

Draft General Conformity Determination

American River Watershed Common Features 2016 Project

March 13, 2020

Prepared by



**U.S. Army Corps
of Engineers
Sacramento District**

U.S. Army Corps of Engineers, Sacramento District

Moore Noise, LLC

GEI Consultants, Inc.

This page intentionally left blank

General Conformity Determination American River Watershed Common Features 2016 Project

Table of Contents

Project Purpose and Description	1
Regulatory Background	2
National Ambient Air Quality Standards	2
Attainment Status	4
General Conformity	5
Emissions Analysis	5
Applicability	7
Mitigation Commitments	8
Agency Reporting and Public Review	10
General Conformity Determination	10
References	12

List of Tables

Table 1. National Ambient Air Quality Standards	3
Table 2. Attainment Status for the ARCF 2016 Project Area	4
Table 3. Estimated Uncontrolled Emissions by Year and Control Area	6
Table 4. General Conformity <i>De Minimis</i> Thresholds for the ARCF 2016 Project Area	7
Table 5. Estimated Controlled Emissions in the SFONA by Year and Air District	8

List of Appendices

Appendix A: (DRAFT) YSAQMD – ARCF 2016 NO_x Offset Agreement

Appendix B: *American River Common Features (ARCF) 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination.* Memorandum from Moore Noise, LLC.
February 4, 2020

Appendix C: Updated Emissions Summary Tables (Based on Project Schedule as of March 2020)

Acronyms and Abbreviations

ARCF	American River Common Features
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	Carbon monoxide
EPA	U.S. Environmental Protection Agency
GRR	General Reevaluation Report
NAAQS	National Ambient Air Quality Standards
NO ₂	Nitrogen dioxide
NO _x	Nitrogen oxides
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 micrometers or less
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 micrometers or less
ppb	Parts per billion
ppm	Parts per million
RCEM	Road Construction Emissions Model
ROG	Reactive organic gases
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SO ₂	Sulfur dioxide
USACE	U.S. Army Corps of Engineers
VOC	Volatile organic compounds
YSAQMD	Yolo-Solano Air Quality Management District
µg/m ³	Micrograms per cubic meter

General Conformity Determination

American River Watershed Common Features 2016 Project

The General Conformity regulations at Title 40 Code of Federal Regulations (CFR) Subchapter C Part 93 ensure that the actions taken by federal agencies do not interfere with a state's plans to attain and maintain national standards for air quality. This General Conformity Determination documents how the American River Common Features (ARCF) 2016 Project will meet the requirements of the General Conformity regulations.

Project Purpose and Description

The purpose of the ARCF 2016 Project is to reduce the risk of flooding within the Greater Sacramento metropolitan area.

The Sacramento metropolitan area is one of the urban regions most at risk of flooding in the United States. Constructed in the mid-twentieth century, the Sacramento River Flood Control Project was designed to protect the city from floodwaters as high as the known flood of record, which at the time of construction was the flood of 1927. A new record flood occurred in 1986, followed by a slightly smaller flood in January 1997, each of which caused levee failures and localized flooding. The primary risks to levee performance are seepage, underseepage, stability, erosion, and overtopping.

High water flows in both the American and Sacramento Rivers place considerable stresses on the network of levees protecting the Sacramento area. Without prompt improvement of weakened or sub-standard levee reaches, the levee system will remain at heightened risk of failure during periods of high water in the two rivers. The consequences of a major levee failure could be catastrophic because the protected area is highly urbanized and flooding could reach 20 feet deep, causing severe property damage, possible loss of life and serious contamination of drinking water supplies for downstream users.

The ARCF 2016 Project will construct approximately \$1.5 billion in improvements to the Sacramento metropolitan area flood protection system, as recommended by the *American River Watershed Common Features General Reevaluation Report (GRR)*. Recommendations in the GRR include construction of levee improvement measures to address seepage, instability, erosion, and overtopping risks identified for the Sacramento River, Arcade Creek, Natomas East Main Drainage Canal (NEMDC), and Magpie Creek, as well as erosion control measures for specific locations along the American River, and widening of the Sacramento Weir and Bypass to provide capacity for diversion of a higher volume of flood flows into the Yolo Bypass.

