2018

Urban Level of Flood Protection

Annual Report

August 21, 2018

SAFCA
Sacramento Area Flood Control Agency

1000 7th St, 7th Floor
Sacramento, CA 95814

(916) 874-7606

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1. INTRODUCTION

California Government Code (GC) Section 65007(a)(5) requires local agencies to "annually report to the Central Valley Flood Protection Board on the efforts in working toward completion of the flood protection system." State requirements are further described in the Urban Level of Flood Protection Criteria (ULOP Criteria; DWR, 2013). The most recent annual report for the region was submitted on September 7, 2017 to the Central Valley Flood Protection Board (CVFPB) (SAFCA, 2017).

This report describes SAFCA's efforts in improving the regional flood protection system over the past year as of June 30, 2018. Section 5 of the Sacramento Area Flood Control Agency Final Urban Level of Flood Protection Plan and Adequate Progress Baseline Report (ULOP Plan) noted that the majority of funding for SAFCA's projects comes from State and Federal agencies over which SAFCA has no control.

This annual report only addresses State Plan of Flood Control (SPFC) facilities. The local land use agencies, acting as floodplain managers, must consider this plan with their own data to determine whether interior drainage and flood sources not managed by SPFC facilities affect development projects to a degree that the projects would be subject to flood protection findings under state law. This report is not intended to be a substitute for the independent judgment of the local agencies in adopting their findings.

2. PLANNED SCOPE, SCHEDULE, AND COST

Government Code Section 65007(a)(1) requires the local flood management agency to report "the total project scope, schedule, and cost" of meeting ULOP with the agency's flood protection system. This information was detailed in the ULOP Plan and is summarized here.

2.1 Project Scope

The following projects, illustrated in Figure 1, will help attain the Urban Level of Flood Protection in SAFCA's protected areas.

Folsom Dam Modifications – Folsom Dam Modifications include three related projects: the Folsom Joint Federal Project (JFP), the Folsom Dam Raise, and the Folsom Dam Water Control Manual Update.

The JFP is a joint project of the US Bureau of Reclamation (BOR), US Army Corps of Engineers (USACE), DWR, and SAFCA. The JFP created a new, gated auxiliary spillway on the east abutment of the dam, enabling the dam to be operated to accommodate a 200-year flood with discharges no greater than 160,000 cfs.

The Folsom Dam Raise will raise the height of the structures comprising Folsom Dam, including the main dam, wing dams, and dikes that contain Folsom Reservoir. The current height of the main dam is 484.0 feet above Mean Sea Level (msl) and the height of the wing dams and dikes is

480.5 feet msl. Congressional authorization allows the height of the wing dams and dikes to be raised by 3.5 feet to equal the height of the main dam. This will allow flood operators to store more flood water when forecasted inflows are decreasing (resulting in no imminent threat to the dam) and the additional storage is required to maintain releases from the dam at a level that can be safely contained by the downstream levee system (LWA, 2015).

The Folsom Dam Water Control Manual Update optimizes operations at the dam with the JFP improvements. Once the raise is completed, the manual will be adjusted again to reflect the increased reservoir storage capacity created by that project. With the raise, studies indicate that in a 200-year flood, discharges into the American River will not exceed 115,000 cfs.

Natomas Basin USACE Project (Now called American River Common Features (ARCF) Natomas Basin) – The Natomas levees are being improved in two phases. Construction of the Natomas Levee Improvement Program (NLIP) Local Project, led by SAFCA, is complete and comprised eighteen miles of improvements to the Natomas Cross Canal and the Sacramento River East Levee. The ARCF Natomas Basin Project proposes levee improvements around the remainder of the 42-mile Natomas Basin perimeter. The following project elements remain for completion by USACE (USACE, 2015):

- American River adjacent to Natomas Basin – widen 2 miles of levee in place and install a seepage cutoff wall through the levee and foundation.
- Sacramento River adjacent to Natomas Basin – construct 5 miles of adjacent levee, 3.3 miles of deep seepage cutoff walls, and 4.3 miles of seepage berms
- Pleasant Grove Creek Canal adjacent to Natomas Basin - Widen 3.3 miles of levee in place and install a soil bentonite cutoff wall on the Pleasant Grove Creek Canal.
- NEMDC/Steelhead Creek West Levee – widen 12.8 miles of existing levee and install 10.7 miles of cutoff wall.
- Natomas Cross Canal (NCC) – complete construction at gaps not remediated as part of NLIP at Bennett and Northern pumping plants and at the State Route 99 closure structure.

