

# Crystal Spring Dam Bridge Replacement Project

## Mitigation Monitoring and Reporting Program

Mitigation Measure	Implementation		Monitoring and Reporting		
	Responsibility	Timing	Action	Responsibility	Date Completed
<b>Air Quality</b>					
<p><b>Mitigation Measure AIR-1:</b> The Construction Contractor (Contractor) will implement the following basic control measures from the Bay Area Air Quality Management District's (BAAQMD) Feasible Control Measures for Construction Emissions of PM<sub>10</sub> (BAAQMD 1999):</p> <ul style="list-style-type: none"> <li>▪ Water all active construction areas at least twice daily.</li> <li>▪ Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least two feet of freeboard.</li> <li>▪ Pave, apply water three times daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas and staging areas at construction sites.</li> <li>▪ Sweep daily (with water sweepers) all paved access roads, parking areas and staging areas at construction sites.</li> <li>▪ Sweep streets daily (with water sweepers) if visible soil material is carried onto adjacent public streets.</li> </ul>	Construction Contractor	Construction	The County Environmental Review Officer (ERO) shall ensure that all BAAQMD measures are carried out in full. The County Environmental Compliance Monitor (Monitor) shall keep a log of activities and write a report of those activities following construction completion. The Monitor shall submit the report to the ERO.	ERO	_____ (date) _____ (initial)
<p><b>Mitigation Measure AIR-2:</b> The Contractor will implement the following measures to reduce diesel exhaust, thereby reducing ozone precursor emissions.</p> <ul style="list-style-type: none"> <li>▪ All equipment used in earthwork shall be tuned and maintained to the manufacturer's specification to maximize efficient burning of vehicle fuel.</li> <li>▪ The operator shall maintain and effectively utilize and schedule on-site equipment in order to minimize exhaust emissions from truck idling.</li> </ul>	Construction Contractor	Construction	<p>Contractor shall keep vehicle maintenance records and equipment schedule showing idling minimization in a centralized location for review by the ERO.</p> <p>The Contractor shall ensure that employees are briefed on procedures listed in the measure. Employees shall sign an Acknowledgment of Receipt on the briefing and submit it to the Monitor. The Monitor shall ensure that these procedures are followed.</p>	ERO	_____ (date) _____ (initial)

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<b>Biology</b>					
<b>Mitigation Measure BIO-1:</b> The Contractor will conduct worker environmental awareness training prior to the start of demolition and construction activities. The training will include information on identification and avoidance measures for special-status species and sensitive habitats potentially present in the Project impact area.	Construction Contractor	Pre-Construction	A Qualified Biological Monitor (QBM), approved by both US Fish and Wildlife (USFWS) and California Department of Fish and Game (CDFG), shall create a training curriculum and provide training to all employees before they may work on site. Contractor to submit a list of employee names and training dates to the Monitor.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-2:</b> Grasslands supporting host plants for the bay checkerspot butterfly will be fenced for avoidance or surveys will be conducted to determine that the butterfly is not present prior to implementation of construction activities.	San Mateo County	Pre-Construction	The QBM shall monitor fenced areas to ensure fence integrity. Grasslands not fenced shall be surveyed by USFWS-approved biologist within two weeks prior to construction activities. If the checkerspot butterfly is found, mitigation approved by the USFWS and appropriate to the location and circumstances shall be implemented.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-3:</b> Take avoidance measures for San Francisco garter snake will be implemented in all areas where construction could result in the direct take of this species. Measures will include pre-construction survey and relocation plans, exclusion fencing, environmental education programs, and biological monitoring during all construction phases.	San Mateo County	Pre-Construction and Construction	The QBM shall ensure measure and plan implementation, and oversee educational programs. The QBM shall document compliance in a Construction Monitoring Report. The QBM shall submit the Construction Monitoring Report to USFWS, CDFG, and the ERO for review.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-4:</b> The County has developed take avoidance measures for the California red-legged frog and San Francisco garter snake in consultation with U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (CDFG) as part of a Section 7 Consultation. These measures are described in the 2009 USFWS Amendment to the Biological Opinion (see Appendix E). To avoid and minimize Project effects to California red-legged frog and San Francisco garter snake during demolition and construction, the County will follow all avoidance and minimization measures outlined in the 2009 Biological	San Mateo County	Pre-Construction and Construction	The QBM shall ensure compliance with all measures outlined in the 1999 USFWS Biological Opinion and the 2009 USFWS Amendment to the Biological Opinion. The QBM shall document compliance in a Construction Monitoring Report. The QBM shall submit the Construction Monitoring Report to the USFWS, CDFG, and the ERO for review.	QBM	_____ (date) _____ (initial)