In 2018, under the Bipartisan Budget Act (Public Law 115-123), Congress appropriated full funding for the ARCF 2016 Project under the Long-Term Disaster Recovery Investment Program (LTDRIP). U.S. Army Corps of Engineers (USACE) implementation guidance for the LTDRIP (Civil Works Director's Policy Memorandum # DPM CW 2018-09) requires that the project be implemented on a much accelerated schedule to meet the obligations of the federal funding under this program. To meet the accelerated schedule, this project must be completed by January of 2024. If not completed on this timeline, exposure to significant flood risk persist, including loss of life, loss of agricultural production, damage to homes and businesses, and damage to public facilities.

Regulatory Background

This document pertains only to the federal General Conformity regulations. Applicable state and municipal air quality regulations are discussed in the *American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report (December 2015)* and in subsequent project-level reviews.

National Ambient Air Quality Standards

The U.S. Environmental Protection Agency (EPA) develops and enforces federal regulations that govern air quality. The Federal Clean Air Act (CAA) requires EPA to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The EPA has identified six “criteria” air pollutants of nationwide concern: ozone, carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), lead, and particulate matter. Particulate matter is further subdivided into particulate with an aerodynamic diameter of 10 micrometers or less (PM₁₀) and particulates with an aerodynamic diameter of 2.5 micrometers or less (PM_{2.5}). Ozone is not directly emitted but is instead formed in heat and sunlight from the precursor pollutants of nitrogen oxides (NO_x) and volatile organic compounds (VOC). Although the definition varies slightly, Reactive Organic Gases (ROG) are frequently referred to interchangeably with VOC. SO₂, NO_x, and in some cases VOC and ammonia, are precursor pollutants for the formation of PM_{2.5}. Regulatory programs for the control of ozone focus on control of the precursor pollutants. Regulatory programs for the control of PM_{2.5} focus on both direct emissions of PM_{2.5} and precursor pollutants appropriate to the specific nonattainment area.

The CAA identifies two types of national ambient air quality standards. Primary standards provide public health protection, including protecting the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

EPA designates areas of the State as attainment, nonattainment, maintenance, or unclassified for the various pollutant standards. An “attainment” designation for an area signifies that pollutant concentrations do not exceed the established standard. In contrast to attainment, a “nonattainment” designation indicates that a pollutant concentration has exceeded, and continues to exceed, the established standard. Nonattainment may vary in severity. To identify the severity of the issue and the extent of planning and actions required to meet the standard, nonattainment areas are assigned classifications that are commensurate with the severity of their pollution. Areas that previously exceeded a standard, but have come into compliance, are referred to as maintenance areas. Upon redesignation to maintenance status, an area is required to operate under a maintenance plan which establishes emission reduction measures that will ensure continued compliance with the NAAQS. The maintenance planning period extends for 20 years (two 10-year periods) after the redesignation date. Once the 20-year maintenance planning period is over, the CAA General Conformity Rule no longer applies and the area is considered to be in attainment.

Table 1 shows the NAAQS standards for each of the criteria pollutants. Several NAAQS have been revoked and replaced with more stringent standards over the years. Areas that were in nonattainment of the revoked standards are still subject to requirements to demonstrate compliance, however General Conformity does not apply to revoked NAAQS. Revoked NAAQS are not shown in Table 1.

Under the provisions of the CAA, the EPA requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP) detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional- and project- level air quality analysis. The SIP is not a single document but a compilation of new and previously submitted attainment plans, maintenance plans, emissions reduction programs, district rules, state regulations, and federal controls. Nonattainment and maintenance areas have a unique geography for each pollutant based on the physical region of the nonattainment area, and the meteorology, sources, and mechanisms that contribute to violations of the NAAQS.

Table 1. National Ambient Air Quality Standards

Pollutant	Averaging Time	Primary Standards	Secondary Standards	Form
Carbon Monoxide (CO)	8-hour	9 ppm	—	Not to be exceeded more than once per year
	1-hour	35 ppm	—	
Lead (Pb)	Rolling 3-month average	0.15 µg/m ³	Same as Primary	Not to be exceeded
Nitrogen Dioxide (NO ₂)	Annual	53 ppb	Same as Primary	Annual mean
	1-hour	100 ppb	—	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
Particulate Matter (PM ₁₀)	24-hour	150 µg/m ³	Same as Primary	Not to be exceeded more than once per year on average over 3 years
Particulate Matter (PM _{2.5})	Annual	12.0 µg/m ³	15.0 µg/m ³	Annual mean, averaged over 3 years
	24-hour	35 µg/m ³	Same as Primary	98 th percentile, averaged over 3 years
Ozone (2015)	8-hour	70 ppb	Same as Primary	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Ozone (2008)	8-hour	75 ppb	Same as Primary	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Sulfur Dioxide (SO ₂)	1-hour	75 ppb	—	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	3-hour	—	0.5 ppm	Not to be exceeded more than once per year

Source: EPA 2019. ppm = parts per million; ppb = parts per billion; µg/m³ = micrograms per cubic meter; “—” = no applicable standard.

