

# CHAPTER 17 – Encroachments and Utilities

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## Reference Information

Some of the references found in this chapter have hyperlinks that connect to Caltrans intranet pages which are not displayable to the general public. Until such time that the specific reference becomes available on the internet, the user will have to contact their district liaison, Caltrans project manager, or the appropriate Headquarters division to inquire about the availability of the reference.

## Introduction

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 four sections in this chapter. Section 1 includes relevant definitions and laws. Section 2, “Encroachments,” presents encroachment policies and specific prohibitions to encroachments within State highway right of way. Section 3, “Utility Policies,” addresses requirements for clear and safe right of way through the proper identification, placement, protection, relocation, and abandonment or removal of utilities. Section 4, “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 public investment in the highway system.

## SECTION 1 Definitions and Laws

### Definitions

Abandoned facility – a facility that is rendered unserviceable, in place.

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.

Access opening – area located along the access control line where access is provided by a locked or unlocked gate, or opening in the fence, without changing the access control line recorded on the right of way record maps.

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

Appurtenance – any incidental component of a utility, whether primary or secondary to its function, such as vaults, manways, pedestals, cabinets, vents, and markers.

Caltrans Utility Database – a 3D database that stores large volumes of utility data, including horizontal and vertical location of utility facilities, interfaces with Caltrans design, drafting, and geographic information systems software, and provides a tool for staff to store, update, and retrieve utility data without the need to recreate and manually reproject data or store information in multiple formats.

Conventional Highway – a highway without control of access which may or may not be divided. Grade separations at intersections of access control may be used when justified at spot locations.

Drainage diversion – for the purposes of an encroachment, any discharge of water flow into State right of way that originates outside of State right of way.

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

Encasement – a protective pipe, sleeve or jacket that surrounds a carrier pipe. Conduit for conductors and cables is considered encasement.

Encroachment – temporary use of State right of way for purposes other than transportation. *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 – 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).

Excavation work area – any area where excavation is proposed plus a delineated 50-foot minimum zone past the limits of excavation.

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 – final surface of the completed facility.

Flexible work – work that has flexible placement such that the location of excavation and installation can be field adjusted to avoid the outside edge of the utility by 2 feet or more (see sub-heading “Existing Subsurface Utilities” under Section 3, Article 4 “Clearance and Offset Requirements”). For further clarification, please see sub-heading “Flexible Work” under Section 3, Article 7 “Exemptions to Utility Policy.”

Freeway – a divided highway for through traffic with full control of access and 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 utilities, 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 – includes all, or any part, of the entire width of the right of way of a state highway, regardless if the entire area is used for highway purposes.

Limited excavation – excavation that 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. This includes: concrete or asphalt pavement driveways, sidewalks, curb ramps, curbs, gutters, dike, and bridge approach slabs. This does not include work that changes the grading plane.

Longitudinal utility facility – a utility located parallel to or along the alignment of the highway and within the highway right of way.

Maintenance access point – any location where a utility can be accessed to perform installation or maintenance activities. This includes, but is not limited to, controller cabinets, pull boxes, manway openings, vault openings, utility poles and controller valves (excludes locked gate access, see Section 2, Article 3, “Access Restrictions”).

Positive location – the location of a subsurface utility obtained by the actual exposure and measurement at a specific point to determine the horizontal and vertical location of a utility by following the requirements of Section 3, Article 3 “Locating Requirements Overview.”

Pothole – see test hole.

Project engineer (PE) – 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 Underground Service Alert-Northern California (USA-Northern California) and the Underground Service Alert-Southern California (USA-Southern California).

Roadbed – roadway portion extending from the curb line to curb line or the shoulder line to shoulder line. A divided highway has two roadbeds.

Roadway – portion of the highway within the outside lines of curbs, sidewalks, slopes, ditches, channels, or waterways. A roadway includes the structures and features necessary for safety, protection of facilities, and drainage.

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

Small wireless facilities – see Title 47 Code of Federal Regulations Section 1.6002 under the heading “Laws.”

State right of way – property (land or access rights or both) owned or operated or both, by Caltrans for transportation purposes.

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

Traffic – pedestrians, bicyclists, ridden or herded animals, vehicles, streetcars, and other conveyances, either singularly or together while using any highway for purposes of travel.

Utility Crossing – a utility that uniformly crosses the alignment of the highway and does not have maintenance access points within the State right of way.

Utility engineering workgroup (UEW) – Group of district subject matter experts that produce utility plans, provide utility plan support, and maintain utility related data that would otherwise be 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, used to provide cable service or video service, as defined in Section 5830 of the Public Utilities Code, or used by any mutual organization supplying water or telephone service to its members (*California Streets and Highways Code*, Section 700(b)).

Utility management matrix (UMM) – a data table used to quantify information for each utility, including State-owned utility facilities, on a project. The headings and data entries should reference the plan sheet number, owner, utility (type, size, pressure/voltage, associated pull boxes, maintenance access points, etc.), 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.

## **Laws**

The laws presented in this section represent the current version available on the internet at the time of publishing. It is the user's responsibility to verify the correctness and applicability of specific laws.

### 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.

Title 47 Code of Federal Regulations, Section 1.6002 Definitions Paragraph (l)

Section 1.6002 paragraph (l) states:

Small wireless facilities, consistent with section 1.1312(e)(2), are facilities that meet each of the following conditions:

- (1) The facilities—
  - (i) are mounted on structures 50 feet or less in height including their antennas as defined in section 1.1320(d), or
  - (ii) are mounted on structures no more than 10 percent taller than other adjacent structures, or
  - (iii) do not extend existing structures on which they are located to a height of more than 50 feet or by more than 10 percent, whichever is greater;
- (2) Each antenna associated with the deployment (excluding the associated equipment) is no more than three cubic feet in volume; and

- (3) All antenna equipment associated with the facility (excluding antennas) are cumulatively no more than 28 cubic feet in volume; and
- (4) The facility does not require antenna structure registration under part 17 of this chapter; and
- (5) The facility is not located on Tribal lands, as defined under 36 CFR 800.16(x); and
- (6) The facility does not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in Rule 1.1307(b).

