

13 GLOSSARY OF TERMS

Since publication of the Draft Environmental Impact Report/Environmental Impact Statement (EIR/EIS), the terms “grading,” “grubbing,” and “Traction Power Facilities (TPF)” were added to this chapter.

This Glossary of Terms chapter consists of common terms or phrases used throughout this Final EIR/EIS.

A

A-Weighted Sound Level: A measure of sound intensity that is weighted to approximate the response of the human ear so it describes the way sound will affect people in the vicinity of a noise source.

Abatement: Reduction; often used to describe noise mitigation.

Above Mean Sea Level (AMSL): Altitude or height above the average level of the ocean's surface.

Accessibility: The ease with which a site or facility may be reached by passengers and others necessary to the facility's intended function. Also, the extent to which a facility is usable by persons with disabilities, including wheelchair users.

Acre-Foot: The volume of 1 acre of surface area to a depth of 1 foot, typically used to measure water supply.

Active Fault: A ground rupture that has occurred within approximately the last 11,000 years. A potentially active fault includes ruptures that occurred between 11,000 and 1.6 million years ago.

Actual Use: The amount or type of use that actually occurs.

Adit: Intermediary tunnel access shafts intended to facilitate construction of bored tunnels. Adits provide long-term access to bored tunnels and may be used as emergency exits.

Adverse: Negative or detrimental.

Aesthetic Treatments: Measures to facilitate a project's visual compatibility with its physical surroundings and applicable design guidelines. Examples of aesthetic treatments include integration of trees and landscaping, public art, and vegetation screening of project features.

Affected Environment: The physical, biological, social, and economic setting potentially affected by one or more of the Build Alternatives under consideration.

Air Pollution: A general term that refers to one or more chemical substances that degrade the quality of the atmosphere. These pollutants reduce air quality by impairing human and animal health, reducing visibility, damaging property, and combining to create smog.

Alignment: The specific horizontal and vertical route of a transportation corridor or path.

Allowable Sale Quantity (ASQ): The quantity of timber that may be sold from the area of suitable land covered by a forest plan for a time period specified by the plan.

Alluvium: A term applied to sediments deposited in a streambed, on a floodplain or delta, or at the base of a mountain during comparatively recent geologic time.

Alquist-Priolo Earthquake Fault Zoning Act: A California law passed in 1972 to prevent construction of buildings used for human occupancy on surface traces of active faults.

Alternating Current (AC): Electric power that flows back and forth at a rate of 60 cycles per second (60 hertz).

Alternative: All project components for a given alignment, including the guideway, bridges, elevation profiles, stations, and maintenance facilities.

Americans with Disabilities Act (ADA): Federal regulation establishing legal requirements for accessibility to public places for those with disabilities.

Amplitude: The magnitude of a periodic wave; also describes the strength or intensity of a signal that travels in wave form, such as a radio signal.

Anthropogenic Fugitive Dust Emission: All mechanically suspended dust from human activity, including agriculture, construction, mining, and demolition; vehicular movement on paved and unpaved surfaces; materials handling, processing, and transport; cooling towers; and animal movement on surfaces that have been disturbed or altered by humans beyond a natural range.

Approximate Location: As defined in Government Code, Section 4216, as the “approximate location of subsurface installations” being a strip of land not greater than 24 inches wide on both sides of the exterior surface of the subsurface installation. Approximate location does not define depth.

Aquifer: Subsurface geologic unit (rock or sediment) that contains and transmits groundwater.

Arc, Arcing: When an electrical discharge crosses the space between two contacts.

Archaeological Area of Potential Effects (APE): The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of archaeological sites if any such sites exist.

Archaeological Survey Report (ASR): A technical report that documents research efforts, known archaeological sites, newly discovered archaeological sites, and consultation efforts with Native American tribes.

Area of Potential Effects (APE): The area along the project right-of-way potentially affected by the construction and operations of the project; for archaeological properties, considered to be the area of ground proposed to be disturbed during construction of the undertaking, including grading, cut-and-fill, easements, staging areas, utility relocation, borrow pits, and biological mitigation areas; for historic architecture, considered to be the proposed construction footprint and properties near the undertaking where the undertaking would result in a substantial change from the historic use, access, or noise and vibration levels that were present 50 years ago, or during the period of significance of a property, if different; paleontological resources, considered to be a zone 250 feet on both sides of the right-of-way for a given Build Alternative, and within 0.5 mile of any potential facilities, including potential stations.

Arterial: A class of street serving major traffic movements (high-speed, high-volume) for travel between major points.

Artifacts: Objects made by people, including tools such as projectile points, scrapers, and grinding implements, waste products from making flaked stone tools (debitage), and nonutilitarian artifacts (beads, ornaments, ceremonial items, and rock art).

Asbestos: A known carcinogen that can accumulate in the body and cause respiratory disorders.

Asbestos-Containing Material (ACM): Any material containing more than one percent asbestos.

Assembly Bill (AB): A draft of a proposed law introduced by a Member of the Legislature in the State Assembly.

Assessor's Parcel Number (APN): A unique number assigned to each parcel of land by a county tax assessor to identify and keep track of land ownership for property tax purposes.

At-Grade: At ground surface level; used to describe roadways, river crossings, and track alignments.

At-Large Public Meetings: Public scoping and community open house meetings held for broad participation from all corridor communities and members of the public.

Attainment: An air basin is considered to be in *attainment* for a particular pollutant if it meets the federal or state standards set for that pollutant. *See also Maintenance and Nonattainment.*

Authority: See **California High-Speed Rail Authority**.

B

Backcountry: A remote undeveloped rural area.

Ballasted Track: Railways installed over a specific type of crushed rock that is graded to support heavily loaded rolling stock. *See also Rolling Stock and Slab Track.*

Barrier: A device intended to contain or redirect an errant vehicle by providing a physical limitation through which a vehicle would not typically pass.

Barrier Offset Distance: The lateral distance from the centerline of the track to the face of the barrier, trackside, or other roadside feature.

Base Flood (100-Year Flood): A flood with one percent chance of being equaled or exceeded in any given year. *See also Floodplain and Floodway.*

Baseline: Foundation or basis to use for comparison purposes.

Bas-Relief: Sculptural element characterized by varied surface planes in low relief.

Beneficial Visual Impact: Impact resulting if a project alternative eliminates a dominant feature that currently detracts from scenic qualities or blocks landscape vistas.

Best Management Practices (BMP): Methods designed to minimize adverse effects on the environment. Examples of BMPs include practices for erosion and sedimentation controls, watering for dust control, perimeter silt fences, rice straw bales, and sediment basins.

Biface: A type of prehistoric stone tool that is flaked on both faces or sides.

Biological Resources: Plant and wildlife species, terrestrial and aquatic habitats (including jurisdictional waters), and habitats of concern (including sensitive plant communities, critical habitat, core recovery areas, mitigation banks, and wildlife corridors).

Bogie: A bogie is a frame, placed under the trains, onto which the wheels of the railway vehicle are fixed.

B.P.: Years before the present, which is typically considered to be 1950.

Briefings: One-on-one meetings and small group meetings held throughout the high-speed rail alternative analysis process to provide project updates and present new information.

British Thermal Unit: *See Btu.*

Btu: British thermal unit, equal to the amount of heat required to raise one pound of water by 1 degree Fahrenheit at one atmosphere of pressure.

Build Alternative Alignment: The specific location of a high-speed rail (HSR) trackway within the study corridor; HSR Build Alternative alignments may be along or adjacent to, but may also diverge from existing transportation corridors.

Build Alternatives: The general location for high-speed rail (HSR) tracks, structures, and systems for the California HSR System between logical points within study corridors. The Build Alternatives analyzed throughout this Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) include the Refined SR14, SR14A, E1, E1A, E2, and E2A Build Alternatives.

Bureau of Land Management (BLM): Agency within the United States Department of Interior that is responsible for the management and conservation of federal land for uses including timber harvesting, energy development, and recreation.

Bus Rapid Transit (BRT): A bus-based public transport system designed to provide improved capacity and reliability relative to a conventional bus system.

Buttressing: An action or structure that provides support or stability.

C

California Endangered Species Act (CESA): The law mandating that state agencies do not approve a project that would jeopardize the continued existence of endangered species, if reasonable and prudent alternatives are available that would avoid a jeopardy finding.

California Environmental Quality Act (CEQA): Legislation enacted in 1970 to protect the quality of the environment for the people of California by requiring public agencies and decision-makers to document and consider the environmental consequences of their actions. CEQA is the state equivalent of the National Environmental Policy Act (NEPA).

California High-Speed Rail Authority (Authority): The state governing board responsible for planning, designing, constructing, and operating the California HSR System. The Authority's mandate is to develop the California HSR System in coordination with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

California High-Speed Rail (HSR): See **High-Speed Rail System**.

California High-Speed Rail (HSR) System: See **High-Speed Rail System**.

Capital Cost: The total cost of acquiring an asset or constructing a project.

Capitol Corridor: An existing intercity rail alignment approximating the Interstate 80 corridor; carries freight traffic, long-distance Amtrak service, and intrastate "Capitol" service.

Carbon Dioxide (CO₂): A colorless, odorless gas that occurs naturally in the atmosphere; fossil fuel combustion emits significant quantities of CO₂.

Carbon Monoxide (CO): A colorless, odorless gas generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles. See *also* **Criteria Pollutants**.

Catenary Wire: A suspended (overhead) wire system that supplies traction power from a central power source to an electric vehicle such as a train. See *also* **Contact Wire and Overhead Contact System**.

Cathodic Protection: Method for controlling the corrosion and deterioration of metallic structures in contact with most forms of electrolytically conducting environments (i.e., environments containing enough ions to conduct electricity such as soils, seawater, and basically all natural waters). Cathodic protection reduces the corrosion rate of buried steel and reinforced concrete.

Central Control Facility: A facility for monitoring and controlling high-speed rail (HSR) operations. Co-located with the heavy maintenance facility, it provides central supervision over train and power dispatch facilities, serves as the hub for safety and security functions, manages real-time tracking of high-speed rail vehicles, collects and records data, and controls track access.