Attainment Status

Construction of the ARCF 2016 Project currently includes elements in Sacramento and Yolo Counties, and although construction is not currently planned in Solano, Sutter and Placer Counties, minor elements could affect these counties and they are included for completeness. Project emissions will also occur in the San Francisco Bay Area as materials are shipped, by barge, from expected locations adjacent to San Francisco and San Pablo Bays.

Table 2 lists the nonattainment and maintenance areas in the five counties, and their classification. The nonattainment and maintenance areas shown in Table 2 are located within two separate air basins: the Sacramento Valley and the San Francisco Bay Area.

Table 2. Attainment Status for the ARCF 2016 Project Area

Area Name Counties of Interest	NAAQS (Specific Standard)	Status	Classification
Sacramento Metro* Sacramento & Yolo (partial El Dorado, Placer, Solano, & Sutter)	8-hr Ozone (2008)	<i>Nonattainment</i>	Severe-15
	8-hr Ozone (2015)	Nonattainment (recommended)	Moderate
Sacramento Sacramento; (partial El Dorado, Placer, Solano, & Yolo)	8-hr CO (2011)	Maintenance**	Moderate
	PM_{2.5} (2006)	<i>Nonattainment</i> †	Moderate
Sacramento County	PM ₁₀ (1987)	Maintenance	Moderate
San Francisco Bay Area (partial Solano)	8-Hour Ozone (2008)	<i>Nonattainment</i>	Marginal
	8-Hour Ozone (2015)	<i>Nonattainment</i>	Marginal
	PM _{2.5} (2006)	<i>Nonattainment</i>	Moderate
San Francisco-Oakland-San Jose (partial Solano)	8-hr CO (2011)	Maintenance	Moderate
Lake Tahoe North Shore (partial Placer)	8-hr CO (2011)	Maintenance	Not Classified
Sutter Buttes (partial Sutter)	8-hr Ozone (2015)	Nonattainment	Marginal
Yuba City-Marysville (partial Sutter)	PM _{2.5} (2006)	Maintenance	Moderate

Source: EPA 2019, EPA Greenbook, https://www3.epa.gov/airquality/greenbook/anayo_ca.html

*Sacramento Federal Ozone Nonattainment Area (SFONA)

**Sacramento completed its 20 years of maintenance of the CO standard on June 1, 2018.

† USEPA determined Sacramento PM_{2.5} area attained the 2006 24-hr. (2006) NAAQS in May 2017, based on certified 2013-2015 monitoring data. Redesignation Request to be updated and submitted to USEPA.

The boundaries of the nonattainment and maintenance areas designated for implementation of rules and regulations to improve air quality are described in the individual SIPs for the pollutants in question, or are published in the Federal Register at [redacted]. The nonattainment and maintenance areas expected to be affected by ARCF 2016 Project emissions are:

- The Sacramento Federal Ozone Nonattainment Area (SFONA) which includes all of Sacramento and Yolo counties and portions of Placer, El Dorado, Solano, and Sutter counties.
- The Sacramento Federal PM_{2.5} Nonattainment Area which is slightly smaller than the ozone nonattainment area and includes all of Sacramento County and portions of Yolo, Solano, Placer and El Dorado counties.
- The Sacramento PM₁₀ Maintenance Area which includes all of Sacramento County.
- The San Francisco Bay Area Intrastate Air Quality Control Area (San Francisco AQCA, the 8-hour Ozone and PM_{2.5} nonattainment area) which includes all of Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, and Santa Clara counties and portions of Sonoma and Solano counties.

For the Sacramento Valley Air Basin, the ozone, PM₁₀, and PM_{2.5} nonattainment and maintenance areas have different geographic footprints. For screening purposes, total project emissions for the entire SFONA, which has the largest geographic area, are analyzed and the smaller nonattainment or maintenance area emissions are only considered separately if needed.