### 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 states:

- (a) The department shall do both of the following:
  - (1) Discontinue further water intensive freeway landscaping and use drought resistant landscaping whenever feasible, taking into

- consideration such factors as erosion control and fire retardant needs.
- (2) Eliminate any dependency on imported water for landscaping as soon as practicable.
- (b) The department shall require the use of recycled water for the irrigation of freeway landscaping when it finds and determines that all of the following conditions exist:
- (1) The recycled water is of adequate quality and is available in adequate quantity for the proposed use.
  - (2) The proposed use of the recycled water is approved by the California regional water quality control board having jurisdiction.
  - (3) There is a direct benefit to the state highway program for the proposed use of recycled water.
  - (4) The recycled water is supplied by a local public agency or water public utility able to contract for delivery of water and the installation, maintenance, and repair of facilities to deliver the water.
  - (5) The installation of the water delivery facilities does not unreasonably increase any hazard to vehicles on the freeway or create unreasonable problems of highway maintenance and repair.
- (c) In cooperation with local public agencies and water public utilities, the department shall permit local public agencies and water public utilities to place transmission lines for recycled water in freeway rights-of-way for use by the local public agencies and water public utilities to transmit recycled water to others, when to do so will promote a beneficial use of recycled water and that transmission does not unreasonably interfere with use of the freeway or unreasonably increase any hazard to vehicles on the freeway, subject to paragraphs (1) to (5), inclusive, of subdivision (b) and the following additional requirements:
- (1) The local public agency or water public utility holds the department harmless for any liability caused by a disruption of service to other users of the recycled water and will defend the department in any resulting legal action and pay any damages awarded as a result of that disruption.
  - (2) The department, in cooperation with the local public agency or water public utility, may temporarily interrupt service in order to add to or modify its facilities without liability, as specified in paragraph (1).
  - (3) The local public agency or water public utility obtains and furnishes the department an agreement by all other users of recycled water from the transmission system holding the department harmless for any disruption in service.

- (4) The local public agency or water public utility has furnished the department a list of other recycled water users and information on any backup system or other source of water available for use in case of a service disruption.
  - (5) The local public agency is responsible for the initial cost or any relocation cost of the recycled water transmission lines for service to other users in the right-of-way and waives its rights to require the department to pay the relocation costs pursuant to Sections 702 and 704.
  - (6) The local public agency or water public utility maintains the water transmission system subject to reasonable access for maintenance purposes to be negotiated between the department and the local public agency or water public utility.
  - (7) The department has first priority with respect to the recycled water supply contracted for by the department.
  - (8) The local public agency or water public utility installs an automatic control system which will allow the water transmission system to be shut down in case of an emergency. The department shall have access to all parts of the transmission system for purposes of the agreement.
  - (9) All transmission lines are placed underground and as close as possible to the freeway right-of-way boundary or at other locations authorized by the department.
  - (10) The plans and specifications for the recycled water transmission facilities have been approved by the department prior to construction.
- (e) As used in this section:
- (1) “Local public agency” means any local public agency which transmits or supplies recycled water to others.
  - (2) “Water public utility” means any privately owned water corporation which is subject to the jurisdiction and control of the Public Utilities Commission.

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 250

Section 250 states:

It is hereby declared to be essential to the future development of the State of California to establish and construct a statewide system of freeways and expressways and connections thereto without regard to present jurisdiction over the highways, roads, and streets that might be included. It is the intent, further, that the California Freeway and Expressway System be completed with provision for control of access to the extent necessary to preserve the value and utility of the facilities to be constructed.

California Streets and Highways Code, Section 254

Section 254 states:

As specific locations are determined by the commission for portions of state highways included in the California freeway and expressway system, the commission shall designate the particular portion as a part of the California freeway and expressway system and the planning and design of such highways shall include provision for such access control as the department and the commission determine essential to protect the investment of any improvements made and to permit the ultimate development of a full freeway or an expressway when traffic and other conditions require. Such declaration by the commission shall have the effect of declaring the particular portion affected a freeway within the meaning of Section 100.2.

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.

(C) Beginning July 1, 2020, an excavator may use power-operated or boring equipment, as determined by the board, prior to determining the exact location of subsurface installations. The board shall adopt regulations to implement this paragraph on or before July 1, 2020.

(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.

## **SECTION 2 Encroachments**

### **ARTICLE 1 General**

The California Legislature authorizes Caltrans to manage the safety and operational control of the State Highway System (SHS). Caltrans allows encroachments in the State highway right of way in accordance with federal and State regulations. Encroachment permits allow use of the State right of way under Caltrans jurisdiction for purposes other than transportation by a public utility, public entity, or private party. These permits do not grant any property rights and can be revoked by Caltrans at any time; therefore, encroachments are considered temporary. Encroachments include any access opening or other use of the State right of way including grading or removing materials by public agencies, developers, or private individuals. Those that desire to occupy State 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 engineer (PE) producing plans for highway improvements should identify and plot all facilities (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 State right of way. The district utility engineering workgroup (UEW) or utility engineer may assume the responsibilities of the PE related to utilities. See Section 3 Article 7 for exemptions to utility policy.

The project development team (PDT) or utility owner, depending on the project sponsor, must submit CADD files of the location data for any new installation (including relocation), and existing utilities within the project limits for inclusion in the Caltrans Utility Database (CUD).

Caltrans authorizes encroachments in the State right of way through the encroachment permit process. Caltrans requires any proposed encroachments, as well as any other access to the SHS, 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. A permit is issued to the permittee to provide a notice and record of work. For information on applying for and obtaining an encroachment permit, see the [Encroachment Permits Manual](#).

## **ARTICLE 2 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* as the basis for the encroachment policies found in this chapter.

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

### **Encroachments with Prior Rights**

Utility owners with established prior rights are required to adhere to the policies in this chapter for any additions or modifications to existing facilities. See Chapter 13 of the [Right of Way Manual](#) for additional information.

### **Encroachments Prohibited on All State Highways**

The encroachments listed in this sub-article are prohibited on all State highways, regardless of whether they are new, relocated, or existing.

#### Encroachments Prohibited by State Constitution

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. Caltrans has no authority to allow the use of highway right of way by a private party without compensation or benefits. Also, Caltrans has no authority to allow use of highway right of way that would be a betterment to adjacent parcels or entity or for a proposed development to be viable without equal or comparable benefit or compensation. This policy applies to all freeways, expressways, conventional highways, rest stops, vista points, maintenance facilities, and park and ride lots.

