

**To:** California Traffic Control Device Committee (CTCDC)  
Gurinderpal (Johnny) Bhullar  
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**From:** Stephanie Leslie, Executive Officer  
Los Angeles County Metropolitan Transportation Authority

**Date:** April 4, 2023

**Subj:** Permission for Experimental “Left Turn Gates” in the City of Los Angeles (K-line)

The Los Angeles County Metropolitan Transportation Authority (LACMTA) respectfully requests permission to conduct a demonstration of “Left Turn Gates” to supplement existing traffic signals along Crenshaw Blvd. in the City of Los Angeles adjacent to the rail tracks of the K-line, a Light Rail system operated by LACMTA.

The “Left Turn Gates”, similar to most parking garage gate arms, are designed to prevent motorists from making illegal left turns in front of oncoming trains or opposing traffic on Crenshaw Blvd. The Left Turn Gates will be installed only at intersections/crossings with light rail trains, and in conjunction with existing traffic signals (subject to separate CTC approval).

The California MUTCD Section 8C allows for gates with flashing-lights as follows:

Section 8C.01 -

Part 06: When there is a curb, a horizontal offset of at least 2 feet shall be provided from the face of the vertical curb to the closest part of the signal or gate arm in its upright position. When a cantilevered-arm flashing-light signal is used, the vertical clearance shall be at least 17 feet above the crown of the highway to the lowest point of the signal unit.

Section 8C.05 -

Part 02: Where a highway-LRT grade crossing is at a location other than an intersection, where LRT speeds exceed 25 mph, automatic gates and flashing-light signals may be installed.

Part 03: Traffic control signals may be used instead of automatic gates at highway-LRT grade crossings within highway intersections where LRT speeds do not exceed 35 mph.

Due to the existing street-running configuration and limited clearances, horizontal offset for the Left Turn Gates is proposed at 18-inches minimum from curb face. Gates would include lights and be interconnected to the traffic signal left turn phase.

LACMTA Corporate Safety requested these Left Turn Gates to supplement traffic signals and MUTCD approved warning signs. The barrier provided by the Left Turn Gates is expected to decrease the frequency of motorists turning against the red light and potentially colliding with oncoming trains.

## **Background**

K-line provides light rail transit (LRT) service from the E-line to the C-line, and includes 8 new

stations along the 8.5 mile alignment. The K-line opened for Revenue Service on October 7, 2022.



Exhibit 1 – LACMTA K-line Map

### Statement of Problem

The new K-line at-grade crossings are incorporated into existing intersections, such that the

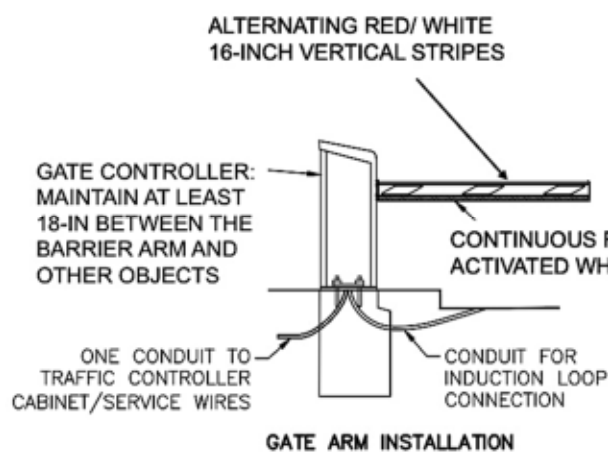
movement of trains, motorists, and pedestrians are controlled by traffic signals, train control signals, striping, and signage. All crossings have been approved in accordance with the California Public Utilities Commission (CPUC) crossing approval process.

LACMTA Corporate Safety reviewed designs for the crossings and requested Left Turn Gates, concerned that motorist illegal left turn movements in front of oncoming trains account for over 70% of all light rail accidents. This type of accident is predominant at all light rail systems in California. An earlier pilot project of the Left Turn Gates was initiated in October 2017 on Metro's A-line at the intersection of Flower St. and the I-10 freeway on-ramp. The pilot system is still in operation and, based on data collected to date, has proven extremely successful in minimizing left turn collisions between motorists and trains. In fact, no collisions have occurred to date originating from the left turn pocket lane that is protected by this gate.

