

Appendix A: LED Photometric Study

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OUTFRONT MEDIA Buena Park, CA

Digital Billboards

Photometric Analysis

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Date Submitted

24 June, 2022

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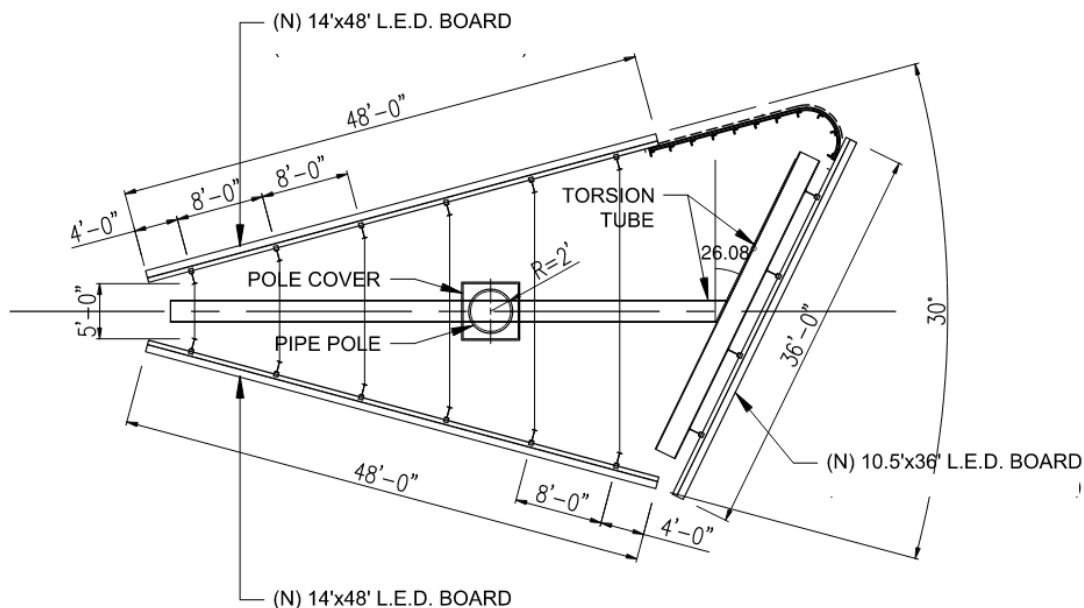
1.0 NARRATIVE

We (exp engineering) have conducted a photometric review of the digital billboard being proposed at the intersection of Firestone Blvd. and Artesia Blvd. in the city of Buena Park, CA.

Using the photometric software AGI32, we studied the screen's output brightness to determine the following:

- A) Potential modifications to the sign that may be needed to comply with the OAAA (Outdoor Advertising Association of America) Lighting Level Guideline, and
- B) The impact the sign will have at night on the surrounding community.

The proposed billboards are a tri-face configuration with two of the signs measuring 14'x48' and the third at 10'-6"x36', with the top of the sign mounted at +75' above the ground with maximum screen brightness of 300 NITS (300 Candela per Square Meter) in the evening. The signs are shown to be mounted in a triangular configuration with the two longer screens angled 15° outward from the center mounting beam and the smaller third screen canted 26° off perpendicular with the beam.



Per OAAA guidelines, the proposed signs, displaying a full white image (for maximum brightness) should not exceed three tenths (.3) of a foot candle over the surrounding ambient light levels at a distance of 250' perpendicular to the sign face.

The photometry used in this study is based on the specified Nichia NSPX336 FOV LED modules which output light horizontally at 90° and 45° vertically at an evening output level of 300 Nits (Candela per Square Meter).

As we are unable to determine what the ambient light levels will be at the location, the studies were done assuming the worst-case scenario of no ambient light.

We have included graphical illustrations demonstrating the light levels in foot-candles (fc) we expect from the screen.

SHEET 1 of the attachment shows a satellite plan view of the billboards at their proposed location near the intersection of Artesia Blvd. and Firestone Blvd., the surrounding buildings, and an overlay of photometric points perpendicular to the center of the sign. Dashed lines indicate the OAAA 250' boundary line and horizontal beam angles the LEDs emit.

