



City of Glendora
Attn: Alison Sweet
asweet@cityofglendora.org
116 East Foothill Boulevard
Glendora, CA 91741-3380

May 22, 2020

Submitted to:

Federal Highway Administration, Office of Transportation Operations
(Matthew.Zeller@dot.gov, Kevin.Sylvester@dot.gov)
California Traffic Control Device Committee (CTCDC)
(Doug.Bilse@carlsbadca.gov, vijay.talada@dot.ca.gov)

RE: Permission for Experimental active "RED SIGNAL AHEAD" warning sign in the City of Glendora

The City of Glendora ("City") respectfully requests permission to conduct a demonstration of a "RED SIGNAL AHEAD" warning sign that would supplement the Vermont Avenue and Glendora Avenue traffic signals near the Metro Gold Line Foothill Extension, a Light Rail system to be operated by the Los Angeles County Metropolitan Authority.

The "RED SIGNAL AHEAD" (RSA) warning sign is designed to increase awareness for the Vermont Avenue and Glendora Avenue traffic signals located around a blind corner approximately 250-feet to 350-feet downstream from the RSA warning sign location, for posted speed limit of 35mph. This proposed RSA warning sign is the same specifications as "SIGNAL AHEAD" (W3-3a) sign, with the addition of active "RED" text. The proposed application will illuminate the "RED" text in the RSA sign while the downstream traffic signal indication is red, to provide advance warning and increase the motorist awareness of the potential light rail trains and/or pedestrians crossing at the intersection.

Although CTCDC or California MUTCD have not yet approved the proposed RSA warning sign, this sign is used in several locations including Ontario International Airport and Massachusetts State near City of Cambridge. During field reviews, several engineers, including the California Public Utilities Commission (CPUC), requested this RSA sign instead of the MUTCD approved "signal ahead" warning signs. The real-time information displayed by the RSA sign is expected to decrease the frequency of motorist running the red light.

Background

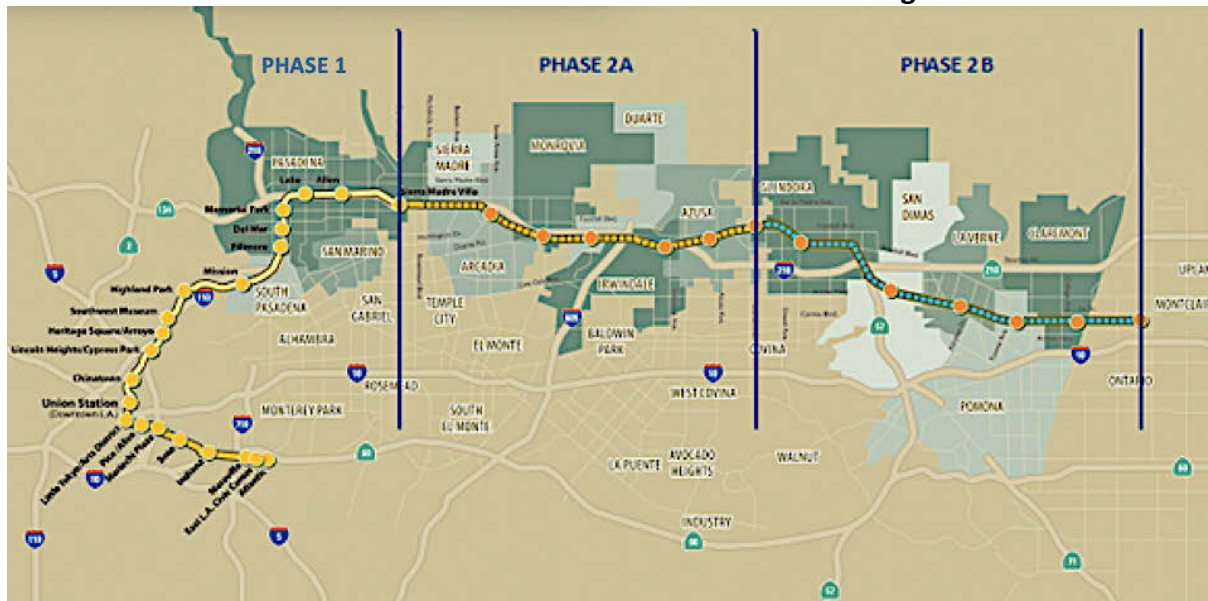
The Metro Gold Line light rail transit project includes planning, design and construction of a 37-mile light rail link between Downtown Los Angeles and Montclair. Phase 1 of the project began revenue operations in 2003 and included service from Downtown Los Angeles at Union Station to Sierra Madre Villa Station in Pasadena. The Phase 2 corridor of the Gold Line, also referred to as the Foothill Extension, includes the cities of Pasadena, Arcadia, Monrovia, Duarte, Irwindale, Azusa, Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair; and the