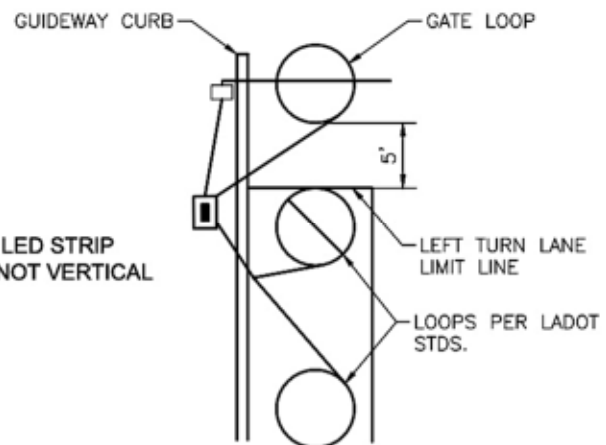
Assuming a successful outcome of the Crenshaw pilot, the Corporate Safety team believes that alternate measures supplemental to standard California MUTCD approved signage should be considered to deter motorists from illegal left turns in front of oncoming trains, and requests that CTCDC and FHWA incorporate Left Turn Gates as a standard device in the CTCDC Manual. This will allow any transit agency the opportunity to take advantage of this safety enhancement, and incorporate such devices into the design of their projects without the requirement to petition for a pilot project, and without having to retrofit their projects during or after construction.

### Proposed Solution – Left Turn Gates

As shown in Exhibits 2 and 3, the proposed Left Turn Gate would serve as barrier in addition to the standard traffic signal control devices. The Left Turn Gate is smaller than the typical Standard No. 9 railroad crossing gate to allow for reduced clearances in a street running environment (Exhibit 7). The Left Turn Gate does not have flashing-lights and operates in conjunction with red left turn arrow activation on the traffic signal.



