

12.0 Glossary of Terms

A

A horizon: The soil zone immediately below the ground surface from which soluble material and fine-grain particles have moved downward by water seeping into the soil. Varying amounts of organic matter give the A horizon a dark color.

Abatement: Reduction; often used to describe noise mitigation.

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.

Action Alternative: An alternative that proposes some action by one or both of the co-lead agencies, in contrast to the No Project Alternative.

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 of use that actually occurs.

Adverse: Negative or detrimental.

Adverse Effect: The HST alternative would negatively affect the environmental resource value or quality as it exists prior to the project. These effects are qualified as negligible, moderate, or substantial impacts under NEPA and less-than-significant or significant under CEQA.

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

Air Pollution: A general term that refers to one or more chemical substances that degrade the quality of the atmosphere.

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

Alluvium: Sediments deposited in a streambed, on a floodplain, a 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.

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

Americans with Disabilities Act (ADA): A federal regulation establishing legal requirements for accessibility.

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.

Approximate Location: Defined in Government Code, Section 4216 as the “approximate location of subsurface installations” being a strip of land not greater than 24 inches wide along both sides of the exterior surface of a 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.

Area of Potential Effect (APE): The area along the project right-of-way potentially affected by the construction and operation of the project; for paleontological resources, considered to be the zone within 250 feet of both sides of the right-of-way for a given alternative, and within 0.5 mile of any potential facilities, including potential stations.

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

Attainment: When an air basin complies with federal or state standards for a particular pollutant. *See also Maintenance, Nonattainment.*

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

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

B

Ballasted Track: Railways installed on a specific type of crushed rock that is graded to support heavily loaded rolling stock.

Ballastless Track: Railways installed on concrete slabs for support.

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 a barrier, trackside, or other roadside feature.

Baseline: Foundation or basis to use for comparison purposes.

Beneficial Effect: The HST alternative would result in improvement of the environmental resource value or quality as it exists prior to the project.

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

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).

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

British Thermal Unit: *See Btu.*

Btu: British Thermal Unit, equal to the amount of heat required to raise 1 pound of water 1 degree Fahrenheit at 1 atmosphere of pressure.

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

C

California Endangered Species Act (CESA): A law that mandates 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 that has responsibility for planning, designing, constructing, and operating the California HST System. The Authority's mandate is to develop the HST 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 Train (HST): *See High-Speed Train.*

California High-Speed Train (HST) System: *See High-Speed Train System.*

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

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.

Catenary Wire: A suspended (overhead) wire that supplies power from a central power source to an electric vehicle, such as a train.

CCS 83: California Coordinate System of 1983 – The system of plane coordinates established by the National Geodetic Survey for defining or stating the position or location of points on the surface of the earth within the state of California. CCS 83 is based on the North American Datum of 1983.

CEQA: *See California Environmental Quality Act.*

Clean Air Act (CAA): The law that defines U.S. Environmental Protection Agency responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The CAA protects the 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 water and groundwater.

CO₂e: Carbon dioxide equivalent, which is the concentration of CO₂ that would have global warming effects similar to other greenhouse gases.

Cofferdam: Watertight enclosure from which water is pumped to expose the bottom of a body of water and allow construction.

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.

Concourse: Area for accommodating patrons at an HST station.

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 an 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 for urban uses. *See also Easement.*

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

Construction Period Impacts: Temporary (short-term and long-term) impacts associated with the construction of the HST alternative. The construction period includes testing of the HST System prior to passenger service.

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

Cooperating Agency: Any agency invited by the lead federal agency that has agreed to participate in the 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).

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 that provide suitable habitat for federally listed threatened or endangered species, and in which are 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) CEQA – the result of two or more individual impacts which, when considered together, are considerable or which compound or increase other environmental impacts; (2) 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 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

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

Dedicated Corridor: Segment along the HST alignment where HSTs operate in a right-of-way that is exclusive of other passenger or freight railroads.

