



Preparing Traffic Signal Plans

This document represents a general guide of the basic features identified on a traffic signal plan. Each project is different and in no way constitutes all the elements required for the traffic signal plan. Because some projects are unique, engineering staff may require special details for added clarity and constructibility. This list does not preclude the City from requesting additional information. (9-13-2022 V3)

General

- ☐ The traffic signal and street light plans must be submitted on 24" x 36" sheet(s).
- ☐ The scale, 1" = 20' must be shown on the plans.
- ☐ A north arrow is required on each sheet.
- ☐ A vicinity or site location map is required on the cover sheet.
- ☐ The developer's name, address and phone number must be shown on the cover sheet.
- ☐ The traffic signal design professional name, address and phone number must be shown on the cover sheet.
- ☐ All existing and proposed waterlines, fire hydrants, overhead, and underground utilities shall be shown screened out and properly identified in the legend.
- ☐ The symbols shall be consistent with those identified on the most current Caltrans Standard Details. References shall be made to the ES-1A and ES-1B of the standard plans. If other symbols are used, it shall be clearly identified on a legend.
- ☐ The site must be field checked to identify all constraints including overhead utilities and underground sewer or drainage inlets that could impact the location of the poles or conduit. Consideration should be given to overhead utilities with respect to the street light fixtures or poles. Pull boxes shall be verified with their contents as intended. Letters shall be distributed to area utility companies to acquire utility information for the design.
- ☐ Are the street names clearly shown and spelled correctly?
- ☐ Is the right of way clearly marked? Is there any equipment conflicts and right of way issues that might impact the installation or construction schedule (like acquiring maintenance easements)?
- ☐ Are the sidewalks and driveways shown?
- ☐ Is the lane geometry clearly identified?
- ☐ Is there any mast arm or pole mounted signs that need to be identified? Is there a dimension to the pole?
- ☐ Is each pole identified by a letter designation and noted in the pole and equipment schedule?
- ☐ Is each conduit run identified by a number designation and noted on the wiring or conductor schedule?
- ☐ Pull boxes shall include a housekeeping pad with the concrete poured as one unit. A minimum of 12" apron shall be poured around the pull box. Areas not feasible to landscape or irrigate (Typically 12" or less) shall be included as a part of the housekeeping pad. This includes landscaping strips or corners.
- ☐ The housekeeping pad shall encompass the entire planting strip from edge of sidewalk to back of curb if there is less than 1' strip exposed. Pull boxes in sidewalks are not desirable.
- ☐ Streetlights a top signalized intersection shall be unmetered with pole numbers identified on the plan.
- ☐ Does the interconnect conduit have a separate pull box shown?
- ☐ For busy areas that are difficult to identify is there a detailed blowup of the controller location? Is the controller type, service enclosure, and batter back-up identified in the controller location detail? There shall be adequate pad space for maintenance to stand and doors to open free of obstructions. A pathway shall be provided where the controller location can be accessed without damaging vegetation.
- ☐ The mast arm mounted signs should show the proper dimension according to the Caltrans Standard Details.
- ☐ Are all the signal heads and their location, pedestrian signals, street lights, EVP, and all other appurtenances identified using the standard symbols from the most current Caltrans Standard Detail?



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- ☐ An application for service shall be submitted to PG&E. A copy of the application will be submitted with the plans.
- ☐ Once the plan is completed and signed, an electronic dwg, dxf, or dgn; and pdf shall be provided to the City.

Phasing

- ☐ Confirm the phasing diagram with the directional signal indications, detectors, and pedestrian indications/buttons are marked.
- ☐ Is the EVP present with the phasing clearly identified below the proposed or existing phasing diagram?
- ☐ Are the phases clearly marked in the phasing diagram and match the direction as indicated by the signal equipment? The directions should match those provided by the City.
- ☐ Are the pedestrian signals clearly marked with the phasing?

Geometry

- ☐ All pedestrian push buttons shall be within 5' of the crosswalk extended. See CaMUTCD (most current). The proximity to the ramp must be identified.
- ☐ The loop placement shall take into account driveways or side streets.
- ☐ The front loop shall be E (Modified) with the remaining standard E loops.
- ☐ The sidewalks and driveways shall be shown on the plans.
- ☐ The mast arm and pole mounted signs must be clearly marked. Any prohibited U-turns should be identified and analyzed with Autoturn or similar tool.
- ☐ Are the symbols and abbreviations consistent with the Caltrans State Standard Plans?
- ☐ Has Autoturn or similar tool been used to assess the available clearance between opposing left turn permissive movements.