**Exhibit 2 – Left Turn Gate Detail**

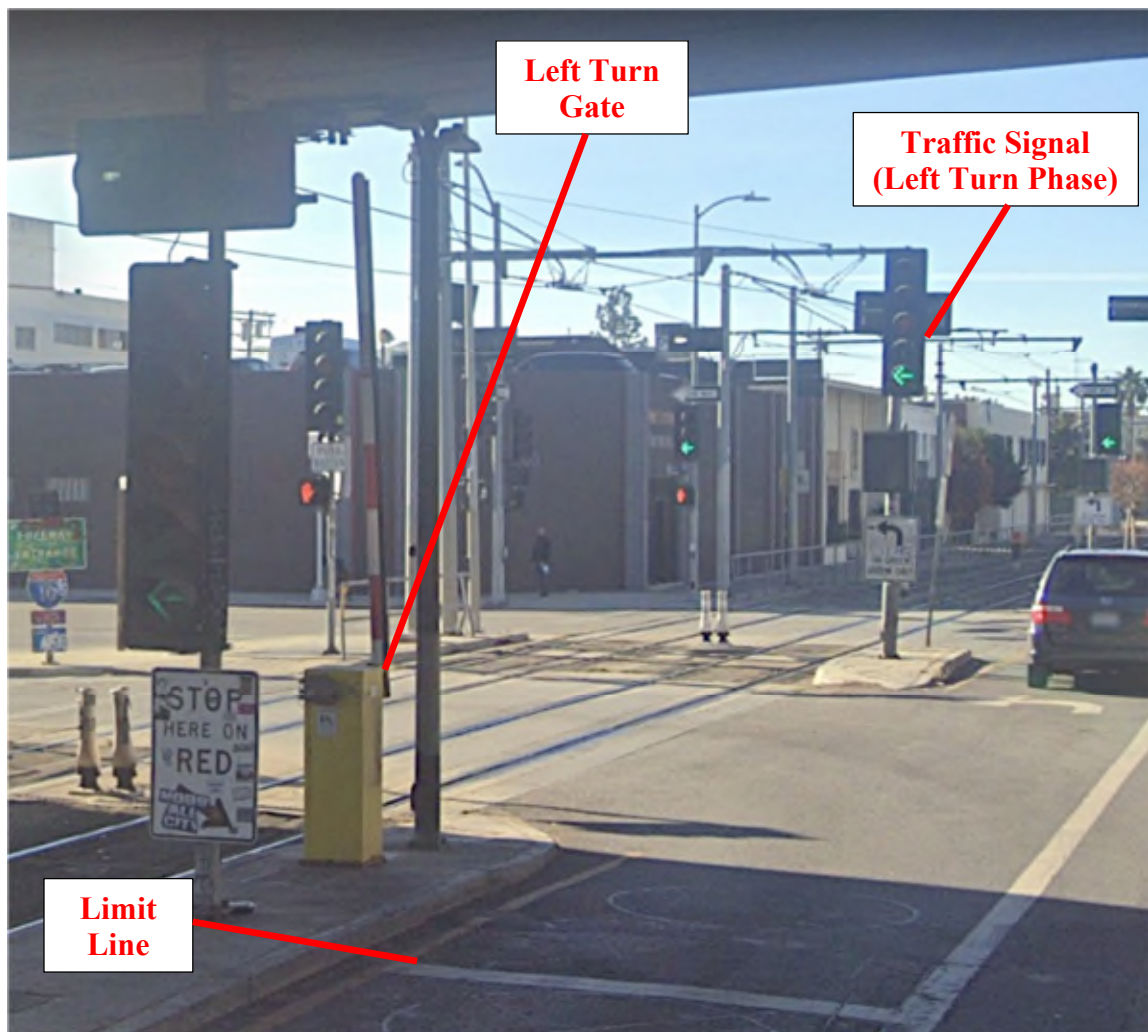


**Exhibit 3 – Left Turn Gate Location and Loops**

Within 3-5 seconds after the left turn phase is red (restricted), the Left Turn Gate arm is

activated into the horizontal position. The Left Turn Gate then rises 3-5 seconds prior to the green (permitted) turn phase and remains vertical during green and yellow phases. The LACMTA light rail train signal system is interconnected to the traffic signal such that the train will proceed through during the restricted left turn phase when Left Turn Gates are down, further protecting motorists. The light rail train stops during green left turn phase, to allow for motorists to safely proceed in front of the train.

