7.52
13-140-022	SUTTER	\$271.36	\$149.08	\$122.28
13-270-045	SUTTER	\$25.18	\$13.83	\$11.35
13-340-010	SUTTER	\$191.76	\$105.35	\$86.41
13-340-012	SUTTER	\$57.08	\$31.36	\$25.72
13-340-008	SUTTER	\$818.42	\$449.63	\$368.79
13-340-002	SUTTER	\$1.66	\$1.50	\$0.16
13-270-117	SUTTER	\$144.76	\$79.53	\$65.23
13-270-050	SUTTER	\$77.62	\$42.64	\$34.98
13-270-036	SUTTER	\$107.68	\$59.16	\$48.52
13-140-046	SUTTER	\$11.66	\$6.41	\$5.25
13-270-034	SUTTER	\$5.34	\$2.93	\$2.41
13-270-040	SUTTER	\$898.78	\$493.78	\$405.00
13-270-062	SUTTER	\$8,705.16	\$4,782.50	\$3,922.66
13-270-042	SUTTER	\$87.56	\$48.10	\$39.46
13-270-107	SUTTER	\$87.02	\$47.81	\$39.21
13-270-108	SUTTER	\$210.94	\$115.89	\$95.05
13-270-041	SUTTER	\$99.98	\$54.93	\$45.05
13-270-039	SUTTER	\$335.50	\$184.32	\$151.18
13-270-038	SUTTER	\$155.24	\$85.29	\$69.95
13-270-037	SUTTER	\$149.90	\$82.35	\$67.55
13-270-033	SUTTER	\$601.54	\$330.48	\$271.06
13-270-014	SUTTER	\$88.96	\$48.87	\$40.09
13-270-129	SUTTER	\$434.36	\$238.63	\$195.73
13-270-066	SUTTER	\$77.16	\$42.39	\$34.77
13-270-076	SUTTER	\$12.70	\$6.98	\$5.72
13-270-075	SUTTER	\$94.52	\$51.93	\$42.59
13-270-077	SUTTER	\$86.84	\$47.71	\$39.13
13-270-080	SUTTER	\$75.84	\$41.67	\$34.17
13-270-079	SUTTER	\$83.98	\$46.14	\$37.84
13-270-004	SUTTER	\$5.72	\$3.14	\$2.58
13-270-015	SUTTER	\$14.06	\$7.72	\$6.34
13-270-088	SUTTER	\$94.68	\$52.02	\$42.66
13-270-109	SUTTER	\$29.50	\$16.21	\$13.29
13-140-021	SUTTER	\$9.22	\$5.07	\$4.15
13-270-130	SUTTER	\$248.18	\$136.35	\$111.83
13-270-132	SUTTER	\$14.54	\$7.99	\$6.55
13-140-014	SUTTER	\$10.34	\$5.68	\$4.66

TABLE 1 (Continued)  
REVISED 2015/16 SUTTER TRIANGLE PARCEL ASSESSMENTS

APN	COUNTY	ORIGINAL 2015-16 ASMT	REVISED 2015-16 ASMT	CHANGE
13-140-023	SUTTER	\$38.18	\$20.98	\$17.20
13-140-024	SUTTER	\$42.26	\$23.22	\$19.04
13-140-041	SUTTER	\$94.60	\$51.97	\$42.63
13-140-042	SUTTER	\$45.88	\$25.21	\$20.67
13-140-043	SUTTER	\$22.94	\$12.60	\$10.34
13-140-044	SUTTER	\$22.94	\$12.60	\$10.34
13-140-045	SUTTER	\$45.88	\$25.21	\$20.67
13-140-079	SUTTER	\$7.10	\$3.90	\$3.20
13-140-080	SUTTER	\$4.02	\$2.21	\$1.81
13-140-090	SUTTER	\$288.06	\$158.26	\$129.80
13-140-092	SUTTER	\$33.66	\$18.49	\$15.17
13-240-043	SUTTER	\$57.58	\$31.63	\$25.95
13-260-002	SUTTER	\$356.98	\$196.12	\$160.86
13-260-026	SUTTER	\$239.54	\$131.60	\$107.94
13-270-003	SUTTER	\$129.42	\$71.10	\$58.32
13-270-005	SUTTER	\$1,491.40	\$819.35	\$672.05
13-270-008	SUTTER	\$75.18	\$41.30	\$33.88
13-270-011	SUTTER	\$2,565.12	\$1,409.24	\$1,155.88
13-270-012	SUTTER	\$36.00	\$19.78	\$16.22
13-270-013	SUTTER	\$105.66	\$58.05	\$47.61
13-270-016	SUTTER	\$155.24	\$85.29	\$69.95
13-270-026	SUTTER	\$76.64	\$42.10	\$34.54
13-270-057	SUTTER	\$51.56	\$28.33	\$23.23
13-270-084	SUTTER	\$3,593.38	\$1,974.15	\$1,619.23
13-270-086	SUTTER	\$126.20	\$69.33	\$56.87
13-270-087	SUTTER	\$5,196.16	\$2,854.70	\$2,341.46
13-270-091	SUTTER	\$2,124.26	\$1,167.04	\$957.22
13-270-095	SUTTER	\$408.54	\$224.45	\$184.09
13-270-097	SUTTER	\$18.82	\$10.34	\$8.48
13-270-098	SUTTER	\$300.38	\$165.02	\$135.36
13-270-102	SUTTER	\$4.30	\$2.36	\$1.94
13-270-104	SUTTER	\$326.84	\$179.56	\$147.28
13-270-112	SUTTER	\$184.42	\$101.32	\$83.10
13-270-114	SUTTER	\$4.70	\$2.58	\$2.12
13-270-120	SUTTER	\$1,214.68	\$667.33	\$547.35
13-270-122	SUTTER	\$44.58	\$24.49	\$20.09
13-270-123	SUTTER	\$6.46	\$3.55	\$2.91
13-270-124	SUTTER	\$197.90	\$108.72	\$89.18
13-270-125	SUTTER	\$44.98	\$24.71	\$20.27

TABLE 1 (Continued)  
REVISED 2015/16 SUTTER TRIANGLE PARCEL ASSESSMENTS

APN	COUNTY	ORIGINAL 2015-16 ASMT	REVISED 2015-16 ASMT	CHANGE
13-270-126	SUTTER	\$38.34	\$21.06	\$17.28
13-270-127	SUTTER	\$107.78	\$59.21	\$48.57
13-270-128	SUTTER	\$6,114.70	\$3,359.33	\$2,755.37
13-270-131	SUTTER	\$104.26	\$57.28	\$46.98
13-270-133	SUTTER	\$192.18	\$105.58	\$86.60
13-280-001	SUTTER	\$89.56	\$49.20	\$40.36
13-280-007	SUTTER	\$71.80	\$39.45	\$32.35
13-280-118	SUTTER	\$150.28	\$82.56	\$67.72
13-280-119	SUTTER	\$432.12	\$237.40	\$194.72
13-280-121	SUTTER	\$30.36	\$16.68	\$13.68
13-270-103	SUTTER	\$78.74	\$43.26	\$35.48
13-370-016	SUTTER	\$6.84	\$3.76	\$3.08
13-140-019	SUTTER	\$40.72	\$22.37	\$18.35
13-140-091	SUTTER	\$1.50	\$1.50	\$0.00
13-260-003A	SUTTER	\$103.32	\$56.76	\$46.56
13-260-003B	SUTTER	\$286.52	\$157.41	\$129.11
	TOTAL	\$42,168.44	\$23,168.03	\$19,000.41

**Figure 4  
Revised Benefit Areas**

