

GLOSSARY AND ACRONYMS

Glossary

100-year flood – A flood that has a 1-percent chance of being equaled or exceeded in any given year.

A-weighted decibel (dBA) – Since the human ear is not equally sensitive to all sound frequencies within the entire spectrum, human response is factored into sound descriptions in a process called “A-weighting,” expressed as “dBA.” The dBA, or A-weighted decibel, refers to a scale of noise measurement that approximates the range of sensitivity of the human ear to sounds of different frequencies.

Accretion – An addition, such as an addition of water to a stream from groundwater or other sources.

Acre-foot – The quantity of water required to cover 1 acre to a depth of 1 foot. Equal to 1,233.5 cubic meters (43,560 cubic feet).

Aestivation habitat – Aestivation is a state of dormancy or inactivity during hot or dry months, typically characterized by a slower metabolism. For the California tiger salamander, aestivation habitat consists of shelter or protection from excess heat and aridity.

Alevins – A stage of development in young salmon and trout (salmonids). After hatching, developing salmonids remain in the gravel for four to six weeks while they grow and absorb their egg sac.

Alquist-Priolo Earthquake Fault Zone – The Alquist-Priolo Earthquake Fault Zoning Act was passed in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. In accordance with this act, the state geologist established regulatory zones called “earthquake fault zones” around the surface traces of active faults and published maps showing these zones. Within these zones, buildings for human occupancy cannot be constructed across the surface trace of active faults. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace.

Alluvium – Consists of unconsolidated mixtures of gravel, sand, clay, and silt typically deposited by streams.

Anoxia – Generally refers to low-oxygen conditions within the hypolimnion (bottom) of a thermally stratified reservoir.

Aqueduct – A pipe or channel designed to transport water from a remote source, usually by gravity.

Aquifer – Permeable subsurface materials (soil, sediments, and rock) that contain groundwater. Aquifers may be large or small, local or regional, shallow or deep, and confined or unconfined, depending on the subsurface geologic conditions. The permeable materials that surround an unconfined aquifer allow the water table to fluctuate in response to recharge (precipitation in the wet season) and discharge (evapotranspiration in the dry season). A confined aquifer is contained within impermeable materials and, as a result, the water table does not fluctuate.

Aquitard – A semi-impermeable layer that confines an aquifer.

Amphibolite schists – Amphibolite is a metamorphic rock composed chiefly of amphibole with minor plagioclase and little quartz. In a schist, the minerals have been metamorphosed to the point that their crystals are foliated, or plated, and flaky.

Anadromous – Anadromous fish hatch (rear) in freshwater, migrate to the ocean (saltwater) to grow and mature, and migrate back to freshwater to spawn and reproduce.

Anaerobic – A condition where there is no air or free oxygen. An anaerobic organism is capable of living or growing in the absence of free oxygen.

Andesitic mudflow breccia – Breccia is a coarse-grained rock composed of angular broken rock fragments in a fine-grained matrix. Andesitic mudflow breccia is formed by a mudflow composed primarily of volcanic rock fragments of andesitic composition.

Andesitic tuffaceous sediments – Tuff is a rock consisting of consolidated volcanic ash. Andesitic tuffaceous sediments are sediments derived from a tuff of andesitic composition.

Asbestos – A term used for several types of naturally occurring fibrous materials found in many parts of California, some of which have been found to be cancer-causing agents.

Aversion – The act of pulling or tearing apart or off; forcible separation.

Bankfull channel – A channel that conveys commonly occurring flows, with larger flows spilling over the banks and onto the floodplain.

Barbel – A long, thin, fleshy growth projecting from the mouths or nostrils of some fishes.

Base flows – Flows in a river or stream that occur in the absence of any recent rainfall.

Bedload – Refers to the amount of sediment, gravel, cobbles, and rocks transported along the stream bottom (as opposed to suspended in the stream flow).

Beneficial use – Those uses of water as defined in the State of California Water Code (Chapter 10 of Part 2 of Division 2), including but not limited to agricultural, domestic, municipal, industrial, power generation, fish and wildlife habitat, recreation, and mining.

Biological monitoring – The periodic examination of biological specimens for the purposes of monitoring their exposure to or the effects of potentially toxic chemicals in the environment. Biological monitoring is typically performed by analyzing the amount of a toxic substance or its

metabolites in body tissues and fluids. Also refers to assessing the biological status of populations and communities of organisms at risk in order to protect them and to gain an early warning of possible hazards to human health.

Biological Opinion – Document issued under the authority of the Federal Endangered Species Act stating the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service findings as to whether a federal action is likely to jeopardize the continued existence of a threatened or endangered species or result in the destruction or adverse modification of critical habitat.

Brackish water – Water that is saltier than freshwater, but not as salty as seawater. May result from the mixing of seawater with freshwater, as in estuaries.

Capacity – Engineering term which indicates the highest or maximum volume or flow of structures. There are multiple uses of the term, including hydraulic capacity, sustainable capacity, design capacity, and peak capacity which are defined as follows:

Hydraulic – The maximum flow that can be accommodated through a treatment facility or transmission system component without consideration for regulatory, maintenance or engineering standards, or other system operational constraint.

Sustainable – The highest flow rate at which a treatment facility (filtration plant) can be expected to operate, given normal/average source water conditions, while meeting regulatory water quality and routine maintenance requirements.

Design – The maximum capacity or flow rate to which a treatment facility or transmission system component is designed to operate, under a specified set of regulatory criteria, engineering standards, or other engineering assumptions.