counties of Los Angeles and San Bernardino (See Exhibit 1).

The Los Angeles Metro Gold Line Foothill Extension Project (Project) was planned in two segments to align effectively with projected cash flows and financial capacity constraints. The first segment, known as Phase 2A, is defined from the Sierra Madre Villa Station in Pasadena to the APU/Citrus Station in the city of Azusa. Construction along this segment is complete and revenue service started on March 5, 2016.

The second segment, Glendora to Montclair, or Phase 2B, will include an extension from the terminus of 2A in Azusa to the City of Montclair with revenue service projected for 2026.

Exhibit 1 - Metro Gold Line Foothill Extension Alignment



The Glendora to Montclair Phase 2B portion of the Project extends the Metro Gold Line alignment 12.3 miles east from the Phase 2A terminus, the APU/Citrus Station, to the City of Montclair Transcenter, and include six (6) new stations in the cities of Glendora, San Dimas, La Verne, Pomona, Claremont, and Montclair. The Los Angeles County Metropolitan Transportation Authority's (LACMTA) will integrate operation of the Foothill Extension into existing Gold Line service and oversee operation and maintenance of the line once construction is complete.

Statement of Problem

Where at-grade crossings occur adjacent to intersections, the movement of trains, vehicles, and pedestrians are controlled by traffic signals, train control signals, striping, and signage. In accordance with the California Public Utilities Commission (CPUC) crossing approval process, field diagnostics were conducted for each crossing, including the appropriate advance warning signs located upstream of proposed traffic signal.

During field diagnostics, a team of engineers and representatives from LACMTA, SCRRA, BNSF, CPUC, Foothill Construction Authority, consultants, and City of Glendora reviewed preliminary designs for both the Vermont Avenue and Glendora Avenue. Concerns were raised during the field diagnostics for the blind corners the drivers must negotiate prior to arriving at the intersections.

As shown in Exhibits 2 and 3, the Vermont Avenue and Glendora Avenue sites include a blind corner that limits visibility of the proposed downstream traffic signal and crossing. As documented in meeting minutes, the engineering team evaluated the Advance Traffic Control Signs currently contained in Section 2C.36 of the California MUTCD, including the TRAFFIC SIGNAL AHEAD (W3-3a) with alternating flashing beacons and “BE PREPARED TO STOP” (W3-4) blank-out sign.

The engineering team believes that alternate measures to standard California MUTCD approved signage should be considered to further warn motorists of the downward traffic signal, to prevent motorist collision with pedestrians or trains. The engineering team agreed upon the proposed demonstration for the active “RED SIGNAL AHEAD” (RSA) warning sign. The CPUC representative from the field diagnostic provided an email statement supporting the RSA sign as integral to the overall safety of the crossing (see Exhibit 5).

Proposed Solution - Active “RED SIGNAL AHEAD” warning sign

As shown in Exhibits 2 and 3, the proposed active RSA warning sign would serve as reinforcement to the standard traffic signal control devices. It would not conflict with any traffic control device, and would provide an additional visual warning to motorists that pedestrians or trains are crossing the intersection. The RSA warning sign will be installed on an overhead cantilever consistent with California MUTCD installation requirements.

As shown in Exhibit 4, the sign’s “SIGNAL AHEAD” text will be static, and the “RED” text will activate when the downstream traffic signal is red. The RED text of the sign will not be illuminated while the downstream traffic signal is in the green or yellow phases. The real-time information displayed by the RSA sign is expected to decrease the frequency of motorist running the red light.