Dedicated Track: Segment along the HST alignment where HSTs operate on guideways exclusive of other passenger and freight railroads.

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

Design Criteria. To determine each alternative's ability to meet the HST project purpose and need, alternatives are evaluated using HST system performance criteria that 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 runoff that it receives.

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

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

E

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

Ecosystem: An interconnected network of living organisms, including people, and their local physical environment; often considered 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.

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

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

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

Eminent Domain: A jurisdiction or agency's legal right to take 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.

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.

Enplanement: The act of boarding an airplane.

Environmental Impact Report (EIR): Documentation of the detailed analysis of a project's potential significant effects, mitigation measures, and reasonable alternatives to avoid significant effects. The EIR is prepared as part of the CEQA environmental review process.

Environmental Impact Statement (EIS): Documentation of the detailed analysis of a project's potential significant effects, mitigation measures, and reasonable alternatives to avoid significant effects. The EIS is prepared as part of the NEPA environmental review process.

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

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

Ethnicity: A group or category of people with shared cultural traits such as ancestral origin, language, customs, or social attitudes.

F

Fare Gate: Physical barrier that requires a valid HST 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 board of supervisors and local advisory committee. *See also* **Farmland of Statewide Importance** *and* **Prime Farmland**.

Farmland of Statewide Importance: Farmlands that are similar to prime farmlands but are less valuable because they have steeper slopes, less ability to retain moisture in the soil, or other characteristics that limit their use. To qualify as Farmland of Statewide Importance, a property must have been used for production of irrigated crops at some time during the previous 4 years.

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

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

Feasible: Capable of being implemented.

Fecundity: Fertility; the potential to be fruitful in offspring or vegetation.



Federal Endangered Species Act (Federal ESA): The Federal ESA 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 U.S. 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: Branch routes that feed into main (arterial) routes.

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 be reused from elsewhere on the construction site or imported.

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

Flyover: A bridge that carries one roadway or railway aerially over another.

Footprint: The area covered by a facility or affected by construction activities.

Formation: A geologic unit (e.g., the 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: Streambank or levee height above the high-water mark of a defined high-flow event, such as the 100-year flood.

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 occur in a given period.

G

G Force: A force with a magnitude equal to the gravitational force acting on a body at sea level; expressed as 1.0 g.

Gauss: The unit of measure describing the strength of a magnetic field. Near the earth surface, the magnetic field measures approximately 0.5 gauss (0.1 Tesla). *See also Tesla.*

General Conformity Rule: 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, which encapsulates policies for land use and development over a specified period of time. A general plan may be supplemented by specific plans that address land use and development policies for specific portions of a planning jurisdiction, such as historic districts or areas slated for redevelopment.

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

Giga: Prefix meaning 1 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 in 100 feet.

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

Greenhouse Gases: A class of air pollutants believed to contribute to the greenhouse global warming effect, including CO₂, hydrocarbons, and NO_x.

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.

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

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

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.

Guideway: A track or riding surface that supports and physically guides transit vehicles specially designed to travel exclusively on it (as defined by the Orange County Transportation Authority).

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).

Hazardous Material: 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.

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

Heavy Maintenance Facility (HMF): A maintenance facility that supports delivery, testing, and commissioning on the first completed segment of the HST System. Trainset assembly, testing and commissioning, train storage, inspection, maintenance, retrofitting, and overhaul are typical HMF activities.

Herbaceous: Plants that have little or no woody tissue. Herbaceous plants typically survive for only one growing season.

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

Hertz: A unit of measurement that describes **Frequency**; equal to cycles (number of reversals) per second.

High-Risk Utility: Utility facilities conducting or carrying specific materials identified in Section 2 of the *Caltrans Project Development Procedures Manual*, Appendix LL – Utilities. Other utilities that could disrupt the operation of HST.

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

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

High-Speed Train System: The system that includes the HST tracks, structures, stations, traction-powered substations, maintenance facilities, and HSTs able to travel 220 mph.