### Encroachments Prohibited Under any Circumstance:

The following prohibitions will not be considered under any circumstance:

- Existing or proposed high priority utilities in any traffic tunnel
- Exceptions to the requirements for placement, eligibility, or submittal for transportation art, gateway monuments, historical monuments, markers, or placards (see [Chapter 29](#) – Landscape Architecture)
- Removal of 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, as this is considered a gift of public funds (see the heading “Earthwork” under “Non-Utility Encroachments” in this article for more information)

### Encroachments Prohibited without an Approved Policy Exception

During development of projects, various constraints may require deviation from these policies in the form of an encroachment policy exception. See Section 4 “Exception Requests,” for a summary of the steps to request an encroachment policy exception.

The following kinds of encroachments may be permitted as an encroachment policy exception only when the encroachment permit applicant or PE 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
- New or relocated underground utility crossings that are not encased, except for gravity flow sewer lines, crossing the State right of way or crossing under ramps, roads, and other paved areas within the State right of way
- Changes in facilities that alter the conditions under which the original encroachment was approved
- Longitudinal utility facilities within the median area of any State highway
- New or relocated maintenance access point within the median area of any State highway
- Existing or proposed non-high priority utility in a traffic tunnel
- Drainage diversions
- Groundwater disposals
- Privately owned longitudinal utility facilities not for public use

## **Encroachments within the Right of Way on an Access Controlled Highway**

### Utility Encroachments Prohibited within the Right of Way on an Access Controlled Highway

#### General

In addition to encroachments prohibited on all State highways, the encroachments listed in this heading are prohibited within State right of way on access controlled highways. An access controlled highway is any route listed in the California Streets and Highways Code, Division 1, Chapter 2, Article 2, “The California Freeway and Expressway System.” The prohibitions may be permitted as encroachment policy exceptions if the encroachment can be justified and appropriate mitigation measures are used as discussed in Section 4 “Exception Requests.” An encroachment policy exception is requested during PS&E, once sufficient design information is available to assess utility impacts.

#### Existing Longitudinal Utilities

Existing longitudinal utilities that physically conflict with a project or do not comply with Section 3 Article 4, Clearance and Offset Requirements must be relocated to outside of the access controlled State right of way unless an encroachment policy exception to remain in the access controlled right of way is approved. Requests for encroachment policy exceptions must include a project-specific analysis that shows the existing longitudinal utility does not adversely affect the safety, design, construction, future widening, operation, maintenance, or stability of the highway and meets 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 controlled right of way is not viable.

For existing wired broadband installations, see the heading “Telecommunications” in this article.

### Proposed Longitudinal Utilities

New utilities are not allowed to be installed longitudinally on any highway identified as part of the freeway and expressway system. For new wired broadband installations, see the heading “Telecommunications” in this article.

### Maintenance Access Points

New maintenance access points as defined in Section 1, Definitions, associated with utility facilities not used by the State are not allowed within State right of way. For existing maintenance access points, the policy stated in “Existing Longitudinal Utilities” applies. Existing and new access points used exclusively by the State for transportation purposes are allowed within State right of way. A new above ground service drop for State use inside State right of way requires an encroachment policy exception.

### Utilities in Traffic Tunnels

New or existing utilities are not allowed in traffic tunnels. High priority utilities are not allowed in any traffic tunnel under any circumstances; an encroachment policy exception will not be considered.

### Encroachments Allowed within the Right of Way on an Access Controlled Highway

The following encroachments may be permitted by the district permit engineer on access controlled highways, provided all the requirements below are met. Proposed or existing encroachments that do not meet the specified requirements must be processed as encroachment policy exception requests.

### Telecommunications

Telecommunications include telephone and wired broadband services. New and existing longitudinal telecommunication installations are allowed within access controlled right of way provided installations comply with the provisions of the [Encroachment Permits Manual](#). New and existing telecommunication installations on structures must also meet the requirements listed under the heading “Utilities on Structures,” and the utility must add to the total service capacity provided by all companies. New and existing crossing telecommunication installations are allowed within access controlled right of way provided the installations meet the requirements in the heading “Utility

Crossings.” Associated maintenance access point(s) are prohibited within access controlled right of way under the preceding heading “Utility Encroachments Prohibited within the Right of Way on an Access Controlled Highway.”

### Utilities on Structures

Utility encroachments on structures should be avoided where feasible and alternatives to locate utilities elsewhere must be analyzed. For new or existing wired broadband installations, see the heading “Telecommunications.” All utility encroachments on new structures must be reviewed and concurred in by the Division of Engineering Services (DES). High priority utilities and gas lines of any pressure proposed to be placed on existing structures must also be reviewed and concurred in by DES. All other utilities not aforementioned proposed to be placed on existing structures must be reviewed and concurred in by Structures Maintenance and Investigations (SM&I). All utility encroachments on structures must be supported by a project specific analysis which shows the utility on the structure will not adversely affect the safety, design, construction, future widening, operation, maintenance, or stability of the structure and surrounding highway and meet the following conditions:

- The proposed utility loads must not downgrade the ability of the structure to safely accommodate legal loads and/or transportation permits.
- Shutoff valves for pressurized facilities must be installed outside State right of way, where feasible.
- Utility maintenance is required no more than twice a year.
- The utility is under the California Public Utilities Commission jurisdiction or is publicly owned and provides a dedicated service to the public.

For information about structure foundation utility clearance see Section 3, Article 4 “Clearance and Offset Requirements.”

Installations of new high priority utilities and any gas lines, regardless of size and pressure, are rarely allowed on structures and require an encroachment policy exception. If an existing high priority or gas utility is reconstructed, relocated, or modified, it will be treated as a new installation and an approved encroachment exception is required for the utility to remain on the structure. A request for an encroachment policy exception will be evaluated for approval only if DES or SM&I concurs with the proposal. See Section 4 “Exception Requests” for more information.



High priority utilities and pressurized lines must be encased throughout the length of the structure.

### Non-motorized Paths

Because a non-motorized user path for public use is a transportation facility, it is not subject to encroachment policy. A policy exception is required for proposed access control breaches for non-motorized paths. See “Non-utility Encroachments within Right of Way on an Access Controlled Highway.”

