

CHAPTER 17 – Encroachments and Utilities

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CHAPTER 17 – Encroachments and Utilities

This chapter addresses the policies and procedures for administration of encroachments, as well as the placement and protection of utilities within the State highway right-of-way. There are three sections in this chapter. Section 1, “Encroachments,” presents Caltrans’ encroachment policies and specific prohibitions to encroachments within Caltrans’ right-of-way. Section 2, “Utility Policies,” addresses the policies and procedures for ensuring that transportation projects have a clear and safe right-of-way through the proper placement, protection, relocation, abandonment, or removal of utilities. Section 3, “Exception Requests,” covers the requirements for obtaining a policy exception. The primary purpose of these policies is to protect both the public and highway workers from the hazards of a damaged, exposed, cut, or penetrated utility. The secondary purpose is to protect the public’s investment in the highway system.

SECTION 1 Encroachments

ARTICLE 1 General

Caltrans allows encroachments in the State highway right-of-way in accordance with federal and State regulations. Encroachments allow temporary use of the State right-of-way for purposes other than transportation by a public utility, public entity, or private party. Encroachments include any temporary break in access or other use of the highway right-of-way including grading or removing materials by public agencies, developers, or private individuals.

Those that desire to occupy highway right-of-way must prepare an encroachment permit application and submit all required documentation and exhibits to the Caltrans district permit engineer. The district permit engineer evaluates the applicable policies and assesses the potential impacts of proposed encroachments on the operation and safety of the highway.

The project team producing plans for highway improvements must identify and plot all facilities that are within the project limits (including State-owned facilities) and determine if the installations are consistent with these encroachment policies or if the

facilities must be modified or relocated outside the right-of-way. For the districts that have the specialty utility engineering service group, the utility engineering workgroup (UEW) can take on these project engineer responsibilities.

The project team or utility owner must submit electronic files (vector files) of the location data for any installation (including relocation), and any location data collected on existing utilities within the project limits for inclusion in the Caltrans utility database.

Utility owners with prior rights detailed in a joint use agreement (JUA) or consent to common use agreement (CCUA) may receive direct access to the highway right-of-way to conduct maintenance; the type of access is described within the agreement. The utility owner must provide a copy of the documentation of the prior right when submitting the permit application.

Caltrans authorizes encroachments in the highway right-of-way through the encroachment permit process. A permit is issued to the permittee for the purpose of providing a notice and record of work. For information on applying for and obtaining an encroachment permit, see the [Encroachment Permits Manual](#).

ARTICLE 2 Definitions

Access control – the full or partial restriction of access to owners or occupants of abutting lands to or from a highway. Also see [Highway Design Manual \(HDM\)](#) Topic 104 “Control of Access.”

Approximate location – a strip of land not more than 24 inches on either side of the exterior surface of the utility. Note that Caltrans uses the terminology “approximate location” to describe “tolerance zone” as used in *California Government Code*, Section 4216(u).

Electronic detection – the detection of subsurface utilities by using electronic signals to determine the horizontal and/or vertical location.

Encasement – a protective pipe or sleeve that surrounds and protects a carrier pipe.

Encroachment – the temporary use of State right-of-way. *California Streets and Highways Code*, Section 660(b) states: “Encroachment” includes any tower, pole, pole line, pipe, pipe line, fence, billboard, stand or building, or any structure, object of any kind or character not particularly mentioned in this section, or special event,

which is in, under, or over any portion of the highway. “Special event” means any street festival, sidewalk sale, community-sponsored activity, or community-approved activity.

Exact location – the location of a subsurface utility obtained by the actual exposure and measurement at a specific point. Note that Caltrans uses the terminology “positive location” to describe “exact location” as used in *California Government Code*, Section 4216.4.

Excavation – any operation in which earth, rock, or other material in the ground is moved, removed, or otherwise displaced by means of tools, equipment, or explosives in any of the following ways: grading, trenching, digging, ditching, drilling, augering, tunneling, scraping, cable or pipe plowing and driving, or any other way. *California Government Code*, Section 4216(g)

Expressway – an arterial highway with at least partial control of access, which may or may not be divided or have grade separations at intersections.

Finished grade – the finished surface of a completed highway.

Freeway – a divided arterial highway with full control of access and with grade separations at intersections.

Grading plane – the surface of the basement material upon which the lowest layer of subbase, base, pavement surfacing, or other specified layer, is placed. In the absence of such, the upper surface of the ground or earthwork.

Hand digging – excavation performed manually with hand tools.

High priority utilities – include the following primarily derived from the *California Government Code*, Section 4216:

- Natural gas pipelines greater than 6 inches in diameter, or with normal operating pressures greater than 60 psig
- Petroleum pipelines
- Pressurized sanitary sewer pipelines
- High-voltage electric supply lines, conductors, or cables that have a potential to ground of greater than or equal to 60 kV
- Hazardous materials pipelines that are potentially harmful to workers or the public if damaged

Highway – a public right-of-way for the purpose of travel or transportation.

Longitudinal utility facility – a utility located parallel to or more than 30 degrees from normal to the highway’s alignment and within the highway right-of-way.

Positive location – the determination of the horizontal and vertical location of a utility by following the requirements of Section 2, Article 3 “Locating Requirements.”

Pothole – See test hole.

Project engineer – in the context of this chapter, is a California registered civil engineer who is in “responsible charge” of appropriate project development documents and the project design effort that ensures compliance to Caltrans’ encroachment and utility policies.

Project limits – entire right-of-way width between “Begin Construction” and “End Construction.”

psig – pounds per square inch gauge pressure.

Public utility – includes every common carrier, toll bridge corporation, pipeline corporation, gas corporation, electrical corporation, telephone corporation, telegraph corporation, water corporation, sewer system corporation, and heat corporation, where the service is performed for, or the commodity is delivered to, the public or any portion thereof. *California Public Utilities Code*, Section 216(a)

Regional notification center – includes, but is not limited to, the South Shore Utility Coordinating Council, the Under Ground Service Alert-Northern California (USA-Northern California) and the Under Ground Service Alert-Southern California (USA-Southern California).

Right-of-way – property (land and/or access rights) owned and operated by Caltrans for transportation purposes.