Peak – The maximum capacity or flow rate to which a treatment facility or transmission system component is designed that will allow it to operate within regulatory or engineering standards.

Categorical Exemption – An exemption from CEQA for a class of projects based on a finding by the Secretary of Resources that the class of projects does not have a significant effect on the environment.

Channel – A natural or artificial watercourse, with a defined bed and banks to confine and convey continuously or periodically flowing water.

Chloramine/chloraminated – Chloramine is a chemical disinfecting agent comprised of a combination of chlorine and ammonia. Water that has been disinfected with chloramines is “chloraminated.”

Chlorination – A disinfection process that involves the addition of free chlorine, whether as chlorine gas or liquid sodium hypochlorite.

Chute – An inclined trough, passage, or channel feature through or down which things may pass. A waterfall or rapid.

Colluvium – A loose deposit of rock debris accumulated through the action of gravity at the base of a cliff or slope.

Community Noise Equivalent Level (CNEL) – Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law requires that, for planning purposes, an artificial dBA increment be added to “quiet time” noise levels to form a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL). CNEL adds a 5-dBA “penalty” during the evening hours (7:00 p.m. to 10:00 p.m.) and a 10-dBA penalty during the night hours (10:00 p.m. to 7:00 a.m.).

Confined aquifer – See Aquifer.

Conjunctive-use program – The joint use of surface water and groundwater to meet water supply needs. Surface water is used when it is available rather than groundwater, and when there is a shortage of surface water, groundwater use is used. See also in-lieu recharge.

Cultural resource – A fragile and nonrenewable remain of human activity that is valued by or significantly representative of a culture or that contains significant information about a culture. Cultural resources encompass archaeological, traditional, and build environment resources, including landscapes or districts, sites, buildings, structures, objects, or cultural practices that are usually greater than 50 years of age and possess architectural, historic, scientific, or other technical value.

Cumulatively considerable – A CEQA term used to indicate whether or not a cumulative impact is significant.

Day-night noise level (Ldn) – Another 24-hour noise descriptor, called the day-night noise level (Ldn), is similar to CNEL. While both add a 10-dBA penalty to all nighttime noise events between 10:00 p.m. and 7:00 a.m., Ldn does not add the evening 5-dBA penalty. In practice, Ldn and CNEL usually differ by less than 1 dBA at any given location for transportation noise sources.

Dead pool – The depth beyond which the reservoir cannot be drained.

Deciduous trees – Trees that shed their leaves each year, typically in winter.

Delta – A low, nearly flat alluvial tract of land formed by deposits at or near the mouth of a river. In this report, “delta” refers to the delta formed by the Sacramento and San Joaquin Rivers.

Delta smelt – A small, slender-bodied fish with a typical adult size of 2 to 3 inches that is found only in the Sacramento–San Joaquin Delta Estuary.

Design capacity – The maximum size or capacity to which a facility or structure is designed, but which may or may not be realized during operation due to unforeseen conditions.

Design drought – A planning and operation tool water supply agencies use to define a reasonable worse-case drought scenario based on local hydrology in order to establish design and operating parameters for the water system. Droughts more severe than the design drought would cause failure of supply within the water system. The design drought developed by the SFPUC is based on a drought that is more severe than the worst historical drought. Studies suggest a 30 percent chance that the SFPUC system will experience a drought in the next 75 years equal to or more severe than the 1987–1992 drought, which was the most extreme recorded drought event to affect the regional system. The WSIP uses a design drought based on the hydrology of the six years of

the worst historical drought (1987–1992) plus the 2.5 years of the 1976–1977 drought, for a combined total of an 8.5-year design drought sequence.

Discharge – The flow of surface water in a stream or canal or the outflow of groundwater from a flowing artesian well, ditch, or spring. Also refers to the discharge of liquid effluent from a facility, or to chemical emissions into the air through designated venting mechanisms.

Disinfection and Disinfection Byproducts – Disinfection is the treatment process used to inactivate and destroy disease-causing bacteria, viruses, and other waterborne microorganisms. Chlorine, a commonly and historically used disinfectant in drinking water, provides a high degree of public health protection from bacteria and viruses. However, in 1974 it was discovered that chlorine reacts with natural organic and inorganic matter in water to form disinfection byproducts. The major groups of disinfection byproducts produced by chlorination are trihalomethanes and haloacetic acids, and these byproducts have been shown to cause health effects in laboratory animals. Thus, based on numerous toxicological studies, the U.S. EPA adopted the Stage 1 and Stage 2 Disinfectants and Disinfection Byproducts Rules to lower the public health risk associated with potential exposure to disinfection byproducts.

Disinfectants and Disinfection Byproducts (D/DBPs) Rules – Federal drinking water regulations adopted by the U.S. EPA. The Stage 1 D/DBP Rule was adopted in December 1998 and became effective in February 1999. The Stage 1 D/DBP Rule reduces the maximum allowable levels of disinfectants and disinfection byproducts in drinking water supplies. The intent of the rule is to provide increased public health protection from exposure to potentially harmful disinfection byproducts. The Stage 2 DBP rule, adopted in December 2005, focuses on public health protection by limiting exposure to DBPs, specifically total trihalomethanes (TTHM) and five haloacetic acids (HAA5), which can form in water through disinfectants used to control microbial pathogens. This rule will apply to all community water systems and nontransient noncommunity water systems that add a primary or residual disinfectant other than ultraviolet (UV) light or deliver water that has been disinfected by a primary or residual disinfectant other than UV.

