Evaluation Report for NoTraffic Hybrid Detection Sensors

California Department of Transportation (Caltrans)

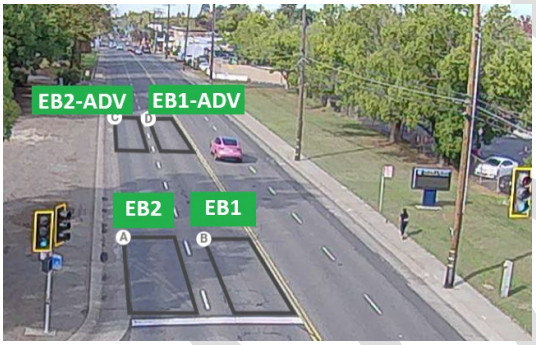
Electrical Quality Assurance and Source Inspection (EQASI)

December 2025

Table of Contents

Overview

Folsom Blvd & 60th Street



Proposed Pricing

The following proposed pricing breakdown is provided by Swarco as of December 2025.

Total Cost for 4-way Intersection: $26,000
(4 camera-radar hybrids - 1 with integrated RSU, Nexus, 5-year detection package with warranty)

Subscription Renewal for Basic Detection and Warranty Package: $11,000 MSRP
The Detection Package Renewal is not a requirement to keep the sensors active. However, the client will lose access to the following:

1. Around-The-Clock Support Center (NOC)
    a. Phone: (202) 800-1890
    b. Email: support@notraffic.tech
2. Hypercare – Review of an intersection for 10 days post-adjustment to ensure site in operational.
3. Cloud Access
4. Dashboard Remote Access – Due to the loss of cloud access, the dashboard will only be available via local connection through NoTraffic Intersection Manager application.
5. Data Analytics – Includes data such as Red/Green Light Arrivals, Alerts, etc. but not Traffic Counts, Approach Volumes, etc.

Warranty Period: 5 years from date of installation (all devices)

Manufacturer claims new units released will be backwards compatible.

Installation

NoTraffic and EQASI installed three camera-radar hybrid sensors at Folsom Blvd and 60th Street on October 29th, 2025. The NoTraffic team were able to provide NEMA taps that harvest electricity from the photocell of the existing luminaires to power the hybrid sensors on each pole. NoTraffic spent the afternoon setting up full detection on the intersection including all approaches.

By November 3rd, EQASI had noted some intermittent connectivity issues due to the antenna provided by NoTraffic for wireless communication being left inside the cabinet. NoTraffic recommended installing the antenna on the outside of

the cabinet. Detection was then active and had no further communication problems.

By November 8th, 2025, all traffic counts and analytics were updating daily.

NoTraffic provided a remote training session on November 21st, 2025.

Evaluation began on November 13th and lasted throughout December.

Unit Capabilities

The following table features the expected deliverables from the sensors per NoTraffic documentation.

Expected Deliverables	Compliant
Reliable detection in all weather conditions	✅
Stop bar & advance detection up to 720 ft	✅
Detection accuracy of up to 99.5%	✅
Object detection, classifications & tracking	✅ Accuracy was not tested during this evaluation
Live 1080p video streams of each approach	Times out at 2 minutes 1FPS
Turning movement counts	✅ Accuracy was not tested
Signal performance measures	✅
Safety analytics	Currently not available
Live video & real-time alerts	✅ Real time alerts were not tested during evaluation
24/7 monitoring	✅
Pedestrian detection	✅

Caltrans Specifications

Caltrans	Compliant
BABA compliant	Manufacturer provided compliance letter

Discussion

Videos captured via the sensors are not available for direct download and must be requested from NoTraffic during the licensed period. 1 frame per second (FPS) videos up to 30 days after the desired timeframe, and 10 FPS videos are obtainable up to 10 days after the desired timeframe. Per NoTraffic, footage may be corrupted, removed early, etc., making it unavailable. 10 FPS videos come in 2-minute increments, and 1 FPS videos come in 30-minute increments. Typically, 1 FPS is what NoTraffic provides to clients unless requested otherwise. Videos are shared through a Google Drive link and detection zone overlays may be added to the video if desired by the client. Time stamps can be displayed on the video in universal time (UTC).