CEQA: See **California Environmental Quality Act**.

Check Rail: The guiding rail between the two running rails that maintains a derailed wheel in the track alignment. Check rails are installed 14.17 inches from the rail and can be placed inside one or both of the running rails.

Chert: A form of quartz used for the manufacture of stone tools.

Class I Trail: A trail within a separate right-of-way designated for exclusive use by bicycles and pedestrians. Cross traffic by motorists is minimized.

Class II Trail: A trail within a restricted right-of-way designated for semi-exclusive use by bicycles, with traffic by motor vehicles or pedestrians at crossings.

Class III Trail: A trail within a right-of-way designated by signs or permanent markings that is shared with pedestrians and motorists.

Clean Air Act (CAA): The law defining the United States Environmental Protection Agency's responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The CAA protects the general public from exposure to airborne contaminants that are known to be hazardous to human health.

Clean Water Act (CWA): The primary federal law protecting the quality of the nation's surface waters, including wetlands. The CWA regulates discharges and spills of pollutants, including hazardous materials, to surface waters and groundwater.

CNEL: See **Community Noise Equivalent Level**.

CO_{2e}: Carbon dioxide equivalent, which is the concentration of CO₂ that would have global warming effects similar to other greenhouse gases. See also **Greenhouse Gases**.

Collector: In rural areas, roadways that serve inter-county rather than statewide travel. In urban areas, streets that provide direct access to neighborhoods and arterials.

Community Cohesion: The degree to which residents have a sense of belonging to their neighborhood, a level of commitment to the community, or an association with neighbors, groups, and institutions, usually as a result of continued association over time.

Community Noise Equivalent Level (CNEL): A 24-hour L_{eq} that has been adjusted to add a "penalty" of 5 dBA (A-weighted decibels) for evening noise (between 7:00 p.m. and 10:00 p.m.) and 10 dBA for nighttime noise (between 10:00 p.m. and 7:00 a.m.). See also **dBA** and **L_{eq}**.

Community Working Group (CWG): Meetings to engage stakeholders on an ongoing basis to discuss issues that are of concern.

Communication Tower: Towers to support antennas for telecommunications and broadcasting, including television.

Council of Governments (COG): A multi-service entity with state and locally defined boundaries that delivers a variety of federal, state, and local programs while carrying out its function as a planning organization, technical assistance provider, and "visionary" to its member local governments.

Concourse: Area for accommodating patrons at a high-speed rail station.

Concrete Derailment Walls: Tall curbs close to the train wheels that, in the event of a derailment, keep the train within the right-of-way and upright.

Congestion Management Plan: A planning document that addresses strategies for reducing traffic congestion.

Connectivity: The degree of "connectedness" of a transportation system, such as a transit network, and the ease with which passengers can move from one point to another within the network or points outside the network.

Conservation Easement: An easement that transfers property development rights to another entity, such as the local jurisdiction or an agricultural protection organization. The land remains in private ownership and may be farmed but may not be developed with urban uses. See also **Easement**.

Construction: Any activity that directly alters the environment, excluding surveying or mapping.

Construction Staging Area: An area, typically adjacent to the high-speed rail (HSR) right-of-way and within a temporary construction easement that is used to stockpile materials and store equipment for building HSR or related improvements. In some cases, this area is also used to assemble or pre-fabricate components of guideway or wayside facilities before transport to installation locations. Construction laydown areas are part of the project footprint that is evaluated for potential environmental impacts, yet actual use of the area is left to the discretion of the

contractor. After conclusion of construction, this area is typically restored to pre-construction condition. See *also* **Project Footprint, Right-of-Way, and Temporary Construction Easement**.

Construction Transportation Plan (CTP): A planning document prepared by the contractor aimed at minimizing the effect of construction activities on nearby traffic flow. These activities may include routing and scheduling materials deliveries, construction employee arrival and departure schedules, and temporary road closures if necessary.

Contact Wire: A suspended (overhead) wire system that supplies traction power from a central power source to an electric vehicle such as a train. See *also* **Catenary Wire and Overhead Contact System**.

Containment Curb: A low concrete wall along the track that is designed to guide the train's wheels back onto the rail if they leave the line.

Containment Parapet: A physical component of elevated guideways that, in the event of a derailment, keeps the train within the high-speed rail (HSR) right-of-way. See *also* **Right-of-Way**.

Contra-Flow: Movement against the general direction of flow.

Control Point: Any step at which biological, chemical, or physical factors can be controlled.

Cooperating Agency: Any agency invited by the lead federal agency that has agreed to participate in the National Environmental Policy Act (NEPA) process, and has legal jurisdiction over, or technical expertise regarding, environmental impacts associated with a proposed action.

Corridor: A geographic belt or band that follows the general route of a transportation facility (e.g., highway or railroad).

Cowardin Classification System: A comprehensive classification system of wetlands and deepwater habitats developed for the United States Fish and Wildlife Service in 1979. Under this system, wetlands are of two basic types: coastal (also known as tidal or estuarine wetlands) and inland (also known as nontidal, freshwater, or palustrine wetlands).

Criteria Pollutants: Pollutants for which federal and state air quality standards have been established: carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), ozone (O₃), particulate matter with a diameter of 10 microns or less (PM₁₀), particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead (Pb).

Critical Habitat: Designated areas of suitable habitat for federally listed threatened or endangered species, which provide the geographical locations and physical features essential to the conservation of a particular species.

Cultural Resources: Resources related to the tangible and intangible aspects of cultural systems, living and dead, that are valued by a given culture or contain information about the culture. Cultural resources include, but are not limited to, sites, structures, buildings, districts, and objects associated with or representative of people, cultures, and human activities and events.

Cumulative Impact: (1) California Environmental Quality Act (CEQA)—the result of two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts; (2) National Environmental Policy Act (NEPA)—an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Cut and Cover: Construction technique in which a trench is excavated, infrastructure is installed, and the trench is closed.

Cut and Fill: Construction technique involving excavation or grading followed by placement and compaction of fill material.

Cut Slope: A slope that is shaped by excavation or grading. See *also* **Fill Slope**.

D

Datum: A reference from which survey measurements are made for establishing horizontal and vertical control. *See also* **NAD 83** and **NAVD 88**.

Day-Night Average Sound Level (L_{dn}): A receiver's energy-averaged noise exposure from all events over a 24-hour period with a penalty added for nighttime noise periods.

Debitage: Waste byproducts—chips or debris—resulting from the manufacture of stone tools; found in large quantities in a tool-making area.

Decibel (dB): A logarithmic measurement of noise intensity.

dBA: A-weighted decibels weighted to approximate the response of human ear. *See also* **Decibel** and **A-Weighted Sound Level**.

Dedicated Corridor: Segment along the high-speed rail (HSR) alignment where HSRs operate in a right-of-way that is exclusive of other passenger or freight railroads.

Dedicated Track: Segment along the high-speed rail (HSR) alignment where HSRs operate on tracks exclusive of other passenger and freight railroads.

Degree of Curvature (Dc): The central angle to the ends of an arc or chord of a determined length. Railroad curves in particular are defined by the Chord Definition, whereby the length is described by a straight 100-foot-long tangent line between two points on the arc of the curve.

Depositional Environment: The conditions under which a geologic sedimentary unit is deposited.

Densification: The process of making an element more compact by reducing air space. Also refers to land development that increases the number of people who live or work within a particular area of land.

Derailment Containment Systems: Systems that ensure the train wheels do not leave the tracks even in the event of major seismic movements.

Design Criteria: A set of standards that determine each Build Alternative's ability to meet the California HSR System's purpose, need, and performance requirements, which are used to compare design differences and qualities in the alignment and station locations.

Detention Pond: A pond designed to temporarily store and slowly release the stormwater runoff that it receives.

Dewatering: The process of removing water from an area or substance, such as fill material.

De minimis Impact: An impact that, after taking into account avoidance, minimization, mitigation and enhancement measures, results in no adverse effect.

Direct current (DC): Electric power that flows one way and is nearly constant in time.

Digital Terrain Model: A three-dimensional model of digital surfaces of topographic features.

Disposal Site: A designated area, usually a former mine site, to receive and hold rock and dirt generated from construction-period earthwork and tunneling activities.

Disturbance: A discrete natural or human-induced event that causes a change in the condition of an ecological system.

Dry Utility: A wire, cable, pipeline, and support facility used to convey electricity, natural gas, gaseous chemicals, telecommunications, cable television, or other nonliquid products.

E

Easement: An interest in land, owned in fee by another individual or organization, that entitles the holder to a specific limited use.

Economic Indicator: One of four indicators used to conduct an economic analysis: employment, property and sales tax revenue changes, changes in school district funding, and economic effects on agriculture.

Ecosystem: An interconnected network of living organisms, including people, and their local physical environment; often viewed as an ecological unit.

Effect: A change in the condition or function of an environmental resource or environmental value as a result of human activity.

Electric Multiple Unit (EMU): A multiple-unit train consisting of self-propelled carriages that use electricity to move. An EMU requires no separate locomotive, as electric traction motors are incorporated within one or more of the carriages. Most EMUs are used for passenger trains, but some have been built or converted for specialized nonpassenger roles, such as carrying mail or luggage, or in departmental use, for example as de-icing trains. An EMU is usually formed of two or more semi-permanently coupled carriages, but electrically powered single-unit railcars are also generally classed as EMUs.

Electromagnetic Field (EMF): The force field that extends outward from any moving electrical current, consisting of both a magnetic field and an electric field.

Electromagnetic Interference (EMI): An electrical emission or disturbance that causes degradation in performance or results in malfunctions of electrical or electronic equipment, devices, or systems.

Elevated Guideways: Railroad track and emergency walkways on both sides of an elevated track that may range from approximately 20 to 60 feet high (or higher). Such guideways are generally found in urban areas.

Emergent: (1) Arising naturally; (2) vegetation rooted in periodically or continuously inundated substrate, but with a portion of the plant extending above the water.