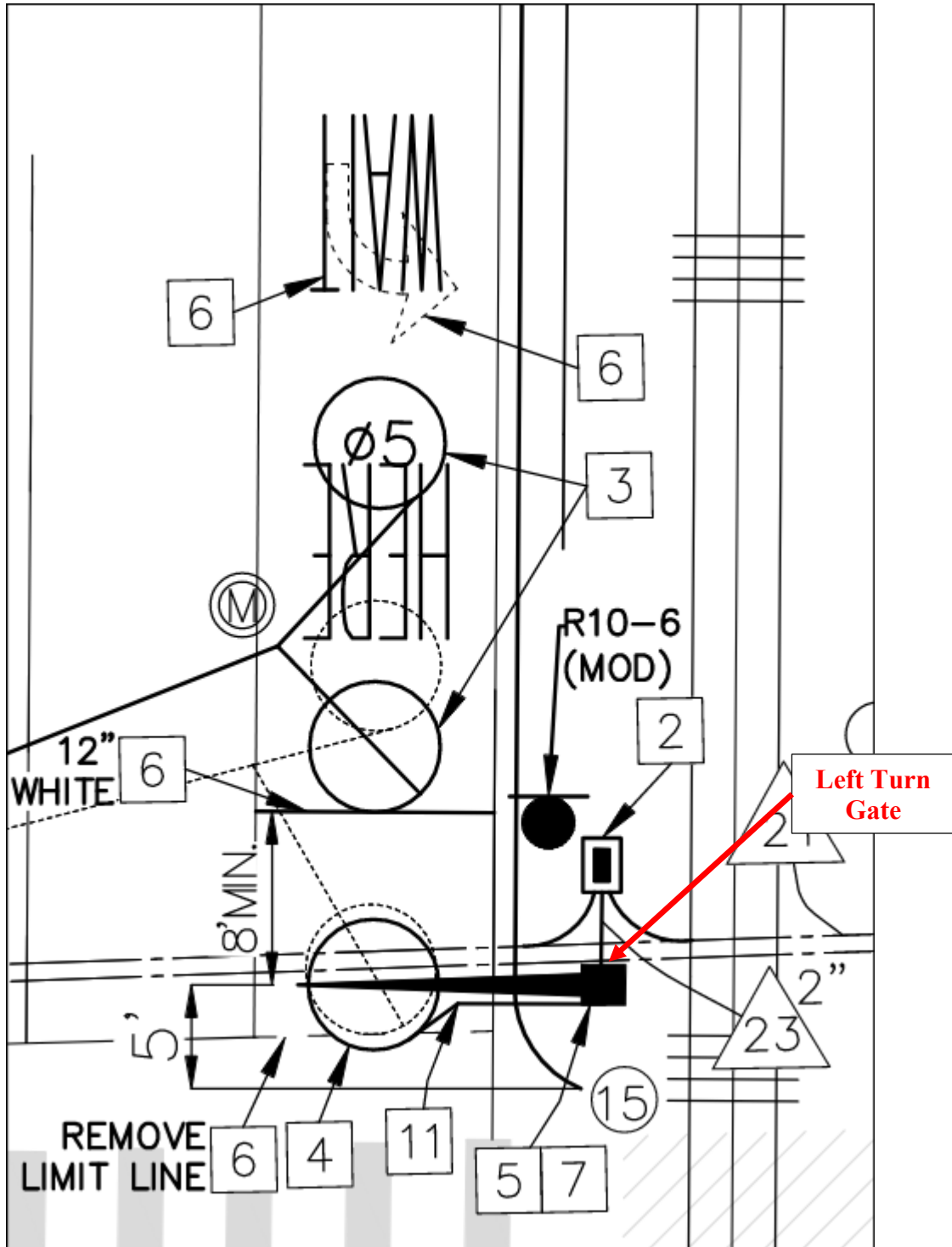
The maintenance and reliability of the Left Turn Gate is another factor that can limit the effectiveness of the warning system. LACMTA and the City of Los Angeles will enter into a formal agreement to ensure gates are maintained and operating per design. LACMTA noted that maintenance has not been an issue to date at the Flower and I-10 freeway on-ramp location (Exhibit 4). Similar gates provided by the proposed gate manufacturer/vendor for various parking facilities experience high rates of reliability.



**Exhibit 4 – Similar Left Turn Gate for LACMTA Blue Line Train – Flower St. and 18<sup>th</sup> St.**

**A. Scope**

- As shown in Exhibits 5 and 6, the Left Turn Gate is located 5-feet prior to the Begin Curb (BC), and a minimum of 8-feet following the limit line in the left turn pocket.



**Exhibit 5 –Sample Left Turn Gate Traffic Drawing (Crenshaw Blvd and 48<sup>th</sup> St.)**

- Left Turn Gates will be field installed and tested at 6 locations along Crenshaw Blvd. as shown in Table 1 below.

#	Crossing at Crenshaw Blvd
1	48 <sup>th</sup> Street
2	52 <sup>nd</sup> Street
3	54 <sup>th</sup> Street
4	57 <sup>th</sup> Street
5	Slauson Avenue
6	59 <sup>th</sup> Street

### **B. Workplan**

- Consistent with the City of Los Angeles traffic program, hazards, accidents, complaints and reported failures associated with the Left Turn Gates 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 to ensure proper traffic signal and Left Turn Gate function in connection with crossing equipment. This may include random inspections from oversight agencies including CPUC.
- LACMTA and the City of Los Angeles do not expect adverse effects on traffic or safety resulting from the addition of Left Turn Gates. However, if the Left Turn Gates fail to meet expectations, the gates are a supplemental measure to the proposed traffic signal and will be removed. The City of Los Angeles and/or LACMTA will determine if the Left Turn Gates should be removed from service and will inform project stakeholders and CTCDC accordingly.