Dissolved oxygen (DO) – The oxygen freely available in water, which is vital to fish and other aquatic life and for the prevention of odors. DO levels are considered an important indicator of a water body's ability to support desirable aquatic life. Secondary and advanced waste treatment are generally designed to ensure adequate DO in waste-receiving waters.

Disturbance – Any event or series of events that disrupt ecosystem, community, or population structure and alter the physical environment.

Diversion – The use of part of a stream flow as water supply; a channel for diverting water to sites where it can be used and disposed of.

Don Pedro Reservoir/New Don Pedro Reservoir – The New Don Pedro Reservoir, owned and operated by the Turlock and Modesto Irrigation Districts, was constructed in 1971 along the Tuolumne River downstream of Hetch Hetchy and Early Intake to replace the original Don Pedro reservoir, which was constructed in 1923. The new reservoir has a capacity of 2,030,000 acre-feet and was constructed as part of the New Don Pedro Project. However, the new reservoir is now commonly referred to simply as Don Pedro Reservoir, and this terminology is used in this PEIR.

Drawdown – The lowering of the level of water body, such as a reservoir or a groundwater basin.

Early Intake – The weir, diversion tunnel, and hydropower house on the Tuolumne River upstream of Don Pedro Reservoir and downstream of Hetch Hetchy Reservoir.

Earthquake faults –

Reverse faults involve predominantly vertical movement in which the upper block moves upward in relation to the lower block.

Thrust faults are low-angle reverse faults.

Blind-thrust faults are low-angled subterranean faults that have no surface expression.

Range-front faults are faults along the front of mountain ranges responsible for the uplift of the mountains.

Ecosystem – A geographically identifiable area that encompasses unique physical and biological characteristics. It is the sum of the plant community, animal community, and environment in a particular region or habitat.

Endangered species – Any species or subspecies of bird, mammal, fish, amphibian, reptile, or plant that is in serious danger of becoming extinct throughout all or a significant portion of its range. Federally endangered species are officially designated by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service and published in the Federal Register. Species may also be listed under the California Endangered Species Act by the Department of Fish and Game.

Endemism – Species that are geographically restricted.

Enhancement – Measures that develop or improve the quality or quantity of existing conditions or resources beyond a condition or level that would have occurred without an action (i.e., beyond compensation).

Entrainment – The incidental trapping of fish and other aquatic organisms in the water (for example, at water and/or irrigation diversions and power plant cooling water intakes).

Environmental cases – Sites suspected of releasing hazardous substances or that have had cause for hazardous materials investigations and are identified on regulatory agency lists. These are sites where soil and/or groundwater contamination is known or suspected to have occurred.

Ephemeral streams – Streams that flow briefly during and immediately following storm events.

Epilimnion – The uppermost portion of a thermally stratified reservoir; the epilimnion is generally the warmest part and is relatively well oxygenated.

Estuary – A transition zone between inland sources of freshwater and saltwater from the ocean.

Eutrophic – Indicates generally warm and shallow waters, with high nutrient levels and high microbiological activity.

Eutrophication – The over-enrichment of a water body with nutrients, resulting in the excessive growth of organisms and depletion of dissolved oxygen.

Evapotranspiration – The return of water from the soil and from plants to the atmosphere by evaporation and transpiration.

Expansive soils – These types of soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variations in soil moisture content.

Farmland Security Zone – A contract between a private landowner and a county that restricts land to agricultural or open space uses for a minimum initial term of 20 years.

Fault creep – Movement along a fault that does not entail earthquake activity.

Filter feeders – Animals that feed by straining suspended matter and food particles from water.

Filtration avoidance or filtration exemption – Use of the terms "filtration avoidance" and "filtration exemption" is meant to convey the fact that water from the Hetch Hetchy reservoir may be consumed without the need for filtration, and does not imply that this water supply does not meet the full requirements of both state and federal Safe Drinking Water Acts. EPA and the California Department of Health Services have determined that Hetch Hetchy watershed fecal / total coliform and turbidity levels are consistently below specified threshold criteria, that the SFPUC's comprehensive watershed protection program meets specific pathogen barrier criteria, and that as a consequence this water source meets state and federal water quality requirements without the need to provide filtration. In addition, the Hetch Hetchy water supply is disinfected in accordance with Safe Drinking Water Act requirements.

Firm yield – see System Firm Yield

Fish screen – Barrier on the front face of a river intake to prevent the entrainment of fish and debris into the water supply.

Fishery enhancement – A term used to refer to protection and enhancement of fishery habitat, including augmentation of stream flows during certain times of the year.

Floodplain – Land adjacent to a watercourse over which water flows in times of flood. The limits of the flood plain are defined by the peak level of a 1 in 100 year return period flood.

Flow – The volume of water passing a given point per unit of time.

Instream flow requirements – Amount of water flowing through a stream course as required under statutory, regulatory, or contractual authority.

Minimum flow – Lowest flow in a specified period of time.

Peak flow – Maximum instantaneous flow in a specified period of time.

Return flow – Portion of water previously diverted from a stream and subsequently returned to that stream or to another body of water.

Fluvial – Of or found in a river.

Fluvial geomorphologic conditions – This term refers to the shape of the stream channels and associated erosional and depositional features (e.g., canyons, streambeds, stream banks, floodplains), resulting from flowing water.

Free chlorine – Free chlorine consists of a compound, hypochlorous acid, and the hypochlorite ion, both of which form when chlorine gas is added to water

Fry – A stage of development in young salmon or trout. During this stage the fry is usually less than one year old, has absorbed its yolk sac, is rearing in the stream, and is between the alevin and parr stage of development.