EMF: See **Electromagnetic Field**.

EMI: See **Electromagnetic Interference**.

Eminent Domain: A jurisdiction or agency's legal right to acquire private property for public use in exchange for fair compensation.

Emission and Dispersion Modeling System (EDMS): Modeling system used by the Federal Aviation Administration to estimate airplane emissions generated from a specified number of landing and take-off cycles.

EMU: See **Electric Multiple Units**.

Endangered Species: Any species listed under the federal Endangered Species Act as being in danger of or threatened with extinction throughout all or most of its range.

Energy: Power derived from the use of physical or chemical resources, especially to provide light and heat or to work machines.

Enplanement: The act of boarding an airplane.

Environmental Impact Report (EIR): Documentation of the detailed analysis of a project's potential significant effects upon the natural, cultural, and community resources; measures to mitigate significant adverse impacts to a less than significant level; and reasonable alternatives to avoid significant effects. The EIR is prepared as part of the California Environmental Quality Act (CEQA) environmental review process and is intended to disclose the potential consequences of a proposed project to the public and provide decision-makers with analytical information and

public reactions in advance of a final decision on a proposed project. *See also* **California Environmental Quality Act (CEQA)**.

Environmental Impact Statement (EIS): Documentation required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment." An EIS is a decision-making tool that presents detailed analysis of a proposed action and alternatives to the proposed action. The EIS presents the project's potential effects—both beneficial and adverse—and any mitigation measures to reduce adverse effects. *See also* **National Environmental Policy Act (NEPA)**.

Environmental Justice: The process for identifying and addressing the potential for disproportionately high and adverse effects of programs, policies, and activities on racial and ethnic minority and low-income populations.

Ephemeral Stream: A stream that has flowing water only during, and for a short duration after, precipitation events in a typical year and that is located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Erosion: The process by which earth materials are worn down by the action of flowing water, ice, or wind.

Ethnicity: A grouping or categorization of people based on shared cultural traits such as ancestral origin, language, custom, or social attitude.

Expressway: A limited-access, divided highway for through traffic, the intersections of which are usually separated from other roadways by differing grades.

F

Fare gate: Physical barrier that requires persons have a valid high-speed rail (HSR) ticket to pass.

Farmland Mapping and Monitoring Program (FMMP): An automated map and database system administered by the California Department of Conservation that records changes in agricultural land use.

Farmland of Local Importance: Farmlands important to the local agricultural community, as determined by each county's board of supervisors and local advisory committee.

Farmland of Statewide Importance: Farmlands that are similar to Prime Farmland, but are less valuable because of steeper slopes, less ability to retain moisture in the soil, or other characteristics that limit their use. To qualify as a Farmland of Statewide Importance, a property must have been used for production of irrigated crops at some time during the previous four years. *See also* **Prime Farmland**.

Farmland Security Zone (FSZ): An area created within an agricultural preserve by a board of supervisors upon request by a landowner or group of landowners.

Farmland Severance: The acquisition of part of a farm property that results in the severance (disconnection) of part of the farmland from agricultural use.

Fault: A fracture in the earth's lithosphere (brittle rocky shell) where movement has occurred or is occurring.

Fault Creep: (1) The slow, continuous movement of crustal blocks along a fault; (2) measurable surface displacement along a fault in the absence of notable earthquakes. *See also* **Strike-Slip Fault**.

Fault Rupture: A rupture in which the fault extends to the ground surface and causes the ground to break, resulting in an abrupt ground displacement. Surface-fault ruptures are the result of

stresses relieved during an earthquake, and they often damage structures astride and nearby the narrow rupture zone.

Feasible: Capable of being implemented.

Federal Endangered Species Act (FESA): The FESA and subsequent amendments (Sections 7, 9, and 10) provide guidance for conserving federally listed species and the ecosystems upon which they depend.

Federal Railroad Administration (FRA): An agency within the United States Department of Transportation that administers financial assistance programs and regulates the operation and safety of freight and passenger rail throughout the United States.

Feeder Route: Roadways that are branch routes feeding into the main (arterial) routes.

Fenestration: The arrangement, proportioning, and design of windows and doors in a building; openings in a building wall, such as windows and doors, designed to permit the passage of air, light, and people.

Fiber Optic Cable System: A data transmission technology that relies on light rather than electricity, conveying data through a cable consisting of a central glass core surrounded by layers of plastic.

Fill Slope: A slope shaped by the placement and compaction of loose fill material, which may consist of materials reused from elsewhere on the construction site or imported from off site. *See also Cut Slope.*

Finding of Effect (FOE): Documents that show how a project would affect a certain cultural resource.

Fiscally or Financially Constrained Plans: Transportation plans that are limited by the foreseen availability of project funding in a region.

Floodplain: Any area susceptible to inundation by floodwaters from any source. *See also Base Flood (100-Year Flood).*

Floodway: The channel of a river or other watercourse and the adjacent land areas that must be reserved to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. *See also Base Flood (100-Year Flood).*

Flyover: A bridge that carries one road or rail alignment aerially over another.

Footprint: The area covered by a facility or affected by construction activities. *See also Project Footprint.*

Formation: A geologic unit (e.g., Modesto Formation and the Riverbank Formation).

Fossil Localities: Areas where fossils have been found.

Fossils: The remains or traces of ancient plants, animals, and other organisms.

Freeboard: Stream bank or levee height above the high-water mark of a defined high-flow event such as the 100-year flood.

Freeway: A divided highway designed for the unimpeded flow of large traffic volumes. Access to a freeway is controlled and intersection grade separations are required. *See also Highway and Expressway.*

Free Area: Area within the station that is open to the general public.

Frequency: The number of times a field, such as an electromagnetic field, changes direction in space each second. Also, the number of trains, flights, or other transportation service that take place within a given period.

Full Parcel Acquisition: A permanent acquisition of an entire parcel of land, including all structures and improvements, as necessary to implement a project.

G

G Force: A force with a magnitude equal to the gravitational force acting on a body at sea level; expressed as 1 g.

Gauss (G): The unit of measure describing the strength of a magnetic field. Near the earth's surface, the magnetic field measures approximately between 0.25 and 0.65 gauss. 1 gauss = 0.0001 tesla. *See also Tesla (T).*

General Conformity Rule: A means by which federal, state, tribal, and local governments work in air quality nonattainment or maintenance areas to ensure that federal actions conform to the initiatives established in the applicable state implementation plan or tribal implementation plan.

General Plan: A planning document, usually at the city or county level, that articulates policies for land use and development over a specified period of time. A general plan may be supplemented by specific plans that implement land use and development policies for particular portions of a planning jurisdiction, such as historic districts or areas slated for redevelopment.

Geoarchaeological Assessment: Assessment that considers the potential to encounter as-yet undocumented prehistoric archaeological sites based on physical environmental attributes.

Geographic Information System (GIS): An information management system designed to store and analyze data referenced by spatial or geographic coordinates.

Geologic Unit: A body of rock or unconsolidated sediment that has a distinct origin and distinctive attributes allowing its distribution to be mapped.

Geomorphic Province: A region of unique topography and geology that is readily distinguished from other regions based on its landforms and geologic history.

Giga: Prefix meaning one billion.

GIS: *See Geographic Information System.*

Grade Crossing: The intersection of a railroad and a highway at the same elevation (grade); an intersection of two or more highways; an intersection of two railroads.

Grade, Gradient: Slope changes in elevation, defined in percentage, as feet of rise within 100 feet along a single horizontal line.

Grade-Separated: At different elevations; on separate levels.

Grading: The act of raising or lowering ground levels, adding or removing a slope, or leveling the ground surface of a site.

Greenhouse Gases: A class of air pollutants believed to contribute to the greenhouse global warming effect, including nitrogen oxides (NO_x), hydrocarbons (HC), and carbon dioxide (CO₂).

Grid: A system of interconnected power generators and power transmission lines managed to meet the requirements of energy users connected to the grid at various points.

Ground Subsidence: The collapse and compaction of subsurface voids, which result in a gradual drop in ground surface elevation.

Groundwater: Water contained and transmitted through open spaces in rock and sediment below the ground surface.

Groundwater Basin: A hydrogeological unit containing one large aquifer or several connected and interrelated aquifers. *See also Aquifer.*

Ground-Borne Noise: The rumbling sound caused by the vibration of room surfaces.

Growth Inducement: Contribution to the rate or extent of development in an area.

Grubbing: The act of removing or clearing a site of trees, shrubs, stumps, and rubbish.

Guard Rail: A short guidance rail in the guideway. When a wheel passes over a switch frog in a nonguided section, the opposite wheel is guided by the guard rail, which acts on the back of the wheel flange. *See also Wheel Flange and Switch Frog.*

Guideway: A track or riding surface that supports and physically guides transit vehicles specially designed to travel exclusively on it. Similarly, a *Fixed Guideway* is a public transportation facility using and occupying a separate right-of-way or rail for the exclusive use of public transportation and other high-occupancy vehicles or a fixed catenary system usable by other forms of transportation.

Guideway System: For the purposes of this project, the integrated linear system of infrastructure components (e.g., track structures; tunnel, trench, embankment, or bridge structures; overhead contact system; traction power substations; switching and paralleling stations; signaling and train control elements; perimeter access controls, guideway operations and maintenance access, linear right-of-way) that enables the high-speed train to move along the high-speed rail alignment.

H

Habitat: An environment where plants or animals naturally occur; an ecological setting used by animals for a particular purpose (e.g., roosting habitat or breeding habitat).

Haul Route: Routes and/or roadways used to transport spoils for disposal from the points of spoil origination to the nearest freeway access point or major roadway.

Hazardous Materials: Any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or the environment, if released. *See also Release Response Plan.*

Hazardous Waste: A hazardous material that is no longer of use and will be disposed of. Hazardous waste is regulated by the United States Environmental Protection Agency under the Resource Conservation and Recovery Act (RCRA). California hazardous waste law is in some cases more stringent than federal law, and waste can often be defined as California hazardous waste (or non-RCRA hazardous waste).