General Conformity

The General Conformity process has four main components: an emissions analysis, an applicability determination, mitigation commitments, and an agency and public review. A discussion of each component of the process follows. The General Conformity Determination is the responsibility of the federal agency (USACE for the ARCF 2016 Project) and is subject to review by the air agencies for the local airsheds, the EPA, other agencies, and the public.

Emissions Analysis

An analysis of all direct and indirect emissions associated with the federal action must be completed and compared to *de minimis* thresholds to determine if General Conformity is applicable to the action. For the ARCF 2016 Project, emissions were estimated using the Sacramento Metropolitan Air Quality Management District's (SMAQMD's) *Road Construction Emissions Model* (RCEM), Version 8.1.0. The RCEM was developed by SMAQMD to analyze emissions from linear projects such as roadways, and for the ARCF 2016 Project. Emissions from barges were estimated using the SMAQMD *Harborcraft, Dredge and Barge Emissions Factor Calculator*. The emissions analysis is documented in a memorandum titled *American River Common Features 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination*, which is included in Appendix B to this document. Emission sources analyzed included a wide range of construction equipment and activities, on-road mobile sources (construction material delivery trucks and motor vehicles driven by contractor employees), as well as barge emissions resulting from the delivery of quarry rock and aggregate. The analysis memorandum evaluated two cases to address possible schedule slippage for project elements.

After the memorandum was prepared, USACE updated its anticipated project schedule. Although the component projects, the underlying modeling assumptions, and results did not change, the expected year of construction changed for many of the component projects. Erosion projects which were originally planned to be constructed in multiple years were consolidated into single construction seasons. As a result, the way that the component projects and model results were distributed among calendar years changed. Appendix C to this document contains several tables from the memorandum, updated to reflect USACE’s best available schedule assumptions as of March 2020. Emission tables included in this General Conformity Determination document are consistent with these best available schedule assumptions.

The ARCF 2016 Project will be completed through numerous separate contracts over a minimum five-year period. Many elements of the Project are still in the design phase. Consequently, actual emissions will vary from the estimates set forth in this document. Conservative assumptions regarding construction methods and timing were used in the emissions analysis to determine the overall levels of control and mitigation that will be required. Table 3 shows the estimated total uncontrolled (no equipment controls applied; standard vehicle fleet assumptions) project emissions by year in the SFONA and the San Francisco AQCA. See Appendix C for project components and emission summation by year. Only nonattainment and maintenance pollutants are included in Table 3. Uncontrolled SO₂ emissions are estimated to be negligible in both the SFONA and the San Francisco AQCA and therefore are not shown in Table 3.

Table 3. Estimated Uncontrolled Emissions by Year and Control Area

Control Area	Pollutant Emissions (tons per year)			
SFONA	ROG	NO_x	PM₁₀	PM_{2.5}
2019	0.0	0.5	3.3	0.7
2020	3.4	38.2	8.3	2.9
2021	4.8	52.6	47.1	11.3
2022	7.8	94.6	97.2	22.8
2023	5.5	65.1	53.4	13.0
San Francisco AQCA	ROG	NO_x	PM₁₀	PM_{2.5}
2020	0.1	1.3	0.1	0.1
2021	0.5	8.0	0.4	0.3
2022	0.8	13.2	0.6	0.5
2023	1.0	16.8	0.8	0.7

Applicability

The General Conformity Rules established *de minimis* thresholds to screen projects for the potential to impose significant adverse air quality effects. Projects with annual total emissions from direct and indirect emissions less than the *de minimis* thresholds are not considered to be significant and do not require a General Conformity Determination. The *de minimis* thresholds vary based upon the severity of ambient pollution in an area. Table 4 summarizes the *de minimis* thresholds applicable for the ARCF 2016 Project area. Project emissions above these thresholds require a General Conformity Determination to demonstrate how emissions will be controlled and mitigated.