The NoTraffic dashboard allows remote access to the sensors for client administrative and observational accounts. The dashboard grants NoTraffic remote access to the sensors to access and modify the site configuration with any necessary updates. The dashboard features three primary sections, which include AI Detection, Data Analytics, and Traffic Counts. The AI Detection panel displays the current sensor view and can live stream the intersection. It displays the status of each phase and the current inputs. The Data Analytics panel provides a range of intersection data, such as red/green light arrivals and various alerts. The Traffic Counts panel features data including the approach volume and turning movement counts. Data from the sensors can be downloaded as a CSV file with up to two different timeframes on one file.

The device can place up to 10 calls per second. The output type from the device can be modified to either presence or pulse. The sensors detect vehicles, bicycles, and pedestrians, which may be modified to exclude groups based on the purpose of the zone. Detection zones are created around the area where detection is desired, such as the stop-bar for vehicles and the crosswalk for pedestrians. Both radar and camera are utilized to detect within the primary detection zone regions, while advanced detection zones utilize radar only.

The system offers C1 compatibility as an alternative to SDLC when connecting the system to the controller.

NoTraffic subscriptions not renewed after 5 years will prevent a client from having access to updates and the cloud. The client will lose the full scope of support and troubleshooting. Per NoTraffic, their team will provide basic customer support. The client will have the ability to configure/make changes to

the intersection detection zones, pull turning movement counts, and view the live RTSP streams through local connection using the NoTraffic Intersection Manager application.

Data and Detection Evaluation

EQASI performed a total of three rounds of data collection for this evaluation. The first round of data collection included five timeframes to see accuracy at varied periods throughout the day. Rounds two and three were performed to test accuracy during varying weather conditions. For rounds two and three, the focus was on two timeframes with high activity levels. Per the current hybrid detection NSSP, all timeframes used for the evaluation were in 15-minute increments and accuracy for vehicle volumes were required to meet a minimum of 95 percent.

Absolute Error:

$$AE = GTV - DV + FC$$

Where AE is absolute error, GTV is ground truth value, DV is detected value, and FC is false call.

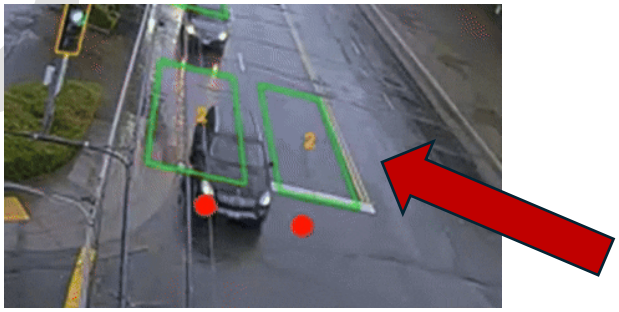
Percent Accuracy:

$$\%\ Accuracy = \left(1 - \frac{AE}{GTV}\right) \times 100$$

Where AE is absolute error, and GTV is ground truth value.

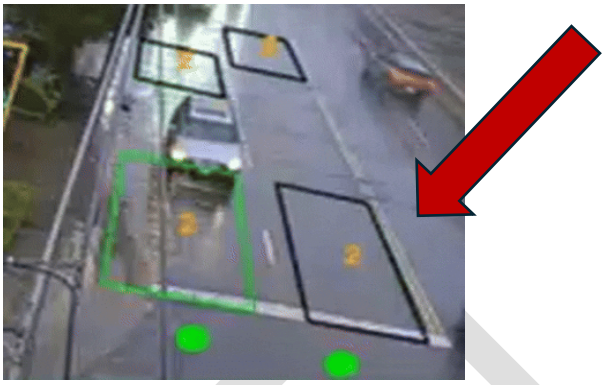
False Call Example:

A zone overlay indicating a presence or pulse when there is no vehicle present.



Blip Example:

A zone overlay briefly lighting up again after a vehicle had already passed the zone.



Blips are not factored into the absolute error.

Stop Bar Data

There are five time periods used to test detection, each spanning fifteen minutes long. These time periods are aimed at covering a variety of conditions to test the versatility of the hybrid sensors in different conditions. These time periods consist of:

Rain Weather Stop Bar Detection

1. Twilight – 2:00 AM – 2:15 AM
2. Morning Peak – 7:45 AM – 8:00 AM
3. Afternoon – 2:30 PM – 2:45 PM
4. Evening Peak – 5:00 PM – 5:15 PM
5. After Sunset – 9:00 PM – 9:15 PM