### Temporary Wells

Temporary wells for sampling ground water may be installed within State right of way to facilitate collection, documentation, and mitigation of contamination. Temporary wells must be located such that they do not adversely affect the safety, design, construction, operation, maintenance, or stability of the highway. Temporary wells must not be located within the median. 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 reports. Temporary wells may require service, maintenance, and operation by the applicant. Temporary wells must be located such that the facility can be accessed by entering from a local road or private property. The intent of this requirement is for the service vehicle to park outside of State right of way.

The requirements for temporary wells apply to other belowground devices to gather scientific data such as seismic monitoring devices. All data gathered must be shared with Caltrans.

### Utility Crossings

Utility crossings must be located so there are no maintenance access point(s), fixed objects, or obstructions within State right of way and can be serviced, maintained, and operated from outside State right of way. New and relocated underground utilities that cross State right of way must be encased (except for gravity flow sewer) and comply with the requirements in Section 3 “Utility Policies.” A new or relocated underground utility crossing that cannot be encased requires an encroachment policy exception.

## **Encroachments Allowed 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 sub-article “Encroachments Prohibited on All State Highways.” The utilities listed under sub-article “Exemptions to Utility Policy” in Section 3, Article 7 are allowed within conventional highway right of way with an approved encroachment permit.

### **Non-Utility Encroachments**

New and relocated non-utility encroachments require a policy exception and are considered on a case-by-case basis for any occupation or use. This includes requests for:

- Appurtenances associated with rail systems (cross arms, controller cabinets, collision walls, etcetera)
- Fixed objects
- Earthwork
- Access control openings not associated with a utility such as a non-motorized user path for public use or gateway monument maintenance access
- Non-Caltrans data collectors
- Energy generation components
- Historical monuments, markers, or placards
- Gateway monuments
- Transportation art fixed objects
- Non-Caltrans owned sound attenuation devices
- Non-Caltrans radio-relay system components

An access control opening not associated with a utility is processed as a locked gate access exception, see Section 2, Article 3 “Access Restrictions.”

The determination for placement, eligibility, and submittal of proposals for non-Caltrans data collectors, law enforcement cameras, energy generation

components, sound attenuation devices, and radio-relay system components will be made on a case-by-case basis.

When required, a design standard decision document must be approved for a discretionary fixed object before a non-utility encroachment policy exception can be approved. See [Chapter 21](#), Design Standard Decisions and Topic 309, Clearances of the [Highway Design Manual](#) for more information.

Placement, eligibility, and submittal requirements for proposals for transportation art, gateway monuments, historical monuments, markers, or placards are approved by Landscape Architecture; see [Chapter 29](#) – Landscape Architecture.

### 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 more of the following:

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

### Right of Way Use Agreements (Formerly Air Space Leases)

Right of way use agreements are subject to the provisions of the [Encroachment Permits Manual](#) and the [Right of Way Manual](#). Requests for right of way use agreements are independently reviewed and approved by the district airspace review committee. For access opening requirements for right of way use agreements, see Section 2, Article 3 “Access Restrictions.”

Proposals for installation of infrastructure to generate sustainable energy sources, such as solar or wind power, as well as wireless communications facilities, except for small wireless facilities, are reviewed and processed as right of way use agreements. Small wireless facilities installations are reviewed by the district Encroachment Permits office.

## **ARTICLE 3      Access Restrictions**

For access controlled right of way, access openings are restricted. See [Highway Design Manual](#) Topic 104 – Control of Access. During development of projects, various constraints may require deviation from these policies in the form of an encroachment policy exception. See Section 4 “Exception Requests” for a summary of the steps to request an encroachment policy exception. For Federal Highway Administration (FHWA) requirements, see Section 2, Article 4 “Federal Highway Administration Approvals.”

### **Locked Gate Access Opening for Utility Maintenance on non-Interstate Facilities**

The District Director may approve a locked gate access opening for utility maintenance, when the utility was installed by permit, for non-Interstate highway facilities. The Caltrans district permit engineer must issue an encroachment permit for maintenance access to the facility owner who has prior rights and lawfully maintains an encroachment for which an easement, joint use agreement, consent to common use agreement, or other recorded property right exists; an encroachment policy exception is not required.

A locked gate access on a non-Interstate highway for wireless telecommunication that is not a small wireless facility must be approved by the district airspace review committee which has been delegated the responsibility for review and approval.

Access openings for use by Caltrans personnel on all non-Interstate highway facilities requires the approval of the District Director and is facilitated through the project delivery process.

See Section 2, Article 4, Federal Highway Administration (FHWA) Approvals, for approval authority of locked gate access on Interstate facilities.

### **Nonmotorized Facility Opening**

An opening in State right of way access control to connect a nonmotorized facility (such as a pedestrian, bicycle [including e-bikes and e-scooters, where allowed], and equestrian path) from adjacent property requires an encroachment policy exception.

## **Emergency Access from Freeways and Expressways**

Caltrans prohibits planned emergency access from adjacent right of way; an encroachment policy exception will not be considered. 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 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.

## **ARTICLE 4 Federal Highway Administration (FHWA) Approvals**

### **Encroachments on Interstate Facilities**

The Federal Highway Administration (FHWA) must approve the following encroachments on Interstate facilities:

- Non-utility encroachment
- New, relocated, or existing utility encroachment associated with a permit project that adds new utility infrastructure requiring access from the mainline or ramps (for example, new pole, cabinet, or manhole)
- New access gate
- Addition of a non-Caltrans user to an existing Caltrans access gate
- Temporary access opening or gate for construction of a project

FHWA approval of the following encroachments on Interstate facilities are delegated to Caltrans:

- New, relocated, or existing utility encroachment associated with a capital project
- New, relocated, or existing utility encroachment associated with a permit project that is on a grade-separated non-Interstate facility (that is, on an Interstate undercrossing or overcrossing)

**Figure 17-1 Approval of Encroachments on Interstate Facilities**

Encroachment Type	Approved by
Non-utility	FHWA
New, relocated, and existing utility encroachment associated with a capital project	Caltrans
New, relocated, or existing utility encroachment associated with a permit project that is on a grade-separated non-Interstate facility (that is, on an Interstate undercrossing or overcrossing)	Caltrans
New, relocated, or existing utility encroachment associated with a permit project that adds new utility infrastructure requiring access from the mainline or ramps (for example, new pole, cabinet, or manhole)	FHWA
New access gate	FHWA
Addition of a non-Caltrans user to an existing Caltrans access gate	FHWA
Temporary access opening or gate for construction of a project	FHWA

**Encroachments on Non-Interstate Facilities**

Approval authority for encroachments on non-Interstate facilities is delegated to Caltrans.