Table 4. General Conformity *De Minimis* Thresholds for the ARCF 2016 Project Area

Control Area	Pollutant (NAAQS Standard)	Classification	<i>De Minimis</i> Threshold (tons per year)
SFONA	Ozone (2008)	Severe – 15	25 (VOC and NO _x)
	PM ₁₀ (1987)	Maintenance	100
	PM _{2.5} (2006)	Moderate	100 (PM _{2.5} , SO ₂ , and NO _x)
San Francisco AQCA	Ozone (2008)	Marginal	100
	PM _{2.5} (2006)	Moderate	100 (PM _{2.5} , SO ₂ , and NO _x)

Note: VOC and ammonia are not considered precursor pollutants of concern for PM_{2.5} formation in the Sacramento and San Francisco control areas.

Project emissions of criteria pollutants occurring within a nonattainment or maintenance area are compared to the applicable thresholds for that pollutant, as displayed in Table 4 above. A comparison of the estimated uncontrolled ARCF 2016 Project emissions in Table 3 to the General Conformity thresholds in Table 4 shows that uncontrolled project pollutant emissions estimated within the San Francisco AQCA are a minor fraction of the *de minimis* threshold for any pollutant. Within the SFONA, the estimated uncontrolled project emissions of all pollutants except NO_x as an ozone precursor pollutant, are well below the *de minimis* thresholds. Estimated project NO_x emissions are below *de minimis* levels as a PM_{2.5} precursor pollutant.

Uncontrolled project NO_x emissions as a contributor to ozone formation within the SFONA are estimated to be higher than the *de minimis* threshold and therefore a General Conformity Determination is required for NO_x emissions within the SFONA.

Mitigation Commitments

Although General Conformity applies only to emissions over the thresholds, state and municipal air regulations require control of project pollutant emissions, and related reduction and mitigation commitments, as prescribed through the California Environmental Quality Act process. These commitments are discussed in the *American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report (December 2015)* and in supplemental documents addressing individual project elements.

Table 5. Estimated Controlled Emissions in the SFONA by Year and Air District

Year	NO _x Emissions (tons per year)		
	SFONA	SMAQMD	YSAQMD
2019	0.5	0.5	--
2020	5.1	5.1	--
2021	15.9	9.9	6.0
2022	35.3	30.8	4.5
2023	30.3	24.0	6.3

NOTE: Emissions calculations assume on-road equipment fleet achieves overall emissions of 2010 or newer model vehicles and 90% of the on-site equipment meets Tier 4 standards.

Construction of the ARCF 2016 Project will require the use of many pieces of heavy construction equipment. The volume of required equipment can affect the ability of construction and equipment rental companies to provide a low-emitting vehicle fleet. USACE performed outreach to the construction industry to get feedback on the level of emissions control available on the overall construction fleet potentially available to complete the ARCF 2016 Project. Feedback from the construction industry supported USACE's proposal that it is feasible to achieve an equipment fleet for construction of ARCF 2016 with 90 percent of off-road equipment having engines meeting EPA Tier 4 standards. Additionally, USACE has determined that further emission reductions can be achieved by requiring the use of equipment that meets a minimum Tier 1 standard (i.e., no Tier 0 or uncontrolled equipment would be allowed on site, without approval by the Corps. In order to gain approval, contractors must provide updated emissions estimates showing how the Tier 1 standard could be achieved through offsets or additional mitigation implementation).

USACE will first reduce NO_x emissions through specification of an emissions-controlled vehicle fleet, and secondly through obtaining NO_x offsets for any year in which the emissions with implementation of equipment controls exceed the *de minimis* threshold of 25 tons of NO_x emitted within the SFONA boundary. Table 5 shows the estimated NO_x emissions in the SFONA for the ARCF 2016 Project with equipment controls applied, assuming on-road truck emissions will be equivalent to emissions from model year 2010 or newer for the entire on-road truck fleet, and off-road equipment will achieve a fleetwide NO_x reduction equivalent to 90 percent of the emissions reduction if all equipment were equipped with Tier 4 engines.