SHEET 2 is a close-up view of the 250' boundary showing the points at which the light emanating from the face (shown as a line running perpendicular to the center of each sign) depreciates to .3fc and below.

SHEET 3 shows pseudocolor and greyscale rendered arial views from above the proposed site showing the extent of the light onto the area. The image also shows the OAAA 250' boundary point and where the illumination levels fall below .3fc from the face.

SHEET 4 shows two images of the billboards' impact on the auto dealership (7301 Artesia Blvd) and hotel (7307 Artesia Blvd.) located to the NE of the billboard. The first image is a pseudocolor rendering showing the gradation in fc. levels outward from the signs. The second image is a rendered image of that same view depicting the relative light levels on the surfaces.

SHEET 5 shows two images of the billboards' impact on the Chevron station (7250 Artesia Blvd.) and Carmax center (6100 Auto Center Dr.) located to the SE of the billboard. The first image is a pseudocolor rendering showing the gradation in fc. levels outward from the signs. The second image is a rendered image of that same view depicting the relative light levels on the surfaces.

SHEET 6 shows two images of the billboards' impact on the Carpenters Local 714 building (7111 Firestone Blvd.) located to the north of the billboard. The first image is a pseudocolor rendering showing the gradation in fc. levels outward from the signs. The second image is a rendered image of that same view depicting the relative light levels on the surfaces.

Conclusions

We see no light levels in excess of .3fc beyond the 250' radius of the signs, and while there is a minor amount of light spill on two of the adjacent commercial areas, we feel that the impact to those properties to be negligible provided the sign brightness is reduced after dark to the 300 NIT level per OAAA standards.