The engineering team agrees that RSA warning is preferred over the TRAFFIC SIGNAL AHEAD (W3-3a) combination with alternating flashing beacons or “BE PREPARED TO STOP” (W3-4) blank-out sign, because motorists may become complaisant to the constant beacon flashing, while the active “RED” text on the RSA provides real-time RED signal information.

The maintenance and reliability of the RSA warning sign is another key factor that can limit the effectiveness of the warning system. Several agencies, including the Ontario International Airport, have tested applications of warning sign and availability from a reliable manufacturer, as well as product maintenance.

A. Scope

- As shown in Exhibits 2 and 3, the RSA experimentation of the RSA warning sign will be field installed and tested at two (2) sites: **Vermont Avenue** and **Glendora Avenue**. The RSA signs are located approximately 250-feet to 350-feet ahead of the traffic signal at the proposed LACMTA Gold Line tracks. No other installation locations are necessary for this project at this time.

B. Workplan

- Consistent with the City of Glendora's traffic program, hazards, accidents, complaints and reported failures associated with the RSA warning sign and the new traffic signal will be investigated. The City's maintenance program includes periodic inspections of traffic signals to ensure proper function and efficiency. Other field inspections will be conducted as needed by LACMTA and SCRRA to ensure proper traffic signal and RSA warning sign function in connection with crossing equipment. This may include random inspections from oversight agencies including the CPUC and FRA.
- The City of Glendora does not expect adverse effects on traffic or safety resulting from the RSA sign. However, if the RSA warning sign fails to meet expectations, the RSA warning sign is a supplemental measure to the proposed traffic signal and will be replaced by the standard TRAFFIC SIGNAL AHEAD (W3-3a). The City of Glendora will determine if the RSA warning sign should be removed from service and will inform project stakeholders and CTCDC as necessary.

C. Time Periods

- The RSA warning sign demonstration period will last two years, and is expected between 2023 and 2026, depending on traffic signal installation schedule. During the demonstration, the City of Glendora will conduct traffic observations of the RSA warning sign to ensure proper functioning every quarter (3 months).
- At the end of the demonstration period estimated to occur in 2026, and if the RSA warning sign proves effective, the City of Glendora, in coordination with the Gold Line Project staff and LACMTA, will notify CTCDC of the results, summarize the observations, and request that the sign remain permanently.

D. Evaluation Procedures

- The RSA warning sign evaluation will consist of:
 - 1) Service reliability measured by communication or electrical failures as a direct result of the active RSA sign
 - 2) Complaints of the RSA warning sign causing motorist confusion
 - 3) Collisions contributed of the RSA warning sign operations
 - 4) Observations of traffic compliance to the warning sign at quarterly intervals

E. Reporting

- The City of Glendora, in coordination with the Gold Line Project staff and/or LACMTA, will develop a final report within 90 days of the two-year demonstration termination date and send to the CTCDC. Status reports will be provided if:
 - Experimentation of the RSA warning sign does not begin by 2024; or
 - Deviations from the RSA work plan or design; or
 - Significant safety hazards are associated with the RSA; or
 - Deviation from the 2026 anticipated conclusion of the RSA demonstration.
- The final report will contain the basic RSA information, any investigations, changes in the RSA warning sign design or solutions, the study procedures, analysis of any data, discussion of the results, and conclusions. If a change in the California MUTCD is proposed, specific wording of this change should be included.

F. Administration

The City of Glendora is the lead agency for the RSA warning sign experimentation with support from registered traffic engineers, experienced traffic management staff, consultants and other stakeholders supporting the City. The City of Glendora lead engineer for the RSA warning sign experimentation is:

Alison Sweet
Interim Public Works Director/City Engineer
116 East Foothill Boulevard
Glendora, CA 91741-3380
(626) 914-8246
asweet@cityofglendora.org

Please cc: correspondence to:
Dain Pankratz, P.E.
Metro Gold Line Foothill Extension
Construction Authority
(909) 560-5578
dpankrat@foothillgoldline.org

The City of Glendora and LACMTA agree to restore the demonstration sites to a condition that complies with the provisions of the California MUTCD, including replacement of the RSA with the standard W3-3a warning sign, if the demonstration determines that the RSA warning sign is ineffective or at the request of the CTCDC. We will also terminate the demonstration at any time if we determine that the experiment directly or indirectly imposes significant safety hazards. However, if the experiment demonstrates an improvement, the devices will remain in place as a request is made to update the California MUTCD and an official rulemaking action occurs.