Roadbed – that portion of the roadway extending from curb line to curb line or shoulder line to shoulder line. Divided highways are considered to have two roadbeds.

Roadway – that portion of the highway included between the outside lines of the sidewalks, or curbs and gutters, or side ditches including also the appertaining

structures, and all slopes, ditches, channels, waterways, and other features necessary for proper drainage and protection.

Service line – portions of a utility that connect a customer, usually at the meter location, to the utility distribution points or supply system.

Test hole – excavation to expose a subsurface utility to obtain and confirm positive location.

Transverse utility facility – a utility located perpendicular to or less than 30 degrees from normal to the highway’s alignment and within the highway right-of-way.

Utility engineering workgroup – a specialty service group of subject matter experts that provide utility plans, utility plan support, and stewardship of utility related data. For the districts that do not have a utility engineering workgroup, these responsibilities are performed by the project engineer.

Utility facility – any pole, poleline, pipe, pipeline, conduit, cable, aqueduct, or other structure or appurtenance thereof used for public or privately owned utility services or used by any mutual organization supplying water or telephone service to its members. *California Streets and Highways Code*, Section 700(b)

Utility matrix – a data table used to quantify information for each utility on a project. The headings and data entries should define the plan sheet number, owner, utility (type, size, pressure/voltage), location, notes, and other utility attributes including the American Society of Civil Engineers (ASCE) quality level of location information, potential conflict and action required (protect, relocate), when applicable.

ARTICLE 3 Laws

The California Legislature authorizes Caltrans to manage the safety and operational control of the State Highway System (SHS). In order to meet this responsibility, Caltrans requires any proposed encroachments, as well as any other access to the State Highway System, to be applied for by the encroachment proponent and reviewed by the Caltrans district encroachment permit office. All applications for encroachment or access must meet the policy requirements and follow the procedures outlined in this chapter.

Federal Laws

Title 23 United States Code Section 109(l)

Section 109(l) states:

(1) In determining whether any right-of-way on any Federal-aid highway should be used for accommodating any utility facility, the Secretary shall—

(A) first ascertain the effect such use will have on highway and traffic safety, since in no case shall any use be authorized or otherwise permitted, under this or any other provision of law, which would adversely affect safety;

(B) evaluate the direct and indirect environmental and economic effects of any loss of productive agricultural land or any impairment of the productivity of any agricultural land which would result from the disapproval of the use of such right-of-way for the accommodation of such utility facility; and

(C) consider such environmental and economic effects together with any interference with or impairment of the use of the highway in such right-of-way which would result from the use of such right-of-way for the accommodation of such utility facility.

(2) For the purpose of this subsection—

(A) the term “utility facility” means any privately, publicly, or cooperatively owned line, facility, or system for producing, transmitting, or distributing communications, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, storm water not connected with highway drainage, or any other similar commodity, including any fire or police signal system or street lighting system, which directly or indirectly serves the public; and

(B) the term “right-of-way” means any real property, or interest therein, acquired, dedicated, or reserved for the construction, operation, and maintenance of a highway.

Title 23 Code of Federal Regulations Section 645.205

Section 645.205 states:

(a) Pursuant to the provisions of 23 CFR 1.23, it is in the public interest for utility facilities to be accommodated on the right-of-way of a Federal-aid or direct Federal highway project when such use and occupancy of the highway right-of-way do not adversely affect highway or traffic safety, or otherwise impair the highway or its aesthetic quality, and do not conflict with the provisions of Federal, State or local laws or regulations.

(b) Since by tradition and practice highway and utility facilities frequently coexist within common right-of-way or along the same transportation corridors, it is essential in such situations that these public service facilities be compatibly designed and operated. In the design of new highway facilities consideration should be given to utility service needs of the area traversed if such service is to be provided from utility facilities on or near the highway. Similarly the potential impact on the highway and its users should be considered in the design and location of utility facilities on or along highway right-of-way. Efficient, effective and safe joint highway and utility development of transportation corridors is important along high speed and high volume roads, such as major arterials and freeways, particularly those approaching metropolitan areas where space is increasingly limited. Joint highway and utility planning and development efforts are encouraged on Federal-aid highway projects.

(c) The manner in which utilities cross or otherwise occupy the right-of-way of a direct Federal or Federal-aid highway project can materially affect the highway, its safe operation, aesthetic quality, and maintenance. Therefore, it is necessary that such use and occupancy, where authorized, be regulated by transportation departments in a manner which preserves the operational safety and the functional and aesthetic quality of the highway facility. This subpart shall not be construed to alter the basic legal authority of utilities to install their facilities on public highways pursuant to law or franchise and reasonable regulation by transportation departments with respect to location and manner of installation.

(d) When utilities cross or otherwise occupy the right-of-way of a direct Federal or Federal-aid highway project on Federal lands, and when the right-of-way grant is for highway purposes only, the utility must also obtain and comply with the terms of a right-of-way or other occupancy permit for the Federal agency having jurisdiction over the underlying land.

California Statutes

California Streets and Highways Code Section 23.5

Section 23.5 states:

“Freeway” means a highway in respect to which the owners of abutting lands have no right or easement of access to or from their abutting lands or in respect to which such owners have only limited or restricted right or easement of access. If, in the judgment of the commission or the director, the public interest would be advanced thereby, a freeway, as defined herein, may be denominated a “controlled access highway”. In all other respects, the “controlled access highway” shall be subject to all provisions of this code pertaining to freeways.

California Streets and Highways Code Section 90

Section 90 states:

The department shall have full possession and control of all state highways and all property and rights in property acquired for state highway purposes. The department is authorized and directed to lay out and construct all state highways between the termini designated by law and on the locations as determined by the commission.

California Streets and Highways Code Section 92.3

Section 92.3 indicates:

There is a direct benefit to the State highway program for the proposed use of recycled water. The installation of water delivery facilities does not unreasonably increase any hazard to vehicles on the freeway or create problems of highway maintenance and repair.

California Streets and Highways Code Section 117

Section 117 states:

Unless otherwise specifically provided in the instrument conveying title, the acquisition by the department of any right-of-way over any real property for state highway purposes, includes the right of the department to issue, under Chapter 3 (commencing with Section 660), permits for the location in the right-of-way of any structures or fixtures necessary to telegraph, telephone, or electric power lines or of any ditches, pipes, drains, sewers, or underground structures.