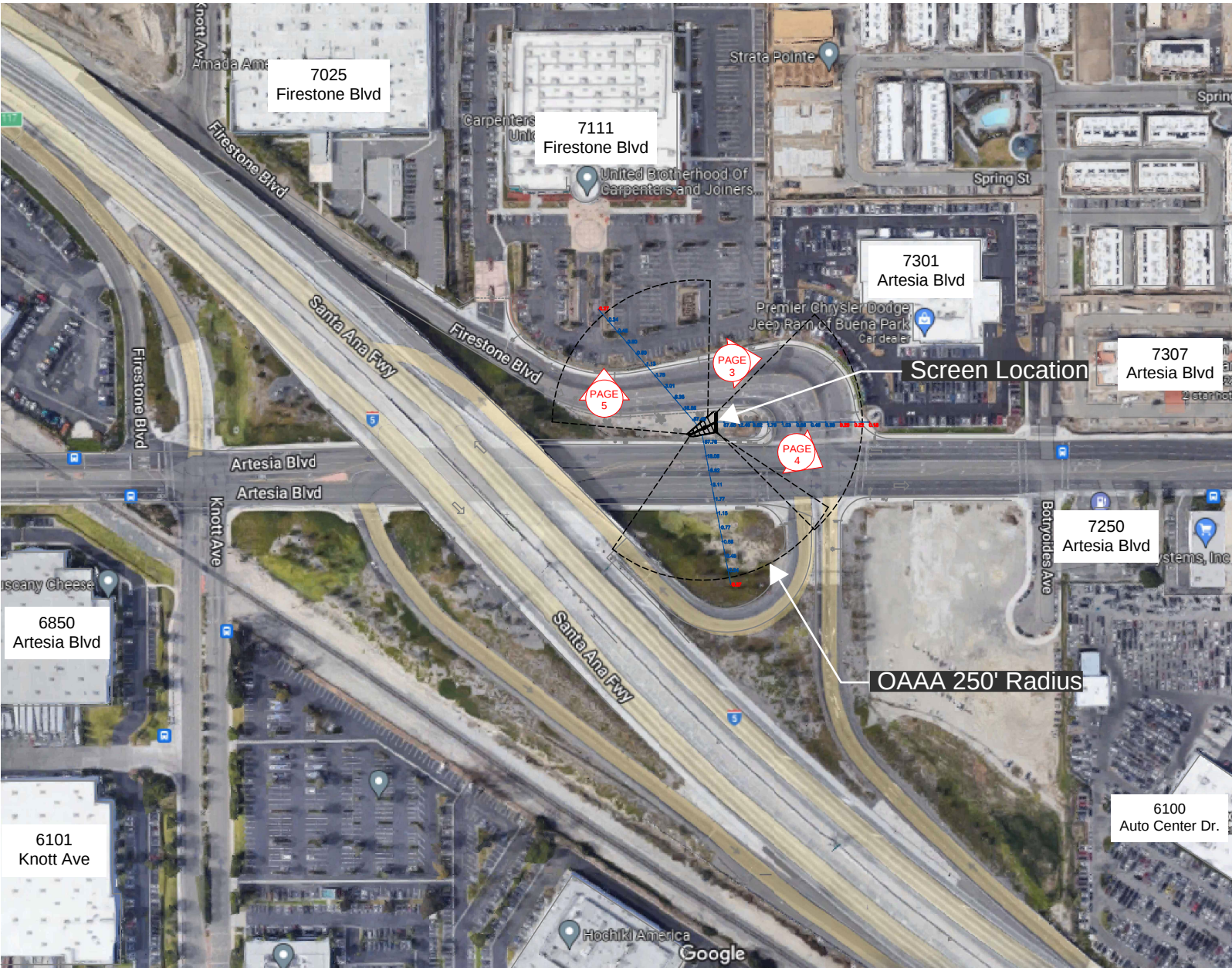
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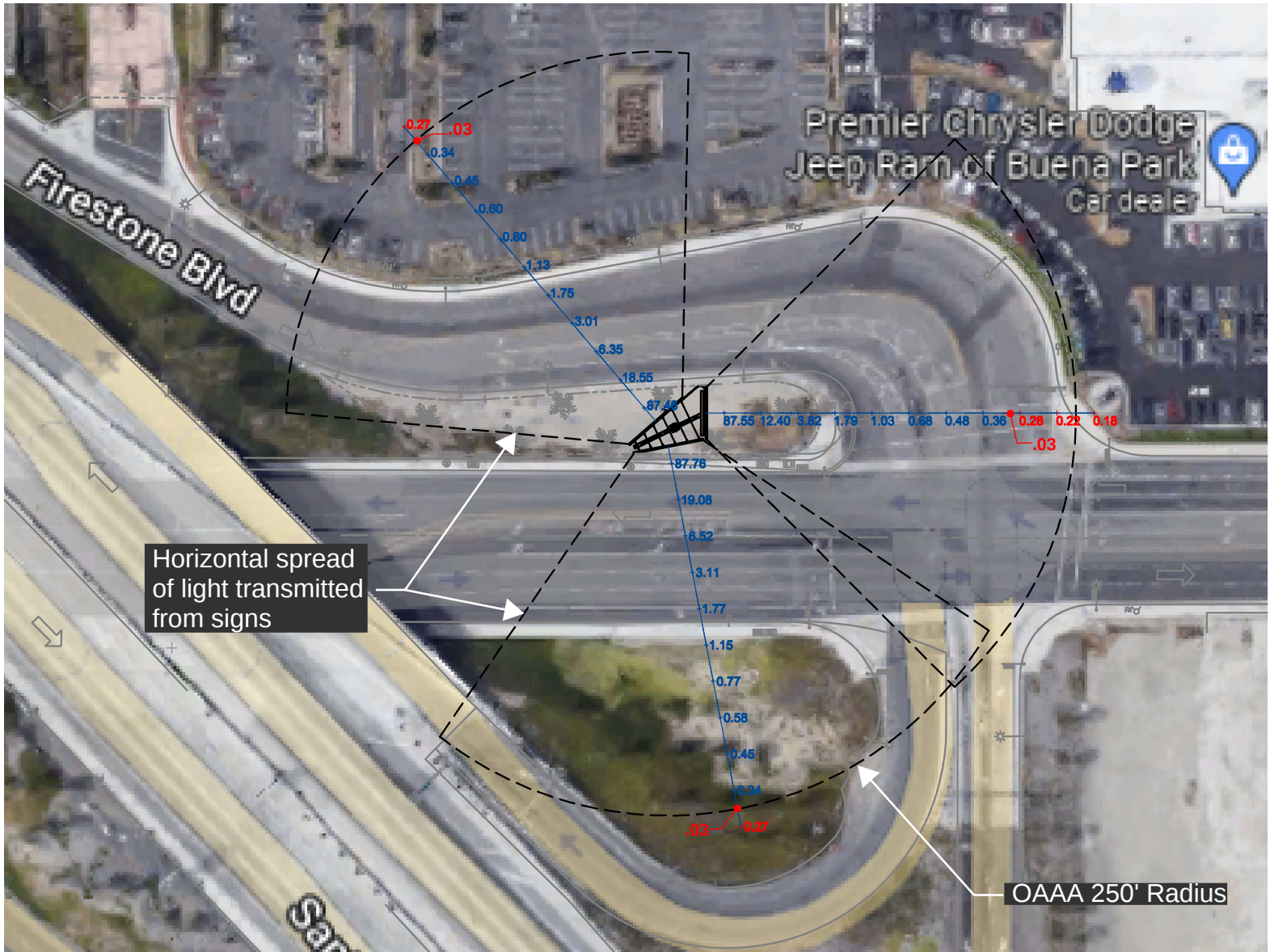