Fugitive dust – “Fugitive” emissions generally refer to those emissions that are released to the atmosphere by some means other than through a stack or tailpipe.

Gaining river – A gaining river receives water from the inflow of groundwater. The same river could be both gaining and losing, depending on the conditions.

Geomorphology – The study of the arrangement, origin, and changes of the earth’s surface features.

Groundwater banking – A water management tool that uses available space in groundwater aquifers to store water during wet years (years when there is abundant rainfall and surplus water available), so that it can be pumped and used during dry years (years with little rainfall and no surplus water).

Groundwater recharge – Inflow to aquifers from precipitation, infiltration, through-flow, and/or other means that replaces groundwater lost through pumping or other forms of discharge. The process of water being added to the saturated zone *or* the volume of water added by this process.

Habitat – The specific area or environment in which a particular type of animal or plant lives.

Hazardous materials – Defined in Section 25501(h) of the California Health and Safety Code, are materials that, because of their quantity, concentration, or physical or chemical characteristics, pose a substantial present or potential hazard to human health and safety or to the environment if released to the workplace or environment. Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications as well as in residential areas to a limited extent.

Hazardous materials business plans – Businesses that handle specified quantities of chemicals are required to submit a hazardous materials business plan (HMBP) in accordance with community right-to-know laws. This plan allows local agencies to plan appropriately for a chemical release, fire, or other incident.

Hazardous waste – Any material that is relinquished, recycled, or inherently waste-like. Title 22 of the California Code of Regulations, Division 4.5, Chapter 11 contains regulations for the classification of hazardous wastes. A waste is considered a hazardous waste if it is toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases) in accordance with the criteria established in Article 3. Article 4 lists specific hazardous wastes, and Article 5 identifies specific waste categories, including Resource Conservation and Recovery Act (RCRA) hazardous wastes, non-RCRA hazardous wastes, extremely hazardous wastes, and special wastes.

Headwaters – The point or area of origin for a river or stream.

Heritage trees – Large, old, or historically important trees that receive protection on a local basis.

Hetch Hetchy Aqueduct – The part of the regional water system consisting of the transmission facilities that convey water from Hetch Hetchy Reservoir, including pipelines and tunnels from the beginning of the Foothill Tunnel to the Alameda East Portal.

Hypolimnion – The bottom portion of a thermally stratified water body, such as a lake or reservoir; water in the hypolimnion is generally cool and has a low oxygen concentration.

Hydraulic head – The pressure of the water column and elevation difference. The force per unit area exerted by a column of liquid at a height above a depth (and pressure) of interest. Fluids flow down a hydraulic gradient, from points of higher to lower hydraulic head.

Hydrograph – A chart that illustrates the pattern of flow in a stream as a function of time.

Hydrology – The science that deals with the waters above and below land surfaces; their occurrence, circulation, and distribution, both in time and space; their biological, chemical, and physical properties; and their reaction with their environment, including their relation to living beings.

Hydrophytic vegetation – Plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Hydrologic year types – The California Department of Water Resources uses the following classifications to define rainfall year types relative to average hydrologic conditions, including rainfall, runoff, and snowmelt conditions, in order of decreasing availability of water: wet year, above-normal year, normal year, below-normal year, dry year, and critically dry year. *Drought year* typically refers to one year during consecutive dry or critically dry years.

Hyporheic flow – Water that interchanges between the stream and subsurface media.

Important farmlands –

Prime Farmland is land that has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed.

Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for crop production.

Unique Farmland does not meet the criteria for Prime Farmland or Farmland of Statewide Importance but has been used for the production of specific high-economic-value crops.

Farmland of Local Importance is either currently producing crops or has the capability of production, but does not meet the criteria of the categories above.

Grazing Land is land on which the vegetation is suited to the grazing of livestock.

In-lieu recharge – In-lieu recharge is the storage of water by utilizing surface water “in-lieu” of pumping groundwater, thereby storing an equal amount in the groundwater basin. See also conjunctive-use program.

Isothermal – Refers to constant temperature in the water column; this condition is present when the reservoir is not stratified, typically during the winter months.

Juvenile – A young or sexually immature animal.

Lateral spreading – A phenomenon where large blocks of intact, nonliquefied soil move downslope on a liquefied substrate of large aerial extent

Leq – Time variations in noise exposure are typically expressed in terms of a steady-state energy level (called Leq) that represents the acoustical energy of a given measurement. Leq (24) is the steady-state energy level measured over a 24-hour period.

Levee – An embankment raised to prevent a river from overflowing.

Liquefaction – A phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced, strong groundshaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude of earthquakes likely to affect the site.

Long Term-2 Enhanced Surface Water Treatment Rule – A rule under the federal Safe Drinking Water Act that was adopted by the U.S. Environmental Protection Agency in January 2006. The purposes of this rule are to improve public health protection through the control of microbial contaminants by focusing on systems with elevated *Cryptosporidium* risk, and to prevent significant increases in microbial risk that might otherwise occur when systems implement the Stage 2 Disinfectants and Disinfection Byproducts Rule. Systems covered by this rule include water systems that use surface water or groundwater under the direct influence of surface water.

Level of service – As used in this PEIR, level of service is used as a tool to measure to operating condition and performance ability of water supply facilities and related infrastructure¹.

Losing river reach – A losing river reach loses water to the groundwater.