Headway: The time between buses, trains, or other transit vehicles at a given point. For example, a bus route operating on 15-minute headway means that one bus arrives every 15 minutes.

Heavy Maintenance Facility (HMF): A maintenance facility that typically supports delivery, testing, commissioning, train storage, inspection, maintenance, retrofitting, and overhaul on a completed segment of the California HSR System.

Herbaceous: Plants that have little or no woody tissue. Herbaceous plants typically survive for only a single growing season, but also include some perennials.

Heritage Resources: An alternate term for cultural resources used in some planning documents. *See also Cultural Resources.*

Hertz: A unit of measure that describes frequency; equal to cycles (number of reversals) per second.

High Visual Impacts: Impacts sustained if features of a project alternative are obvious, such that they begin to dominate the landscape and detract from the existing landscape characteristics or scenic qualities.

High-Efficiency Particulate Air (HEPA): An efficiency standard of air filters usually designed to remove 99.97 percent of airborne particles.

High-Occupancy Vehicle (HOV): A vehicle with no fewer than two persons.

High-Risk Utility: Utility facilities that conduct or carry specific materials as identified by the California Department of Transportation in Section 2 of the *Project Development Procedures*

Manual, Appendix LL, *Utility Policy Certification and Utility Matrix*, July 8, 2016. Also refers to other utilities that could disrupt the operations of the California HSR System.

High-Speed Rail Business Plan: An overarching policy document used to inform the California State Legislature, the public, and stakeholders of the project's implementation, and assist the California State Legislature in making policy decisions regarding the project.

High-Speed Rail (HSR) Network Alternatives: Different ways to implement the California HSR System in the study area with combinations of Build Alternative alignments and station locations.

High-Speed Rail (HSR) Project Section: The California HSR System has been divided up into 10 project sections: San Francisco to San José, San José to Merced, Merced to Sacramento, Merced to Fresno, Fresno to Bakersfield, Bakersfield to Palmdale, Palmdale to Burbank, Burbank to Los Angeles, Los Angeles to Anaheim, and Los Angeles to San Diego. See *also* **High-Speed Rail (HSR) System**.

High-Speed Rail (HSR) Subsection: A portion of the alignment that can be combined with other segments to form a project section alternative alignment and that is distinguished from other subsections within the alignment by fundamentally different geographic, community, or project characteristics (e.g., valley versus mountain, rural versus suburban versus urban, main line predominantly at grade versus main line predominantly above ground or below ground).

High-Speed Rail System: The system that includes the high-speed rail (HSR) tracks, track infrastructure, structures, tunnels, stations, traction power substations, railway systems, maintenance facilities, and train vehicles. Trains moving along the California HSR System are capable of speeds at or above 200 miles per hour.

High-Speed Steel-Wheel-on-Steel-Rail Train: An improvement of traditional railroad passenger technology that has been designed to operate at speeds of 100 to 150 miles per hour on existing rail infrastructure. See *also* **Very High-Speed Steel-Wheel-on-Steel-Rail Train**.

High-Speed Train: A train designed to operate safely and reliably at speeds near 220 miles per hour.

Highway: A main road available for the public to use for motor vehicle travel and transportation between major towns and cities, often having a route number label designation by state and federal transportation departments.

Historic Architecture Survey Report (HASR): A technical report that documents research efforts, known historic built resources, newly identified historic built resources, and consultation efforts with historical interest groups.

Historic Built Area of Potential Effects: The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic built or historic architectural properties, if any such properties exist.

HMF: See **Heavy Maintenance Facility**.

Holocene: The geologic period following the Pleistocene epoch, from 10,000 years before present to the present. See *also* **Miocene, Pleistocene, Pliocene, and Quaternary Period**.

Hydrocarbons: Various organic compounds, including methane, emitted principally from the storage, handling, and combustion of fossil fuels.

Hydrogeology: The study of groundwater and how geologic features affect groundwater storage, flow, and replenishment.

I

Impact: A change in the condition or function of an environmental resource or environmental value as a result of human activity.

Impact Avoidance and Minimization Feature (IAMF): Measures that have been implemented during project design and construction to avoid or reduce environmental and community impacts.

Impervious Surface: Surface covered by impenetrable materials, such as paved parking lots or buildings, which increase the potential for water runoff and reduce the potential for groundwater recharge.

Important Farmland: Categorized as Prime Farmland, Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance under the Farmland Mapping and Monitoring Program. The categories are defined according to the United States Department of Agriculture land inventory and monitoring criteria, as modified for California. *See also Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance.*

In Lieu Of: Instead of or in place of.

Infrastructure: The facilities required for a societal function or service (e.g., transportation or utility infrastructure).

Initial Study: An environmental study carried out in compliance with the California Environmental Quality Act (CEQA) to evaluate the potential for a proposed project to result in a significant adverse impact on the environment.

Insertion Loss: The actual noise-level reduction at a specific receiver due to construction of a sound barrier or some other intervention between the noise source (e.g., traffic) and the receiver.

In-situ: In the original or natural position.

Intermediate Station: A train station between two other stations.

Intermediate Window: A vertical shaft connecting to an underground construction area, comprising an elevator and gantry cranes to provide access, water, power, ventilation, and other support during construction. *See also Adit.*

Intermittent Stream: A stream that only flows during part of the year.

Intermodal: Transportation that involves more than one mode of travel (e.g., walking, bicycling, automobile, transit, taxi, train, bus, or air).

Intermodal Station: A transit station for more than one mode of transportation.

Interoperability: The aptitude of the railway network or infrastructure to allow different high-speed trains to run safely and continuously within specified performance parameters.

Intersection: A place where two or more roads meet.

Intrusion: An errant vehicle's exit out of its right-of-way and entry into the operating space of another transportation system's right-of-way.

Intrusion Detection Technology: Technology used in the fencing around high-speed rail (HSR) operations to protect a train from the derailment of an adjacent train. When an intrusion detection system is activated, a signaling system stops HSR operations.

Inversion: A region where atmospheric temperature increases rather than decreases with height, suppressing atmospheric mixing and tending to trap pollutants near the ground surface where adverse effects on health and materials are accentuated.

Invertebrate: Organisms lacking a vertebral column.

Investment-Grade Ridership Forecast: Ridership forecast that is sufficiently detailed and reliable to allow responsible decision-making about capital expenditures.

J

Joint Powers Authority (JPA): A partnership or collaboration between similar agencies across separate local or state governments formed to help manage common goals or problems that cross local and state borders.

K

Key Viewpoints (KVP): Viewpoints that represent the range of visual character and visual quality in the project viewshed, which is the portion of the surrounding landscape where a project is potentially visible. *See also Project Viewshed and Viewshed.*

Kilo: Prefix meaning 1,000.

Kilovolt: A unit of potential equal to 1,000 volts.

Kiss-and-Ride: Facility for private vehicles to drop-off or pick-up high-speed rail (HSR) patrons.

L

Landscape Unit: An area of distinct, but not necessarily homogenous, visual character.

Landslide: Movement of earth or rock materials down a slope under the influence of gravity.

Land Use Compatibility Assessment: An analysis of the compatibility of a proposed project or land use with existing and projected land uses in nearby areas based on the sensitivity of various land uses to change related to the study alternatives, and the impact of these changes on the land use.

Lead (Pb): A stable element that can have toxic effects and that persists and accumulates in the environment, humans, or animals. *See also Criteria Pollutants.*

Lead Agency: The public agency with the principal responsibility for carrying out or approving a project or action and that is responsible for preparing environmental review documents in compliance with the California Environmental Quality Act and/or the National Environmental Policy Act.

L_{eq}: A measure of the average noise level during a specified period of time. *See also Community Noise Equivalent Level (CNEL).*

L_{eq} (h), dBA: Equivalent or average noise level for the noisiest hour, expressed in A-weighted decibels.

Less than Significant: In California Environmental Quality Act (CEQA) or National Environmental Policy Act (NEPA) usage, describes an impact that is not sufficiently adverse, intense, or prolonged to require mitigation.

Levee: An earthen berm or other constructed wall used to raise the hydraulic height of a riverbank.

Level-of-Service (LOS): A rating using qualitative measures to characterize operational conditions within a traffic stream and perceptions of those operational conditions by motorists and passengers.

Light Maintenance Facility: A maintenance and storage yard facility to support the service defined in the conceptual service plan.

Linguistic Isolation: A term used by the U.S. Census Bureau to assess limited English populations. A household is linguistically isolated if all members aged 14 years and older speak a non-English language and also speak English less than “very well” (i.e., have difficulty with English).

Liquefaction: A type of ground failure in which soils or sediments lose their internal cohesion, cease to behave as a solid, and flow like a liquid.

Lithic: Pertaining to or describing a stone tool or artifact.

Lithology: A branch of geology concerned with the general physical characteristics of rocks.

Local: A street intended for access to adjacent properties.

Local Geology: Geologic units in the immediate vicinity of the project study area.

Logarithmic Scale: A measurement in which the ratio of successive intervals is not equal to 1 (which is typical for linear scales), but is some common factor larger than the previous interval (a typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1000, 10000, etc.). Logarithmic scales are useful for graphing values that have a very large range.

Longitudinal: A facility parallel to and within a highway or railway right-of-way.

Low-Risk Utility: All utilities that are not identified as high-risk facilities, as defined in Section 2 of the California Department of Transportation *Project Development Procedures Manual, Appendix LL, Utility Policy Certification and Utility Matrix*, July 8, 2016. See also **High-Risk Utility**.

Low Visual Impacts: Impacts sustained if features of a project alternative are consistent with the existing line, form, texture, and color of other elements in the landscape and do not stand out. See also **High Visual Impacts**.

M

Magnetic Resonance Imaging (MRI): A noninvasive diagnostic technique that produces computerized images of internal body tissues and is based on nuclear magnetic resonance of atoms within the body induced by the application of radio waves.

Mainline: The portion of a principal highway or railroad, excluding connectors, ramps, spurs, etc.