## SECTION 3 Utility Policies

### ARTICLE 1 General

Caltrans is responsible for providing a safe transportation environment for highway workers, the traveling public, and others. An important element of a safe environment is to provide clear right of way through the proper placement, protection, relocation, abandonment, or removal of utilities that may introduce hazards. Safety risks can occur if a utility is not properly shown on the plans and is damaged, excavated, cut, or penetrated during construction activities.

Thorough consideration of utility locations and relocations for all highway projects should begin in the Project Initiation Document phase and continue through the Plans, Specifications, and Estimate (PS&E) phase of a project, regardless of the project sponsor or funding source. It is the goal of Caltrans to identify all utilities within State right of way and to determine potential conflicts with proposed highway improvements. The location of identified utilities for a project should be recorded in the Caltrans Utility Database for use on future projects. The policies described herein allow projects to be developed without jeopardizing safety or negatively affecting project costs and schedules.

### ARTICLE 2 Policies

All utilities, including State owned facilities, must be shown on the contract plans for the entire project limits and:

- High priority utilities must include positive location information. See minimum spacing requirements in Section 3, Article 3 “Locating Requirements Overview.”

- All other utilities must be depicted to show their approximate location

The terms positive location, approximate location, excavation, limited excavation, Caltrans Utility Database (CUD), excavation work area (EWA) and utility management matrix (UMM) are used in the context as defined in Section 1, “Definitions and Laws.”

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

Projects must have an approved utility policy exception if any locating and depicting requirements for utilities will not comply with these policies. Utility policy exceptions are requested during the PS&E phase, but conceptual acceptance by the approval authority should begin with project initiation. See Section 4 “Exception Requests,” for a summary of the steps to request a utility policy exception.

The decision to relocate or protect utilities in place must be made by the PE after consultation with the UEW and the PDT. The UMM must be used to record and track utilities within the project limits. In addition to utility location and type, the UMM will record the planned disposition of a utility (that is, relocate by others, remain in place, protect in place, etcetera). Ultimately, information from the UMM will be entered in the CUD. See [Appendix LL](#) for the “Utility Policy Certification” and “Utility Management Matrix” templates. Regardless of the project sponsor, the district UEW (as applicable) is the recipient of the UMM. A copy of the UMM should be provided to the district right of way utility coordinator.

## **ARTICLE 3      Locating Requirements Overview**

The PE, with input from the UEW, 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 existing and proposed facilities and construction activities. Positive location or other utility locating measures should occur early in project development. Utility location data is used to:

- verify ownership.
- determine conflicts.
- develop relocation plans.
- develop contract plans.
- populate the UMM.
- populate the CUD.

The American Society of Civil Engineers (ASCE) publishes ASCE Standard CII/ASCE 38-02, *Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data*. This publication presents a series of options and information about locating utilities and plan development but does not dictate a specific course of action. It provides guidelines for 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 avoid potential damage to the utility. 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 aboveground utility features, 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 and utilities potentially in conflict with proposed work on contract plans. Approximate location associated with utility quality levels B, C, and D is mandated for depicting all utilities on contract plans, except as noted above.

The quality level designations must not be included on the plans, only the test hole data must be included on the plans as required by the [Plans Preparation Manual](#). Quality levels (A, B, C, and D) should be noted in the UMM during the project development process as utility information is collected and verified.

Location determinations for test holes must be performed at intervals sufficient to establish the location of the utility alignment using a minimum of 2 locations. The spacing of test holes for a high priority utility line must not exceed 100 feet for longitudinal utilities and utility crossings, except when a:

- longitudinal utility crosses an obstruction, such as a water body or large roadway fill.
- utility crosses a highway; location determinations must be at each outside edge of the highway roadbed and 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 PE is responsible for determining the method(s) to locate and identify each utility or utility conflict and to document the location on the project plans. Often a combination of test holes along with other location technologies provide ample information to allow the project to be designed and constructed expeditiously. Some examples associated with different utility quality levels are described below.

#### 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. On Caltrans-administered projects, the PE must determine the locations and number of test holes necessary for a utility quality level A investigation.

#### Electronic Detection

For positive location associated with utility quality level A, it is acceptable to use electronic detection in conjunction with test holes to determine the horizontal and vertical location of a utility. Test holes verify utility identification and accuracy of electronic readings. Electronic detection is particularly effective for determining that the utility is outside of the EWA or well below a prescribed depth. Any use of electronic detection shall be documented as quality level B in the UMM.

### Field Visit

After reviewing available utility maps, as-builts, and project plans, the PE and UEW (if applicable) should perform a field visit to confirm what was shown on the maps, and to visually inspect for additional utility vaults, valves, meter boxes, manway covers, clean-outs, etcetera, that may be associated with adjacent utility facilities. The quality level of information obtained from the utility company is typically utility quality level D. Once the location of utility features is identified in the field and their location noted relative to other known features, the location of the found utility is equivalent to utility quality level C.

### As-Built Plans

As-built plans for utilities may comply with the requirements for positive location if a utility owner verifies the location of previously exposed and surveyed utilities. If this is not available, the PE must verify the utility information with test holes or other acceptable methods at critical locations. Information obtained from as-built plans are equivalent to utility quality level D. If utility quality level A information is present on the as-built plans, and the finished grade has not changed, that information can be used as utility quality level A information for the current project.

### New Technologies

The PE 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 Verification**

For projects designed by Caltrans, a request for utility owners to verify their utilities must be made by the district right of way utility coordinator at the request of the PE or UEW. The limits of the utility verification are typically the same as the project limits. The utility owners will be requested to verify utility locations or provide utility maps that show the approximate location(s) of their facilities. The PE will use this information to determine potential utility conflicts with the proposed work. District right of way utility coordinator roles and responsibilities are detailed in [Right of Way Manual](#) Chapter 13 – Utility Relocations.