California Streets and Highways Code Section 660

Section 660 states:

As used in this chapter:

(a) “Highway” includes all, or any part, of the entire width of the right-of-way of a state highway, whether or not the entire area is actually used for highway purposes.

(b) “Encroachment” includes any tower, pole, pole line, pipe, pipe line, fence, billboard, stand or building, or any structure, object of any kind or character not particularly mentioned in this section, or special event, which is in, under, or over any portion of the highway. “Special event” means any street festival,

sidewalk sale, community-sponsored activity, or community-approved activity.

California Streets and Highways Code Section 661

Section 661 states:

In addition to persons, public corporations, and districts specified in this chapter, this chapter shall apply to all private corporations authorized by law to establish or maintain any works or facilities in, under or over any public highway. This chapter shall not limit the powers and duties vested by law in the Public Utilities Commission of this State, and in the event of any conflict with regard to the powers and duties given the department in this chapter, those of the Public Utilities Commission shall prevail.

California Streets and Highways Code Section 670

Section 670 indicates:

Caltrans may issue written permits for a variety of encroachment activities outlined in Section 660 through Section 759.3.

California Government Code Section 4215

Section 4215 states:

In any contract to which a public agency as defined in Section 4401 is a party, the public agency shall assume the responsibility, between the parties to the contract, for the timely removal, relocation, or protection of existing main or trunkline utility facilities located on the site of any construction project that is a subject of the contract, if such utilities are not identified by the public agency in the plans and specifications made a part of the invitation for bids. The contract documents shall include provisions to compensate the contractor for the costs of locating, repairing damage not due to the failure of the contractor to exercise reasonable care, and removing or relocating such utility facilities not indicated in the plans and specifications with reasonable accuracy, and for equipment on the project necessarily idled during such work. The contract documents shall include provisions that the contractor shall not be assessed liquidated damages for delay in completion of the project, when such delay was caused by the failure of the public agency or the owner of the utility to provide for removal or relocation of such utility facilities.

Nothing herein shall be deemed to require the public agency to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the site of the construction project can be inferred from the

presence of other visible facilities, such as buildings, meter and junction boxes, on or adjacent to the site of the construction; provided, however, nothing herein shall relieve the public agency from identifying main or trunklines in the plans and specifications.

Nothing herein shall preclude the public agency from pursuing any appropriate remedy against the utility for delays which are the responsibility of the utility.

Nothing herein shall be construed to relieve the utility from any obligation as required either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

If the contractor while performing the contract discovers utility facilities not identified by the public agency in the contract plans or specifications, he shall immediately notify the public agency and utility in writing.

The public utility, where they are the owner, shall have the sole discretion to perform repairs or relocation work or permit the contractor to do such repairs or relocation work at a reasonable price.

California Government Code Section 4216 through 4216.9

Section 4216(i) states:

(i) “Hand tool” means a piece of equipment used for excavating that uses human power and is not powered by any motor, engine, hydraulic, or pneumatic device.

Section 4216(j) states:

“High priority subsurface installation” means high-pressure natural gas pipelines with normal operating pressures greater than 415kPA gauge (60psig), petroleum pipelines, pressurized sewage pipelines, high-voltage electric supply lines, conductors, or cables that have a potential to ground of greater than or equal to 60kv, or hazardous materials pipelines that are potentially hazardous to workers or the public if damaged.

Section 4216(u) states:

(u) “Tolerance zone” means 24 inches on each side of the field marking placed by the operator in one of the following ways:

(1) Twenty-four inches from each side of a single marking, assumed to be the centerline of the subsurface installation.

(2) Twenty-four inches plus one-half the specified size on each side of a single marking with the size of installation specified.

(3) Twenty-four inches from each outside marking that graphically shows the width of the outside surface of the subsurface installation on a horizontal plane.

Section 4216.2(c) states:

(c) When the excavation is proposed within 10 feet of a high priority subsurface installation, the operator of the high priority subsurface installation shall notify the excavator of the existence of the high priority subsurface installation to set up an onsite meeting prior to the legal excavation start date and time or at a mutually agreed upon time to determine actions or activities required to verify the location and prevent damage to the high priority subsurface installation. As part of the meeting, the excavator shall discuss with the operator the method and tools that will be used during the excavation and the information the operator will provide to assist in verifying the location of the subsurface installation. The excavator shall not begin excavating until after the completion of the onsite meeting.

Section 4216.4 states:

(a) (1) Except as provided in paragraph (2), if an excavation is within the tolerance zone of a subsurface installation, the excavator shall determine the exact location of the subsurface installations in conflict with the excavation using hand tools before using any power-driven excavation or boring equipment within the tolerance zone of the subsurface installations. In all cases the excavator shall use reasonable care to prevent damaging subsurface installations.

(2) (A) An excavator may use a vacuum excavation device to expose subsurface installations within the tolerance zone if the operator has marked the subsurface installation, the excavator has contacted any operator whose subsurface installations may be in conflict with the excavation, and the operator has agreed to the use of a vacuum excavation device. An excavator shall inform the regional notification center of his or her intent to use a vacuum excavation device when obtaining a ticket.

(B) An excavator may use power-operated or boring equipment for the removal of any existing pavement only if there is no known subsurface installation contained in the pavement.

(3) An excavator shall presume all subsurface installations to be active, and shall use the same care around subsurface installations that may be inactive as the excavator would use around active subsurface installations.

(b) If the exact location of the subsurface installation cannot be determined by hand excavating in accordance with subdivision (a), the excavator shall request the operator to provide additional information to the excavator, to the extent that information is available to the operator, to enable the excavator to determine the exact location of the installation. If the excavator has questions about the markings that an operator has placed, the excavator may contact the notification center to send a request to have the operator contact the excavator directly. The regional notification center shall provide the excavator with the contact telephone number of the subsurface installation operator.