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

Holocene: The period after the Pleistocene, from 10,000 years before present to the present.

HST Alternative Alignment: The general location of an HST guideway within the study corridor; HST alternative alignments are generally along or adjacent to existing transportation corridors.

HST Network Alternatives: Different ways to implement the HST System in the study area with combinations of HST alternative alignments and station locations.

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

I

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

Impervious Surface: Surface covered by impenetrable materials, such as parking lots and buildings, that increases the potential for water runoff and reduces 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 U.S. Department of Agriculture land inventory and monitoring criteria, as modified for California.

Indigenous Species: A native species; any plant or animal species that occurs naturally in a wilderness area.

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

Initial Study: An environmental study performed in compliance with CEQA, with the goal of evaluating whether a proposed project could have significant impacts on the environment.

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

In Situ: In the original or natural position.

Intactness: A measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements.

Intermediate Station: A train station between two other stations.

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

Intermodal: Describes transportation that involves more than one mode (e.g., walking, bike, auto, transit, taxi, train, bus, and air) during a single journey.

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

Invertebrate: Organisms lacking a vertebral column.

J

K

Key viewpoints (KVPs): Viewpoints that represent the range of visual character and visual quality in the project viewshed, which is the portion of the surrounding landscape within which a project is potentially visible.

Kilo: Prefix meaning 1 thousand.

Kiss-and-Ride: Facility for private vehicles to drop-off or pick-up HST patrons.

L

Land Use Compatibility Assessment: An assessment 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 alternatives, and the impact of these changes on the land use.

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.

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

Lead Agency: The public agency that has the principal responsibility for performing or approving a project or action and is responsible for preparing environmental review documents in compliance with CEQA, NEPA, or both.

L_{eq}: A measure of the average noise level during a specified period of time.

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

Less than Significant: In CEQA usage, describes an impact that is not sufficiently adverse, intense, or prolonged to require **mitigation**.

Levee: A berm or wall that raises the height of a riverbank.

Level of Service (LOS): A rating that uses qualitative measures to characterize operational conditions within a traffic stream and their perception by motorists and passengers.

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.

Local Geology: Geologic units in the immediate vicinity of the area of potential effect.

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 scale would be read: 1, 10, 100, 1000, 10000, etc). Logarithmic scales are useful for graphing values that have a very large range.

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

Low-Risk Utility: All utilities that are not high-risk facilities (as defined in Section 2 of the *Caltrans Project Development Procedures Manual*, Appendix LL – Utilities).

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.

M

Maintenance: An air basin that was formerly in nonattainment but now meets the established standards for that pollutant. *See also Attainment and Nonattainment.*

Maintenance of Way: A repair and maintenance activity for a railway right-of-way and track, including tracks, roadways, buildings, signals, and communications and power facilities.

Maintenance Siding: A dead-end section of track dedicated to parking maintenance trains and connected to a passing track, 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 a parkland.

Mean High-Water Mark: The elevation reached by the water surface at the mean (average) high water level (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.

Measure M: A measure that provides for a sales tax of 0.5 cent for countywide transportation improvements; approved by Orange County voters in November 1990.

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.

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

Mesoscale: Describes regional air quality analysis.

Microscale: Describes local air quality analysis.

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

Miocene: The period between 23 and 5.3 million years before present.

Mitigation: Action or measure 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, wetlands, or otherwise vegetated biological communities.

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

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

N

NAD 83: North American Datum of 1983 – The horizontal control datum for the United States based on the Geodetic Reference System 1980 and with a geocentric origin.

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 U.S.C.A. § 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.

NEPA: *See* **National Environmental Policy Act.**

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

No Action: Under NEPA, 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 No Project.*

No Effect: The HST alternative would not alter the environmental status quo.

