

PART 2

Proposed Language for Billboard Brightness Standards

Based on considerable research, field measurements, and human factors studies spanning decades, the following language is proposed for a typical ordinance to address “brightness” limits for digital billboards and on-premise signs.

Billboard Regulations

Purpose.

- Impose reasonable standards on the number, size, height, luminance and location of billboards and facilitate the removal of nonconforming signs in order to:
 - Prevent and relieve needless distraction, glare and clutter resulting from excessive, unnecessarily bright and confusing sign displays.
 - Eliminate hazards to pedestrians, cyclists and motorists brought about by distracting and excessively bright signs.

Purpose (Special Use Permit).

- The types of signs for which a special use permit is required have a potential substantially greater than other types of signs for creating needless distraction, glare and clutter, confusion and hazards, and for impairing and destroying property values and the appearance and aesthetic qualities of the area, and for adversely affecting the environment.

Definitions.

- Bright, brightness. “Brightness” means the subjective attribute of visual perception in which a source appears to be emitting or reflecting light. It is the perception elicited by the luminance of a visual target. For purposes of this Section, brightness means luminance.
- Candela Per Meter Square (cd/m²). “Candela Per Meter Square (cd/m²)” is the standard used for measurement of luminance of a source or target. It is the equivalent of “nit.”
- Civil Twilight. “Civil Twilight” means that time that begins in the morning, and ends in the evening, when the center of the Sun is geometrically 6

degrees below the horizon. This is the limit at which twilight illumination is sufficient, under good weather conditions, for terrestrial objects to be clearly distinguished; at the beginning of morning civil twilight, or end of evening civil twilight, the horizon is clearly defined and the brightest stars are visible under good atmospheric conditions in the absence of moonlight or other illumination. In the morning before the beginning of civil twilight and in the evening after the end of civil twilight, artificial illumination is normally required to carry on ordinary outdoor activities.

- Disability Glare. “Disability Glare” means the temporarily impaired vision of objects in the visual scene, with or without associated discomfort, caused by intense light sources in the field of view.
- Discomfort Glare. “Discomfort Glare” means the sensation of annoyance or pain induced by overly bright light sources in the field of view.
- Glare. “Glare” means a visual condition in which there is excessive contrast or an inappropriate distribution of light sources that disturbs the observer or limits the ability to distinguish details and objects. Glare can be generally described as either Discomfort Glare or Disability Glare. Glare reduces visibility due to: (a) reduction in brightness of the scene due to constriction of the pupils in response to the glare source; (b) reduction in contrast of the scene due to the scattering of light from the glare source within the eye; (c) reduction in contrast of the scene due to the scattering of light in particles in the air during precipitation; (d) reduction in contrast of the scene by veiling luminance from the glare source shining onto the windshield.
- Internal Illumination. “Internal illumination” means illumination produced by a light source contained within a sign and which may or may not be directly visible from outside.
- Luminance. “Luminance” means a photometric measure of the luminous intensity per unit area of light travelling in a given direction. It describes the amount of light that passes through or is emitted from a particular source, and falls within a given solid angle. The unit of measurement of luminance is “candela per meter square (cd/m^2)” or “nit.”
- Nit, nits. “Nit” or “nits” means candela per meter square (cd/m^2). The two terms are equivalent.
- Nit Gun. “Nit Gun” means an instrument that measures light intensity in terms of luminance. A Nit Gun is equivalent to a Photometer.
- Photometer. “Photometer” means an instrument that measures light intensity in terms of luminance. A Photometer is equivalent to a Nit Gun.

Nighttime Luminance Limits for Signs

- Applicability. This Section applies to all signs, including On-Premise, Off-Premise, Electrically animated and flashing signs and electronic variable message signs.
- Maximum Luminance – Urban Areas. No sign covered by this Section shall present a display or any part of a display that exceeds 150 nits between the end of civil twilight in the evening and the beginning of civil twilight in the morning.
- Maximum Luminance – Suburban and Rural Areas. No sign covered by this Section shall present a display or any part of a display that exceeds 100 nits between the end of civil twilight in the evening and the beginning of civil twilight in the morning.
- Measurement and Recording of Maximum Luminance.
 - Luminance shall be measured using a calibrated, certified photometer.
 - Luminance measurements shall be taken during the hours between the end of evening civil twilight and the beginning of morning civil twilight.
 - Luminance measurements shall be taken from a position as close to the sign being measured as reasonably possible.
 - The photometer shall be positioned for measurements such that the sign being measured fills the central circle of the viewfinder (the “measurement area”). If the sign being measured contains multiple colors, the photometer shall be positioned such that an area of the sign displaying all white fills the measurement area. If the area being measured does not fill the measurement area, it will be necessary to move the photometer closer to the sign until this takes place.
 - At least five (5) measurements shall be made for each sign or sign areas, and the readings recorded.
 - The recorded measurements, including the date and time made and the permit number for the sign(s) in question shall be provided to (TBD) within thirty (30) days.