Construction progress on the Natomas Basin project has been hindered somewhat by a series of bid protests affecting advertised construction jobs.

American River Common Features General Reevaluation Report (GRR) (Now called ARCF WRDA 2016) – The ARCF Natomas Project described above was authorized prior to the ARCF GRR. New Water Resources Development Act (WRDA) 2016 features include more bank protection along the American and Sacramento rivers, levee height and seepage improvements along Arcade Creek, levee improvements on the Magpie Creek Diversion Channel, and changes to the Sacramento Weir and Bypass. On the Sacramento River east levee downstream of the American River, ARCF WRDA 2016 would improve deficient sites with improvements like the following:

- Slurry cutoff walls to address levee seepage and stability problems
- Rock bank protection to address erosion problems
- Geotextile slope stabilization to address levee stability
- Slope flattening to address levee stability
- Levee raise to address freeboard

Sacramento River Bank Protection Project (SRBPP) – The SRBPP is an ongoing project to provide bank protection along critically eroding reaches of the Sacramento River flood control system, including tributaries like the American River. The SRBPP may accomplish a portion of the bank protection that otherwise would be done through ARCF WRDA 2016.

Levee Accreditation Project (LAP) – The LAP is a locally-led subset of the construction work included in ARCF WRDA 2016. The LAP will construct slurry cutoff walls along the Arcade Creek North Levee, the NEMDC East Levee, and the Arcade Creek South Levee (AECOM, 2015). Along the Sacramento River East Levee (SREL) where conditions warrant repair, SAFCA's project will install, depending on the reach, stability berms, relief wells, relief well improvements, cutoff walls, or toe drains. The project will also include erosion repairs. Structures and vegetation encroaching on the levees will be removed as part of the LAP if necessary to meet NFIP standards and the State's ULDC.

The southernmost reach of the SREL at its junction with the Beach Lake Levee was evaluated in 2018 (MBK, 2018). MBK recommended improving the Beach Lake Levee and the Sacramento River East Levee downstream of the Beach Lake Levee. The recommendations included raising the Beach Lake Levee to meet ULDC requirements, possibly in conjunction with a riparian wind-wave buffer and DWR improvements to the levees of the McCormack-Williamson Tract. SAFCA is proceeding with a feasibility report.

Construction of the LAP has begun in the North Sacramento Streams area and has included relief wells and cutoff walls along Arcade Creek.

South Sacramento County Streams Group (SSSG) Project – USACE has been the lead agency on this completed project, which consists of improvements to levees and channels along Morrison Creek and its tributaries in South Sacramento, including Florin Creek, Elder Creek, and Unionhouse Creek.

Florin Creek Multi-Use Basin Project – In moderate and larger flood events, the completed Florin Creek Multi-Use Basin Project stores up to 30 acre-feet of Florin Creek flows at Florin Creek Park on the north bank of Florin Creek (ESA, 2014). It provides at least 100-year flood protection within its floodplain in conjunction with the Florin Creek capacity improvements constructed by USACE as part of the South Sacramento County Streams Group Project.

Non-Structural Actions – The state's Urban Levee Design Criteria (ULDC) (DWR, 2012) are incorporated by reference in the ULOP Criteria and require many actions that are good practices for the effective operation and maintenance of levee systems to sustain system performance. These actions include such measures as engineering evaluation and documentation, development of security and safety plans, and other items. The non-structural actions and their necessity are described in greater detail in the Adequate Progress Engineer's Report (MBK, 2016). Ongoing operation, maintenance, repair, and rehabilitation may be considered ongoing non-structural actions that to the extent required are funded by SAFCA and its land use agency and local maintaining agency partners. Progress on these actions is not reported here unless they are "critical features" under the meaning of California Government Code Section 65007(a)(3).