Exhibit 2 – Vermont Avenue Red Signal Ahead Location

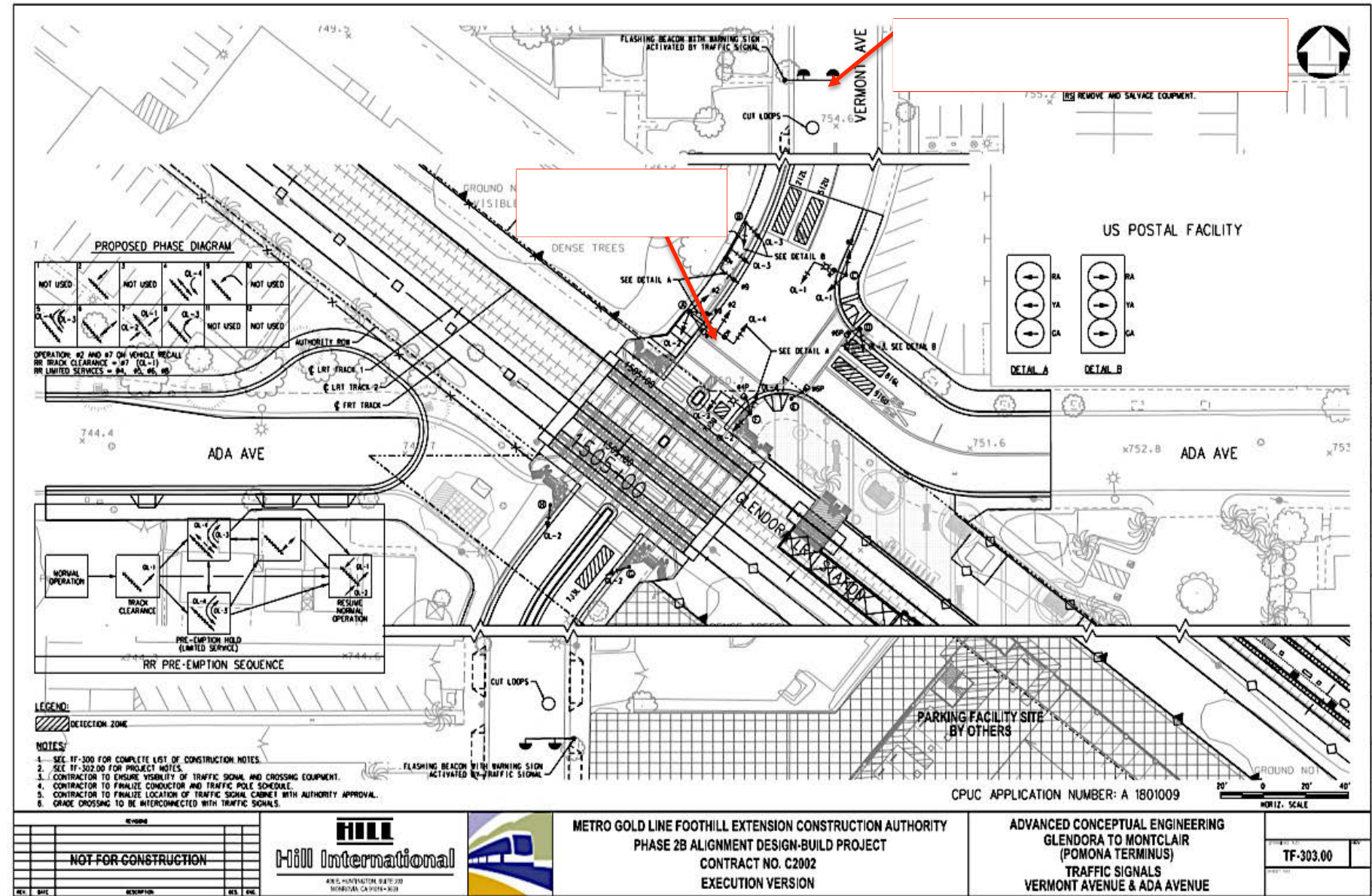


Exhibit 3 – Glendora Avenue Red Signal Ahead Location

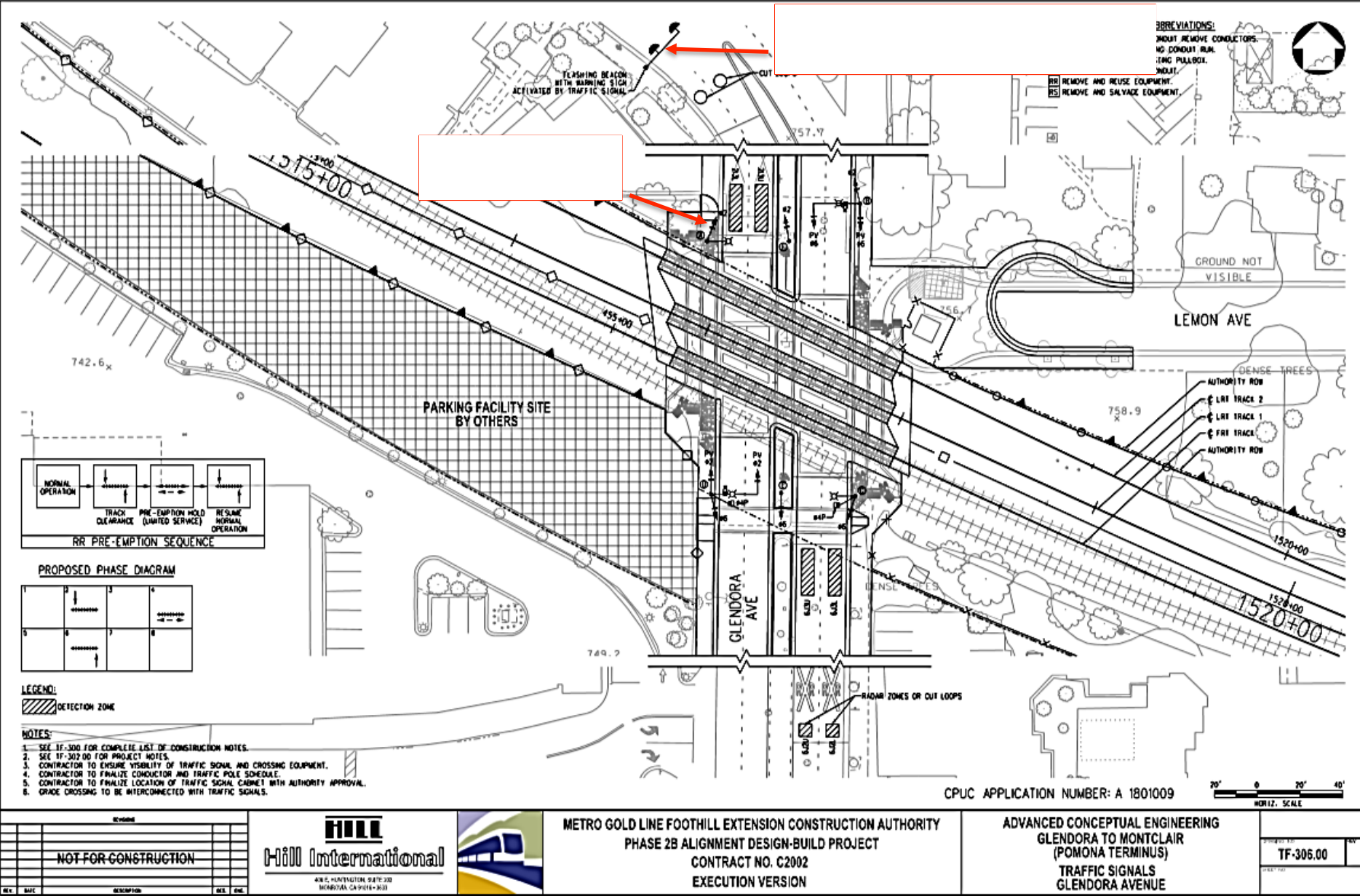


Exhibit 4 – “RED SIGNAL AHEAD” Sign Specifications

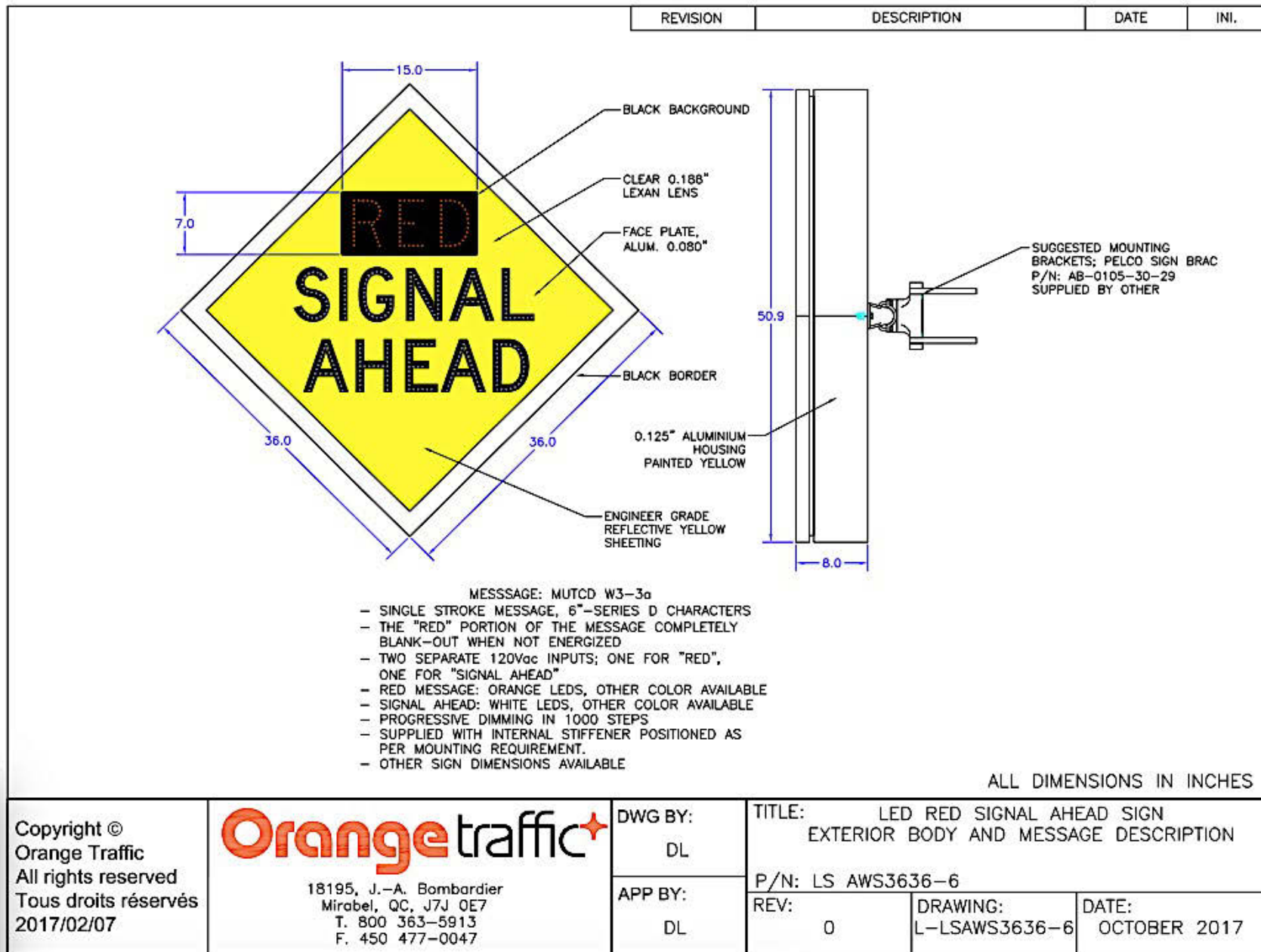


Exhibit 5 – CPUC Support for “RED SIGNAL AHEAD” Sign

From: Pereyra, Jose jose.pereyra@cpuc.ca.gov
Subject: RE: Red Signal Ahead Active Sign Concurrence
Date: March 19, 2020 at 4:25 PM
To: Dain Pankratz DPankratz@foothillgoldline.org
Cc: Denis Cournoyer DCournoyer@foothillgoldline.org, Garabetian, Antranig G. antranig.garabetian@cpuc.ca.gov, Bond, Matthew Matthew.Bond@cpuc.ca.gov

JP

Dain,

The CPUC considers the “Red Signal Ahead” active warning sign a critical safety element to the crossing designs authorized in its Decision 19-02-009 to your Application 18-01-009. The diagnostic team agreed that this proposal would provide clear indication to motorists that they were approaching a signalized intersection around the curved roadway approach to the