No Project: Under CEQA, 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 No Action.*

No Project Alternative: Represents the regional and state transportation system (e.g., highway, air, and conventional rail) as it is today and with implementation of programs or projects that are included in regional transportation plans and have identified funds for implementation by 2035. The No Project Alternative represents the baseline conditions for comparison with the HST alternatives.

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

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

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

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 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 threaten the well-being of the state or the country.

NPL/Superfund List: A federal list of sites that pose an immediate public health hazard and where an immediate response is necessary.

O

Ordinary High-Water Mark: The line on the shore of a body of water established by the fluctuation of water levels.

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.

P

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

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

Paleontological Productivity: The relative abundance of fossils encountered in a specific geologic unit.

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 an advanced degree 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 electric current from an overhead wire; the device consists of a hinged vertical arm operated by springs or compressed air and a wide, horizontal contact surface that slides along the wire.

Paralleling Station: A station that works with switching stations to balance the electrical load between tracks and to switch power off or on to either track in an emergency.

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

Park and Ride: A parking facility where HST patrons can leave personal vehicles.

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

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

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

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.

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

Plat: A plan or map of a plot of ground.

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

Pleistocene: The period between 2.6 and 0.01 million years before present.

Pliocene: The period between 5.3 and 2.6 million years before present.

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

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

Poverty Level: The income level at which a family or individual is considered poor; in 2009, the U.S. Census Bureau defined the poverty level for a family of four as an income of \$21,954 or less.

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

Prehistoric Archaeological Sites: Places where Native Americans lived or performed 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.

Program-Level/Programmatic: Refers to a CEQA or NEPA environmental review that addresses the broad spectrum of a large, complex, regionally extensive effort comprising smaller, regionally focused projects or phases.

Project Impacts: Permanent impacts related to the project operation and maintenance of the HST alternative. Project operations include HST system operations and related project improvements, such as roadway modifications, maintenance of power supply components, and maintenance of the HST, including the HMF site operations. Some permanent impacts initially occur during construction, but because they are permanent, they are associated with the project impacts (for example, conversion of agricultural lands to transportation uses).

Project-Level: A detailed site-specific environmental analysis focusing on a single project that is part of a larger program.

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

Purpose and Need: The reason(s) why a project or action is undertaken, and the need(s) it 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 aboveground utility facilities needed to develop capital projects and (2) for acquiring and managing a specific level of quality of information during the project development process.

R

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

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

Reactive Organic Gas (ROG): Reactive **Hydrocarbon** pollutants.

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

Regional Transportation Plan (RTP): A long-range (20+ year) transportation plan. The regional transportation plan 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 a financially unconstrained component. The financially constrained component includes projects and programs that fit within existing and planned funding sources.

Relocations: The removal, rearrangement, reinstallation, or adjustment of a utility feature required by a transportation improvement project.

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

Richter Scale: A logarithmic scale that measures 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, the corridor along a roadway or railway alignment 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.

Riprap: Randomly placed rock or concrete armor used to strengthen an embankment or protect it from **erosion**.

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

Rolling Stock: Wheeled railway vehicles.

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.

S

Scale: A graduated line representing a proportionate size.

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

Scoping: A process used under CEQA and NEPA to determine the issues to be addressed and for identifying the significant issues related to the proposed action or project to be addressed in an EIR (under CEQA) or EIS (under NEPA).

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

Section 4(f): Provisions originally enacted as Section 4(f) of the U.S. 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 historical sites. 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 an historical 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 impacts from the proposed use.

Section 6(f): 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, Section 460-4 through 460-11, September 3, 1964, as amended 1965, 1968, 1970, 1972–1974, 1976–1981, 1983, 1986, 1987, 1990, 1991, and 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 opposed to those composed of igneous rocks (volcanic or granite). Sedimentary rock units yield fossils.

Sediments: Fragments of material originating either from the physical or chemical weathering of rocks and minerals, from the decomposition of organic matter, and from atmospheric fall-out. Clay, mud, and sand are all types of sediment.

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

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

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

Sensitivity Analysis: An analysis that assesses how sensitive 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.