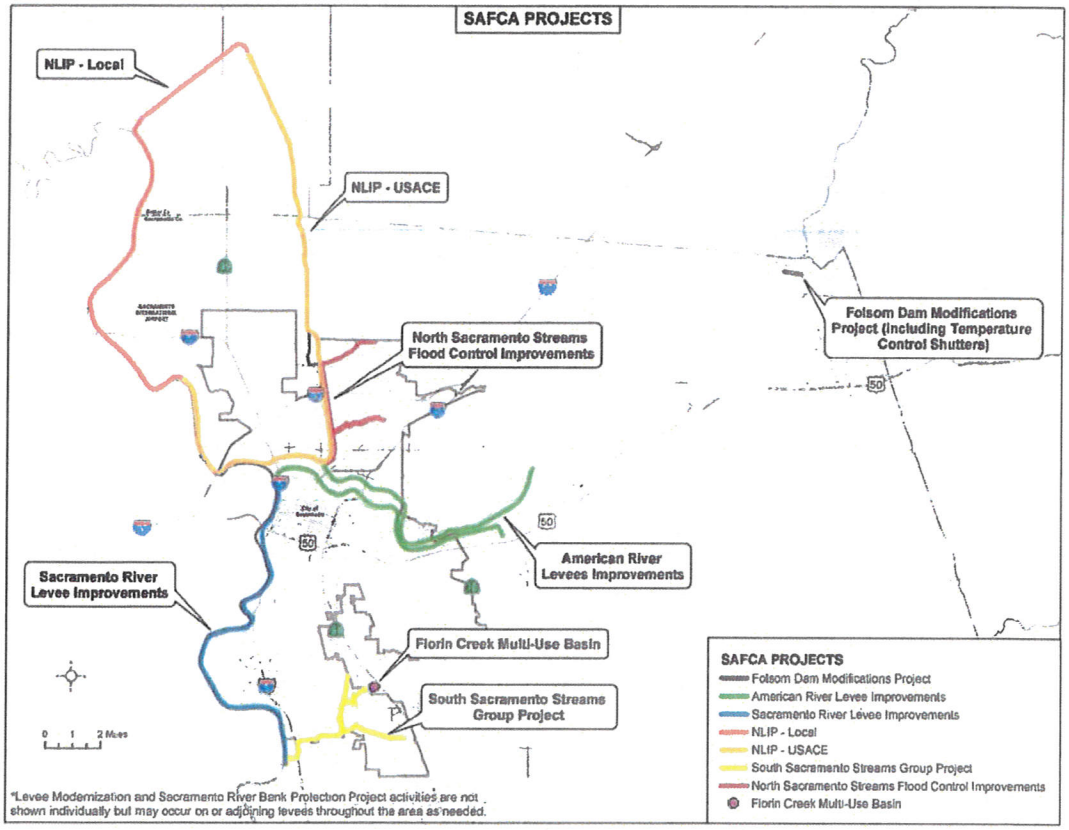

Figure 1: SAFCA Projects

2.2 Schedule

The Urban Level of Flood Protection must be achieved by the year 2025 in order for land use agencies, in approving new development, to make a finding that adequate progress is being made on the construction of a flood protection system (CGC §65865.5, §65962, and §66474.5). Table 1, below, from the ULOP Plan, lists the schedule for SAFCA projects.

Table 1: Timeline for Projects

Project	Levee System						
	Natomas	Dry Creek	Robla Creek – Arcade Creek	American River North Levee	American River South and Sacramento River East Levee	South Sacramento Streams	Construct-ion Complete by
Folsom Dam Modifications	Required for ULOP	Not required	Required for ULOP	Required for ULOP	Required for ULOP	Required for ULOP	2025
ARCF Natomas Basin Project	Required for ULOP	Not required	Not required	Not required	Not required	Not required	2025
NLIP Local Project	Required for ULOP	Not required	Not required	Not required	Not required	Not required	2016
ARCF WRDA 2016 (elements beyond those included in LAP)	Provides resiliency (lowers water surface)	Not required	Provides resiliency	Provides resiliency	Provides resiliency	Provides resiliency	2030
SRBPP	As needed	As needed	As needed	As needed	As needed	As needed	As needed
LAP	Not required	Not required	Required for ULOP	Required for ULOP	Required for ULOP	Required for ULOP	2023
SSSG	Not required	Not required	Not required	Not required	Not required	Site specific*	Complete
Florin Basin	Not required	Not required	Not required	Not required	Not required	Site specific*	Complete
Additional South Sacramento SPFC Project(s)	Not required	Not required	Not required	Not required	Not required	Under Evaluation	Feasibility Pending

*This plan provides 200-year design flood risk reduction in the South Sacramento Streams area downstream of the Union Pacific Railroad (UPRR), subject to the evaluation of additional south Sacramento SPFC projects. Upstream of UPRR, the land use agency's determination of whether ULOP is attained will depend on the specific site and development proposal. At some sites, the listed projects will help attain ULOP.