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<p>Opinion, summarized below:</p> <ul style="list-style-type: none"> <li>▪ Retain a qualified biologist(s) to act as an on-site biological monitor for the duration of the project construction and to oversee all other take avoidance measures for these species.</li> <li>▪ Relocate approximately half of the California red-legged frog egg masses from the pool on top of the dam in the breeding season prior to the initiation of construction, unless otherwise approved by the Service. Erect a fence to prevent California red-legged frog (and San Francisco garter snake) from moving from the dam pool into the dam area north of the pool during demolition and construction.</li> <li>▪ Protect the dam pool and all life stages of California red-legged frog from disturbance from construction while leaving a natural egress and ingress area at the southern end of the dam pool for California red-legged frog to move safely in and out of the pool from the south end until the demolition is occurring directly over the pool. Once demolition reaches the area above the pool, a platform will be installed over the pond to prevent any demolition debris from entering.</li> <li>▪ After construction is complete, restore the dam pool to its pre-construction condition if necessary (replace lost plants and remove sediments to maintain pre-construction levels). Photographs will be taken of the dam pool and measurements will be made of the various elements of the dam pool to document the pre-construction conditions.</li> </ul> <p>In order to implement the proposed minimization measures, the demolition of the existing bridge and construction of the new bridge have been divided into several stages. These minimization measures will occur at certain times of the year in order to coincide with the particular stages of California red-legged frog development. The construction stages and schedule have been designed to:</p> <ul style="list-style-type: none"> <li>▪ Avoid and minimize disturbance to the area at the south end of the bridge where the pool on top of the dam is located;</li> <li>▪ Minimize delays in the start and duration of construction; and</li> <li>▪ Minimize the disturbance to California red-legged frog migrations to and from the dam pool.</li> </ul>					

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<p><b>Mitigation Measure BIO-5:</b> Prior to demolition of the bridge, the County will initiate an enhancement plan of a minimum of approximately 0.25 acre of occupied California red-legged frog breeding pond and San Francisco garter snake foraging habitat within the immediate Crystal Springs Watershed, as outlined in the 2009 USFWS Amendment to the Biological Opinion (See Appendix E). This enhancement activity will consist of predator control (bullfrog and non-native turtle) at one of the closest known California red-legged frog breeding locations, Tracy Lake and the contiguous adjacent marsh at the northern end of Lower Crystal Springs Reservoir. These mitigation activities would not result in disturbance (e.g., grading or vegetation removal) of natural environments at Tracy Lake. This is an important area for reproduction to the north of the dam pool. These areas are distinct or isolated enough that depredation can be beneficial to the co-occurring California red-legged frog and San Francisco garter snake populations.</p> <p>Depredation will take the form of bullfrog egg mass removal, seining and selective removal of bullfrog larvae, and direct removal of adult and juvenile bullfrog and turtles through aquatic trapping and gigging. The program will begin concurrently with the bridge replacement project start up. This program will benefit both California red-legged frog and San Francisco garter snake and includes an area significantly larger than 0.25 acre. Removal of bullfrog and other non-native predators in this area is expected to provide benefit to both California red-legged frog and San Francisco garter snake populations that are known to occur in Tracy Lake and the upper marsh of Lower Crystal Springs Reservoir. The depredation program will continue for two years. Bullfrogs breed in the upper marsh of Lower Crystal Springs Reservoir, and juvenile and adult bullfrogs occupy Tracy Lake. Other introduced predators present at the area include red-eared sliders, painted turtles and soft shelled turtles. Swaim Biological (Swaim Biological) found a painted turtle in the process of eating a tree frog in Tracy Lake on February 15, 2007 (K. Swaim, pers. comm. 2009). The following schedule to control predators would be used to control predators:</p> <ul style="list-style-type: none"> <li>▪ Removal of bullfrog egg masses (late March through June), and</li> <li>▪ Removal of larval, adult, and metamorphosed bullfrog and non-native turtles (late March through October).</li> </ul>	San Mateo County	Initiated during Pre-Construction	The QBM shall monitor implementation of the enhancement plan and prepare an Annual Report on Predator Control Efforts for two years. The QBM shall submit those reports to the USFWS, CDFG, and the ERO.	QBM	_____ (date)  _____ (initial)