## **Service Contracts for Locating Utilities**

For projects developed by Caltrans, the district right of way utility coordinator may administer a service contract to perform utility location services associated with project delivery.

## **Surveying**

The district survey unit or a California licensed land surveyor must record the horizontal location data and the elevation of all test holes that are within the project limits using 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, it 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.

## **Installation Standards for New and Relocated Subsurface Utilities**

The installation of utilities (excluding State-owned electrical and State-owned telecommunication facilities) within existing or ultimate State right of way must meet the following minimum cover and clearances along the alignment of the facility:

- 42 inches below the finished grade or 18 inches below the grading plane of a currently planned project, whichever distance is greater
- 12 inches below existing or future drainage structures, but not less than the requirements identified in the bullet above
- 30 inches below the flow line of unlined ditches
- 24 inches horizontally from the side of the planned excavation
- 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 must be protected in place or relocated in accordance with this chapter and must meet the following minimum clearances:

- 18 inches below the grading plane
- 12 inches below disturbed ground
- 12 inches below the grading plane of drainage structures
- 18 inches below the flow line of proposed unlined ditches
- 24 inches horizontally from the side of planned excavations

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

### **Structure Foundation Utility Clearance**

To protect the future accessibility to structure foundations and the geotechnical zone of influence under foundations, the following minimum horizontal clearances are required between the edge of an existing structure foundation and a proposed or relocated utility or a new structure foundation over or next to an existing utility:

- Fifteen feet for pressurized water or wastewater utilities, electric utilities 600 or more volts, volatile fluid, and gas utilities.
- Five feet for all other utilities (e.g., communication lines, electric utilities under 600 volts, etcetera).

Utilities that do not meet structure foundation clearance requirements must be reviewed and concurred in by DES for new structures or SM&I for existing structures before a request for a utility policy exception will be evaluated.

### **Overhead Utility Clearance Standards**

The minimum vertical and radial clearances for electrical 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 fixed objects is located in [Highway Design Manual](#) Topic 309 – Clearances.

Consideration should be given to construction activity clearance requirements.

## **ARTICLE 5 Encasement and Protection Requirements**

### **Encasement**

New or relocated underground utility crossings must be encased so that future repair or replacement does not require trench excavation in the roadway and to protect the roadway and structures from damage caused by leaked fluids or gases. See Section 2, Article 2, “Encroachments Prohibited on All State Highways.” When encasement is not possible, other mitigation measures are required. For mechanical protection mitigation requirements see, “Mitigation Measures for Encroachment and Utility Policy Exceptions” in Section 4.

### **Miscellaneous Protection Requirements**

Nonmetallic underground pipe must be installed with a trace wire, metallic tape, or other means for locating and marking the utility.

Open trench installation of underground utility facilities must include warning tape or warning mats complying with the American Public Works Association (APWA) Uniform Color Code for identifying the type of underground utility. Where mechanical protection is installed, warning tape must be placed above the mechanical protection and below the roadbed subgrade.

## **ARTICLE 6 Alternatives to Relocation**

There are several options available to the PE to manage a utility that is allowed to remain as an exception to policy. A few utility management options are noted below. However, the information presented is not intended to be a comprehensive list. If the district right of way utility coordinator determines that the State is liable of any portion of utility relocation cost, a utility agreement with the utility owner is needed.

## **Protecting During Construction**

If the PDT and the PE determine protection in place is the best solution, the district right of way utility coordinator confers with the utility owner to develop the most robust protection strategy. The owner must protect the utility before or during construction activity. The contract special provisions must;

- describe required methods of protection.
- provide for the necessary coordination between the owner and the contractor including utility company contact information and required notices.
- include information necessary to ensure constructability and avoid liability for costs and delays.

## **Rearranging During Construction**

When existing utilities will be rearranged during construction, the district right of way utility coordinator is the liaison to utility owners. The contract special provisions must provide for necessary coordination between the utility owners and the contractor.

# **ARTICLE 7 Exemptions to Utility Policy**

Allowable exemptions identified in this article meet the intent of the utility policy requirements and do not require a policy exception (see Section 4 “Exception Requests”). The PE, in consultation with the UEW, must document compliance with allowable exemptions in the project history file.

## **Exempt Utilities**

The following utilities are exempt from the requirements for location and depiction on the project plans, unless depiction of the utility is needed for interconnectivity with the proposed work:

- Natural gas service pipelines less than 2 inches in diameter that have normal operating pressures of 60 psig or less and not on a structure
- Service connections (laterals) for water, sewer, electric and telecommunication including fiber optic and cable service

## **Exempt Work**

The following work is exempt from the requirements to include positive location information for existing high priority utilities and delineation of approximate location for existing subsurface utility facilities on the project plans:

- Work with no excavation or limited excavation, as defined in Section 1, “Definitions”
- Roadside signs and construction area signs
- Highway planting where the exact locations for planting, irrigation lines, controllers, or other appurtenances are not shown (does not apply to hardscape, including planter boxes, retaining walls, and other infrastructure)
- Fences

### Exempt Work on Project Plans

If all work on a project plan sheet is exempt, inclusion of positive location information for existing high priority utilities and delineation of approximate location for existing subsurface utility facilities on the sheet or a corresponding utility plan sheet is optional. Delineation of approximate location of existing aboveground and overhead utilities is optional for highway maintenance preservation projects if work is limited to existing highway features and no more than 0.15 foot of existing pavement is removed – and is required for all other projects. For project plans that do not include layout sheets or utility sheets, the locations of aboveground and overhead utilities may be indicated on typical cross section, construction detail, landscaping, or other suitable plan sheets. Do not include utility information – or any work – on the title sheet.

If subsurface utilities are not shown on a project plan sheet with exempt work only, or if approximate location of existing subsurface utility facilities (without positive location information) is delineated for a project plan sheet with exempt work only (delineation may be on a corresponding utility plan sheet), include the appropriate note on the plan as required by the [Plans Preparation Manual](#).

## **Flexible Work**

The PE determines and documents if any work is flexible as defined in Section 1, “Definitions,” considering the type of work, constructability, and existing conditions at the specific location including existing utilities (crossing and longitudinal) and other subsurface, aboveground, and overhead features.