Mafic rocks – Igneous rocks containing a group of dark-colored minerals, composed chiefly of magnesium and iron.

Maximum contaminant level (MCL) – The MCL is the highest level of a contaminant that is allowed in drinking water. The MCL is set as close to the maximum contaminant level goal (MCLG – see below) as is economically or technically feasible. While the MCL is higher than the MCLG, it is considered protective of human health.

Maximum contaminant level goal – The MCLG is the level below which there is no known or expected health risk to human health.

Meander sequences – Sinuous sections of river channel.

¹ In many EIRs, level of service (abbreviated as LOS) is used in the traffic analysis as a qualitative description of transportation infrastructure's performance based on average delay per vehicle, vehicle density, or volume-to-capacity ratios. This type of analysis is not relevant to the WSIP PEIR traffic impacts.

Mélange – Generally a mixture of rock materials of differing sizes and types generally contained within a sheared matrix.

Mesotrophic – Indicates moderate nutrient levels and microbiological activity in a water body.

Metasedimentary – Rocks that were originally sedimentary, but have been metamorphosed.

Mitigation – One or all of the following: (1) Avoiding an impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of an action and its implementation; (3) rectifying an impact by repairing, rehabilitating, or restoring the affected environment; (4) reducing or eliminating an impact over time by preservation and maintenance operations during the life of an action; and (5) compensating for an impact by replacing or providing substitute resources or environments.

Modeling – A tool used to mathematically represent a process which could be based upon empirical or mathematical functions. Models can be computer programs, spreadsheets, or statistical analyses.

Montmorillonite clay – An expansive type of clay that undergoes large changes in volume with changes in water content.

Morphology – As used in this PEIR, the form and structure of a stream or river.

Negative declaration – A form of environmental review documentation of proposed projects subject to CEQA. It consists of a written statement and supporting documentation issued by the lead agency responsible for CEQA implementation that briefly describes the reasons that a proposed project will not have a significant effect on the environment and therefore does not require the preparation of an EIR.

New Don Pedro Project – See Don Pedro Reservoir

Nitrification – To oxidize (an ammonia compound) into nitric acid, nitrous acid, or any nitrate or nitrite, especially by the action of nitrobacteria.

Oscillation – The rate of oscillation of sound waves is the amount of fluctuation between two values.

Oxbows – River meanders cut off from the main channel.

Perched groundwater – A local saturated zone above the water table. It typically exists above an impervious layer (such as clay) with limited extent.

Permitted hazardous materials uses – Facilities that use hazardous materials or handle hazardous wastes but comply with current hazardous materials and hazardous waste regulations.

Pocket water – A water hole in the bed of an intermittent stream, especially the bowl at the foot of a cliff over which the stream passes when in the flood stage.

PPV – To assess the potential for structural damage associated with vibration, the vibratory ground motion in the vicinity of the affected structure is measured in terms of peak particle

velocity (PPV) in the vertical and horizontal directions (vector sum), typically in units of inches per second (in/sec).

Propagation – To move or transmit something forward in space, especially as a light or sound wave.

Predation – The act of preying on another animal or animals.

Primary disinfection – Primary disinfection provides inactivation and/or reduction of microbial pathogens to meet specific regulatory requirements prior to water entering the distribution system. Primary disinfection may occur by one or more disinfecting agents.

Program Environmental Impact Report – One type of environmental review document identified under the California Environmental Quality Act that may be used to evaluate a plan or program that has multiple components (projects and actions) or to address a series of actions that are related.

Rearing – The amount of time that juvenile fish spend feeding in nursery areas of rivers, lakes, streams, and estuaries before migration, or the care and support for young fish.

Rearing habitat – Areas where larval and juvenile fish find food and shelter.

Regional water system – The entire SFPUC water system starting at Hetch Hetchy Reservoir and ending in San Francisco; the regional system includes all facilities serving the SFPUC wholesale and retail customers, except for the retail customers in San Francisco. The SFPUC regional water system consists of a complex network of facilities covering a geographic range of about 160 miles, from the Sierra Nevada on the east to San Francisco on the west. The regional water system crosses seven counties—Tuolumne, Stanislaus, San Joaquin, Alameda, Santa Clara, San Mateo, and San Francisco. The regional water system includes over 280 miles of pipelines, over 60 miles of tunnels, 11 reservoirs, 5 pump stations, and 2 water treatment plants.

Recapture – Returning released water to the system past the point of benefit.

Recruitment – The establishment of conditions that facilitate the growth of new vegetation; the entry of new individual organisms into a population of plants or animals.

Redd – A spawning nest made by a salmonid for laying eggs. The female salmonid creates the nest by undulating her tail and body against the substrate of a stream.

Reservoir – An artificially impounded body of water.

Riffles – A stretch of choppy water caused by stones or other objects in a river or stream.

Riparian – The land adjacent to a natural watercourse such as a river or stream. Riparian areas support vegetation that provides important wildlife habitat, as well as important fish habitat when sufficient to overhang the bank.

Rhyolitic tuff – Tuff is a rock composed of compacted volcanic ash varying in size from fine sand to coarse gravel. Rhyolitic tuff is comprised of ash similar in composition to granite.

Safe Drinking Water Act – The nation’s major law regulating drinking water quality, implemented by the U.S. EPA. The Safe Drinking Water Act established primary and secondary drinking water regulations, and implementation and enforcement of this act has been delegated to the states. This act promulgates primary drinking water regulations that specify a maximum contaminant level for contaminants that “may have any adverse effect on the health of persons and which is known or anticipated to occur in public water systems.”