Main Line: The tracks allocated to high-speed rail traffic at normal commercial speed and that are not normally allowed for stops, shunting, or garage.

Maintenance: Activities associated with the inspection, provisioning, cleanup, repair, or replacement of high-speed rail infrastructure, facilities, trains, or other equipment. Also, an air basin that was formerly in nonattainment but now meets the established standards for that pollutant. See also **Attainment and Nonattainment**.

Maintenance of Infrastructure: A train-industry term that refers to repair and maintenance activity concerning the right-of-way and track, including track and roadway, buildings, signals, and communication and power facilities.

Maintenance of Way: A repair and maintenance activity along the railway right-of-way, including tracks, roadways, buildings, signals, and communication and power facilities.

Maintenance-of-Way Facility: A facility containing offices for inspection and maintenance staff, and storage areas for essential equipment and materials, such as rail ballast, ties, sections of rail, overhead contact system poles, and diesel-powered maintenance trains.

Maintenance of Way Program: A program of preventive and corrective maintenance, schedules for inspection and maintenance activities, and safety regulations for high-speed rail employees.

Maintenance Siding: A dead-end track where train maintenance takes place that is connected to passing, turnout, or station connection track, but never to the main line.

Master Plan: A comprehensive planning document intended to guide the long-range growth and development of a community or region, or the long-term management and use of parkland.

Mean High-Water Mark (MHWM): The elevation reached by the water surface at the mean (average) high water level (for example, the average high tide elevation or average flood elevation), often indicated by physical characteristics such as erosion, lines of vegetation, or changes in type of vegetation. *See also Ordinary High-Water Mark (OHWM).*

Medium Visual Impact: Impacts sustained if features of a project alternative are readily discernable, but do not dominate the landscape or detract from existing dominant features.

Megafauna: Large animals, such as mammoths, bison, horses, camels, and dire wolves.

Megafossils: Fossils that are large enough to be seen with the unaided eye.

Mesoscale: This term describes an air quality analysis at the regional level. *See also Microscale.*

Microrelief: Relief forms that are details of larger surface forms, e.g., knolls, channel banks and spits, small sinkholes, and sand ripples.

Microscale: This term describes air quality analysis at the local level. *See also Mesoscale.*

Midden: Refuse accumulation associated with prehistoric use of a site or area.

Mineral Resource Zone (MRZ): A formal classification of important mineral deposits assigned by the California Geological Survey.

Miocene: The geologic period between 23 and 5.3 million years before present. *See also Holocene, Pleistocene, and Pliocene.*

Mitigation: Action or measure undertaken to minimize, reduce, eliminate, or rectify the adverse impacts of a project, practice, action, or activity.

Mitigation Bank: A large block of land that is preserved, restored, and enhanced for the purpose of mitigating for projects that take (disturb, injure, or kill) special-status species or convert wetlands or otherwise vegetated biological communities.

Mitigation Monitoring and Enforcement Plan (MMEP): Document outlining the strategy for implementing, monitoring, and ensuring the effectiveness of mitigation measures described in the Final Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) and committed to as part of project approval.

Mixed-Use Development: Development that incorporates residential and nonresidential uses.

MMEP: *See Mitigation Monitoring and Enforcement Plan.*

Modal: A transportation system defined on the basis of specific rights-of-way, technologies, and operational features.

Modal Alternative: A hypothetical, reasonable build alternative to the proposed high-speed rail system, consisting of expansion of highways and airports serving the same geographic areas.

Monitoring: The collection of information to determine the effects of resource management and to identify changing resource conditions or needs.

Monoculture: The cultivation of a single agricultural product to the exclusion of other uses of land.

Most-Likely Descendent (MLD): When the project discovers or recognizes human remains, the person or persons believed to be descended from a certain deceased Native American is the most-likely descendant.

N

NAD 83: North American Datum of 1983—The horizontal survey control datum for the United States based on the Geodetic Reference System 1980 and with a geocentric origin. *See also Datum and NAVD 88.*

National Ambient Air Quality Standards (NAAQS): Federal standards stipulating the allowable ambient concentrations of specific criteria pollutants.

National Environmental Policy Act (NEPA): Federal legislation that establishes national policies and goals for the protection of the environment and requires federal agencies to consider the environmental impacts of major federal projects or decisions, to share information with the public, to identify and assess reasonable alternatives, to identify appropriate measures to mitigate potential impacts, and to coordinate efforts with other planning and environmental reviews taking place. Codified at 42 United States Code § 4331 et seq.

NAVD 88: North American Vertical Datum of 1988—The vertical control datum established for surveying elevations in the United States based on the General Adjustment of the North American Datum of 1988. *See also Datum and NAD 83.*

NEPA: *See National Environmental Policy Act.*

Nitrogen Oxides (NO_x): A class of pollutant compounds that include nitrogen dioxide (NO₂) and nitric oxide (NO), both of which are emitted by motor vehicles. *See also Criteria Pollutants.*

No Action: Under the National Environmental Policy Act, refers to an alternative under which no action would be taken (no infrastructure would be built and no new management or operational practices would be instituted). *See also No Project.*

No Project: Under the California Environmental Quality Act, refers to an alternative under which no action would be taken (no infrastructure would be built and no new management or operational practices would be instituted). *See also No Action.*

No Project Alternative: Represents the regional and state transportation system (e.g., highway, air corridor, and conventional rail) as it is today and with implementation of programs or projects that are in regional transportation plans and have identified funds for implementation by 2040. The No Project Alternative represents the baseline conditions for comparison with the high-speed rail alternatives.

Noise Shielding: Structures that protect inhabitants of sensitive land use areas from noise pollution.

Nonattainment: An air basin that exceeds federal or state standards for a particular pollutant. *See also Attainment and Maintenance.*

Nondisturbance Exclusion Zones: Areas designated as off-limits for construction and off-limits to construction personnel and equipment.

Nonelectrified Steel-Wheel-on-Steel-Rail Train: Conventional intercity diesel-electric locomotive train equipment (e.g., Amtrak California Corridor trains).

Nonpoint Source Pollution: Water pollution that collects from a wide area and cannot be traced to a single source. Examples include pesticides or fertilizers from farms or developed lands that wash into rivers or percolate through the soil into groundwater.

Nonwater-Contact Recreation: Recreational activities where contact with the water is not likely, such as photography, wildlife viewing, etc.

Non-Motorized Modes: Pedestrian and bicycle facilities that would generally improve based on the plans and projects due to new development projects, and changes to design and safety standards.

North American Industry Classification System (NAICS): The standard used by federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Notice of Intent (NOI): Formal notice published in the *Federal Register* by the federal lead agency stating that an environmental impact statement will be prepared for a proposed project.

Notice of Preparation (NOP): Formal California Environmental Quality Act notice issued by the state lead agency stating that an environmental impact report will be prepared for a proposed project.

Noxious Weed: A plant that has been defined as a pest by law or regulation. The State of California and the federal government maintain lists of plants that are considered threats to the well-being of the state or the country.

National Priorities List (NPL)/Superfund List: A federal list of sites that have been identified as posing an immediate public health hazard and where an immediate response is necessary.

O

Obsidian: A jet-black to gray, naturally occurring volcanic glass that is formed by the rapid cooling of viscous lava.

OCS: See **overhead contact system**.

Off Site: Outside of the high-speed rail project footprint.

Open House Meeting: An informal meeting in which people are provided with information about a plan or a project.

Ordinary High-Water Mark (OHWM): The line on the shore of a body of water established by the fluctuation of water levels. See also **Mean High-Water Mark (MHWM)**.

Overhead Contact System (OCS): A simple two-wire system, a messenger wire and a contact wire, with overhead wires supported by cantilevers and attached to poles alongside the tracks. See also **Catenary Wire, Contact Wire, and Pantograph Power Pickup**.

Overdraft: A condition where groundwater pumping exceeds the natural replenishment (recharge) to an aquifer.

Ozone (O₃): A photochemical oxidant that is a major cause of lung and eye irritation in urban environments. See also **Criteria Pollutants**.

P

Pacific Crest Trail (PCT): A long-distance hiking and equestrian trail closely aligned with the highest portion of the Sierra Nevada and Cascade mountain ranges, which lie 100 to 150 miles east of the U.S. Pacific Coast.

Paleontological: Related to the study of life in past geologic time.

Paleontological Potential: The probability that a geologic unit contains fossils.

Paleontological Resource Monitor: A person trained in the identification of fossils in the field and who monitors construction activities for paleontological resources.

Paleontological Resource Specialist (PRS): A person with advanced degree(s) in paleontology or paleobiology and trained in paleontological resources management. A PRS is usually responsible for compliance with the laws, ordinances, regulations, and standards addressing that resource.

Paleontological Resources: Fossils and the remains of ancient plants, animals, and other organisms.

Paleontological Sensitivity: The probability of a geologic unit to yield fossils, based on historic paleontological productivity. Often used synonymously with **Paleontological Potential**.

Paleontologist: A scientist who studies fossils.

Pantograph Power Pickup: A device for collecting current from an overhead wire consisting of a hinged vertical arm operated by springs or compressed air and a wide, horizontal contact surface that slides along the wire. *See also* **Catenary Wire, Contact Wire, and Overhead Contact System (OCS)**.

Paralleling Station: A high-speed rail traction power facility that functions with switching stations to balance the electrical load between high-speed rail (HSR) tracks and to switch power off or on to either track in an emergency. *See also* **Traction Power Substation (TPSS)**.

Parcel: A distinct, continuous portion or tract of land.

Parcel Severance: The act of severing a piece of land from a larger tract of Important Farmland. The severed parcel of land may or may not remain economically viable for agricultural use. *See also* **Important Farmland**.

Park-and-Ride: Facility where high-speed rail (HSR) patrons can leave personal vehicles.

Partial Parcel Acquisition: A permanent acquisition of a portion of a parcel of land as necessary to implement a project. Also describes a temporary acquisition of a parcel of land that requires the occupants to move during the construction period.