crossings. Moreover, the ability to have the words “red” activate and flash only when the downstream (intersection) red traffic signal illuminates, clearly informs motorists that they must prepare to stop. This makes your “Red Signal Ahead” design much more desirable than the standard W3-3 “signal ahead” beacon sign that is continuously illuminated and tends to eventually blend into the background once the novelty fades.

Please indicate to the CTCDC that the CPUC fully supports your proposal to demonstrate the active “Red Signal Ahead” warning sign. The CPUC considers the sign integral to the overall safety of the crossing designs and operation of the traffic signal interconnection with the railroad signal system. I suggest you also provide the CTCDC a copy of the CPUC’s Decision 19-02-009 authorizing your proposal.

Please let me know if the CPUC can be of further assistance in obtaining approval from the CTCDC for the “Red Signal Ahead” active warning sign. Thank you for contacting me.

Kind Regards,

*Jose Pereyra, Utilities Engineer
Rail Crossings Engineering Branch
Safety and Enforcement Division (SED)
California Public Utilities Commission
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Los Angeles, CA 90013*

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(213) 576-7083
CPUC Rail Crossings Engineering Branch
<http://www.cpuc.ca.gov/crossings/>*

From: Dain Pankratz DPankratz@foothillgoldline.org
Subject: Red Signal Ahead Active Sign Concurrence
Date: March 19, 2020 at 3:22 PM
To: Pereyra, Jose Jose.pereyra@cpuc.ca.gov
Cc: Denis Cournoyer DCournoyer@foothillgoldline.org

DP

Jose,

As you know, the Approved CPUC Application A1801009, specifies:

- "Approximately 300-feet north of the crossing, an active "red signal ahead" flashing sign will be provided. This sign will be a new sign, similar to the existing W3-3 "signal ahead" beacon sign, however the words "red" will activate and flash upon red traffic signal illumination. A sample diagram is included in Exhibit H of this application. The Authority is coordinating with Metro and the California Traffic Control Devices Committee for CA-MUTCD approval."

We have been informed that California Traffic Control Devices Committee may prefer the Project use the existing standard W3-3 or W3-4, with beacons or blankout designs, unless justification is provided. We were further informed that the CTC application for "Red Signal Ahead" active sign includes documentation of CPUC support for the sign.

During the field diagnostic evaluations for Glendora Ave and Vermont Ave, the team of engineers did discuss the existing W3-3 signs and beacons, and continued to recommend the "Red Signal Ahead" active sign. The engineering diagnostic meeting minutes further documents, "Authority/Metro is prepared to attain CTC approval of activated beacon [Red Signal Ahead Sign] not in existence. Authority continues to research sign"

Would you please respond to this email to document concurrence for the need for a "Red Signal Ahead" Active Sign.

Thanks, Dain

Dain Pankratz
909-560-5578

Metro Gold Line Foothill Extension Construction Authority
2100 E. Rte. 66, Glendora, CA 91740