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Bullfrogs will be euthanized and stomach contents documented. The biological consultant may keep two or three of each non-native turtle species for use in public education efforts about not releasing non-native species. Other captured non-native turtles will be taken to local turtle rescue centers, including the Bay Area Turtle and Tortoise Rescue Center in Castro Valley. Any that are not accepted by rescue centers will be euthanized.					
<b>Mitigation Measure BIO-6:</b> A pre-construction survey will be conducted to determine if peregrine falcons are nesting on the Interstate 280 (I-280) bridge. If no nesting falcons are observed, no further mitigation will be necessary.	San Mateo County	Within two weeks prior to construction commencement.	The QBM shall create a report of findings on the pre-construction surveys and submit the report to the ERO.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-7:</b> If peregrine falcons are found to be nesting on the I-280 bridge, nest monitoring will be conducted during construction. If no disturbance to incubation or the feeding of chicks is observed, no additional mitigation for nesting activities will be necessary.	San Mateo County	Construction	The QBM shall create a report of findings of construction monitoring and submit the report to the ERO.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-8:</b> If it is determined during monitoring that Project construction activities are interrupting peregrine falcon egg incubation or the feeding of the chicks, further mitigation measures will be developed in coordination with CDFG.	San Mateo County	Construction	The QBM shall monitor any peregrine falcon behavior for egg incubation interruption. If the QBM observes that egg incubation or chick feeding is interrupted by construction activities, the County shall contact the CDFG for guidance on additional mitigation measures. The QBM shall oversee implementation of the additional measures. The QBM shall create a report of all activities during egg incubation and feeding of chicks and submit the report to the ERO.	QBM	_____ (date) _____ (initial)

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<b>Mitigation Measure BIO-9:</b> If a fledgling peregrine falcon enters the construction area, all construction activity will cease until the bird leaves the area. A qualified biologist may haze or move the bird from the area.	San Mateo County	Construction	The QBM shall monitor fledgling peregrine falcons and stop construction activity if a fledgling peregrine falcon enters the construction area. The QBM will haze or move the bird if warranted. The QBM shall create a report of all activities involving fledgling falcons and submit the report to the ERO.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-10:</b> If a fledgling peregrine falcon enters the construction area and is injured, construction activities will cease until the bird is removed from the area by a qualified biologist. Any injured peregrine falcon will be transported to an approved facility such as that operated by the Santa Cruz Predatory Bird Research Group for care.	San Mateo County	Construction	The QBM shall monitor injured fledgling peregrine falcons, stop construction activity, and transport the bird to the appropriate facility. The QBM shall create a report of all activities involving injured fledgling falcons.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-11:</b> A biological monitor will inspect the construction site each morning prior to the beginning of construction activities. Any western pond turtles that are in the Project impact area will be removed and transported to a suitable release site downstream. The number and size of any captured turtles, as well as the release site, will be reported to CDFG.	San Mateo County	Construction	The QBM shall create a report of captured turtles and their release site. The QBM shall submit this report to CDFG and the ERO.	QBM	_____ (date) _____ (initial)
<b>Mitigation Measure BIO-12:</b> The County will develop a Restoration, Monitoring, and Reporting Plan (RMRP) prior to Project implementation. The RMRP will provide details of restoration and enhancement activities, monitoring, and reporting. RMRP elements will include identification of the areas in which restoration will occur, specifics on removal of any existing vegetation that must be accomplished, details of site preparation, species and sizes of material to be planted, irrigation options as needed, performance criteria, frequency and duration of monitoring, reporting requirements, and interventions to be implemented if performance criteria are not met.	San Mateo County	Pre-Construction	San Mateo County Department of Public Works (DPW) shall submit the RMRP to the County Director of Public Works for review and approval.	Department of Public Works	_____ (date) _____ (initial)