(c) (1) An excavator discovering or causing damage to a subsurface installation, including all breaks, leaks, nicks, dents, gouges, grooves, or other damage to subsurface installation lines, conduits, coatings, or cathodic protection, shall immediately notify the subsurface installation operator. The excavator may contact the regional notification center to obtain the contact information of the subsurface installation operator. If the operator is unknown and the damage or discovery of damage occurs outside the working hours of the regional notification center, the excavator may follow the instructions provided by the regional notification center through its Internet Web site or the telephone line recorded message.

(2) An excavator shall call 911 emergency services upon discovering or causing damage to either of the following:

(A) A natural gas or hazardous liquid pipeline subsurface installation in which the damage results in the escape of any flammable, toxic, or corrosive gas or liquid.

(B) A high priority subsurface installation of any kind.

(d) Each excavator, operator, or locator shall communicate with each other and respect the appropriate safety requirements and ongoing activities of the other parties, if known, at an excavation site.

ARTICLE 4 Encroachment Policies

Caltrans adopted the American Association of State Highway and Transportation Officials (AASHTO) October 2005 documents: *A Policy on the Accommodation of Utilities Within Freeway Right-of-Way*, and *A Guide for Accommodating Utilities Within Highway Right-of-Way*. The policies discussed in this article are consistent with these documents.

These policies are intended to provide a safe environment for traffic operations, maximize the transport of commercial goods, and improve safety during maintenance and construction.

During development of projects, various constraints may require deviation from these policies in the form of an encroachment policy exception. See Section 3 “Exception Requests,” for a summary of the steps to request an encroachment policy exception.

Caltrans has no authority to allow the use of highway right-of-way by a private party without compensation or benefits. Private use of the highway right-of-way without compensation is considered a gift of public funds and is prohibited by the California Constitution, Article XVI, Section 6. This policy applies to all freeways, expressways, and conventional highways.

Encroachments Prohibited on All State Highways

The encroachments listed in this sub-article are prohibited on all State highways. The following prohibitions may be permitted as an encroachment policy exception if the encroachment permit applicant can justify that no other viable alternative exists.

Prohibited encroachments include, but are not limited to:

- facilities that limit use of the right-of-way or increase the cost of future highway improvements.
- high priority utilities and pressurized facilities that are not encased within the highway right-of-way.
- changes in facilities that alter the conditions under which the original encroachment was approved.
- placement of utility facilities within the median area of any State highway.
- existing utilities proposed to remain in an existing tunnel when that tunnel is part of a highway project.
- drainage diversions.
- groundwater disposals.
- privately owned longitudinal facilities.

Utility Encroachments Prohibited within Access Control Right-of-Way

General

In addition to encroachments prohibited on all State highways, the encroachments listed in this sub-article are prohibited within access control right-of-way. The prohibitions may be permitted as encroachment policy exceptions if the encroachment can be justified and the following conditions are met for each type of encroachment.

Existing Longitudinal Utilities

Existing longitudinal utilities within a project's limits must be relocated to outside the State right-of-way unless project-specific analysis provides that they do not adversely affect the safety, design, construction, traffic operations, maintenance, or the stability of the highway and they meet the following conditions:

- The utility can be serviced, maintained, and operated without being accessed from the State highway, including ramps.
- Justification is provided to show that relocation of the utility, to outside of the access control right-of-way, is not viable.

If a longitudinal utility is proposed to remain in place within the right-of-way, a request for an encroachment policy exception must be approved prior to submittal of contract documents for advertisement.

Proposed Longitudinal Utilities

New utilities are not allowed to be installed longitudinally within the access control of freeways or expressways on a highway identified as part of the freeway and expressway system.

Utilities in Tunnels

New utilities are not allowed in tunnels. High priority utilities are not allowed in any tunnel under any circumstances (an encroachment policy exception will not be approved).

Utilities on Bridges

Existing utilities on bridges within a project's limits must be relocated to outside the State right-of-way unless project-specific analysis provides that they do not adversely affect the safety, design, construction, traffic operations, maintenance, or the stability of the bridge. New utilities on bridges are not allowed unless project-specific analysis provides that they do not adversely affect the safety, design, construction, traffic operations, maintenance, or the stability of the bridge and they meet the following conditions:

- The utility load can be supported by the bridge structure.
- The utility does not require routine maintenance.

- The utility construction and maintenance is scheduled during hours approved by Caltrans.
- The utility is supported by a backup system and emergency maintenance or repairs will not be required.
- The utility is under the California Public Utilities Commission jurisdiction or is publicly owned and provides a dedicated service to the public.
- The utility provides capacity to other companies that supply similar services.

For security purposes, high priority utilities should not be allowed on structures identified as most critical by the district.

Encroachments Permitted Within Conventional Highway Right-of-Way

The Caltrans district permit engineer may allow facilities within conventional highway right-of-way, subject to reasonable conditions that provide for the safety of the traveling public and allow for future improvement of the highway, if the applicant for an encroachment permit complies with the guidelines of the [Encroachment Permits Manual](#) and the encroachments are not prohibited under the preceding heading “Encroachments Prohibited on All State Highways.” The utilities listed under the heading “Exempt Utilities” in Section 2, Article 2 are allowed within conventional highway right-of-way with an approved encroachment permit.

Encroachments Permitted within Access Control Right-of-Way

The encroachments in the headings listed in this sub-article may be permitted by the district permit engineer on access control highways. Proposed encroachments that do not meet the specified requirements may be permitted as an encroachment policy exception.

Telecommunications

Installations must comply with the provisions of the [Encroachment Permits Manual](#).

Temporary Wells

Temporary wells for sampling ground water contamination may be installed within the highway right-of-way to facilitate the collection, documentation, or mitigation of contamination of the highway right-of-way only if alternate locations or means of access are unavailable or impractical due to terrain or environmental constraints and where such use will not adversely affect safety or cause damage to the State highway.

Temporary wells will be located in such a manner that they do not adversely affect the safety, design, construction, traffic operations, maintenance, or stability of the highway. The well head must be flush with the surrounding grade. The district environmental unit must receive a copy of all data collected and any subsequent report(s).

Temporary wells may require service, maintenance, and operation by the applicant. Temporary wells must be located such that access to the facility can be obtained by entering from a local road or private property. The intent of this requirement is for the service vehicle to park outside of the right-of-way.