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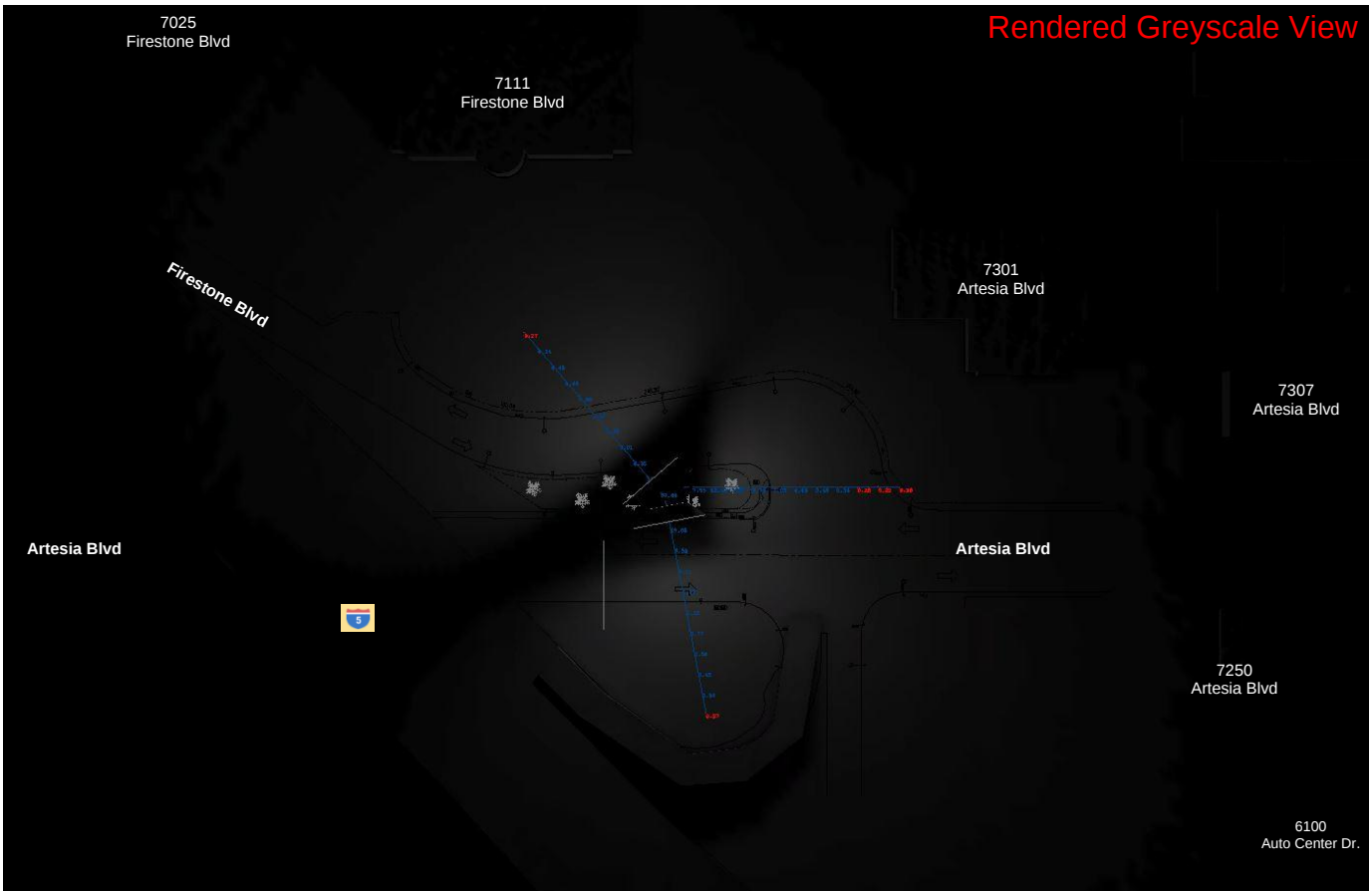