Table 1. November 13th, 2025 – Twilight Rain Detection

11/13/2025 2:00 AM - 2:15 AM RAIN DETECTION VERIFICATION							
Lane	EB1	EB2	WB1	WB2	SB1	Pedestrian SB Crossing	Pedestrian EB Crossing
False Calls	0	1	0	1	0	0	0
Blip	0	0	0	0	0	0	0
Observed	2	2	4	2	0	1	0
NoTraffic	2	2	4	2	0	0	0
Absolute Error	0	1	0	1	0	1	0
% Accuracy	100.00	50.00	100.00	50.00	100.00	0.00	100.00

Table 2. November 13th, 2025 – Morning Peak Rain Detection

11/13/2025 7:45 AM - 8:00 AM RAIN DETECTION VERIFICATION							
Lane	EB1	EB2	WB1	WB2	SB1	Pedestrian SB Crossing	Pedestrian EB Crossing
False Calls	0	2	1	1	0	0	0
Blip	0	1	3	3	1	0	0
Observed	63	131	81	76	94	0	0
NoTraffic	63	131	81	76	94	0	0
Absolute Error	0	2	1	1	0	0	0
% Accuracy	100.00	98.47	98.77	98.68	100.00	100.00	100.00

Table 3. November 13th, 2025 – Afternoon Rain Detection

11/13/2025 2:30 PM - 2:45 PM RAIN DETECTION VERIFICATION							
Lane	EB1	EB2	WB1	WB2	SB1	Pedestrian SB Crossing	Pedestrian EB Crossing
False Calls	0	0	0	0	1	0	0
Blips	0	0	5	46	0	0	0
Observed	71	85	68	72	14	2	0
NoTraffic	71	85	68	72	14	1	0
Absolute Error	0	0	0	0	1	1	0
% Accuracy	100.00	100.00	100.00	100.00	92.86	50.00	100.00

Table 4. November 13th, 2025 – Evening Peak Rain Detection

11/13/2025 5:00 PM - 5:15 PM RAIN DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	1	0	0	2	1	1	0
Blips	0	0	2	36	1	0	0
Observed	79	105	110	107	42	1	1
NoTraffic	79	105	110	107	42	2	0
Absolute Error	1	0	0	2	1	0	1
% Accuracy	98.73	100.00	100.00	98.13	97.62	100.00	0.00

Table 5. November 13th, 2025 – After Sunset Rain Detection

11/13/2025 9:00 PM - 9:15 PM RAIN DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	0	0	0	4	0	0	0
Blip	0	0	0	0	0	0	0
Observed	30	43	34	21	1	0	0
NoTraffic	30	43	34	21	1	0	0
Absolute Error	0	0	0	4	0	0	0
% Accuracy	100.00	100.00	100.00	80.95	100.00	100.00	100.00

Rain Stop Bar Data Analysis

Four of the 25 tested stop-bar vehicle zones failed to meet the 95-percent accuracy requirement. Two of these timeframes were Table 1, which features the twilight timeframe and the lowest activity level for the round. Both zones had a value of one for their absolute error as a result of a false call, dropping the accuracy to 50 percent. The next zone that failed to meet the timeframe was in Table 3 at 92.86 percent due to a singular false call. The final zone that failed to meet the timeframe was during the after-sunset detection timeframe due to multiple false calls, resulting in an accuracy of 80.95 percent.

Four of the eight tested pedestrian zones failed to meet the 90-percent accuracy requirement. The highest volume of pedestrian traffic for a pedestrian zone in a singular timeframe was two pedestrians. The pedestrian activity observed may not represent the sensors' ability to detect pedestrians during rainy weather conditions due to low levels of pedestrian activity.

Clear Weather Stop Bar Detection

1. AM Peak – 7:45 AM – 8:00 AM
2. PM Peak – 5:00 PM – 5:15 PM

Table 6. December 4th, 2025 – Morning Peak Clear Detection

12/4/2025 7:45 AM - 8:00 AM CLEAR DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	0	0	0	0	5	0	0
Blip	0	0	12	7	0	0	0
Observed	55	148	102	92	79	2	0
NoTraffic	55	148	102	92	79	2	0
Absolute Error	0	0	0	0	5	0	0
% Accuracy	100.00	100.00	100.00	100.00	93.67	100.00	100.00

Table 7. December 4th, 2025 – Evening Peak Clear Detection

12/4/2025 6:00 PM - 6:15 PM CLEAR DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	0	0	0	0	0	0	0
Blip	1	2	15	37	3	0	0
Observed	54	97	78	68	19	1	1
NoTraffic	54	97	78	68	19	1	0
Absolute Error	0	0	0	0	0	0	1
% Accuracy	100.00	100.00	100.00	100.00	100.00	100.00	0.00

Clear Weather Stop Bar Data Analysis

One of the 10 stop-bar vehicle detection zones for clear weather testing does not meet the 90-percent accuracy requirement. This occurs in Table 6 for the southbound direction for an accuracy of 93.67 percent, due to a high number of false calls. In general, the accuracy levels in clear weather conditions saw a minor increase in most comparable rain detection zones.