### **B. Time Periods**

- The Left Turn Gate demonstration period will last one year from 2023 to 2024.
  - Throughout the demonstration period, the City of Los Angeles will observe the Left Turn Gates to ensure proper functioning.
  - During the first three to six months of activation, LACMTA will observe traffic, operations, and safety as they relate to the operation of the Left Turn Gates.
  - At the end of the demonstration period, and if the demonstration proves effective, LACMTA, in coordination with the City of Los Angeles, will notify CTCDC of the results, summarize observations, and request that the Left Turn Gates remain permanently.

### **B. Evaluation Procedures**

- The Left Turn Gates evaluation will consist of:

- 1) Service reliability measured by communication or electrical failures as a direct result of the active Left Turn Gates
- 2) Complaints of Left Turn Gates causing motorist confusion
- 3) Collisions contributed to Left Turn Gate operations
- 4) Observations of traffic compliance to the Left Turn Gates

#### **E. Reporting**

- LACMTA, in coordination with the City of Los Angeles, will develop and provide to the CTCDC a final report within 90 days of the demonstration termination date. Status reports will be provided prior to the termination date if the following issues arise:
  - Experimentation of the Left Turn Gates does not begin by 2023
  - Deviations from the Left Turn Gate work plan or design
  - Significant safety hazards associated with Left Turn Gates
  - Deviation from the anticipated conclusion of Left Turn Gate demonstration
- The Demonstration Report will summarize the following activities:
  - LACMTA observation reports from the initial three to six months of Left Turn Gate installation and activation
  - Field observations or concerns from City of Los Angeles, LACMTA, CPUC or other stakeholders
  - Accident investigation reports involving Left Turn Gates, if any
  - Repair workorders and major maintenance activities related to Left Turn Gates
  - Changes to designs, fit or functions of the Left Turn Gates

#### **E. Administration**

LACMTA is the lead agency for the Left Turn Gates demonstration with support from City of Los Angeles (Exhibit 8), registered traffic engineers, experienced traffic management staff, consultants and stakeholders supporting the City. The contacts for the Left Turn Gates demonstration are:

LACMTA Request to CTCDC  
Left Turn Gates

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Deputy Executive Officer  
LACMTA – CLAX Project  
LeslieS@metro.net

Ricardo Rivera  
City of Los Angeles  
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Please copy any correspondence to:

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LACMTA – Safety Officer  
EstradaF@metro.net

Ramiro Reyes  
LACMTA CLAX Project Team  
ReyesRa@metro.net

Ricardo Iraheta  
LACMTA CLAX Project Team  
IrahetaR@metro.net

If the demonstration determines that the Left Turn Gates are ineffective, or at the request of the CTCDC, LACMTA and the City of Los Angeles agree to restore the demonstration sites to a condition complying with the provisions of the California MUTCD, including removal of the Left Turn Gates. LACMTA will also terminate the demonstration at any time if it is determined that the experiment directly or indirectly imposes significant safety hazards. However, if the experiment demonstrates an improvement, the devices will remain in place and LACMTA will request that the California MUTCD be updated to include a standard allowing installation of Left Turn Gates on future projects.

LACMTA also requests clarification regarding the applicability of the California MUTCD Sections 2B and 8C, and if authority to install Left Turn Gates currently exists under these sections of the California MUTCD.



Exhibit 6 – Left Turn Signal Drawing (Crenshaw Blvd. and 48<sup>th</sup> St.)