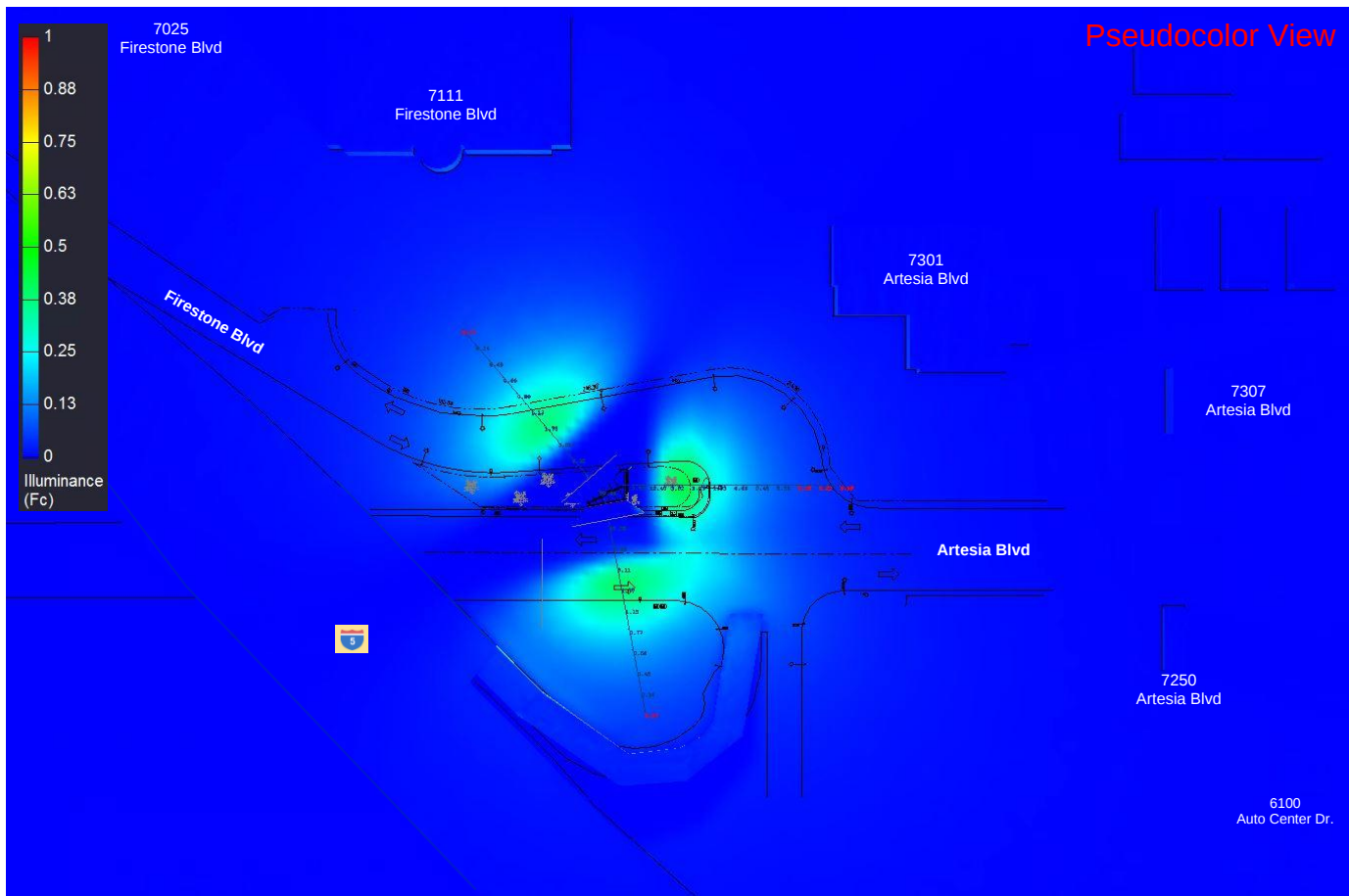
Foot-candle Level Graphic Sheets