Transverse Utilities

Crossings must not exceed 30 degrees from normal to the highway's longitudinal alignment, to the extent feasible and practicable.

These facilities must be located so there are no fixed objects or obstructions within the State right-of-way and they can be serviced, maintained, and operated from outside the State right-of-way. Utilities that cross Caltrans' right-of-way must comply with the requirements in Section 2 "Utility Policies."

Air Space Leases

Air space leases are subject to the provisions of the [Encroachment Permits Manual](#) and the [Right of Way Manual](#). Lease requests are independently reviewed and approved by the district air space review committee.

Proposals for installation of infrastructure to generate sustainable energy sources, such as solar or wind power as well as wireless communications facilities are reviewed and processed as an air space lease.

Non-Utility Encroachments within Access Control Right-of-Way

General

Non-utility encroachments require an exception to policy and are considered on a case-by-case basis for any occupation or use. The Headquarters Division of Design, Office of Project Support is responsible for facilitating review and approval of encroachment policy exception requests with FHWA if the proposal is on an Interstate highway. This includes requests for:

- Appurtenances associated with rail systems
- Longitudinal pedestrian or bicycle paths owned and operated by others
- Discretionary elements
- Earthwork
- Access control fence breaches not associated with a utility

Access control fence breaches not associated with a utility are processed as locked gate accesses, see Section 1, Article 5 “Access Restrictions.”

Discretionary Elements

Discretionary elements are not required for the safety, maintenance, or operation of the highway. Discretionary elements may occupy a single spot location or may be at multiple sites within the right-of-way. Standards for horizontal and vertical clearances and placement of fixed objects are listed in [Highway Design Manual](#) Topic 309.

Discretionary elements include, but are not limited to, the following:

- Non-Caltrans data collectors
- Energy generation components
- Historical monuments, markers, or placards
- Gateway monuments
- Transportation art (when free standing)
- Non-Caltrans owned sound attenuation devices
- Non-Caltrans radio-relay system components

The determination for placement, eligibility, and submittal of proposals for non-Caltrans data collectors, energy generation components, non-Caltrans owned sound attenuation devices, and non-Caltrans radio-relay system components will be made on a case-by-case basis.

For placement, eligibility, and submittal requirements for proposals of transportation art, gateway monuments, historical monuments, markers, or placards see Chapter 29 – Landscape Architecture. Exceptions to the established requirements will not be considered.

Earthwork

Grading, placement, or removal of material by others in the State right-of-way is prohibited. An encroachment policy exception may be approved to perform earthwork within the State right-of-way if the State benefits from one or all of the following:

- Improved sight distance
- Increased clear recovery zone
- Improved drainage
- Reduced maintenance

Caltrans will not approve requests to remove material solely to benefit a developer or individual, such as to eliminate the need by the developer or individual to import material to their private property or to improve visibility to a development.

ARTICLE 5 Access Restrictions

For controlled access right-of-way, breaks in access are restricted. During development of projects, various constraints may require deviation from these policies in the form of an encroachment policy exception. See Section 3 “Exception Requests,” for a summary of the steps to request an encroachment policy exception.

Issuance of an Encroachment Permit for Maintenance Access

The Caltrans district permit engineer may issue an encroachment permit for maintenance access to the facility owner who lawfully maintains an encroachment where an easement, joint use agreement, consent to common use agreement, or other recorded property right exists.

Locked Gate Accesses and Pedestrian Openings

Locked gate access provides maintenance access to freeway and expressway rights-of-way and are considered an encroachment.

Locked gate access for use by Caltrans personnel or for utility maintenance access associated with a permitted installation requires the approval of the District Director. Locked gate access for use by others requires an encroachment policy exception. Additionally, locked gate access for wireless telecommunication airspace lease sites

requires approval from the district airspace review committee that has been delegated the responsibility for approval.

Breaks in State right-of-way access control fence to connect pedestrian facilities from adjacent properties requires an encroachment policy exception.

Every new or modified locked gate access or pedestrian opening on the Interstate System requires approval from the Federal Highway Administration (FHWA). Supplemental information for procedures and requirements to obtain FHWA approval is located in the [*Interstate System Access Informational Guide*](#).

Emergency Access from Freeways and Expressways

Caltrans prohibits planned emergency access for existing, new, or expanded developments adjacent to the right-of-way. This policy preserves and protects the access control inherent to the freeway and expressway system. Emergency access must be planned for and provided by local streets or conventional highways outside the access control limits of freeways and expressways.

In responding to emergencies, fire districts, law enforcement agencies, or other emergency functions may cut or otherwise breach access control fences in order to quickly respond to an emergency. In such cases, they must secure an encroachment permit to replace fencing and restore the State right-of-way to pre-emergency conditions at their own expense.

SECTION 2 Utility Policies

ARTICLE 1 General

Caltrans is responsible for providing a safe transportation environment for its employees, the traveling public, and others. An important element of a safe environment is to provide clear and safe rights-of-way through the proper placement, protection, relocation, abandonment, or removal of utilities that may introduce hazards within the rights-of-way. Safety risks can occur if a utility is damaged, excavated, cut, or penetrated.

ARTICLE 2 Policies

These utility policies address the mandatory procedures for the placement and protection of utility facilities within the highway right-of-way. All utilities within the right-of-way must be shown on the contract plans for the entire project limits. The project limits are the limits of construction and are between the “Begin Construction” and “End Construction” and/or are the individual “Locations of Construction” as specified and depicted in the [Plans Preparation Manual](#). Positive location is required for high priority utilities and approximate location is required for all other utilities for the entire project limits. Positive location and approximate location are used in the context as defined in Section 1, Article 2 “Definitions.” Projects must have an approved utility policy exception to avoid the requirement for locating the utilities and depicting them on the contract plans.

The delineation of these utilities must be included in highway contract plans consistent with the [Plans Preparation Manual](#), [CADD Users Manual](#), [Standard Plans](#), and [Standard Specifications](#).

The policy requirements are applicable to all highway projects from the Project Initiation Document (PID) phase through the Plans, Specifications, and Estimate (PS&E) phase of a project, regardless of the project sponsor or funding source.