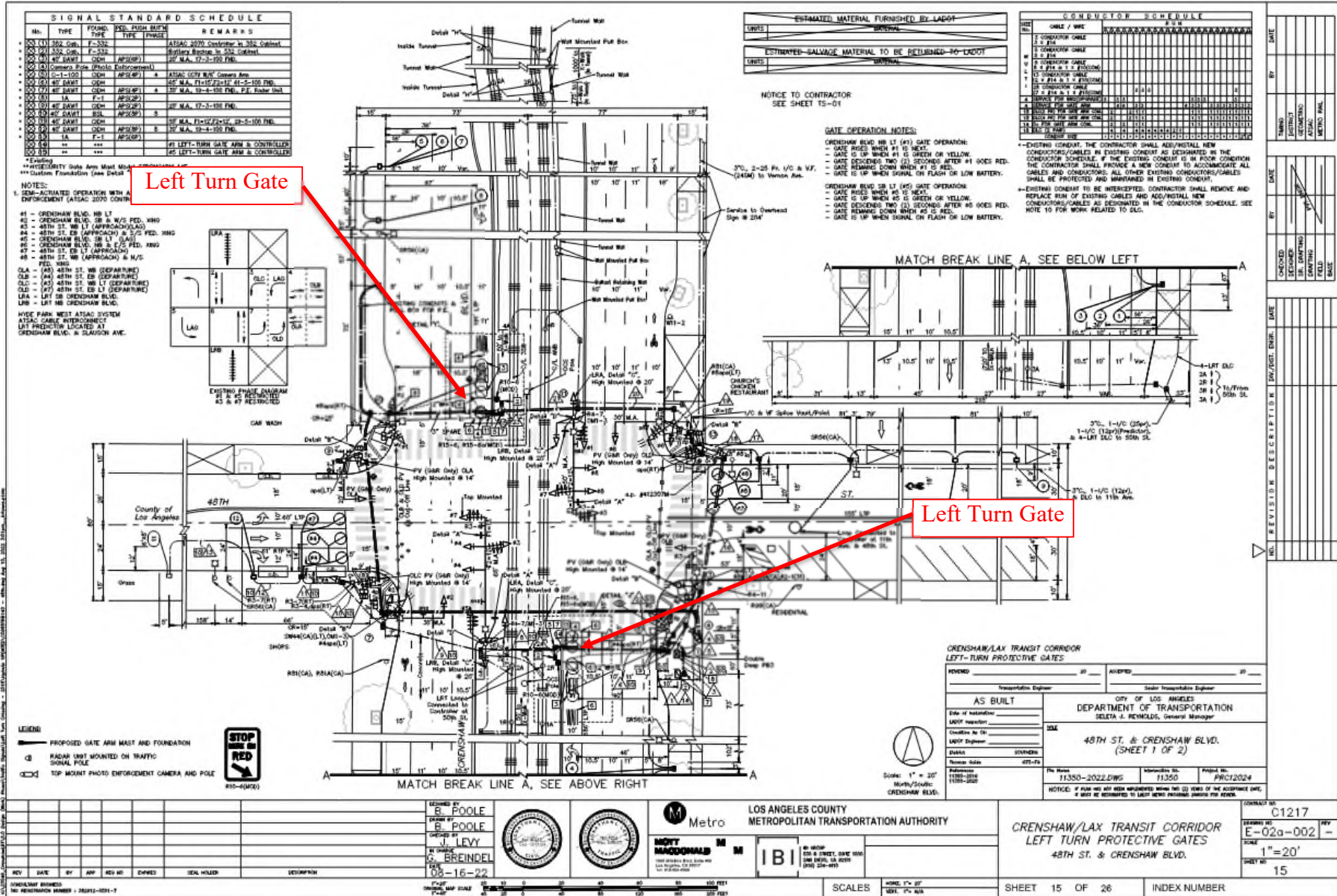
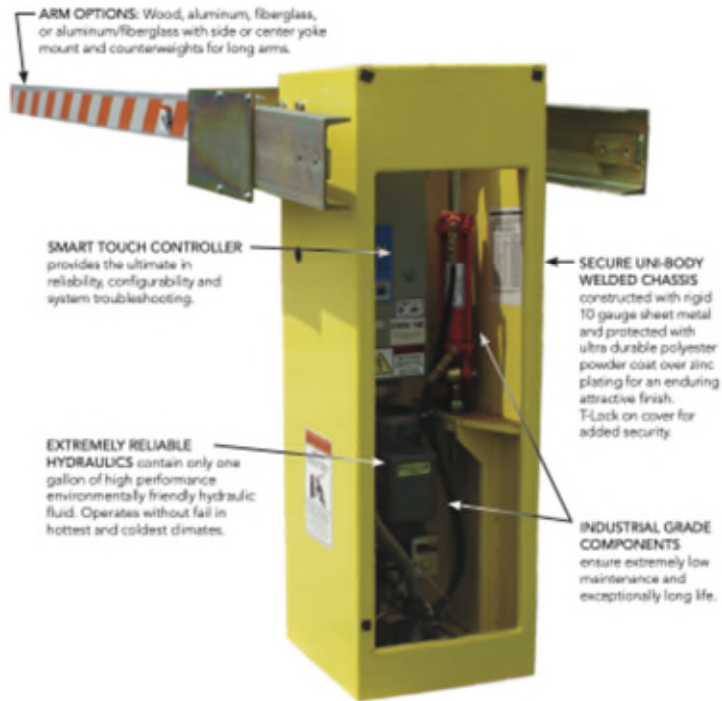