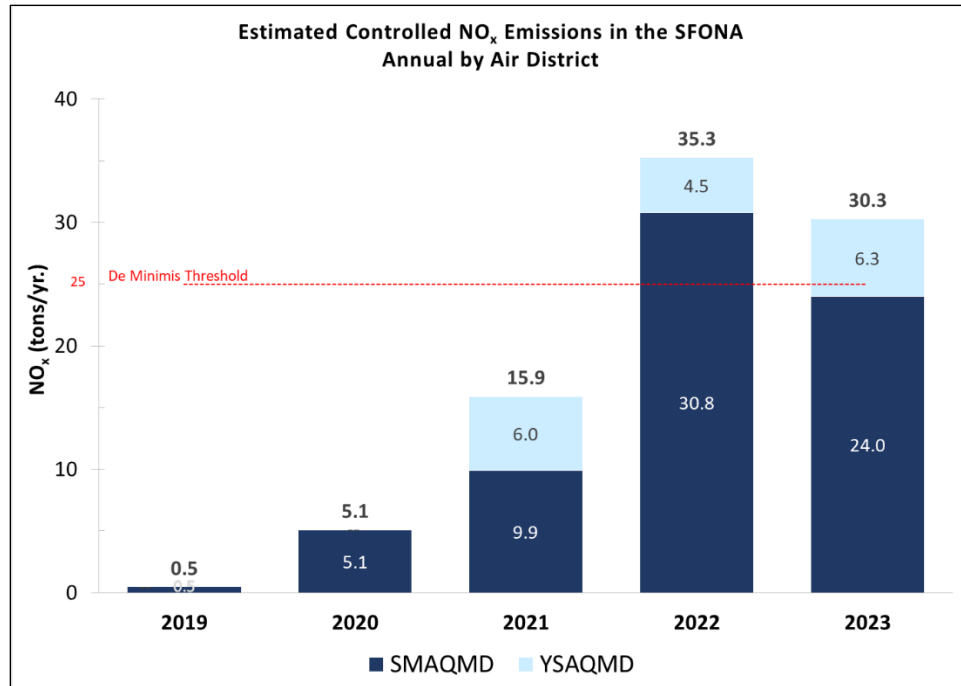


Figure 1. Estimated NO_x emissions in the SFONA Sacramento Metro and Yolo-Solano Air Quality Management Districts.

All direct and indirect emissions occurring within the SFONA must be considered in determining General Conformity applicability. The SFONA overlaps portions of multiple local air quality management districts. Figure 1 and Table 5 show the relative portions of estimated annual SFONA emissions generated in the Sacramento Metro AQMD and Yolo-Solano AQMD by ARCF 2016 Project construction. The Project emissions will primarily be generated from within the SMAQMD. The Sacramento Weir widening and associated levee improvement contracts occur within the Yolo-Solano Air Quality Management District (YSAQMD). No ARCF 2016 Project construction is planned in the higher elevation local air quality jurisdictions. That upper northeastern reach of the SFONA extends into parts of the Placer County Air Pollution Control District, Feather River AQMD, and El Dorado County AQMD.

To mitigate NO_x emissions within the SFONA, USACE will obtain NO_x emissions offsets from the local air quality agencies to fully offset total NO_x emissions – with construction fleet emissions controls applied – in 2022 and 2023. Emission offsets will not be required if emissions can be maintained below 25 tons per year of NO_x in the SFONA through equipment control measures.

Agency Reporting and Public Review

USACE must provide a 30-day notice which describes the proposed action and the Federal agency's Draft General Conformity Determination on the action. USACE must notify the same agencies, planning and land managers that were notified of the Draft General Conformity Determination within 30 days after making a Final General Conformity Determination. Notice must be given to:

- The EPA Region 9 Office
- State and local air quality agencies
- Any federally-recognized Indian tribal government in the SFONA
- Where applicable, affected Federal land managers
- The agency designated under section 174 of the Act (the California Air Resources Board)
- The Metropolitan Planning Organization

USACE must make public its Draft General Conformity Determination by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the ARCF 2016 Project and by providing 30 days for written public comment prior to taking any formal action on the draft determination. Following the public comment period on the Draft General Conformity Determination, the USACE must document responses to all comments received. The Final General Conformity Determination must be made public by placing a notice by prominent advertisement in a daily newspaper of general circulation in the area affected by the action within 30 days of the Final General Conformity Determination. Upon request by any person, comments and responses must be made available within 30 days of the Final General Conformity Determination. Both Draft and Final General Conformity Determinations for American River Watershed Common Features 2016 Project will be available on the USACE website for Sacramento Area Levees: sacleveeupgrades.com.