Various constraints may be discovered during plan development that cannot be reconciled and may result in the need for an exception to deviate from policy. The project engineer must submit an exception request for a utility policy exception for consideration. See Section 3 “Exception Requests,” for a summary of the steps to request a utility policy exception.

The project engineer must provide the Caltrans district utility coordinator with a utility matrix for facilities within the project limits. The decision to relocate or protect utilities must be made by the project engineer after consultation with the project development team and the utility owner. See [Appendix LL](#) – Utility Policy Certification and Utility Matrix for the template.

For projects designed by Caltrans, coordination with the utility owner is conducted through the Caltrans district utility coordinator. On Caltrans administered projects, the district utility engineering workgroup (as applicable) is the recipient of the utility matrix which may have been prepared by others.

Exempt Projects

Projects that do not have any excavation, as defined in Section 1, Article 2 “Definitions,” are exempt from the locating and depicting requirements. Projects that only include limited excavation are also exempt from the locating and depicting requirements, provided that the limited excavation is in conjunction with:

- Digging less than 6 inches below existing ground level outside the roadbed
- Digging within the existing limits of the pavement structural section within the roadbed
- Reconstruction of concrete or asphalt pavement driveways, sidewalks, curb ramps, curbs, gutters, and dike
- Reconstruction of bridge approach slabs
- Construction or reconstruction of guardrail, thrie beam barrier, and end treatments
- Installation of roadside signs and markers
- Hand digging or digging by air-lance, hydro-excavation, and vacuum excavation

Projects are not exempt when the proposed work includes:

- installation of push button assemblies or foundations for lighting.
- transition railing or anchor blocks for guardrail or thrie beam barrier.

Plans for exempt projects must include a note on appropriate plan sheets that states: “EXEMPT PROJECT WITH LIMITED EXCAVATION, UTILITIES ARE NOT SHOWN.”

Exempt Utilities

The following utilities are exempt from these policies and do not need to be plotted on the plans unless the depiction of the utility is needed for interconnectivity with the proposed work:

1. Natural gas service lines less than 2 inches in pipe diameter that have normal operating pressures of 60 psig or less
2. Subsurface electrical service connections with a potential to ground of 300 volts or less
3. Service connections (laterals) for water, sewer, telephone, telecommunication, and cable service

Projects for Which Positive Location is Not Required

The basis for waiving the requirement to include positive location information for high priority utilities on the plans is that the scope of work is flexible and that any conflicts identified during the construction utility location activities can be resolved by adjusting the location of the proposed work. Utility location activities must be performed during construction by the utility owner and marked-out as required by *California Government Code*, Section 4216 et seq.

Utility verification is required for plan development for these projects, but with an approved utility policy exception (including nonstandard special provisions), positive location information of high priority utilities is not required to be shown on the plans (although approximate location is still required) for these stand-alone projects that individually include:

- Electrical conduit placed for street lighting, traffic signal connections, and similar projects
- Highway planting projects where the excavation locations are flexible and are made for plants, irrigation lines, controllers, or other appurtenances only (this exemption does not apply to hardscape, which includes planter boxes, retaining walls, or other infrastructure)

Utility Locating for Construction Area Signs

If exact sign locations are not shown on the project plans, post holes must be dug by hand, except where potential conflicts can be eliminated. Potential conflicts are considered as eliminated when an appropriate regional notification center has performed field mark-outs and no subsurface utilities are within 4 feet of the proposed post hole or the post hole can be moved 4 feet away from subsurface utilities as located by the utility owner.

ARTICLE 3 Locating Requirements

Overview

The project engineer must practice due diligence to collect and depict all utility information at a quality level that allows the proposed work to be assessed for potential conflicts with both existing and proposed facilities. Existing utility location data is collected for use in:

- verifying ownership.
- determining conflicts.
- developing relocation plans.
- developing contract plans.

The American Society of Civil Engineers (ASCE) publishes ASCE Standard CI/ASCE 38-02, *Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*. This publication presents a series of options and information relating to utility locating and plan development but does not dictate a specific course of action. ASCE Standard CI/ASCE 38-02 is a valuable guideline to common tasks encountered during the practice of subsurface utility engineering. The ASCE Standard CI/ASCE 38-02 quality levels are defined as follows:

Utility quality level A: Information obtained by the actual exposure (or verification of previously exposed and surveyed utilities) and subsequent measurement of subsurface utilities, usually at a specific point. Minimally intrusive excavation equipment is typically used to minimize the potential for utility damage. Accurate horizontal and vertical locations, as well as other utility attributes, are shown on plan documents. Accuracy is typically set to 0.6 inches vertical and to the horizontal positional accuracy requirements of the project, or any required statute.

Utility quality level B: Information obtained through the application of appropriate surface geophysical methods to infer the existence and approximate horizontal position of subsurface utilities. Quality level B data should be reproducible by surface geophysics at any point of their depiction. The horizontal locations are surveyed to the horizontal positional accuracy requirements of the project, or any required statute, and reduced onto plan documents.

Utility quality level C: Information obtained by surveying and plotting visible above-ground utility feature as and by using professional judgment in correlating this information to quality level D information.

Utility quality level D: Information derived from existing records or oral recollections.

Positive location associated with “utility quality level A” is mandated for depicting high priority utilities on contract plans for construction within the State highway right-of-way. Approximate location associated with utility quality levels B, C, and D is mandated for depicting all other utilities on contract plans for construction within the State highway right-of-way.

The quality levels must not be shown on the plans, only the test hole or location data in table format with a leader line callout. Quality levels (A, B, C, and D) should be noted in the utility matrix during the project delivery process as utility information is collected and verified.

Positive location or other utility locating measures should occur during the early phases of project development. Location determinations for utilities must be performed at intervals sufficient to establish the location of the line. The horizontal spacing of location determinations must not exceed 100 feet for longitudinal and transverse utilities, except:

- When a longitudinal utility crosses an obstruction, such as a water body or large roadway fill, the location determinations must be at each edge of the obstruction.
- When a transverse utility crosses a highway, the location determinations must be at each outside edge of the highway roadbed and also within the median for a divided highway. The spacing of location determinations outside the highway roadbed must not exceed 100 feet.