Exhibit 7 – Left Turn Gate Specification



Ultra reliable • 2,000 cycles/day • Heavy arms • Wide openings • Low maintenance

- **Very long arms**, from 10 to 36 ft (3 to 11 m)
- **Open speed, 2 to 8 seconds** depending on arm length
- **Heavy duty, secure chassis** with environmentally safe hydraulics
- **Breakaway arm bracket option** reduces the cost of arm replacement or operator damage due to a vehicle strike
- **Full 90° open** prevents tall vehicles from clipping arm
- **Seamless synchronization** with all HySecurity operators for dual gate, sally port or sequenced applications



<b>StrongArm 14F</b> Up to 14 ft (4.3 m) Side mount 2 seconds to open 3 seconds to close	<b>StrongArm 20</b> Up to 20 ft (6 m) Side mount or center yoke 3 seconds to open 4 seconds to close	<b>StrongArm 28</b> Up to 28 ft (8.5 m) Center yoke 5 seconds to open 6 seconds to close	<b>StrongArm 36</b> Up to 36 ft (11 m) Center yoke 8 seconds to open 8 seconds to close
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## Exhibit 8 – Letter Of Support



MARQUEECE HARRIS-DAWSON  
Councilmember, Eighth District

October 17, 2022

California Traffic Control Devices Committee  
California Department of Transportation  
Division of Safety Programs  
1120 N Street  
Sacramento, CA 95814

California Traffic Control Devices Committee,

Please accept this letter of support for the Los Angeles County Metropolitan Transportation Agency (Metro) application submitted to the CTCDC to allow for the installation of left-turn gates on the Crenshaw/LAX (C/LAX) light rail transit (LRT) line. Left-turn gates would provide an additional safety enhancement to prevent drivers from making illegal left-turns along the C/LAX route from Crenshaw Boulevard onto side streets. Left-turn gates are proposed at six (6) intersections along Crenshaw Boulevard located at 48<sup>th</sup> street, 52<sup>nd</sup> street, 54<sup>th</sup> street, 57<sup>th</sup> street, Slauson avenue, and 59<sup>th</sup> street.

Several accident records were collected during the traffic camera enforcement trial, indicating that motorists are making illegal left-turns at grade crossings where streets run parallel to the C/LAX tracks. Installation of left-turn gates would reduce train/vehicle accidents at these locations and prevent motorists from making illegal left turns when entering the track area in front of approaching trains. The C/LAX LRT line has been fully operational since October 7, 2022 without any left-turn gates which heighten traffic safety risks to roadway users traversing the C/LAX route. Given that safety is of primary importance to roadway users, the Council Office requests that the CTCDC expedite its application review and approval to implement vital protective left-turn gates along the C/LAX LRT line.

Thank you,



Councilmember Marqueece Harris-Dawson  
City of Los Angeles, Council District 8