Salmonid – Salmon or trout.

Salt marsh – An area where salt water from an ocean, bay, or gulf meets freshwater from a river.

Saltwater intrusion – The mixing of saltwater and groundwater in a groundwater aquifer resulting from overpumping of the aquifer.

Secondary disinfection – Secondary disinfection refers to the maintenance of a disinfectant residual in the distribution system necessary to meet regulatory requirements. The secondary disinfectant may be the same as or different from (one of) the agent(s) used for primary disinfection. Secondary disinfection of wastewater involves oxidation of organic matter using biological processes.

Secondary maximum contaminant level – Established to protect the esthetic quality of drinking water.

Sedimentation – The deposition of material suspended in a stream system, whether in suspension (suspended load) or on the bottom (bedload).

Seiche – Earthquake-induced oscillating waves in an enclosed water body.

Sensitive receptors – A land use that is sensitive or more vulnerable to (i.e., “receives”) effects of noise, air quality, or a specified resource than the general population.

Serpentine – A naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth’s surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramafic rock along earthquake faults. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, are common in serpentinite.

Siltation – Sediment influx from either erosion or from sediment carried into a water body by inflowing rivers and tributaries.

Shear zones – A zone of rock fracturing consisting of many closely spaced, roughly parallel, discontinuous cracks. Shear zones typically occur along faults.

Sliplining – A method of lining the water mains to prevent corrosion and encrustation.

Smolts – Juvenile fish that have undergone the physiological changes necessary for them to migrate from freshwater streams to the ocean.

Spark arrestor – A device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

Spawning – Laying (and fertilizing) eggs in the process of reproduction.

Special-status species – Several species known to occur within the general region of the program area are accorded “special status” because of their recognized rarity or vulnerability to habitat loss or population decline. Some of these species receive specific protection in federal and/or state endangered species legislation. Others have been designated as “sensitive species” or “species of special concern” on the basis of adopted policies of federal, state, or local resource agencies. These species are referred to collectively as “special-status species.”

Spill sites – Locations where a spill of hazardous materials has been reported to the state or federal regulatory agencies.

Squeezing ground – A time-dependent phenomenon usually associated with tunnel construction through a fault zone. Squeeze occurs when the in-situ stresses are high relative to the strength of the material. A high stress-to-strength ratio causes a slow creep of ground around the tunnel toward the excavated opening.

Subsidence – The lowering of the land surface in response to groundwater pumping.

Substrate – The materials found in streambeds or riverbeds (i.e., large and small boulders, stone, rubble, cobble, pebble, coarse and fine gravel, sand, silt, and clay). The surface upon which an organism grows or is attached.

Surface water – All water that is naturally open to the atmosphere (i.e., rivers, lakes, reservoirs, ponds, streams, impoundments, seas, estuaries, etc.).

Suspended particulates (PM10 and PM2.5) – Particulate matter is a class of air pollutants that consists of solid and liquid airborne particles in an extremely small size range. Particulate matter is measured in two size ranges: PM10 for particles less than 10 microns in diameter, and PM2.5 for particles less than 2.5 microns in diameter.

Sustainable capacity – The highest rate at which plant production can be expected to meet water quality requirements for a period of 60 days, given normal source water conditions.

Swales – Areas where winter rain collects but does not stand as long as in vernal pools.

System firm yield – The average annual water delivery that can be sustained by a water supply system throughout an extended drought.

Thermocline – The boundary between the warmer surface waters and cooler waters below.

Terrestrial species – Types of species of animals and plants that live on or grow from the land.

Threatened species – Legal status afforded to plant or animal species that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range, as determined by the U.S. Fish and Wildlife Service or the National Marine Fisheries Service.

Threshold damage vibration – The highest vibration amplitude at which no cosmetic, minor, or major damage occurs, which includes “threshold cracks” or “hair-sized” cracks in room walls that occur at the lowest vibration amplitudes.

Through-flow – Water flowing through sediments.

Tunnel Safety Order – The California Tunnel Safety Orders (California Administrative Code, Title 8, Subchapter 20, Article 8) require the Division of Industrial Safety to classify all tunnels or portions of tunnels into one of the following classifications before a public works project can be put out to bid:

- *Nongassy*, the classification assigned when there is little likelihood of encountering gas during the construction of the tunnel.
- *Potentially gassy*, the classification assigned when there is a possibility that flammable gas or hydrocarbons will be encountered during construction of the tunnel.
- *Gassy*, the classification assigned when it is likely gas will be encountered, or if monitoring indicates the presence of hazardous gases at a concentration greater than 5 percent of the lower explosive limit.
- *Extrahazardous*, the classification assigned to tunnels when the Division finds that there is a serious danger to the safety of employees, flammable gas or petroleum vapors emanating from the strata have been ignited in the tunnel, or monitoring indicates the presence of hazardous gases at a concentration greater than 20 percent of the lower explosive limit.

Turnout – A water diversion point.

Ultramafic rocks – These rock units are formed in high-temperature environments well below the surface of the earth.

Unconfined aquifer – See Aquifer.

Unimpaired flow – The natural river flow that existed prior to the placement of upstream water diversions, storage reservoirs, or other impediments.

Valve lots/valve house – A structure that encloses electrical and mechanical equipment and other related facilities uses to regulate, direct, and control flow of water.

Vernal pools – Seasonal wetlands formed in gently undulating or rolling topography where the soil is underlain by a slowly permeable claypan or hardpan.

Water rights – In California, the legal right to the use of water.