Methods of Locating

The project engineer is responsible for determining the method to locate and identify each utility and to document the location. On Caltrans administered projects, the project engineer must obtain direction from the Caltrans district utility coordinator. When a district utility engineering workgroup has been established, the utility engineering workgroup must be consulted.

Test Hole

The preferred method of positive location to specifically identify and accurately determine the horizontal and vertical location of a utility is by excavating a test hole to expose the utility.

Electronic Detection

It is acceptable to use electronic detection for determining the horizontal and vertical location of a utility when used in conjunction with test holes. Test holes ensure proper utility identification and verify the accuracy of electronic readings. Electronic detection is particularly effective for determining that the utility is outside the area of excavation or well below a prescribed depth.

On Caltrans administered projects, the project engineer must determine the locations and number of supplemental test holes, locating requirements, or both after obtaining direction from the Caltrans district utility coordinator. When a district utility engineering workgroup has been established, the utility engineering workgroup must be consulted.

As-Built Plans

The utility owner is required to provide the project engineer with initial as-built plans that show the approximate location of all their utilities within the project limits. Within Caltrans, a request must be initiated by the project engineer to the utility coordinator for all contact with utility owners.

As-built plans for utilities may comply with the requirements for positive location if a utility owner signs and certifies the accuracy of the plan. If this is not available, the project engineer must verify the information with test holes or other methods at critical locations.

New Technologies

The project engineer may authorize or employ other methods to provide the location of subsurface utilities if they produce the required accuracy and are acceptable to the utility owner.

Request to Owners for Utility Locating

This procedure applies to projects designed by Caltrans. Caltrans issues a notice to owner (NTO) to direct the utility owner to locate their utilities by test holes, electronic detection, or other acceptable method. The project engineer must initiate a notice to owner request through the Caltrans district utility coordinator. The procedures for issuance of a notice to owner are detailed more fully in Chapter 13 of the [*Right of Way Manual*](#).

Service Contract for Utility Locating

This procedure applies to projects developed by Caltrans. The Caltrans district utility coordinator may administer a service contract used to perform utility location services associated with project delivery.

Surveying

The district’s survey unit or a California licensed land surveyor must record the horizontal location data and also the elevation of high priority utilities that are within the project limits on the Caltrans’ survey datum.

ARTICLE 4 Clearance and Offset Requirements

Once the determination has been made that a utility can be accommodated within the State right-of-way, the utility must meet Caltrans’ clearance and offset requirements, be protected in place, or be relocated. If a utility is relocated within the right-of-way, the utility must meet the requirements for new installations. Projects must have an approved utility policy exception for utilities that do not meet the requirements in this article. During development of projects, various constraints may require deviation from these policies in the form of a utility policy exception. See Section 3 “Exception Requests,” for a summary of the steps to request a utility policy exception.

New and Relocated Subsurface Utility Installation Standards

The installation of utilities within existing or ultimate State highway rights-of-way must meet the following minimum clearances along the alignment of the facility:

1. 42 inches below the finished grade or 18 inches below the grading plane of a currently planned project, whichever distance is greater
2. 12 inches below existing or future drainage structures, but not less than the requirements identified in item 1 above
3. 30 inches below the flow line of unlined ditches
4. 24 inches horizontally from the outside of piles
5. 24 inches horizontally from the side of the planned excavation
6. 36 inches below concrete sidewalks, where future widening of the street in the sidewalk area is not anticipated

Within streets or frontage roads that will be turned over to a local agency, new installations may be installed at lesser depths if allowed by the California Public Utilities Commission General Orders or other regulatory sources.

Existing Subsurface Utilities

Existing utilities within the project limits must meet the following minimum clearances, be protected in place, or be relocated in accordance with this chapter:

1. 18 inches below the grading plane
2. 12 inches below disturbed ground
3. 12 inches below the grading plane of drainage structures
4. 18 inches below the flow line of proposed unlined ditches
5. 24 inches horizontally from the outside of proposed piles and foundations, or the side of planned excavations

It is the utility owner's responsibility to provide appropriate input for the protection of existing utilities during construction.

Utility Clearance Standards

The minimum vertical and radial clearances for utilities over highways are defined in California Public Utilities Commission [General Order 95](#). Limited excerpts of the requirements are presented in the [Encroachment Permits Manual](#) Appendix F.

Additional information about clearances to above ground fixed objects is located in [Highway Design Manual](#) Topic 309.

ARTICLE 5 Alternatives to Relocation

During development of projects, various constraints may require deviation from these policies in the form of a utility policy exception. See Section 3 “Exception Requests,” for a summary of the steps to request a utility policy exception.

Protecting During Construction

The project engineer may give the utility owner the option to protect rather than relocate a utility if a utility policy exception is approved to do so. The special provisions in the contract documents must provide for the necessary coordination between the owner and the contractor. The owner must protect the utility prior to, or concurrent with work. The strategy must be completely detailed in the contract documents as to exact approved method of protection, contact information, required notice(s), and any other information necessary to ensure no liability for costs and delays are incurred.

Rearranging During Construction

When utilities can be rearranged during construction, the special provisions in the contract documents must provide for the necessary coordination between the owner and the contractor.

ARTICLE 6 Certify Policy Compliance

The project engineer must certify that both the determination and the presentation of the utilities shown on the project plans conform to policy.

For projects administered by Caltrans, the utility policy certification is a mandatory attachment to the plans, specifications, and estimates (PS&E) submittal and must be signed by a California registered civil engineer.

For projects administered by others, the utility policy certification must be signed by a California registered civil engineer and submitted to both the Caltrans oversight engineer and the Caltrans district utility coordinator.

Utility Policy Certification

All high priority utilities are listed on the utility policy certification in table format. The plan sheet number, owner, utility (type, size, pressure/voltage), location, and notes about any nonstandard features or clearances are required. Other utilities must be listed when nonstandard features or clearances are known. Deviations from the Caltrans encroachment and/or utility policies must be reviewed and approved, and a copy of the approved exception must be attached to the utility policy certification. See [Appendix LL](#) – Utility Policy Certification and Utility Matrix for the template.