Particulate Matter (PM): Liquid and solid particles of a wide range of sizes and compositions; of particular concern for air quality are inhalable particles smaller than or equal to 10 microns and 2.5 microns in size (PM₁₀ and PM_{2.5}, respectively). *See also* **Criteria Pollutants**.

Particulate Pollution: Air pollution such as dust, soot, and smoke that is irritating but usually not poisonous. Particulate pollution also can include bits of highly toxic solid or liquid substances. Of particular concern are particles smaller than, or equal to, 10 microns (PM₁₀) or 2.5 microns (PM_{2.5}) in size.

Passing Track: A track connected to the main line on both ends that allows a train to stop for commercial reasons (in a station for example) or for operating purposes (to deal with a delayed train or a train with technical issues), and that allows other trains to pass.

Peak Ground Acceleration (PGA): A percentage of the force exerted by gravity, used to measure earthquake intensity.

Peak Particle Velocity (PPV): The maximum instantaneous peak of the vibration signal.

Perennial Stream: A stream that flows continually throughout the year.

Pesticide: Any substance intended to prevent the presence of, destroy, repel, or mitigate any pest. The term pesticide applies to insecticides and various other substances used to control pests, including herbicides.

Phase 1: Phase 1 of the California High-Speed Rail System that would connect San Francisco to Los Angeles and Anaheim via the Pacheco Pass and the southern Central Valley.

Phase I Environmental Site Assessment: A site evaluation that involves parcel-level records review, site inspection, interviews, and potential sampling.

Phase II Environmental Site Assessment: A site evaluation that involves sampling and laboratory analysis to confirm the presence of hazardous contaminants.

Photogrammetry: The art, science, and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring, and interpreting images and patterns of electromagnetic radiant energy and other phenomena.

Photosimulation: Imitation of a real-world scene used to depict the potential change in visual character that would result from a proposed project.

Phylogenetic: Relating to the evolutionary development and diversification of a species or group of organisms, or of a particular feature of an organism.

Pick-Up and Drop-Off: Facility for private and semi-private vehicles to drop off or pick up high-speed rail patrons; could include facilities for taxis, private shuttles, and rental cars.

Platform: Station area adjacent to tracks where trains stop to allow passengers to board and alight.

Pleistocene: The geological period following the Pliocene epoch between 2.6 million and 10,000 years before present. *See also* **Holocene, Miocene, Pliocene, and Quaternary Period.**

Pliocene: The geological period following the Miocene epoch between 5.3 and 2.6 million years before present. *See also* **Holocene, Miocene, and Pleistocene.**

Point Source Pollution: Pollution that can be traced to a single source (e.g., a smokestack at a factory).

Polychlorinated Biphenyls (PCB): Chemicals used in electrical transformers, hydraulic equipment, capacitors, and similar equipment.

Positive Train Control (PTC) Infrastructure: Integrated command, control, communications, and information systems for controlling train movements that improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers, and damage to equipment.

Positive Train Control (PTC) Systems: A system for preventing train-to-train collisions on certain rail lines, which railroads are required to implement in accordance with the Rail Safety Improvement Act.

Pothole/Test Pit: An excavation to expose an underground facility.

Poverty Level: The income at which a family or individual is considered poor. In 2017, the U.S. Census Bureau defined the poverty level for a family of four as an income of \$24,600 or less.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics taking into account the overall purpose of the project.

Preferred Alternative: The alternative identified as preferred by the lead agencies.

Prehistoric Archaeological Sites: Places where Native Americans lived or carried out activities during the prehistoric period (as late as AD 1769).

Prime Farmland: Rural land that has the best combination of physical and soil chemistry characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

Principal Investigator (PI): The primary individual responsible for the preparation, conduct, and administration of a research grant, cooperative agreement, training or public service project, contract, or other sponsored project in compliance with applicable laws and regulations and institutional policy governing the conduct of sponsored research.

Program-Level/Programmatic: Refers to a California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) environmental review that covers the broad spectrum of a large, complex, regionally extensive effort composed of a number of smaller, regionally focused projects or phases.

Project: The combination of decisions and actions taken by a lead agency to implement a plan of action or construct a facility or operate a service. In the context of high-speed rail (HSR), projects include the construction of guideway and associated infrastructure; maintenance, station, and other facilities; passenger rail operations and maintenance activities; and implementation of measures to mitigate the significant adverse impacts of HSR construction, operations, and maintenance.

Project Footprint: The area needed to construct, operate and maintain all permanent high-speed rail (HSR) features (including tracks and guideway structures, train signaling and control and communication facilities; traction power distribution and substations; switching and paralleling stations; passenger platforms and stations; maintenance-of-way facilities; maintenance facilities; HSR perimeter security controls; passenger station access; HSR facility operations or maintenance access; sound walls or other peripheral features owned and maintained by the California High-Speed Rail Authority); freight, passenger, or transit railroad grade separations; roadway grade separations and adjoining street or intersection changes; contiguous access to severed parcels; new utility features; existing utility relocations; access to new or relocated utility features; drainage facilities; any other physical changes within the area needed to construct and operate the California HSR System; and HSR property rights or licenses to accommodate HSR construction, operations, and maintenance (temporary and permanent ground or aerial fee properties, easements, or licenses for an HSR facility and associated feature sites including HSR operations and maintenance activities, operations or maintenance access, utility connections and maintenance, HSR stormwater and wildlife management features, construction activities, mobilization, staging, and access).

Project-Level: Refers to more detailed, site-specific environmental analysis focusing on the implementation of a single project that is part of a program of projects.

Project Viewshed: The area within which the project alternatives could be visible.

Public Transportation: Includes bus, trolley bus, streetcar or trolley car, subway or elevated, railroad, ferryboat, and taxicab service.

Public Utility: An organization supplying a community with electricity, gas, water, or sewerage.

Purpose and Need: The reason(s) for undertaking a project or action, and the need(s) the project or action is intended to meet or fulfill.

Q

Qualified Paleontologist: See **Paleontological Resources Specialist**.

Quality Level: A level of accuracy scale used (1) to identify the location of underground and above-ground utility facility information needed to develop capital projects, and (2) for acquiring and managing that level of information during the project development process.

Quaternary Period: The most recent period of time in terms of geological timescale, spanning from 2.6 million years ago to present day. Includes both the Pleistocene and Holocene epochs. See also **Holocene and Pleistocene**.

Queuing Area: Station area where passengers can wait in a line without disrupting other passenger flow.

R

Radio Frequency (RF): The frequency range of the electromagnetic spectrum used for radio communication.

Rail Guideway: A track that supports and physically guides high-speed trains.

Rail Line: A length of railroad track and railbed.

Railbed: The substructure of a railroad, underlying the tracks.

Railway Relocation: The practice of moving rail lines and facilities out of urban areas.

Ramp Queue: A segment of the freeway that enables vehicle to gradually merge onto the freeway.

Ranchette: A rural or semi-rural ranch-style residence with a comparatively small acreage.

Reactive Organic Gas (ROG): Reactive hydrocarbon pollutants. *See also Hydrocarbons.*

Reconductoring: The upgrade of an existing electrical power transmission or distribution line to increase electrical current carrying capacity.

Regional Transportation Improvement Plan (RTIP): A listing of all transportation projects proposed over a 6-year period for a given region. The RTIP is prepared to implement projects and programs listed in the Regional Transportation Plan and is developed in compliance with state and federal requirements. *See also Regional Transportation Plan.*

Regional Transportation Plan (RTP): A long-range (more-than-20-year) transportation plan. The RTP identifies major challenges as well as potential opportunities associated with growth, transportation finances, the future of airports in the region, and impending transportation system deficiencies that could result from growth anticipated in the region. There are typically two components of the RTP: a financially constrained and financially unconstrained version. The financially constrained version of the RTP includes projects and programs that fit within existing and planned funding sources.

Release Response Plan: A plan prescribing emergency response to a hazardous materials mishap.

Relocation: The removal, rearrangement, reinstallation, or adjustment of a utility facility required by a transportation improvement project. Also describes assistance to property occupants that would be displaced from parcels acquired to implement high-speed rail construction, operations, or maintenance.

Resource Study Area (RSA): The area in which all the environmental investigations specific to each Environmental Impact Report (EIR)/Environmental Impact Statement (EIS) resource are conducted to determine the resource characteristics, potential impacts of the project, and the mitigation efforts required.

Retention Pond: A human-made pond designed to hold and infiltrate most or all of the stormwater runoff that it receives.

Remnant: The portion of a parcel that is not acquired for high-speed rail purposes.

Richter Scale: A logarithmic scale measuring the severity of earthquakes based on the magnitude of ground motion.

Ridership: The number of people who ride a transportation system.

Right-of-Way: A legal right of passage over a defined area of real property. In transit usage, it represents the corridor along a roadway or railway that is controlled by a transit or transportation agency/authority.

Riparian: Relating to, living, or located on the bank of a natural water course, lake, or tidewater.

Riparian Areas: Transitional habitat between terrestrial and aquatic ecosystems.

Riparian Corridor: The area along a natural water course, lake, or tidewater where wildlife moves or migrates.

Riprap: A form of watercourse bank armoring consisting of placed rock or concrete objects to strengthen or protect an earthen embankment from erosion.

Rolling Stock: Wheeled railway vehicles. *See also Trainset.*

Route Mile: The distance traveled over tracks between two points. Route miles may have one or multiple sets of parallel tracks.

Ruderal: Weedy vegetation, commonly including or dominated by introduced species, characteristic of areas where native vegetation has been disturbed or removed.

Runoff: The flow of water over land from rain, snowmelt, or other sources.

S

SCADA: See **Supervisory Control and Data Acquisition**.

Scale: A graduated line representing a proportionate size.

Scenic Corridor: A corridor with landscapes and vistas of high scenic quality.

Scoping and Scoping Meetings: A process used under the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) to determine the set of issues to be discussed and for identifying issues of particular concern related to the proposed action or project to be analyzed in an Environmental Impact Report (EIR) (under CEQA) or an Environmental Impact Statement (EIS) (under NEPA).

Scour: Erosion caused by fast-flowing water.