General Conformity Determination

The ARCF 2016 Project will be in conformity with the Clean Air Act and will not cause or contribute to a new violation, nor increase the frequency or severity of existing violations of the NAAQS. The following mitigation measures will be implemented to maintain conformity:

Measure 1: Actual emissions of nonattainment and maintenance pollutants occurring within the SFONA will be tracked monthly using tools acceptable to the SMAQMD and YSAQMD. The tracking data will be used to verify that all pollutants remain below the General Conformity *de minimis* thresholds or are fully mitigated and offset. If actual tracked emissions exceed 25 tons per year NO_x, yet the emissions were prospectively estimated at below the *de minimis* threshold, then USACE would obtain offsets and fully mitigate emissions accordingly.

Measure 2: In any calendar year where equipment control measures are projected to be insufficient to maintain project NO_x emissions within the SFONA below the general conformity *de minimis* threshold of 25 tons per year, offsets will be obtained (through purchase or loan) to fully offset the project's total direct and indirect NO_x emissions for that year.

Measure 3 (equipment control measure): USACE will require the use of on-road trucks with 2010 or newer model year engines, or an equivalent emission reduction, in all construction contracts. Construction contracts will allow the use of older model trucks in limited circumstances with a contractor proposed program to reduce vehicle miles travelled and with pre-approved total project emissions estimates for the year.

Measure 4 (equipment control measure): USACE will require the use of Tier 4 emission control technology equivalent to a minimum 90 percent reduction, based on off-road equipment horsepower, relative to the reduction achievable if all equipment used Tier 4 control technology for NO_x emissions from off-road construction equipment. For the remaining 10%, all equipment must meet a minimum Tier 1 standard. No Tier 0 or uncontrolled equipment will be allowed on site, without approval by USACE. In order to gain approval, contractors must provide updated emissions estimates showing how the Tier 1 standard could be achieved through offsets or additional mitigation implementation.

Measure 5: Mitigation offsets will be obtained from SMAQMD to offset NO_x emissions occurring within Sacramento County through the use of Rule 205 Community Bank and Priority Reserve Bank. Mitigation NO_x offsets will be obtained through the normal process described in SMAQMD Rule 205. Specific sections of Rule 205 applicable to meeting the timing requirements of General Conformity Offsets are:

- Section 310 – Community Bank Account Approval Process,
- Section 314 – Reserving Essential Public Services Account Credits,
- Section 405 – Loan Initiation Date, and 500 – Monitoring and Records.

SMAQMD Emission Reduction Credit loan applications must be submitted to the SMAQMD by April 1 of the year prior to emissions being offset, in order to process the transaction and pay all fees prior to January 1 of the following year.

Measure 6: A mitigation offset agreement will be maintained with YSAQMD to offset NO_x emissions occurring within the YSAQMD and the SFONA boundaries. Mitigation NO_x offsets will be purchased as described in the agreement. The NO_x offset agreement for YSAQMD will be similar to the DRAFT *YSAQMD - ARCF 2016 NO_x Offset Agreement* included as Appendix A.

Measure 7: If enough NO_x mitigation offsets are not available from the SMAQMD Community Bank and Priority Reserve, additional offsets will be purchased from the YSAQMD under an agreement (similar to the DRAFT NO_x Offset Agreement in Appendix A) to meet the full offset requirement within the SFONA.

References

Moore Noise, LLC. Memorandum - American River Common Features (ARCF) 2016 Air Pollutant Emissions Methods and Results to Support a General Conformity Determination. February 4, 2020.

Sacramento Metropolitan Air Quality Management District (SMAQMD). *Road Construction Emissions Model (RCEM)*, Version 8.1.0. Updated May 9, 2016.

Sacramento Metropolitan Air Quality Management District (SMAQMD). *Harborcraft, Dredge and Barge Emissions Factor Calculator*. Created September 15, 2006.

US Army Corps of Engineers, Central Valley Flood Protection Board, Sacramento Area Flood Control Agency. *American River Watershed Common Features General Reevaluation Report, Final Report*. December 2015.

US Army Corps of Engineers, Central Valley Flood Protection Board, Sacramento Area Flood Control Agency. *American River Watershed Common Features General Reevaluation Report Final Environmental Impact Statement /Environmental Impact Report*. December 2015, Revised May 2016.