Waters of the United States – A broad federal definition that describes Corps jurisdiction over deep-water habitats and special aquatic sites, including wetlands, as follows:

- a. The territorial seas with respect to the discharge of fill material.
- b. Coastal and inland waters, lakes, rivers, and streams that are navigable waters of the United States, including their adjacent wetlands.
- c. Tributaries to navigable waters of the United States, including wetlands.
- d. Interstate waters and their tributaries, including adjacent wetlands.

All other waters of the United States not identified above, such as isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not a part of a tributary system to interstate waters or navigable waters of the United States, the degradation or destruction of which could affect interstate commerce.

Watershed – A region or area bounded peripherally by a water parting and draining ultimately to a particular watercourse or body of water.

Watershed management – The net result of numerous and varied actions in a watershed that directly affect watershed function and productivity. Actions may include, but are not limited to, land use decision-making, restoration and enhancement projects, monitoring and assessment of watershed condition, natural resource allocation and use, parcel management techniques, and education programs. Watershed management includes protection of existing healthy conditions.

Weir – A small dam in a river used to divert or control water flow. When uncontrolled, the weir is termed a fixed-crest weir; other weir types include broad-crested, sharp-crested, drowned, and submerged.

Wetland – A zone periodically or continuously submerged or having high soil moisture, which has aquatic and/or riparian vegetation components, and is maintained by water supplies significantly in excess of those otherwise available through local precipitation.

Wild and Scenic River – A river that has been designated under the National Wild and Scenic Rivers Act as having distinctively unique or “outstanding remarkable values” that set it apart from all other rivers, making it worthy of special protection.

Williamson Act – Under a Williamson Act (Land Conservation Act of 1965) contract, the landowner agrees to limit the use of the land to agriculture and compatible uses for a period of at least 10 years. In return, the land is taxed at a rate based on the agricultural production of the land, rather than its real estate market value.

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
AB	Assembly Bill
ABAG	Association of Bay Area Governments
ACFCWCD	Alameda County Flood Control and Water Conservation District
AC Transit	Alameda County Transit
ACWD	Alameda County Water District
afy	acre-feet per year
AGB	Academic Growth Boundary
APS	auxiliary power system
ATCM	Airborne Toxic Control Measure
AWHCP	Alameda Watershed Habitat Conservation Plan
BA	Biological Assessment
BAAQMD	Bay Area Air Quality Management District
BARDP	Bay Area Regional Desalination Plant
BART	Bay Area Rapid Transit
BAWSCA	Bay Area Water Supply and Conservation Agency (formerly BAWUA)
BAWUA	Bay Area Water Users Association (now called BAWSCA)
BDPL	Bay Division Pipelines
BMPs	best management practices
BO	Biological Opinion
C/CAG	City/County Association of Governments
CalARP	California Accidental Release Program
Cal-EPA	California Environmental Protection Agency
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
Cal Water	California Water Service Company
CAP	Clean Air Plan
CARB	California Air Resources Board
CARE	Community Air Risk Evaluation
CBC	California Building Code
CCP	comprehensive conservation plan
CCR	California Code of Regulations
CCWD	Contra Costa Water District
CCSF	City and County of San Francisco
CDF	California Department of Forestry and Fire Protection
CDFG	California Department of Fish and Game
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGS	California Geological Survey
CHIS	California Health Interview Survey
CIWMB	California Integrated Waste Management Board
Coastside CWD	Coastside County Water District
CMA	Congestion Management Agency

CNDDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
Corps	U.S. Army Corps of Engineers
CPO	chlorine-produced oxidants
CPUC	California Public Utilities Commission
CSO	combined sewer overflow
CUPA	Certified Unified Program Agency
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act of 1992
CWA	Clean Water Act
CWS	California Water Service
CY	cubic yards
dB	decibel
dBA	A-weighted decibel
DEHP	di (2 ethylhexyl) phthalate
DHS	(California) Department of Health Services
DOA	Department of Agriculture
DOF	Department of Finance
DOI	Department of Interior
DPM	diesel particulate matter
DPS	Distinct Population Segment
DSOD	(California) Division of Safety of Dams
DSS	Demand Side Management Least-Cost Planning Decision Support System
DTSC	California Department of Toxic Substances Control
DWR	(California) Department of Water Resources
DWRSIM	Department of Water Resources State Water Project Planning Simulation Model
DWSAP	Drinking Water Source Assessment and Protection
EA	environmental assessment
EBMUD	East Bay Municipal Utility District
EBRPD	East Bay Regional Park District
EFH	Essential Fish Habitat
EIR	environmental impact report
Estero MID	Estero Municipal Improvement District
ESU	Evolutionarily Significant Unit
Fed-OSHA	federal Occupational Safety and Health Administration
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FESA	Federal Endangered Species Act
fps	feet per second
FSA	FERC Settlement Agreement
FTA	Federal Transit Administration
g	gravity
GAP	Gap Analysis Project
GHGs	greenhouse gases
GGNRA	Golden Gate National Recreation Area
GIS	geographic information system