Daytime Luminance Limits for Signs.

- Applicability. This Section applies to all signs, including On-Premise, Off-Premise, Electrically animated and flashing signs and electronic variable message signs.
- Maximum Luminance. No sign covered by this Section shall present a display or any part of a display that exceeds 3000 nits between the end of civil twilight in the morning and the beginning of civil twilight in the evening.
- Measurement and Recording of Maximum Luminance.
 - Luminance shall be measured using a calibrated, certified photometer.
 - Luminance measurements shall be taken during the hours beginning two hours after the end of morning civil twilight and two hours prior to the beginning of evening civil twilight.
 - Luminance measurements shall be taken from a position as close to the sign being measured as reasonably possible.
 - The photometer shall be located for measurements such that the sign being measured fills the central circle of the viewfinder (the “measurement area”). If the sign being measured contains multiple colors, the photometer shall be positioned such that an area of the sign displaying all white fills the measurement area. If the area being measured does not fill the measurement area, it will be necessary to move the photometer closer to the sign until this takes place.
 - At least five (5) measurements shall be made for each sign or sign areas, and the readings recorded.
 - The recorded measurements, including the date and time made and the permit number for the sign(s) in question shall be provided to (TBD) within thirty (30) days.

Dimming Capability for Signs.

- Applicability. All signs that have the capability for automatic or remote luminance adjustment shall be equipped with technology that automatically adjusts the sign’s luminance in direct correlation with ambient light conditions. In no case shall such capability permit the sign to operate at luminance levels greater than those set forth herein.

Component or System Failure.

- Applicability. In the event that any component of the sign, including, but not limited to, its display, control, communication, design, or other operational component causes any portion of the display to fail or malfunction, the sign owner or operator shall take immediate action to turn the display off, or reduce the entire display to its minimum possible luminance level. The display shall remain in this condition until the problem has been resolved.

Appendix 1: Field Measurements of Luminance Values of Existing Outdoor Signs (Digital and Traditional; On- and Off-Premise)

Part 1. Measured Luminance Values of *Traditional* Billboards in Washoe County, Nevada

Sign #	Location	Jurisdiction	On- or off-premise	Sign Message (Where applicable)	# of Meter Readings	Average of Readings	Range of Readings
1	California @ S. Virginia	Reno	Off	"Too many pedestrians Die on our Roads"	5	8.84	3.3-17.4
3	S. Virginia	Reno	Off	"Yummm and get it"	3	49.3	7.6-71.3
4	S. Virginia	Reno	Off	"The New 106.9"	4	21.7	6.9-35.07
5	S. Virginia @ E. Taylor	Reno	On	On-premise: USA Sports Lounge	3	197.7	110.6-291.6
6	S. Virginia @ E. Taylor	Reno	Off	"The New Ten Country"	3	76.2	36.0-138.9
7	S. Virginia @ Martin	Reno	Off	"Hello Night Life"	4	63.4	2.2-126.5
8	S. Virginia @ Martin	Reno	Off	"Confidential Support"	3	27.1	15.8-48.2
12	W4 nr Del Curto Drive	Reno	Off	"Rustic Furniture"	2	33.5	28.2-38.9
13	W4 between Mayberry/Woodland	Reno	Off	"Joey Gilbert Law"	6	174.2	19.5-427.5
14	W4 @ Mayberry	Reno	Off	"Tory D. Allen Law"	3	5.7	3.6-8.0
15	W4 @ Del Curto	Reno	Off	"Jet Plumbing"	4	81.0	40-118
16	E4 @ I-395	Reno	Off	"Moving Nevada Forward"	4	96.3	62.2-124.5

19	E2 @ I-395	Reno	Off	"Galloway Jensen"	4	7.4	2.9-11.5
21	I-395 @ Clear Acre	Reno	Off	"Free Play Fridays"	3	26.2	14.5-43.4
22	I-395 @ Clear Acre	Reno	Off	"Car Insurance"	4	34.1	10.2-78.7
23	I-395 @ Clear Acre	Reno	Off	"Car Insurance"	3	54.6	25-96
24	I-80 nr Exit 2, Verde	Unincorporated Washoe County	Off	"Pancakes, eggs, and bacon"	3	13.1	3-22
25	I-80 nr Exit 2, Verde	Unincorporated Washoe County	Off	"Boomtown Casino and Hotel"	4	29.4	2.3-21.3
26	Mae Ann Ave betw Leroy and Coventry	Unincorporated Washoe County	Off	"Italian is Grand"	5	38.1	2.1-113.5
27	Sun Valley Blvd. just north of Skaggs	Unincorporated Washoe County	Off	"Elect Don Gustavson State Senate"	3	3.5	2.2-5.9
29	Sun Valley Blvd @ 4 th Av.	Unincorporated Washoe County	On	"Scolari's"	3	164.6	120-205
30a	Sun Valley Blvd. @ 5 th Av.	Unincorporated Washoe County	On	"Sun Valley Shopping Center"	3	88.1	5.3-145
31	Sun Valley Blvd. @ 1 st Ave	Unincorporated Washoe County	Off	"Bonanza Casino – Congratulations Helena"	4	11.2	4.7-22.9
32a	Pyramid Way @ Greenbrae Dr.	Sparks	On	Shopping Center, incl "Greenbrae Fitness"	2	481.5	440-523
33a	Pyramid Way @ Greenbrae Dr.	Sparks	On	"Smoke Shop"	1	108	N/A
34a	Pyramid Way @ 1 st St.	Sparks	On	Sparks Florist (neon)	1	521	N/A
34b	Pyramid Way @ 1 st St.	Sparks	On	Sparks Florist - internally illuminated	1	88	N/A
36	I-80 East and Nugget Ave, at Exit 19	Sparks	Off	"Peppermill Sports Book App"	3	14.4	5.9-24.9
37	Nugget Ave (service rd) , I-80E past Exit 19	Sparks	Off	Coors Beer	5	18.2	5-26