Screenline: An imaginary line across parallel roadways that defines a zone of analysis.

Seasonal Riverine: A classification of wetland found along rivers and streams.

Seconds per Vehicle (s/v): An interval of time, known as the headway, used to measure the passing of vehicles and traffic flow.

Section 404 Permit: A permit required by the Clean Water Act (CWA) for all projects with potential impacts on water resources under federal jurisdiction.

Section 4(f): Provisions originally enacted as Section 4(f) of the United States Department of Transportation Act of 1966 codified in 49 United States Code, Subtitle I, Section 303(c). Section 4(f) addresses the potential for conflicts between transportation needs and the protection of land for recreational use and resource conservation by providing protection for publicly owned parkland, recreation areas, and historic sites from use. Specifically, the provisions prohibit the Secretary of Transportation from approving any program or project that would require the use of any publicly owned land from a public park, recreation area, wildlife or waterfowl refuge, or land of an historic site of national significance as determined by the officials having jurisdiction over these lands unless there are no feasible and prudent alternatives to the use of these lands. In addition, a proposed program or project must include all possible planning to minimize harm resulting from the proposed use.

Section 6(f): Provisions enacted under Section 6(f) of the Land and Water Conservation Fund Act of 1964, which prohibits the conversion of property acquired or developed with funds granted through the act to a nonrecreational purpose without the approval of the National Park Service. Section 6(f) directs the Department of the Interior to ensure that replacement lands of equal value (monetary), location, and usefulness are provided as conditions to such conversions. State and local governments often obtain grants to acquire or make improvements to parks and recreation areas (16 United States Code § 460-4 through 460-11, September 3, 1964, as amended 1965, 1968, 1970, 1972–1974, 1976–1981, 1983, 1986, 1987, 1990, 1991, 1993–1996). Consequently, where such conversions of Section 6(f) lands are proposed, replacement land must be provided.

Sedimentary Rock: Rock resulting from the consolidation of sediment.

Sedimentary Rock Units: Rock units composed of sediment, as distinct from those composed of igneous rocks (volcanic or granite). Sedimentary rock units yield fossils.

Sediments: Fragments of material originating from the physical or chemical weathering of rocks and minerals, from the decomposition of organic matter, or from atmospheric fallout. Clay, mud, and sand are all types of sediments.

Seiche: Oscillation or “sloshing” of water in a lake, bay, or other enclosed body as a result of landsliding or seismic groundshaking.

Seismic Monitoring Devices: Devices that detect ground movements and automatically shut down power to high-speed trains and apply on-board emergency brakes.

Senate Bill: A draft of a proposed law introduced by a Member of the Legislature in the State Senate.

Senate Bill 45: A law that consolidates various funding programs into the State Transportation Improvement Program (STIP) and increases accountability for programming and delivery of STIP projects to the regions in the state and various California Department of Transportation districts. See *also* **State Transportation Improvement Program (STIP)**.

Sensitive Ecological Area (SEA): An area of environmental importance having natural resources which, if degraded, may lead to significant adverse, social, economic, or ecological consequences.

Sensitive Natural Communities: Communities of plants and wildlife interacting in the same ecosystem whose extent has been much reduced in the state and that are locally rare.

Sensitive Receiver: Noise-sensitive or vibration-sensitive locations where increased annoyance can occur, such as residences, schools, hotels/motels, or medical facilities.

Sensitive Receptors: Locations considered more sensitive to adverse effects from air pollution (e.g., residences; preschools and kindergarten through grade 12 schools; daycare centers; healthcare facilities such as hospitals, retirement homes, and nursing homes; and parks and/or playgrounds).

Sensitivity Analysis: An analysis that assesses how reactive the outcomes predicted by modeling are to changes in different model inputs (assumptions or variables).

Service: The portion of the electrical, gas, water, or sewer system that connects a customer, usually at the meter location, to the utility distribution or supply system. Also refers to passenger transportation provided by transit and other carrier operations.

Shadow Impact: A shadow impact ranking, which would be high if a new (not existing) elevated structure were built within 75 feet of residential or open space, natural areas, or parkland.

Shared Right-of-Way: A high-speed rail (HSR) alignment where HSR would operate near and within the existing operating rights-of-way of other transportation systems, including conventional passenger railroads or freight railroads, without sharing tracks. Also includes highways.

Shared Use Corridor: A segment along the high-speed rail alignment where high-speed trains would operate on exclusive tracks along rail corridors proximate to existing rights-of-way where conventional passenger and freight railroads currently operate.

Shared Use Track: A segment along the high-speed rail (HSR) alignment where HSR would operate on the same track with other passenger railroads (i.e., Caltrain, Metrolink, or Amtrak).

Shinkansen: The Japanese high-speed train.

Significant: In California Environmental Quality Act (CEQA) usage, describes an impact that is sufficiently adverse, intense, or prolonged to require mitigation. For National Environmental Policy Act (NEPA) usage, see 40 Code of Federal Regulations Part 1508.27.

Slab Track: Railroad track installed on concrete slabs for support. Also referred to as a “Ballast-less Track.” See *also* **Ballasted Track**.

Sleeve: A pipe into which a pipeline or conduit is inserted.

Society of Vertebrate Paleontology (SVP): An international society of paleontologists, with an emphasis on vertebrate paleontology.

Soil Densification: Soil compaction that can lead to erosion.

South Coast Air Quality Management District (SCAQMD): The regional regulatory agency with primary responsibility for improving air quality in the South Coast Air Basin, which includes Los Angeles, Orange, San Bernardino, and Riverside Counties.

Southern California Association of Governments (SCAG): The Metropolitan Planning Organization of 6 of the 10 counties in Southern California (Imperial County, Los Angeles County, Orange County, Riverside County, San Bernardino County, and Ventura County).

Special Flood Hazard Area (SFHA): The land area covered by the floodwaters of the base flood as defined by the National Flood Insurance Program.

Special Provision: Specific clauses setting forth the conditions or requirements peculiar to the work and supplement the project's standard specifications.

Special-Status Plant Communities: Significant or rare vegetation types (as defined by the California Department of Fish and Wildlife) or plant communities that are of limited distribution statewide or within a county or region.

Special-Status Species: Plants and animals that are legally protected under the Federal Endangered Species Act of 1973, the California Endangered Species Act, or other regulations, such as those species that meet the definitions of rare or endangered under the California Environmental Quality Act (CEQA) Guidelines Sections 15380 and 15125.

Spiral: A curve of variable radius used to connect a straight section of track with the radius of the body of the curve. Sometimes called a transition or a transition spiral in European publications.

Spoils: Rock and dirt generated from construction-period earthwork and tunneling activities.

Spoils Hauling: The transporting of rock and dirt generated from construction-period earthwork and tunneling activities.

Stakeholder Working Groups (SWG): Meetings composed of a broad cross-section of constituents designed as an opportunity to share information and receive feedback.

State Implementation Plan (SIP): Statewide plan for complying with the Federal Clean Air Act. The SIP consists of narrative, rules, and agreements that California will use to clean up polluted areas.

State Streambeds: An area of California Department of Fish and Wildlife (CDFW) jurisdiction, which generally includes a streambed and bank, adjacent floodplain, and riparian vegetation. CDFW has not released its official definition of lake or streambed; therefore, the extent of the area regulated under Section 1602 remains undefined.

State Transportation Improvement Program (STIP): A multiyear capital improvement program of transportation projects on and off the state highway system, funded with revenues from the State Highway Account and other funding sources. California's STIP programming generally takes place every two years. *See also Senate Bill 45.*

Station: Area that would provide intermodal connectivity, drop-off facilities, an entry plaza, a station house area for ticketing and support services, a station box where passengers wait and access the California High-Speed Rail System, and parking facilities.

Stormwater: Rainwater or melted snow that runs off streets, lawns, and other surfaces. When stormwater is absorbed into soil, it is filtered and ultimately replenishes aquifers or flows into streams and rivers.

Stormwater Pollution Prevention Plan (SWPPP): A plan that specifies site management activities to be implemented during site development, including construction stormwater best management practices, erosion and sedimentation controls, dewatering (nuisance water removal), runoff controls, and construction equipment maintenance. *See also Best Management Practices (BMP).*

Straddle Bent: A pier structure, or a platform, vertically supported by pillars that spans the functional/operational right-of-way limit of a roadway, highway, or railway.

Strata: Geologic units composed of sedimentary rocks, usually thought of as overlying one another in layer-cake fashion.

Stratigraphically Long-Ranging: Fossils that are present in multiple geologic units.

Stratigraphy: A branch of geology concerned with the study of rock layers (strata) and layering (stratification). It is primarily used in the study of sedimentary and layered volcanic rocks.

Strike-Slip Fault: A fault along which the dominant direction of movement is parallel to the fault trace (the expression of the fault on the ground surface). *See also* **Fault Creep**.

Stub End: A track that terminates at one end.

Study Corridor: A linear geographic belt or band connecting different parts of the study region that follows the corridor alignment selected for the California HSR System at the program level for evaluation at the project level.

Study Region: A geographic region that encompasses one or more selected corridors of the California HSR System, such as the Bay Area to Central Valley, the Central Valley, Southern Mountain Crossing, and Los Angeles Basin.

Subsidence: Sinking or lowering of the ground surface.

Subsistence Remains: Remains that include the inedible portions of foods, such as animal bone and shell, and edible parts that were lost and not consumed, such as charred seeds.

Sulfur Oxides (SO_x): Sulfur-oxygen compounds that include the important criteria pollutants sulfur dioxide (SO₂) and sulfur trioxide (SO₃). *See also* **Criteria Pollutants**.

Supervisory Control and Data Acquisition (SCADA): A function for the acquisition and management of real-time information on project components that is part of the central control facility.

Surface Transportation Board (STB): A bipartisan, independent regulatory agency. The STB has jurisdiction over the construction and operations of new rail lines, including high-speed rail.

Surficial Geology: Unconsolidated Quaternary-era geologic materials lying on top of bedrock. Common surficial materials include sand and gravel, glacial tills, and clay and silts. *See also* **Holocene, Miocene, Pleistocene, Pliocene, and Quaternary**.