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<b>Cultural Resources</b>					
<b>Mitigation Measure CR-1:</b> If, at any time, archaeological resources are identified within the Project area, the Contractor(s) excavations within 50 feet of the find shall be temporarily halted or diverted until the discovery is examined by a qualified archaeologist. The archaeologist shall notify the Contractor to determine the procedures to be followed before construction is allowed to resume at the location of the find. If disturbance of the archaeological site cannot be avoided, data recovery within the affected area shall be conducted by a certified archaeologist in accordance with CEQA Guidelines Section 15064.5 so as to record and preserve the significant characteristics of the site.	San Mateo County	Construction	The ERO shall monitor excavations, determine procedures upon discovery of archaeological resources, and write a report of findings and actions to be taken after construction completion.	ERO	_____ (date) _____ (initial)
<b>Geology and Soils</b>					
<b>Mitigation Measure GEO-1:</b> The County will implement the BMPs and conservation measures detailed in the County of San Mateo Watershed Protection Program’s Maintenance Standards (San Mateo County 2004) to prevent erosion and siltation. The County will also prepare and implement a Stormwater Pollution Prevention Plan (SWPPP), as required by the NPDES General Construction permit. Both the San Mateo County and SWPPP BMPs will outline any and all measures needed to control stormwater or construction water runoff to prevent erosion, protect habitat, and eliminate or reduce water and soil pollution. These BMPs will be written and approved by San Mateo County and San Mateo Countywide Stormwater Pollution Prevention Program prior to implementation of construction activities. Implementation of the BMPs will be monitored and ensured by a County approved environmental monitor.	San Mateo County	Pre-Construction and Construction	The Monitor shall verify and document proper implementation of BMPs. The Monitor shall submit the documentation to the ERO.	ERO	_____ (date) _____ (initial)

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<b>Public Services</b>					
<b>Mitigation Measure PS-1:</b> Prior to initiating construction, San Mateo County shall require the Contractor to contact the Underground Service Alert (USA) to identify and avoid (or protect) existing lines, cables, and other electrical facilities during construction activities to ensure the integrity of existing utility systems.	Construction Contractor	Pre-Construction	Contractor to provide ERO with written verification and detailed information of contact with USA prior to construction commencement.	ERO	_____ (date) _____ (initial)
<b>Transportation and Traffic</b>					
<b>Mitigation Measure TRANS-1:</b> The County will implement traffic detour routes for the duration of Project construction (see Appendix G: Construction Detour Routes in Mitigated Negative Declaration). Signs and alternative routes will be advertised and posted for the public. The County will notify emergency service providers of these alternative routes prior to the start of construction to minimize impacts on emergency response times. The detour routes would be as follows: <ul style="list-style-type: none"> <li>▪ South of the Bridge. Northbound traffic on Skyline Boulevard will be directed onto Highway 92 for vehicular traffic or Bunker Hill Drive for both vehicular and bicycle traffic. From there, traffic will be directed to northbound Polhemus Road (County Road 17). From Polhemus Road, traffic will be directed west on Crystal Springs Road, where it will meet with Skyline Boulevard north of the construction site. Expected detour length is 5 miles for vehicular traffic using Highway 92 or 3.6 miles for vehicular or bicycle traffic using Bunker Hill Drive.</li> <li>▪ North of the Bridge. Southbound traffic on Skyline Boulevard will be directed east on Crystal Springs Road. From there, traffic will be directed to southbound Polhemus Road (County Road 17). From Polhemus Road vehicular traffic will be directed west on Highway 92 or Bunker Hill Drive for both vehicular and bicycle traffic, where it will meet with Skyline Boulevard south of the construction site. Expected detour length is 5 miles for vehicular traffic using Highway 92 or 3.6 miles for vehicular or bicycle traffic using Bunker Hill Drive.</li> </ul>	San Mateo County	Pre-Construction and Construction	The ERO shall notify emergency service providers of construction and detours. The ERO shall review installation of detour route signage and barriers. The ERO shall ensure that signage and barriers are inspected monthly.	ERO	_____ (date) _____ (initial)