2.3 Costs, Revenues, and Appropriations

System improvement costs, or planned expenditures, were shown in the ULOP Plan. Revenues to fund those expenditures were also identified. Table 2 shows planned expenditures along with actual expenditures.

Table 2: Planned Expenditures ($millions, all sources)

Fiscal Year	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023	2023-2024	2024-2025
Original ULOP Plan Costs[1]	$171.6	$141.0	$111.3	$149.9	$125.5	$125.5	$163.6	$126.6	$126.6	$108.8
Actual Spent[2]	$167.8	$133.6	99.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] Original ULOP Plan Costs include capital projects and levee modernization. Values in the 2016 ULOP Plan included system operations and maintenance (O&M). This table eliminates O&M. It also corrects a double-counting of State reimbursements in the plan values for fiscal years 2015-16, 2016-17, and 2017-18.
[2] Actual expenditures are SAFCA actuals plus estimates of other agency expenditures based on the progress of the projects.

Although Table 2 shows fiscal year 2016-2017 and 2017-2018 expenditures slightly below the planned level, SAFCA's appropriations remain consistent with the plan, as shown in Table 3. For purposes of these tables, reimbursements are not shown as expenses. For example, a construction expense borne by SAFCA is recorded as a SAFCA expense. If it is then reimbursed through a State grant, that will not show as a State expense.

Government Code Section 65007(a)(2)(A) specifies that adequate progress means that 90 percent of the revenues scheduled to be received by that year have been appropriated and are currently being expended. Column C in Table 3 shows this requirement has been met with 105% of scheduled revenues received to date. The State has appropriated funding through execution of funding agreements. Some of the revenues for work completed under those funding agreements have not yet been received. Both the Natomas Levee Improvement Program and the Levee Accreditation Project have executed State funding agreements with appropriated State funding. Table 3 shows that cumulatively through fiscal year 2017-18, appropriations exceed 90% of the amount required to complete planned work. Furthermore, SAFCA estimates that 87% of its total funding has been appropriated for all years required to implement the planned costs in the 2016 ULOP report.

Table 3: Status of Appropriations ($millions, all sources)

Agency	Total Appropriations [A]	Planned Expenses Through 2017-2018 [1] [B]	% Appropriated vs. Planned Exp. [C = A/B]	Total Exp. 200-Year [2] [D]	% Appropriated 200-year Project [E = A/D]
Federal	$954.5	$983.3	97%	$1,989.2	48%
State[3]	$655.3	$656.1	100%	$1,113.6	59%
Local	$47.4	$47.7	99%	$47.4	100%
SAFCA [4,5]	$434.0	$295.2	147%	$496.8	87%
Total	$2,091.3	$1,982.3	105%	$3,647.0	57%

Notes:

[1] Planned expenses are the planned cumulative capital project expenses from Fiscal Year 2006-2007 through Fiscal Year 2017-18 in the 2016 ULOP report.

[2] Total expenses are the total cost from FY 2006-2007 through FY 2046-2047 required to achieve, and in many cases exceed, the 200-year level of protection as defined in the ULOP Criteria, except for the South Sacramento Streams benefit zone areas planned for just a 100-year level of protection as described in the 2016 ULOP report. The totals include expenditures for levee modernization and other activities consistent with meeting ULDC over time, after the completion of physical 200-year projects meeting the State's 2025 ULOP timeline.

[3] For purposes of this report State appropriations include funds in executed State funding agreements that have not yet been received by SAFCA.

[4] SAFCA appropriations include bond proceeds, development impact fees, federal reimbursements from the North Area Local Project (NALP) and net assessment revenue after debt and O&M payments.

[5] SAFCA appropriations exclude some assessment revenues currently held in other operating funds and accrued interest.

Table 4 shows that spending to date for the SAFCA flood system exceeds 90% of the planned expenditures for each source except the State. Since the State has appropriated 100% of planned expenses to date and is working with SAFCA to credit completed SAFCA improvements, this is not inconsistent with adequate progress. The next section will show that construction of critical features is progressing pursuant to Government Code Section 65007(a)(3).