gpm	gallons per minute
gsf	gross square feet
Guadalupe Valley MID	Guadalupe Valley Municipal Improvement District
GWh	gigawatt-hours
HCP	habitat conservation plan
NCCP	natural communities conservation plan
HDPE	high-density polyethylene
HEPA	high-efficiency particulate air
HH/LSM	Hetch Hetchy Local Simulation Model
HMBP	hazardous materials business plan
hp	horsepower
HRP	Habitat Reserve Program
I-5	Interstate 5
I-280	Interstate 280
I-680	Interstate 680
in/sec	inches per second
JPA	Joint Powers Authority
kV	kilovolt
kWh	kilowatt-hours
Ldn	day-night noise level
Leq	steady-state energy level
LTCWD	Los Trancos County Water District
LUPs	linear underground/overhead projects
µg/L	micrograms per liter
µg/m ³	micrograms per cubic meter
µS/cm	microsiemen per centimeter
M	moment magnitude
MBTA	Migratory Bird Treaty Act
MCE	maximum credible earthquake
MEA	San Francisco Planning Department, Major Environmental Analysis Division
mg/L	milligrams per liter
mgd	million gallons per day
MID	Modesto Irrigation District
mm	millimeter
mm/yr	millimeters per year
MOU	memorandum of understanding
MRZ	Mineral Resource Zone
msl	mean sea level
MTBE	methyl tertiary-butyl ether
MTC	Metropolitan Transportation Commission
Muni	San Francisco Municipal Railway
mVA	millivolt-amperes
NAAQS	national ambient air quality standards
NEIC	National Earthquake Information Center
NEPA	National Environmental Policy Act

NEPDG	National Energy Policy Development Group
NFPA	National Fire Protection Association
NGVD	National Geodetic Vertical Datum
NMFS	National Marine Fisheries Service
NO ₂	nitrogen dioxide
NO _x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	National Resources Conservation Service
NRDC	National Resources Defense Council
NWR	National Wildlife Refuge
OADP	Eight-Hour Ozone Attainment Demonstration Plan
OAP	Ozone Attainment Plan
OSDP	Oceanside Seawater Desalination Plant
Oceanside WPCP	Oceanside Water Pollution Control Plant
PCBs	polychlorinated biphenyls
PCCP	prestressed concrete cylinder pipe
PEIR	Program Environmental Impact Report
PG&E	Pacific Gas and Electric Company
PM ₁₀	particulate matter, 10 microns or less in diameter
PM _{2.5}	particulate matter, 2.5 microns or less in diameter
ppm	parts per million
ppt	parts per thousand
PPV	peak particle velocity
PRC	California Public Resources Code
RCCP	reinforced-concrete cylinder pipe
RCRA	Resource Conservation and Recovery Act
RM	river mile
RMP	risk management plan
RO	reverse osmosis
ROD	Record of Decision
ROG	reactive organic gases
ROW	right-of-way
RWQCB	(California) Regional Water Quality Control Board
SAAQS	state ambient air quality standards
SamTrans	San Mateo County Transit District
SB	Senate Bill
SBA	South Bay Aqueduct
SCADA	Supervisory Control and Data Acquisition
SCVWD	Santa Clara Valley Water District
SFBAAB	San Francisco Bay Area Air Basin
SFDE	San Francisco Department of the Environment
SFPUC	San Francisco Public Utilities Commission
SHPO	State Historic Preservation Officer
SJMWS	San Jose Municipal Water System
SJMSCP	San Joaquin County Multi-Species Habitat Conservation Plan and Open Space Plan
SJPL	San Joaquin Pipelines
SJVAB	San Joaquin Valley Air Basin

SJVAPCD	San Joaquin Valley Air Pollution Control District
SO ₂	sulfur dioxide
SPCC	spill prevention, control, and countermeasure
STATSGO	State Soil Geographic
SVAPCD	San Joaquin Valley Air Pollution Control District
SVP	Society of Vertebrate Paleontology
SWANCC	Solid Waste Agency for Northern Cook County
SWP	State Water Project
SWPPP	storm water pollution prevention plan
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
TCPs	Traditional Cultural Properties
TDH	total discharge (or dynamic) head
TDS	total dissolved solids
TID	Turlock Irrigation District
TM	Technical Memorandum
TMDLs	total maximum daily loads
TOC	total organic carbon
TRC	total residual chlorine
TRTAC	Tuolumne River Technical Advisory Committee
UFC	Uniform Fire Code
UGB	Urban Growth Boundary
U.S. EPA	U.S. Environmental Protection Agency
USBR	U.S. Bureau of Reclamation
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UWMP	urban water management plan
VAMP	Vernalis Adaptive Management Program
VOC	volatile organic compound
VTA	Santa Clara Valley Transportation Authority
WDR	waste discharge requirements
WEIP	Watershed and Environmental Improvement Program
WHR	Wildlife Habitat Relationship
WMP	Watershed Management Plan
WQCP	water quality control plan
WSIP	Water System Improvement Program
WTP	water treatment plant
Zone 7	Alameda County Flood Control and Water Conservation District Zone 7

Conversion Factors

Volume

1 cubic foot (ft³) = 7.481 gallons

1 gallon (gal) = 0.1337 ft³

1 acre-foot = 43,560 ft³ = 325,872 gal = 0.325 million gallons

1 million gallons = 3.068 acre-feet

Flow

1 cubic foot per second (cfs) = 7.481 gal/sec = 448.8 gpm = 0.646 mgd = 723.941 afy

1 gallon per minute (gpm) = 0.00223 cfs = 0.00144 mgd = 1.613 afy

1 million gallons per day (mgd) = 1.547 cfs = 694.4 gpm = 1,120.55 afy

1 acre-foot per year (afy) = 0.001381 cfs = 0.0008924 mgd

Temperature

Degrees Celsius (°C) = $5/9 \times (°F - 32)$

Degrees Fahrenheit (°F) = $9/5 \times (°C) + 32$