Swale or Sheetflow Runoff: Runoff from a low tract of land, especially one that is moist or marshy.

Switch: A mechanical installation enabling trains to be guided from one track to another at a railway junction.

Switch Frog: The point at which the left and right rails cross in a switch or turnout.

Switching Station: A high-speed rail (HSR) traction power facility that functions with paralleling stations to balance the electrical load between HSR tracks and to switch power off or on to either track in an emergency.

T

Take: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (as defined in Section 3 of the federal Endangered Species Act). *See also* **Federal Endangered Species Act (FESA)**.

Taphonomy: A branch of paleontology that deals with the processes of fossilization.

Taxon: A general term for a named group of related organisms.

Tectonic Activity: Movement of tectonic plates that result in earthquakes, volcanoes, and mountain building.

Temporary Construction Easement (TCE): An easement used when an entity must enter a property for temporary use during project construction.

Terminal Station: The first or last station of a passenger railway route.

Tesla (T): Unit of measure describing the strength of a magnetic field. 1 tesla = 10,000 gauss. See *also* **Gauss**.

Thermocline: A thin but distinct layer in a large body of water such as an ocean or lake in which temperature changes more rapidly with depth than it does in the layers above or below.

Tiering: Refers to the practice of addressing general issues in broader environmental impact reports or statements, such as program-level documents, and providing more detailed site-specific analyses in subsequent (typically project) documents that incorporate the initial broad analysis by reference. See *also* **Program-Level/Programmatic and Project**.

Topographic Map: A map depicting the surface features of the Earth.

Total Organic Gases (TOG): A pollutant classification that includes all hydrocarbons, both reactive and nonreactive. See *also* **Hydrocarbons**.

Track Mile: The literal number of miles of single track.

Trackway: The route of a train.

Trackwork: The design of train tracks.

Traction Power Facilities (TPF): A general term that encompasses substations, switching stations, and paralleling stations.

Traction Power Substation (TPSS): An electrical substation that converts electric power from the form provided by the electrical power industry for public utility service to an appropriate voltage, current type, and frequency to supply railways, trams, or trolleybuses with traction current.

Traditional Cultural Properties and Resources (TCP): Places associated with the cultural practices or beliefs of a living community rooted in that community's history. Examples of TCPs include, but are not limited to, any place where people practice a ritual activity or festival; any place where something happened that is of significance to a group or community and is referred to in stories; or any place that is a vital and beloved part of the community and that may give the community a special identity or defining character.

Trainset: A complete unit of rolling stock that makes up a single train. See *also* **Rolling Stock**.

Transit-Dependent Population: The population over the age of 16 (workers) who use public transportation to travel to and from work. See *also* **Public Transportation**.

Transit Node: A connection, station, or terminal on a transit network.

Transit-Oriented Development (TOD): A mix of commercial, residential, office, and entertainment land uses centered around or located near a transit station.

Transportation Demand Management: The operation and coordination of various transportation system policies and programs to manage travel demand to make the most efficient and effective use of existing transportation services and facilities.

Transportation System Management: Actions that improve the operation and coordination of transportation services and facilities to realize the most efficient use of the existing transportation system.

Transverse: A facility passing from one side of the right-of-way to the other side of the right-of-way.

Travel Time: The time spent traveling from a place of origin to a place of destination. *Total travel time* includes the time required to reach a station or an airport, time spent waiting for the next scheduled train or flight, time spent getting to the boarding area, time spent checking and retrieving luggage, time spent getting a rental car or taxi, and spent to reach the final destination.

Tributary Watercourse: A stream feeding a larger stream or lake.

Trinomial: An alphanumeric abbreviation for a previously identified historic or prehistoric resource, such as CA-ORA-1352, representing the state (e.g., California [CA]), the county (e.g., Orange [-ORA]), and a unique number assigned by the State Historic Preservation Office (e.g., 1352).

Tsunamis: Waves that travel in the open ocean and that are caused by an undersea earthquake, landslide, or volcanic activity.

Tunnel Boring Machine (TBM): A machine used to excavate tunnels with a circular cross-section through a variety of soil and rock strata.

Tunnel Portals: The entrances of tunnels.

Turnout: A railroad switch or turnout is a mechanical installation enabling railway trains to be guided from one track to another, such as at a railway junction or where a spur or siding branches off.

U

Unavoidable: In California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) usage, describes an impact that cannot be entirely avoided, reduced, or compensated for.

Unique Farmland: Farmland with soils of lower quality than either Prime Farmland or Farmland of Statewide Importance, but still used for the production of crops. Unique farmlands are usually irrigated but may include nonirrigated orchards or vineyards in some of California's climate zones. To qualify as unique farmland, a property must have been cultivated at some time during the previous four years. *See also Prime Farmland and Farmland of Statewide Importance.*

Uplift: The action of a portion of the earth's surface as it rises above adjacent areas, an area of higher elevation than surrounding areas; an area that has been uplifted.

V

Valley Fever: An infection cause by a fungus (*Coccidioides*) that lives in the soil. People can contract Valley fever by breathing in the microscopic fungal spores.

Value Capture: A station area development principle that is a criterion for selecting a high-speed rail station site.

Variance: Approved deviation, or exception, from a minimum design criterion or standard.

Volume to Capacity (V/C) Ratio: Describes the relationship between the amount of traffic a roadway was designed to carry and the amount of traffic it actually carries. Related to the level-of-service the roadway can provide. *See also Level-of-Service (LOS).*

Vehicle Miles Traveled (VMT): A transportation metric of the total miles traveled by vehicles in a defined area over a defined period of time, which is often used to estimate the environmental impacts of driving such as greenhouse gas and air pollutant emissions.

Vertebrate: Organisms with a vertebral column.

Vernal Pool: An ephemeral wetland that predictably forms in permanent basins during the cooler part of the year, but which turns dry during summer.

Vertical Curve: Curvature of a track that allows the rail (and thus the train) to transition between the rate of change in elevation gradually, as opposed to exposing the rail to sharp bumps in elevation. The transition between grades is normally parabolic in the United States.

Very High-Speed Steel-Wheel-on-Steel-Rail Train: A train capable of maximum operating speeds near 220 miles per hour using steel-wheel-on-steel-rail technology. See also **High-Speed Steel-Wheel-on-Steel-Rail Train**.

Viaduct: A bridge that conveys a road or a railroad over a valley, often constructed of a series of arches supported by piers.

Viewer Group: Roadway, highway, or rail users; residents; commercial viewers; office viewers; park and trail users; and agricultural and industrial workers within a viewshed.

Viewer Sensitivity: An assessment of the concern viewer groups may have to changes in the visual character of visual resources based on two factors: viewer exposure and viewer awareness.

Viewshed: The total area visible from a single observer position, or the total area visible from multiple observer positions. Viewsheds include scenes from highways, trails, campgrounds, towns, cities, or other viewer locations. Viewshed types include corridor, feature, or basin viewsheds.

Visual Character: The physical attributes of the landscape.

Visual Intactness: The aesthetic integrity of the visual environment and its freedom from encroaching elements.

Visual Quality: The character or inherent features of a viewshed.

Visual Resources: The natural and artificial features of a landscape that characterize its form, line, texture, and color.

Visual Unity: The visual coherence and compositional harmony of a landscape considered as a whole.

Visual Vividness: The visual power or memorability of landscape components as they combine in patterns experienced by the viewer.

Vividness: See **Visual Vividness**.

Volatile Organic Compound (VOC): Any compound of carbon (excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate) that participates in atmospheric photochemical reactions, except those designated by the U.S. Environmental Protection Agency as having negligible photochemical reactivity.

Volt: Standard unit of measure for electrical potential.

W

Waterbody: Any significant accumulation of water. The term *body of water* most often refers to large accumulations of water, such as oceans, seas, and lakes, but it may also include smaller pools of water such as ponds, puddles, or wetlands.

Waters of the State: Isolated wetlands that may not be subject to regulations under federal law (as defined by the Porter-Cologne Water Quality Control Act (§ 1305(e))). An area is a wetland if, under normal circumstances, it (1) is saturated by ground water or inundated by shallow surface water for a duration sufficient to cause anaerobic conditions within the upper substrate; (2) exhibits hydric substrate conditions indicative of such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes.

Waters of the United States (U.S.): The federal Clean Water Act defines waters of the U.S. as (1) all waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; and (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of

which could affect interstate or foreign commerce (33 Code of Federal Regulations Part 328.3(a)).

Water-Contact Recreation: Recreational activities in which contact with the water is intended or likely, such as swimming, water-skiing, and fishing.

Watershed: The area that contributes water to a drainage system or stream.

Watt: Standard unit of measure for electrical power.

Wayside Power: Electrical power provided from the utility grid to the electrified railroad right-of-way at convenient locations from the side of the rail tracks or corridor.

Wetland: An area of land with soil that is saturated with moisture, either permanently or seasonally. According to the *U.S. Army Corps of Engineers Wetland Delineation Manual*, three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).¹

Wheel Flange: A ridge on the external or internal edge of a wheel, essential to keeping the wheels (and thus the train) attached to the rail track when the limits of the rail track and wheel alignment are reached.

Wildlife Movement Corridor: A belt of habitat that is essentially free of physical barriers such as fences, walls, and development, and connects two or more larger areas of habitat, allowing wildlife to move between physically separate areas.

Wye Connection: A railway that connects different sections of track. The transition to a wye requires splitting two guideways into four guideways crossing over one another before the wye legs diverge in opposite directions to allow bidirectional travel. *See also Wheel Flange.*

X

None

Y

Yard Track: Dead-end track dedicated to operational needs and connected to a passing track, never to the main line railway.

Z

Zone A: Flood zone designation corresponding with an area with a one percent annual chance of flooding. *See also Floodplain and Floodway.*

¹ U.S. Army Corps of Engineers, 1987. *Corps of Engineers Wetlands Delineation Manual*. January 1987.

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