Table 4: FY 2016-2017 through FY 2017-2018 Actual Expenditures ($millions, all sources)

Agency	Actuals[1] [A]	Planned[2] [B]	Percent [C = A/B]
Federal	$169.7	$104.6	162%
State	$44.0	$129.7	34%
Local	$0.7	$0.7	100%
SAFCA	$30.3	$16.3	186%
Total	$244.61	$251.25	97%

Notes:
[1] Actual expenditures based on SAFCA accounting data, receipt of State funding and federal funding from existing federal budget, and workplan appropriations.
[2] Planned costs based on Table 4-3 from final Consolidated Capital Assessment District No. 2 (CCAD) 2 Engineers Report.

This evaluation demonstrates that the Adequate Progress Annual Report appears to meet the requirements set forth in Government Code Section 65007(a)(2)(A).

3. CONSTRUCTION OF CRITICAL FEATURES

Pursuant to Government Code Section 65007(a)(3), adequate progress on construction of a flood protection system means that critical features of the system are under construction and progress is indicated by the expenditure of the budgeted construction funds. The preceding section documented that SAFCA expenditures are on track. This section provides a brief summary of the construction progress in each of the SAFCA protected areas. This report does not distinguish between expenditures for physical construction and those for pre-construction permitting, engineering, and design because the cash flow and planned expenditures in the ULOP Plan do not provide line items for construction alone and the pre-construction work is a planned and necessary component of ULOP Plan implementation.

All Protected Areas – All of the SAFCA protected basins benefit from the Folsom Dam Modifications. The first element of the modifications, the JFP, was largely completed in 2016. In 2017 the completed project was turned over to the US Bureau of Reclamation (USBR). The Folsom Dam Water Control Manual was completed in draft form, and USACE and USBR have agreed on an interim plan that allows utilization of the new spillway pending formal approval of the manual.

Natomas – SAFCA has largely completed its Natomas Levee Improvement Program (NLIP), which improved levees on the north and west perimeter of the basin. The ARCF Natomas Basin Project will improve the remaining levees on the east and south of the basin. Construction was delayed due to construction bid protests, but work is scheduled to begin in Reach D and Reach I in 2018. Natomas benefits from the Folsom Dam Modifications, which were discussed above.

Dry Creek North Levee System – No construction projects are required for the Dry Creek north levee.

Robla Creek to Arcade Creek – In 2017, 14 relief wells were constructed along the north levee of Arcade Creek, and construction of cutoff walls is occurring in summer 2018.

American River North Levee – Construction of cutoff walls along the Arcade Creek south levee and NEMDC east levee is occurring in summer 2018.

American River South and Sacramento River East Levee – Structural improvements to the Sacramento River east levees are being designed. Construction is scheduled to begin in 2019. Additional structural improvements recommended as a result of evaluations in 2018 include improvements to the Beach Lake Levee and the Sacramento River East Levee downstream of the Beach Lake Levee (MBK, 2018), and a feasibility study is pending.

South Sacramento Streams Group – An evaluation of the SPFC facilities providing flood risk management in the South Sacramento Streams vicinity was completed this year, and it recommended improvements that would provide ULOP downstream of the UPRR railroad crossing of Morrison Creek. Upstream of the UPRR, construction was completed in 2016-2017 on the Florin Creek channel improvements and the Florin Creek Multi-Use Basin project. When the Federal Emergency Management Agency (FEMA) issues a LOMR for that work, the City or County may determine that some areas where 200-year flood depths are below 3 feet may be newly eligible for a ULOP finding based on 100-year protection.

4. DELAYS

Adequate progress towards achieving an Urban Level of Flood Protection means, according to Government Code section 65007(a)(4), "the city or county has not been responsible for a significant delay," among other things. In SAFCA's flood protected areas, this standard has been achieved. As Table 4 demonstrated, during the 2017-2018 fiscal year, locals have expended 100% of their planned expenditures for flood protection.

The ULOP Criteria recommend that annual progress reports address "any delay in State funding appropriation consistent with an agreement between a State agency and a local flood management agency." As demonstrated earlier, State appropriations to date exceed their planned level.

No other substantial reason for delay occurred that is outside the city or county's control. It was noted earlier in the report that Federal funding was 97% of the target through Fiscal Year 2017-18. The small difference in funding received versus funding planned did not materially delay SAFCA work during the year, and in fact the Federal work plan for the fiscal year ending September 30, 2018 exceeds the amount in the ULOP Plan.

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