Construction means and methods (for example, directional boring) do not determine that the location of construction can be adjusted in the field to avoid utility conflicts.

Examples of flexible work include:

- An individual post for guardrail or three beam barrier (excluding end treatments, transition railings and anchor blocks)
- Foundations for lighting and poles for traffic operation features outside of the intersection

Examples of work not considered flexible include:

- Foundations for traffic signals and overhead sign structures
- Foundations for pedestrian push button assemblies (ADA requirements restrict flexibility)

### Flexible Work on Project Plans

If all work on a project plan sheet is flexible, inclusion of positive location information for existing high priority utilities on the sheet or a corresponding utility plan sheet is optional, but delineation of approximate location for all existing utility facilities on the sheet or a corresponding utility plan sheet is required.

If positive location information for existing high priority utilities is not shown for a project plan sheet with flexible work only, include the appropriate note on the plan as required by the [Plans Preparation Manual](#).

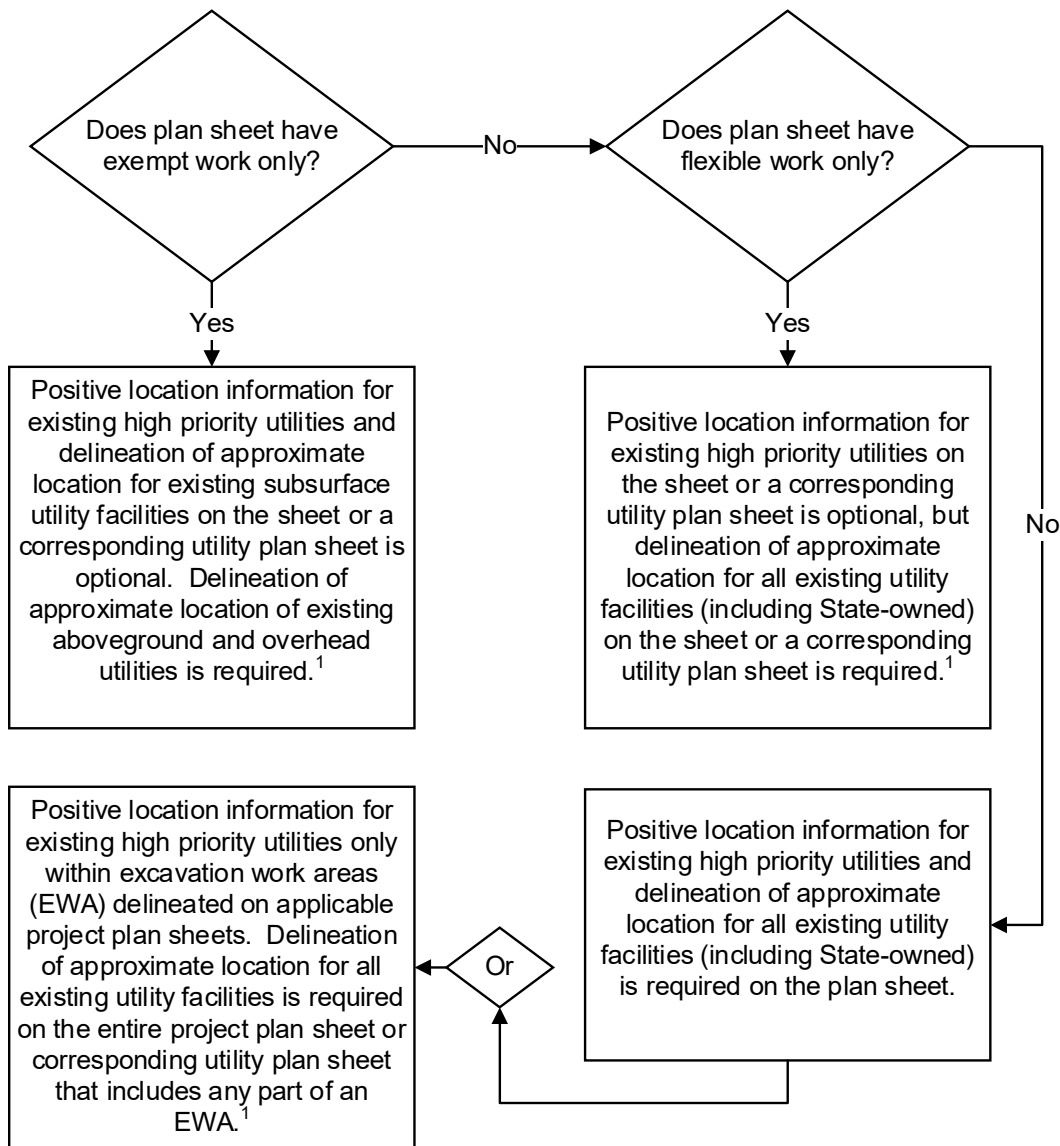
### **Excavation Work Areas**

The PE may elect to include positive location information for existing high priority utilities only within EWA delineated on applicable project plan sheets (see definition of EWA in Section 1 “Definitions”). Delineation of approximate location for all existing utility facilities is required on the entire project plan sheet or corresponding utility plan sheet that includes any part of an EWA.

If positive location information for existing high priority utilities is shown only for the EWA (information may be on a corresponding utility plan sheet), include the appropriate note on the plan with the EWA as required by the [Plans Preparation Manual](#).

Figure 17-2 illustrates how to determine if a plan sheet may be exempt from the requirements to include positive location information for existing high priority utilities and delineation of approximate location for all existing utility facilities.

**FIGURE 17-2 Exemptions for Delineation of Existing Utilities and Positive Location Information**



<sup>1</sup> Include the appropriate note on the plan sheet as required by the [Plans Preparation Manual](#).

## **Utility Locating for Roadside and Construction Area Signs**

If exact locations of roadside and construction area signs 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 eliminated when an appropriate regional notification center has performed field mark-out 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. This also applies to Caltrans personnel performing field mark-out of State facilities. A policy exception is not required.

## **ARTICLE 8      Certify Policy Compliance**

The PE or UEW 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 PS&E submittal and must be signed by a California registered civil engineer.

For projects administered by others (oversight projects), the utility policy certification must be signed by a California registered civil engineer and submitted to both the Caltrans oversight engineer and the UEW through the district right of way utility coordinator.