One of the four pedestrian zones for this round of testing did not meet the 90-percent accuracy requirement. The pedestrian activity observed may not represent the sensors' ability to detect pedestrians during clear weather conditions due to low levels of pedestrian activity.

Foggy Weather Stop Bar Detection

1. AM Peak – 5:00 AM – 5:15 AM
2. AM Peak – 7:45 AM – 8:00 AM

Table 8. December 29th, 2025 – Before Sunrise Foggy Detection

12/29/2025 5:00 AM - 5:15 AM FOGGY DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	0	0	0	0	0	0	0
Blip	1	0	2	1	1	0	0
Observed	4	4	7	2	2	0	0
NoTraffic	4	4	7	2	2	0	0
Absolute Error	0	0	0	0	0	0	0
% Accuracy	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9. December 29th, 2025 – Morning Peak Foggy Detection

12/29/2025 7:45 AM - 8:00 AM FOGGY DETECTION VERIFICATION							
Lane	**EB1**	**EB2**	**WB1**	**WB2**	**SB1**	**Pedestrian SB Crossing**	**Pedestrian EB Crossing**
False Calls	0	0	1	0	0	0	0
Blip	1	3	11	12	2	0	0
Observed	27	34	25	28	8	1	0
NoTraffic	27	34	25	28	8	1	0
Absolute Error	0	0	1	0	0	0	0
% Accuracy	100.00	100.00	96.00	100.00	100.00	100.00	100.00

Foggy Weather Stop Bar Data Analysis

All vehicle 10 stop-bar vehicle detection zones for foggy weather testing meet the 95-percent accuracy requirement. In general, the accuracy levels in foggy level conditions see a marginal increase in accuracy over the accuracy in the rain weather detection for comparable detection zones, although the morning peak detection for foggy weather had less activity due to winter recess at the school located in the northeast corner of the intersection.

All the pedestrian zones for foggy weather meet the 90-percent accuracy requirement. The pedestrian activity observed may not represent the sensors' ability to detect pedestrians during morning fog conditions due to low levels of pedestrian activity.

Advanced Detection

Rain Weather Advanced Detection

Table 10. November 13th, 2025 – Twilight Advanced Rain Detection

11/13/2025 2:00 AM - 2:15 AM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	0	0	0	0
Blip	1	0	1	1
Observed	1	2	4	2
NoTraffic	1	2	4	2
Absolute Error	0	0	0	0
% Accuracy	100.00	100.00	100.00	100.00

Table 11. November 13th, 2025 – Morning Peak Advanced Rain Detection

11/13/2025 7:45 AM - 8:00 AM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	0	0	2	1
Blip	2	3	4	6
Observed	67	131	81	76
NoTraffic	67	131	81	76
Absolute Error	0	0	2	1
% Accuracy	100.00	100.00	97.53	98.68

Table 12. November 13th, 2025 – Afternoon Advanced Rain Detection

11/13/2025 2:30 PM - 2:45 PM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	6	0	1	0
Blip	3	0	2	1
Observed	72	86	70	72
NoTraffic	72	86	70	72
Absolute Error	6	0	1	0
% Accuracy	91.67	100.00	98.57	100.00

Table 13. November 13th, 2025 – Evening Peak Advanced Rain Detection

11/13/2025 5:00 PM - 5:15 PM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	11	6	10	0
Blip	0	1	0	0
Observed	77	96	107	104
NoTraffic	77	96	107	104
Absolute Error	11	6	10	0
% Accuracy	85.71	93.75	90.65	100.00

Table 14. November 13th, 2025 – After Sunset Advanced Rain Detection

11/13/2025 9:00 PM - 9:15 PM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	6	2	3	0
Blip	0	0	0	0
Observed	30	40	27	22
NoTraffic	30	39	27	22
Absolute Error	6	3	3	0
% Accuracy	80.00	92.50	88.89	100.00

*Note: Westbound is missing detection overlay from the device between 9:12:00 PM and 9:14:00 PM. Observed cars during this time have also been omitted from the final count.