Shadow Impact: Shadow impact ranking would be high if a new (not existing) elevated structure were within 75 feet (23 meters) of residential or open space, natural areas, or parkland.

Shared Right-of-Way: An HST alignment where HSTs operate in close proximity to other transportation systems, including conventional passenger railroads and freight railroads, without sharing tracks. Also includes highways.

Shared Use Corridor: A part of the HST alignment where HSTs operate on exclusive tracks along railway corridors or rights-of-way where conventional passenger and freight railroads operate.

Shared Use Track: A part of the HST alignment where HSTs operate with other passenger railroads (e.g., Caltrain, MetroLink, and Amtrak), on the same track.

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

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

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

Special-Status Plant Communities: Significant or rare vegetation types (California Department of Fish and Game [CDFG] 2003) 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 CEQA Guidelines Section 15380 and Section 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 call a transition or a transition spiral in European publications.

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

State Streambeds: CDFG has not released an official definition of lake or streambed; therefore, the extent of the area regulated under Section 1602 remains undefined. However, CDFG jurisdiction generally includes the streambed and bank, the adjacent floodplain, and riparian vegetation.

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. STIP programming generally occurs every 2 years.

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 HST, and parking facilities.

Stormwater Pollution Prevention Plan (SWPPP): A plan that specifies site management activities to be implemented during site development. These management activities include construction period stormwater BMPs, erosion and sedimentation controls, dewatering (nuisance water removal), runoff controls, and construction equipment maintenance.

Straddle Bents: A pier structure 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.

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).

Stub End: A track that terminates at one end.

Subsidence: Sinking or lowering of the ground surface.

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

Switching Station: A station that would work with the paralleling station to balance the electrical load between 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 ESA**).

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

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

Tesla: Unit of measure describing the strength of a magnetic field. *See also Gauss.*

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.

Topographic Map: A map of the surface features of the earth.

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

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

Traction Power Supply Station (TPSS): An electrical substation that supplies power to the HST System.

Traditional Cultural Properties and Resources (TCPs): Places associated with the cultural practices or beliefs of a living community that are 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; 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.

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

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

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 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, as well as time spent to reach the final destination.

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

Trinomial: An alphanumeric abbreviation for a previously identified historical 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 are caused by an undersea earthquake, landslide, or volcanic activity.

U

Unavoidable: In CEQA and 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 within the previous 4 years.

Unity: See **Visual Unity**.

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.

U.S. Army Corps of Engineers (USACE): The federal agency responsible for investigating, developing, and maintaining the nation's water and related environmental resources.

U.S. Environmental Protection Agency (EPA): The federal agency that enforces federal laws protecting human health and the environment.

V

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

V/C Ratio: Volume to capacity 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 (LOS)** the roadway can provide.

Vertebrate: Organisms that have a vertebral column.

Vertical Curve: The transition between grades (normally parabolic in the United States and Asian practices and circular arc radii in European practices).

Very High-Speed Steel-Wheel-on-Steel-Rail Train: A train capable of maximum operating speeds near 220 mph using steel-wheel-on-steel-rail technology.

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/rail users, residents, commercial viewers, office viewers, park and trail users, and agricultural and industrial workers within a viewshed.

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 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.*

Volt: Standard unit of measure for electrical potential.

W

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 groundwater 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 (San Francisco Estuary Institute 2009).

Waters of the United States: The federal CWA defines Waters of the United States 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 CFR 328.3[a]).

Water-Contact Recreation: Recreational activities in which contact with 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 railway or corridor.

Weir: A small dam that restricts flow in a stream to raise the water level or diverts flow into a desired course.

Wet Utility: A pipeline that conveys liquid through gravity or pressured systems for public purposes (i.e., water and wastewater).

Wetlands: An area of land with soil that is saturated with moisture, either permanently or seasonally. According to the *U.S. Army Corps of Engineers Wetlands 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).

Wildlife 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.

X

Y

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

Z