### **Utility Policy Certification**

All identified high priority utilities must be listed on the utility policy certification in tabular 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. A copy of any approved policy exception must be attached to the utility policy certification. See [Appendix LL](#) – Utility Policy Certification and Utility Management Matrix for the template.

## **ARTICLE 9      Installations by Encroachment Permit**

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

- The owner must submit plans (paper copy with electronic CADD 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 as-built utility location data to the district permit engineer before the close of the permit. The location data must be submitted as an electronic file (DGN file format or other Caltrans accepted CADD 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 State right of way requires:

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

The district permit engineer is responsible for enforcing the terms and conditions in this article and for providing the as-built information to the PE or UEW as appropriate to be incorporated in the Caltrans Utility Database.

## **ARTICLE 10    Utility Removal or Abandonment**

When a utility facility is no longer needed due to relocation or is taken out of service, it should be removed from within State right of way to the maximum extent feasible. If complete removal of a utility is not practical, any portion that can be removed without adverse impacts to the infrastructure or traffic should be removed and the remaining portion abandoned.

Removal or abandonment should be considered for utilities whose failures could cause negative impacts to Caltrans infrastructure or traffic operations.

The method of abandonment should consider the size, type, and location of the utility. See Section 602.3, “Encroachments No Longer in Use,” of the [Encroachment Permits Manual](#) for information about methods of abandonment.

The utility facility owner must maintain ownership and records for abandoned lines and include this information in utility verification requests.

## **ARTICLE 11    Retention of Records**

The location of existing, relocated, abandoned, or new utility installations must be recorded in the UMM and added to the Caltrans Utility Database. The district or UEW must determine what additional records need to be kept, develop procedures for records maintenance, and ensure as-built data is in the Caltrans Utility Database for permanent retention and ready retrieval.

## **SECTION 4 Exception Requests**

### **ARTICLE 1 General**

On February 22, 1988, Executive Order No. 85-11 established the Caltrans Encroachment Committee to review and approve encroachment policy 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 (EAG). This multi-disciplinary group evaluates requests for encroachment policy 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. District-specific delegated responsibilities may be determined from the delegation agreements located at the [Design Stewardship Delegation](#) website. 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. Requests for exceptions to encroachment policy and utility policy can be combined in one submittal. Approval of policy exceptions for responsibilities that have not been delegated to the districts will be made by the Chief, Office of Project Support. Approval of policy exceptions for responsibilities that have been delegated to the districts will be made by the appropriate district representative as outlined in the district design delegation agreement.

See Section 2, Article 4 “Federal Highway Administration Approvals” for policy exceptions that require FHWA approval.

#### **Mitigation Measures for Encroachment & Utility Policy Exceptions**

A request for an encroachment or utility policy exception must include a description of the mitigation measures to be implemented as part of the policy exception.

Depending on project specific factors, appropriate mitigation measures may include, but are not limited to, increased depth of cover and encasement. See the Headquarters Division of Design [Encroachments and Utilities](#) website for further mitigation measures and information.

### Longitudinal Utilities

When new or relocated longitudinal utilities can be justified within access control right of way, the justification must satisfy two minimum criteria:

1. The utility will be installed as close to the right of way line as practicable.
2. Appropriate mitigation measures must be implemented to protect against potential leakage of fluid or gases from the pipeline and to prevent damage to the pipeline from excavation.

### **Request for an Encroachment Policy Exception**

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.

The applicant must justify the need for a policy exception by supporting the following items.

- The encroachment will not violate any requirements in the sub-article “Encroachments Prohibited on All State Highways” in Section 2, Article 2
- Placement of the facility outside of State right of way is not viable.
- The encroachment will not adversely affect the safety design, construction, operation, maintenance, or stability of the highway.
- The encroachment will not interfere with or impair the present use or future expansion of the highway.
- The cost estimates for implementing alternative alignments or locations show that the alternatives are not viable.
- Disapproval of the use of the right of way will 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 such 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. In addition, the request must include a description of the mitigation measures to be implemented as part of the installation.

### **Encroachment Policy Exception Request Submittal**

The submittal package for an encroachment policy exception request must include the following:

- 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 or district design, as appropriate.
  - is signed by the Deputy District Directors responsible for design, right of way, maintenance, and operations.
- Detailed map (title sheet) showing the general alignment of the highway, crossroads, frontage roads, ramps, and major geographic features
- Detailed plans (typical cross sections, layouts, profiles, and construction details) showing the limits of the State 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
- 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, if applicable
- Discussion of future maintenance of utilities, including:
  - Alternatives that have been considered for accessing facilities from outside of the State right of way and reasons they are not viable
  - Responsible party for facility maintenance
  - Anticipated frequency of facility maintenance
  - Any other necessary requirements for methodology, special equipment, or traffic handling plan
- Discussion of costs and benefit to the State if the request for policy exception is granted and consequence if the request is denied
- When structures are involved, concurrence of Structure Maintenance and Investigations, Division of Maintenance, for proposed installations on existing bridges or Structure Design or Special Funded Projects, Division of Engineering Services, for proposed installations on new bridges



The submittal must be addressed to the Chief, Office of Project Support, Headquarters Division of Design, or the appropriate district delegate. The Chief, Office of Project Support, 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 PE must execute due diligence in investigating potential conflicts between proposed construction and existing utilities and justifying noncompliance with utility policies.

In addition, the request must include a description of the mitigation measures to be implemented as part of the installation.

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

### **Utility Policy Exception Request Submittal**

The submittal package for a utility policy exception request must include a transmittal memorandum signed by the Deputy District Director for design that:

- describes the proposed utility and utility policy exception.
- includes justification for the policy exception.
- recommends approval of the proposal.

The submittal must include the following:

- Detailed map (title sheet) showing the general alignment of the highway, crossroads, frontage roads, ramps, and major geographic features
- Detailed plans (typical cross sections, layouts, profiles, and construction details) showing the limits of the State right of way, the highway and highway features, and environmental constraints or other factors
- Proposed access to utilities, if any
- When structures are involved, concurrence of Structure Maintenance and Investigations, Division of Maintenance for proposed installations on existing bridges, or Structure Design or Special Funded Projects, Division of Engineering Services, for proposed installations on new bridges

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