ARTICLE 7 Installations by Encroachment Permit

The encroachment permit process for installation of new utilities is documented in the [Encroachment Permits Manual](#) and includes the following:

- The owner must submit plans (paper copy with electronic vector files) to the district permit engineer that show the location and construction details of the proposed utility and work.
- The district permit engineer determines which functional units must review the proposed plan.
- The utility owner must provide the actual utility location data (accurate as-built plans) to the district permit engineer prior to the close of the permit. The location data must be submitted as an electronic file (DGN file format or other Caltrans accepted vector file format) tied to points that are compatible with the State's datum for the area.

The installation of new utilities or relocation of utilities within the project limits requires the following:

- An encroachment permit
- Compliance with installation standards for new utilities including the incorporation of tracer wire or other continuous measure to provide positive subsurface detection for the life of the facility
- Delivery of location data (as-built plan paper copy with electronic vector files) compatible with the State's datum

The district permit engineer is responsible for enforcing the terms and conditions in this article.

ARTICLE 8 Retention of Records

The location of existing, relocated, or new utility installations under permit must be recorded. This utility information must be included in the Caltrans utility database maintained by each district. The type of records needed will be at the discretion of the district or the district utility engineering workgroup. The district must determine the procedure for records maintenance and ensure it provides for ready retrieval and permanent retention.

SECTION 3 Exception Requests

Overview

On February 22, 1988, Executive Order No. 85-11 established the Caltrans Encroachment Committee to review and approve encroachment exceptions. All authorities and responsibilities of the Caltrans Encroachment Committee were transferred to the Chief, Headquarters Division of Design, who delegated it to the Chief, Office of Project Support. The Caltrans Encroachment Committee is now known as the Encroachment Advisory Group. This multi-disciplinary group evaluates requests for encroachment exceptions. The Chief, Headquarters Division of Design, reserves the authority to make the final determination.

The Headquarters Division of Design has delegated authority for approval of certain design decisions to the District Directors. The [design delegation agreements](#) define further delegations within each district and the delegated authority for each of the specific approval responsibilities. The approval responsibilities for some of the policies in this chapter have been delegated to some of the districts.

All encroachment and utility policy exceptions must be approved through the exception process. Approval of exceptions for responsibilities that have not been delegated to the districts will be made by the Chief, Office of Project Support. Approval of exceptions for responsibilities that have been delegated to the districts will be made by the appropriate district representative as outlined in the district's design delegation agreement.

Request for an Encroachment Policy Exception

The applicant must justify the need and character of the encroachment policy exception, as such:

- The evaluation of alternative placement outside the State right-of-way was made and found not viable.
- The encroachment must not adversely affect the safety design, construction, traffic operations, maintenance, or stability of the highway.
- The encroachment must not interfere with or impair the present use or future expansion of the highway.
- The applicant must estimate the cost of implementing alternative alignments or locations to show that alternatives are not viable.
- Disapproval of the use of the right-of-way should not result in loss of productive agricultural land or loss of productivity of agricultural land. In this case, the applicant must provide information on the direct and indirect environmental and economic effects of such loss.
- The facility must be located in such a manner that it can be serviced, maintained, and operated without being accessed from through-traffic roadways or ramps. Special cases may occur where the means of access are unavailable or impractical due to terrain or environmental constraints.

The Caltrans district permit engineer is responsible for processing all encroachment permit applications. When applicants propose nonstandard encroachments or nonstandard encroachment features, a formal request for an encroachment policy exception must be submitted for additional evaluation.

Encroachment Policy Exception Request Submittal

The submittal package for an encroachment policy exception request must include a transmittal memorandum that describes the proposed encroachment and encroachment policy exception, includes justification for the policy exception and a recommendation for the proposal from the district permit engineer, and is signed by the Deputy District Directors responsible for design, right-of-way, maintenance, and operations. The submittal must include the following:

1. Detailed map (title sheet) showing the general alignment of the highway, crossroads, frontage roads, ramps, and major geographic features
2. Detailed plans (typical cross sections, layouts, profiles, and construction details) showing the limits of the highway right-of-way, the highway and highway features, including drainage systems, fencing, access gates, limits of

- slopes, maintenance access points, environmental constraints, or other factors that may affect the scope of work
3. Copies of any easement, joint use agreement, or consent to common use agreement for existing facilities with prior and superior rights (if any) held by the utility owner
 4. Discussion of the future maintenance of utilities, including:
 - alternatives that have been considered for accessing facilities and reasons they are not viable (explain why facilities cannot be accessed from outside the State right-of-way)
 - responsible party for the facility maintenance
 - anticipated frequency of facility maintenance
 - any other necessary requirements due to the methodology, special equipment, or traffic handling plan
 5. Discussion of the benefit to the State if the exception request is granted and the consequence if the exception request is denied
 6. Concurrence from Headquarters Division of Maintenance-Structure Maintenance and Investigations when structures are involved

The submittal must be addressed to the Chief, Headquarters Division of Design, Attention: Office of Project Support or the appropriate district delegate. The Chief, Headquarters Division of Design or district delegate, will approve or deny, in writing, each submittal presented for consideration.

Request for a Utility Policy Exception

The project engineer must execute due diligence in investigating potential conflicts between the proposed construction and the existing utilities, justifying non-compliance to the utility policies.

As-built plans and permit records must be searched and evaluated for potential utility conflicts.

Should potential conflicts become apparent and the work elements are flexible as to placements, mitigation alternatives associated with these flexible installations can be considered through an exception request.

Utility Policy Exception Request Submittal

The submittal package for a utility policy exception request must include a transmittal memorandum that describes the proposed utility and utility policy exception, includes justification for the policy exception and a recommendation for the proposal, and is signed by the Deputy District Director for design. The submittal must include the following:

1. Detailed map (title sheet) showing the general alignment of the highway, crossroads, frontage roads, ramps, and major geographic features
2. Detailed plans (typical cross sections, layouts, profiles, and construction details) showing the limits of the highway right-of-way, the highway and highway features, including environmental constraints or other factors necessary
3. Proposed access to utilities, if appropriate
4. Concurrence from Headquarters Division of Maintenance-Structure Maintenance and Investigations when structures are involved

The submittal must be addressed to the Chief, Headquarters Division of Design, Attention: Office of Project Support or appropriate district delegate. The Chief, Headquarters Division of Design or district delegate, will approve or deny, in writing, each submittal presented for consideration.