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<p>Bicycle traffic will have another detour option in lieu of using Bunker Hill Drive, which may be too steep for some bicyclists:</p> <ul style="list-style-type: none"> <li>▪ <b>Detour for bicycle traffic coming from north of the Crystal Springs Dam Bridge either via the terminus of the Sawyer Camp Trail or Skyline Boulevard.</b> Southbound bicycle traffic on Skyline Boulevard or Sawyer Camp Trail will be directed east (left turn or straight respectively) onto Crystal Springs Road. From there, bicycle traffic will be directed southbound (right turn) onto Polhemus Road which then becomes Ralston Avenue near the Highway 92 interchange. Immediately south of the Ralston Avenue/Highway 92 interchange, bicycle traffic will be directed west (right turn) onto the Ralston Recreational Trail (a 1-mile-long paved recreational trail) which runs parallel to Highway 92 and connects to Cañada Road via a bicycle/pedestrian bridge that crosses over I-280 south of the construction site. The total bicycle traffic detour length is 4 miles. If crossing over the Crystal Springs Dam Bridge from the Sawyer Camp Trail terminus (at intersection of Crystal Springs Road and Skyline Boulevard immediately north of the bridge) to Cañada Road, the distance is 2.5 miles.</li> <li>▪ <b>Detour for bicycle traffic coming from south of the bridge from Highway 92.</b> Bicycle traffic traveling in an easterly direction on Highway 92, (coming down from the top of the Highway 92/Skyline Boulevard intersection) will have the option to either make a left turn (northbound) onto Skyline Boulevard at the lighted signal intersection on Highway 92 and Skyline Boulevard (located immediately east of San Francisco Public Utilities Commission’s [SFPUC] Crystal Springs Reservoir and west of I-280) and continue northbound towards the Bunker Hill Drive detour (right turn) which connects to Polhemus Road or have the option to continue easterly on Highway 92 and make a right turn (southbound) onto Cañada Road and connect to the Ralston Recreational Trail detour described above.</li> </ul>					
<p><b>Mitigation Measure TRANS-2:</b> The County will coordinate construction schedules and traffic management plans with the SFPUC to minimize disruption to traffic flow on Crystal Springs Road and all nearby streets.</p>	San Mateo County	Pre-Construction and Construction	The DPW shall coordinate construction schedules and traffic management plans, and coordinate communication to resolve any issues that may arise.	DPW	_____ (date)  _____ (initial)

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<b>Utilities and Service Systems</b>					
<p><b>Mitigation Measure UTIL-1:</b> The Contractor will develop a waste management or recycling plan that include procedures to identify the types of debris that would be generated by the Project and describe how all waste streams will be handled, actions to reuse or recycle construction debris and clean excavated soil to the extent possible, and actions to divert at least 50 percent of inert solids (asphalt, brick, concrete, dirt, fines, rock, sand, soil, and stone) from disposal in a landfill.</p>	Construction Contractor	Pre-Construction	The ERO shall review waste management or recycling plan to ensure at least 50 percent of inert solids would be diverted prior to construction commencement. The Monitor shall submit a report of the total construction debris and amount diverted after construction completion to the ERO.	ERO	<p>_____ (date)</p> <p>_____ (initial)</p>

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