US Environmental Protection Agency. *NAAQS Table*. Accessed October 16, 2019, <https://www.epa.gov/criteria-air-pollutants/naaqs-table>

US Environmental Protection Agency. *Greenbook Nonattainment Areas - California Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants*. Accessed October 16, 2019. https://www3.epa.gov/airquality/greenbook/anayo_ca.html

APPENDIX A

DRAFT

YSAQMD – ARCF 2016 NO_x Offset Agreement

NO_x Offset Agreement Between Yolo-Solano Air Quality Maintenance District (YSAQMD) and the U.S. Army Corps of Engineers (USACE), Sacramento District

Background

The U.S. Army Corp of Engineers (USACE) is planning to construct a program of improvements to levees in the Sacramento area under the American River Watershed Common Features (ARCF) 2016 Project. The construction program is expected to generate emissions that will exceed the Federal General Conformity thresholds for nitrogen oxides (NO_x) within the Sacramento Federal Ozone Nonattainment Area (SFONA). USACE will mitigate NO_x emissions using several measures, including obtaining offsets for NO_x emissions within the SFONA. This agreement is a voluntary compliance agreement, as allowed under 40 CFR §93.160 ('Mitigation of Air Quality Impacts'). The General Conformity regulations requires voluntary compliance agreements to contain a description of the proposed mitigation measures, and implementation schedules tied to explicit timelines (see 40 CFR §93.160(a)).

Mitigation Agreement

USACE and YSAQMD agree to the following conditions for obtaining qualifying offsets under General Conformity for NO_x emissions in the SFONA:

- 1) NO_x emissions generated by the ARCF 2016 Project within the YSAQMD jurisdiction will be offset within the District and the SFONA boundaries. NO_x emissions generated outside of the YSAQMD jurisdictional boundary may also be offset within the YSAQMD boundary with agreement from another local air quality agency with jurisdiction over the emissions and within the SFONA. In accordance with 40 CFR §93.158, the ARCF 2016 Project mitigation measures will "effect emissions reduction equal to or greater than the total of direct and indirect emissions... so that there is no net increase in emissions of that pollutant."
- 2) YSAQMD manages equipment retirement and replacement programs to achieve NO_x emission reductions within the District. YSAQMD has verified with the U.S. Environmental Protection Agency that equipment replacement programs may accept NO_x mitigation payments from the USACE for mitigation of emissions from construction of the ARCF 2016 project, in conformance with 40 CFR §93.160 and §93.163(a).
 - a. Upon receipt by YSAQMD of mitigation payments from USACE, YSAQMD will appropriately offset ARCF 2016 Project emissions with emissions credits generated by equipment under one of YSAQMD's equipment retirement and replacement programs. YSAQMD will take full responsibility for generating offsets that meet the following language of §93.163(a): "the emissions reductions from an offset or mitigation measure used to demonstrate conformity must occur during the same calendar year as the emission increases from the action." USACE shall not be liable for any offset penalty or cost arising from improper use by YSAQMD of mitigation funds received from USACE.
- 3) USACE agrees to pay a mitigation fee of \$18,262 per ton of NO_x offset credits to YSAQMD, plus a ten percent (10%) administration fee on the total mitigation offset charge for NO_x emissions within YSAQMD.
- 4) Before January 15, 2020 USACE will provide YSAQMD an initial estimate of required offset credits for calendar years 2020, 2021, 2022, and future years if needed, for mitigation of up to 12 tons per year of NO_x (but not to exceed a total of 35 tons NO_x for the entire construction period).

- 5) USACE will pay YSAQMD in full for offset credits to mitigate for the ARCF 2016 project's NO_x emission offset estimated for calendar years 2022 and 2023 within YSAQMD jurisdiction by February 1, 2022.
- 6) YSAQMD will procure the offset credits purchased as exclusive to USACE for the applicable calendar years of 2021 through and including 2025. Emission credits will not return to a community bank or be available for use by other projects or persons during the construction period of the ARCF 2016 Project.
- 7) Any surplus of NO_x emission offset credits (purchased credits in excess of actual emissions) will be held for use in future years for offsetting the emissions from future USACE ARCF 2016 Project contracts.
- 8) During the period of project construction USACE will provide a calculation of actual emissions within the YSAQMD for each calendar year by February 15 of the following year. USACE will use emission calculation tools required by the Sacramento Metropolitan Air Quality Management District (SMAQMD) for the calculations.
- 9) USACE will provide a revised estimate of required offsets by 1/15/2023 for calendar year 2023 and future construction years.
- 10) USACE will pay in full for estimated offsets for calendar year 2023 and future years by 2/1/2023. Future offset payment amounts will be reduced by any surplus purchased offset credits in excess of actual emissions for previous years.