Illuminance (measured in foot candles) of the sign measured out 250' along a horizontal line perpendicular from the center of the screen, per OAAA guidelines.



Pseudocolor View

1
0.88
0.75
0.63
0.5
0.38
0.25
0.13
0
Illuminance (Fc)

7301
Artesia Blvd

7307
Artesia Blvd

Artesia Blvd

N
E
S
W

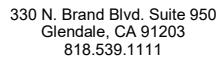
Rendered Greyscale View

7301
Artesia Blvd

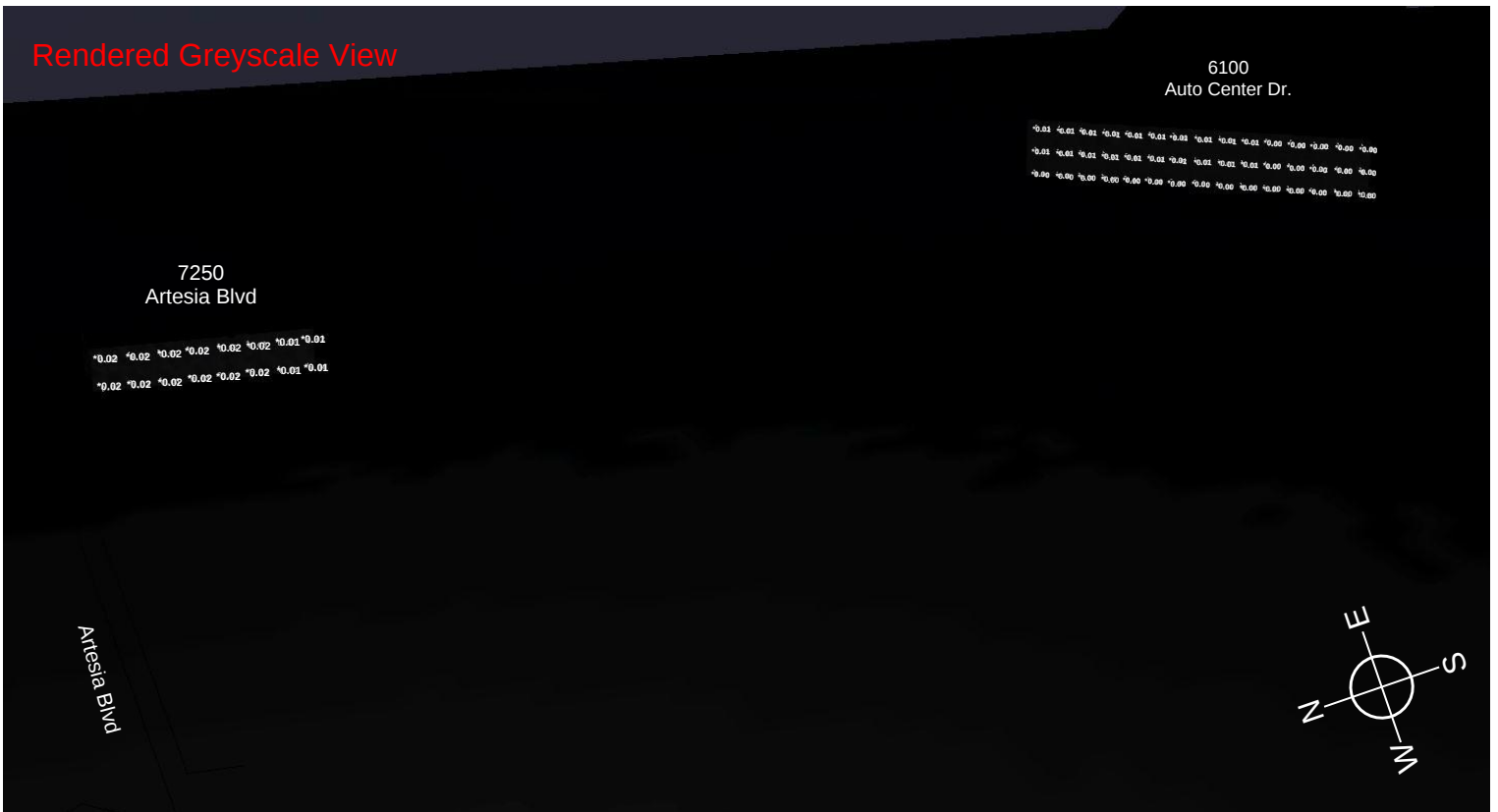
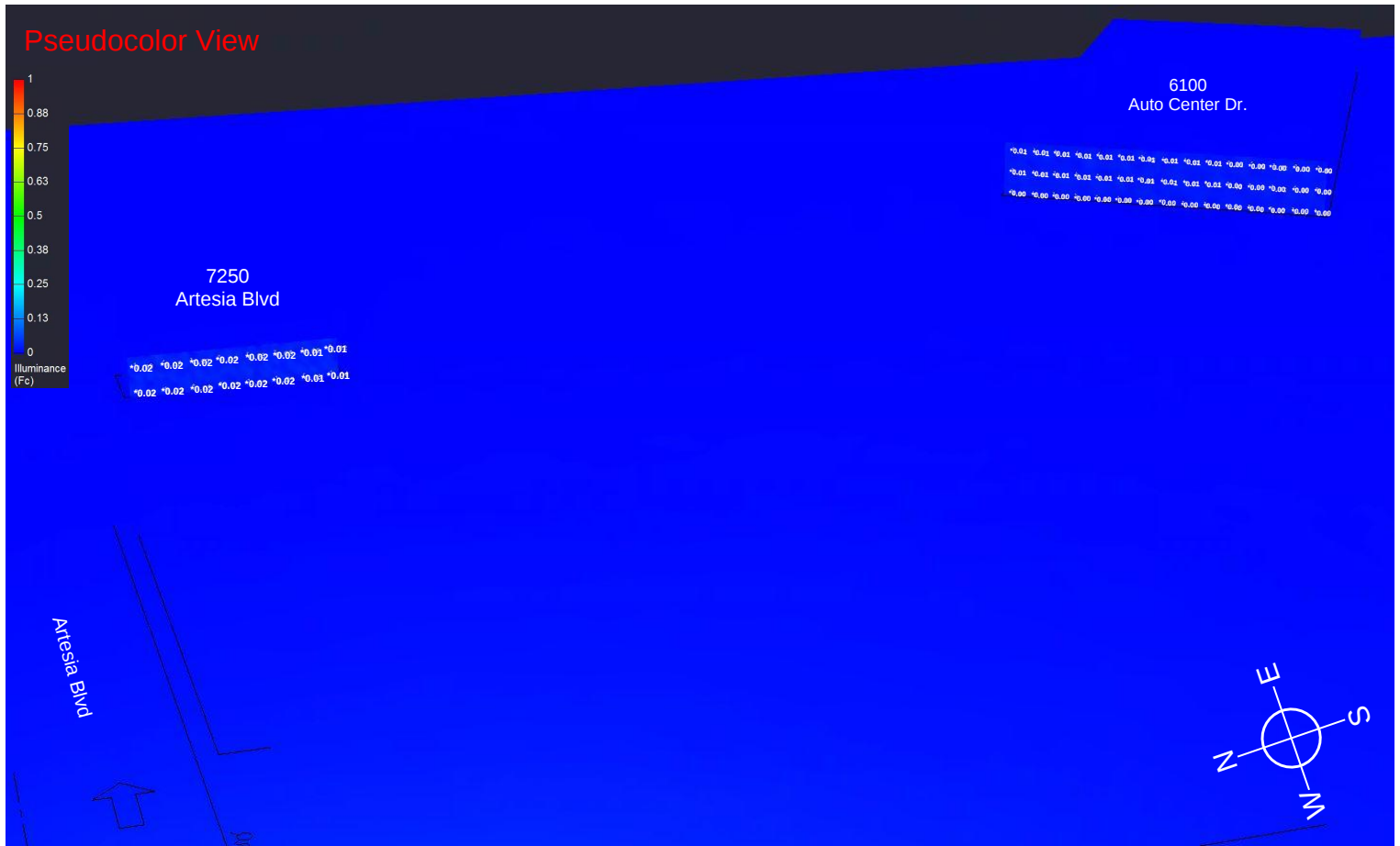
7307
Artesia Blvd