Rain Weather Advanced Data Analysis

Seven of the twenty advanced rainy weather vehicle detection zones did not meet the 95-percent accuracy requirement. One detection zone occurs during the afternoon, while six detection zones occur during sunset or nighttime lighting conditions.

Clear Weather Advanced Detection

Table 15. December 4th, 2025 – Morning Peak Advanced Clear Detection

12/4/2025 7:45 AM - 8:00 AM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	0	0	5	0
Blip	1	0	3	4
Observed	65	141	105	96
NoTraffic	65	141	105	96
Absolute Error	0	0	5	0
% Accuracy	100.00	100.00	95.24	100.00

Table 16. December 4th, 2025 – Evening Peak Advanced Clear Detection

12/4/2025 6:00 PM - 6:15 PM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	2	1	6	0
Blip	0	0	0	2
Observed	57	98	80	69
NoTraffic	57	98	80	69
Absolute Error	2	1	6	0
% Accuracy	96.49	98.98	92.50	100.00

Clear Weather Advanced Data Analysis

One of the eight advanced vehicle detection zones for clear weather conditions does not meet the 95-percent accuracy requirement. This occurred during the evening in the westbound direction due to a high frequency of false calls. In general, accuracy during clear weather conditions sees an increase in comparison to the accuracy during the rainy weather conditions in comparable timeframes

Foggy Weather Advanced Detection

Table 17. December 29th, 2025 – Before Sunrise Advanced Foggy Detection

12/29/2025 5:00 AM - 5:15 AM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	4	4	0	0
Blip	1	1	0	0
Observed	4	4	7	2
NoTraffic	4	4	7	2
Absolute Error	4	4	0	0
% Accuracy	0.00	0.00	100.00	100.00

Table 18. December 29th, 2025 – Morning Peak Advanced Foggy Detection

12/29/2025 7:45 AM - 8:00 AM Advanced Detection				
Lane	**EB1**	**EB2**	**WB1**	**WB2**
False Calls	10	13	1	1
Blip	0	3	2	1
Observed	28	39	26	29
NoTraffic	28	39	26	29
Absolute Error	10	13	1	1
% Accuracy	64.29	66.67	96.15	96.55

Foggy Weather Advanced Data Analysis

Four of the eight vehicle foggy weather advanced detection zones do not meet the 95-percent accuracy requirement. In general, accuracy during foggy weather conditions sees a decrease in comparison to the accuracy during the rainy weather conditions and clear weather conditions in comparable timeframes. False calls occurred at a high frequency for foggy weather advanced detection.

Conclusion

The NoTraffic hybrid detection sensors showed accuracy levels that are capable of meeting Caltrans specification requirements for vehicle stop-bar detection. The sensor data gathered indicates that most of the errors from the sensor come from false calls, with detection misses occurring infrequently. Weather conditions appear to have a minimal impact on the sensors' performance for stop-bar detection. The NEMA tap photocell adapters performed without incident throughout adverse weather conditions.

Due to low volume of pedestrian activity over the tested timeframes, it is inconclusive if the hybrid detection sensors meet Caltrans specification requirements for pedestrian detection. EQASI intends to test pedestrian detection in another location with higher activity in the future.

False call recordings were higher in the advanced detection data collected, particularly in foggy weather conditions.

Video requests are processed through the NoTraffic support line. EQASI recommended to the manufacturer that this practice be updated due to urgency and potential communication errors. For evaluation purposes, the video timeframes need to be requested with clarification on the need for overlays and higher FPS.

Due to low volumes in some timeframes, not all accuracy numbers appear to meet the NSSP requirements. EQASI reserves the right to qualify material and make exemptions based on insufficient sample sizes.

December 2025

NoTraffic Product Compliance Statement

Build America, Buy America (BABA) Declaration

To whom it may concern,

The following memorandum outlines compliance with the Buy America, Build America (BABA) requirements as mandated by the Federal Highway Administration (FHWA):

1. Nexus Unit
2. Sensor Unit (Camera & Radar)

As required under 23 CFR § 635.410 and further explained under 90 FR 2932, the final assembly of manufactured products used on federal-aid highway projects must occur in the United States for any projects obligated on or after October 1, 2025. NoTraffic's final assembly of the manufactured products listed above will take place in New York.

This letter confirms that NoTraffic's final assembly of the manufactured products listed above takes place in New York, USA, and therefore the products are compliant with applicable BABA requirements.

Sincerely,

Tal Kreisler, CEO
NoTraffic