Equipment and Conductor Schedules

- ☐ Has the signal mast arm case load been verified?
- ☐ Is there at least two signal heads/indications per direction/movement? Is the signal indication within the viewing angle of approaching vehicles?
- ☐ The PEC should be mounted above each street light fixture?
- ☐ All street lighting shall be 120V utilizing induction lighting.
- ☐ Does the Conductor schedule identify the percent conduit fill?
- ☐ Are the conduit symbols identified correctly according to the plan? Also, do the symbols dashed representing existing on both the plan and schedule?
- ☐ Does the equipment schedule identify the phase that is associated with the type of mount i.e., Phase 3 is MAT, Phase 8 is MAS.
- ☐ Are the pedestrian indications and button clearly shown so that the contractor knows which corner they are to be installed on?



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- ☐ Each pole/phase combination shall have the associated conductors (3 section/3#14s) home run to the controller assembly. Common phases (i.e. , Phase 2) sharing the same pole/mast arm can exit the junction box with the appropriate conductors and shall be home run to the controller assembly. No splices shall occur from another conduit run with the same common phase in any of the ground installed pull boxes. An example, Phase 2 on a mast arm shall not be spliced with a Phase 2 indication on a nearside 1B pole.

There shall be a separate neutral for each mast-arm pole, pedestrian pole, or any other standalone structure. Street light conductors in signal systems shall also be home run as well.

Detector loop wires can be spliced according to the standard detail; however, the detector lead cable shall be home run to the controller cabinet and terminated accordingly.

Other Requirements

- ☐ Have you prepared and submitted an application for PG&E power and verified the location of where the connection point will be? Is conduit shown to the source where the connection is to be made?
- ☐ Is there a detail showing how the optical receiver is to be mounted on the mast arm?
- ☐ Is a standard City border used?

APPROVAL:	DATE: _____
_____ TRAFFIC ENGINEER	
RCE# _____	EXPIRATION _____

This signature in no way relieves the design engineer of liability. This signature signifies that the work is in general conformance of the City's guidelines, practices, policies, general provisions, and specifications.

Typical Traffic Signal Notes

- ☐ All improvements shall be constructed in strict accordance to the City of Fairfield standards specifications and plans adopted in 2021 and any amendments or changes thereto to date including any special provisions, the most current California Department of Transportation Standard Specifications, where applicable.
- ☐ These plans shall accompany special provision specific to the project.
- ☐ The contractor shall not proceed with any work called for on these plans until the City Engineer's and Traffic Engineer's signature of approval is affixed here on and all applicable permits have been obtained. An approved set of plans and specifications shall be on the job site during any construction.



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- ☐ The contractor agree to assume sole and complete responsibility for job site conditions during the course of construction on this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours and that the contractor shall defend, indemnify and hold the owner and the city harmless from any and all liability, real or alleged in connection with the performance of the work on this project, excepting for liability arising from the sole negligence of the owner or engineer.
- ☐ The locations of all underground facilities shown on this plan are approximate. A reasonable effort has been made to locate and delineate all underground facilities; however, City or engineer assumes no liability for the accuracy for completeness of the existing facilities shown hereon or for the existence of other underground utilities or objects which may be discovered but are not shown on these plans. The contractor shall verify the location of all existing facilities and immediately notify the engineer if any such facilities interfere with the construction of the improvements.
- ☐ The contractor is hereby notified that prior to commencing construction he or she is responsible for contacting all utility companies for verification to the construction site of the locations of all underground facilities where such facilities may conflict with placement of improvements shown on these plans. Call underground service alert at 1-800-227-2600 prior to any excavation.
- ☐ Work hours shall be limited to 9:00 to 3:30pm on a non-holiday work week. Special attention shall be made near school(s) and the disruption of school traffic. Provisions shall be made to coordinate work within ½ mile from any school.
- ☐ The contractor shall provide all lights, barricades, signs, flagmen or other devices necessary for the public safety. Pedestrian access shall be provided at all times.
- ☐ The contractor shall submit a traffic control plan and/or detour plan for approval by the City of Fairfield Public Works Department prior to the start of construction.
- ☐ Signal standards, conduit, pull boxes, and loop detector locations are approximate only. Actual location will be determined by the contractor and approved by the City Traffic Engineer or a designee prior to excavation.
- ☐ The contractor shall layout the detector loops.
- ☐ Regulatory signs mounted on signal mast arms shall be installed nearest to the lane/signal indication it represents and be a minimum of 6" from any signal back plate.