Artesia Blvd

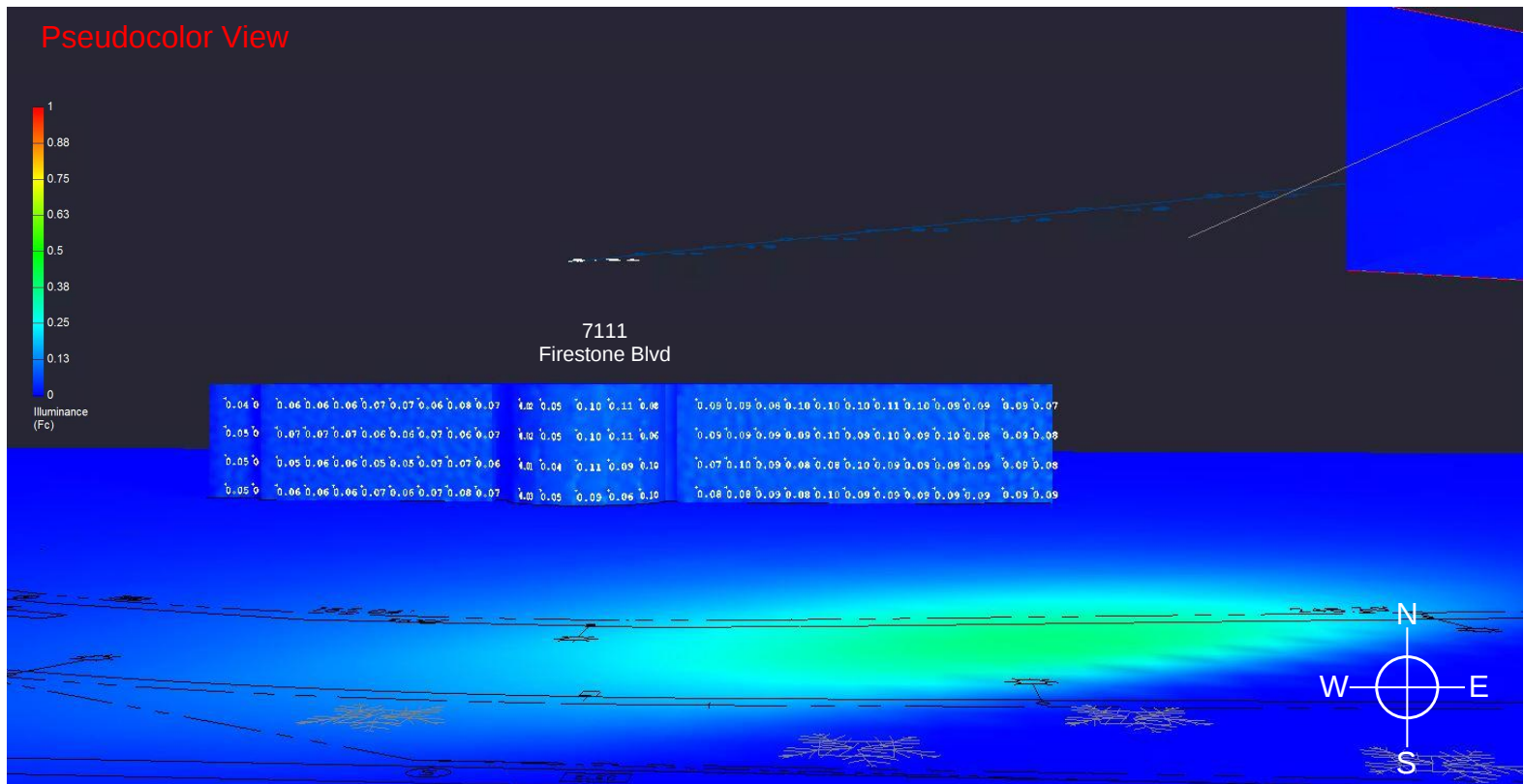
N
E
S
W



NE View From The Billboard



Pseudocolor View



Rendered Greyscale View