38a	I-80E past Exit 19 on service road	Sparks	Off	"Petro Shopping Centers"	3	11.7	6.2-20.8
39	I-80E @ Exit 20	Sparks	Off	"What's Your Number?"	3	91.9	61.1-116.7
42	I-395 @ Neil Rd.	Reno	On	Pinocchio's Bar & Grill	1	240	N/A
44	I-395 @ Neil Rd.	Reno	On	Pinocchio's Bar & Grill	3	1527	1391-1776

Notes:

1. All measurements are in cd/m² using a Minolta LS-100 (1°) calibrated photometer. Multiple readings represent readings of different sections of each display.
2. Signs 1-23 were measured on 9/22/14; signs 24-44 were measured on the night of 10/18/14 and the morning of 10/19/14.
3. Where a numbered entry contains both an "a" and a "b" designation, this is because the sign contains both traditional and digital components, and the two lighting systems are measured separately.
4. Entry #34 also includes a "c" designation; in this case, (a) represents a neon component; (b) represents an internally illuminated (but traditional) component; and (c) represents a digital component.
5. Entry #42 and #44 depict the same static, internally illuminated sign, the first at night and the second during the day. Although the daytime luminance values are more than six times as high as those at night, most likely due to luminance values of the cloudless sky, the sign appears less bright to the camera (and to the human eye) because it is in shade. This demonstrates that luminance levels that may be acceptable in daytime may be excessive at night.

Part 2. Measured Luminance Values of *Digital* Signs (on- and off-premise) in Washoe County, Nevada

Sign #	Location	Jurisdiction	On- or off-premise	Sign name or message (Where applicable)	# of meter readings	Average of readings	Range of readings
2	S. Virginia @ California	Reno	On	Wild Orchid	4	3,850	2024-5390
9	S. Virginia @ Brinkby	Reno	On	Peppermill Casino	10	1,601	289-2611
10	S. Virginia @ Moana	Reno	On	Lucky Beaver	3	521.6	264-782
11	S. Virginia @ W. Peckham	Reno	On	Atlantis Casino	3	316.7	107-640
17	I-395 @ 580	Reno	On	GSR Grand – monument sign	4	375.3	114-574
18	I-395 @ 580	Reno	On	GSR Grand – wall mount	4	410.5	277-593
20	I-395 @ E2 St.	Reno	Off	At Wal-Mart	6	1,961.9	577.6-3142*
28	Sun Valley Blvd @ 2 nd Avenue	Unincorporated Washoe County	On	Hobey's Casino	5	1,364	990-1810
30b	Sun Valley Blvd. @ 5 th Avenue	Unincorporated Washoe County	On	"Discounted E Cigarettes"	1	364	N/A
32b	Pyramid Way @ Greenbrae Dr.	Sparks	On	"Welcome All"	1	1852	N/A
33b	Pyramid Way @ Greenbrae Dr.	Sparks	On	"Smoke Shop"	1	386	N/A
34c	Pyramid Way @ 1 st St.	Sparks	On	Sparks Florist (digital)	1	74	N/A
35	I-80 East just E of Pyramid Way	Sparks	Off	"Elect Kuzanek"	5	421	44-917

38b	I-80E past Exit 19 on service road	Sparks	Off	Coors Beer	2	286.5	204-369
40	I-395 @ Exit 67	Reno	On	GSR Casino	6	3355.7	2215-4440
41	I-395 @ Neil Rd.	Reno	On	Pinocchio's	5	2516.2	2086-3076
43	I-395 @ Neil Rd.	Reno	On	Pinocchio's	4	4442.3	4072-4885

Notes:

1. All measurements are in cd/m² using a Minolta LS-100 (1°) calibrated photometer. Multiple readings represent readings of different displays as they were presented on the signs.
2. Signs 2-20 were measured on 9/22/14; signs 28-43 were measured on the night of 10/18/14 and the morning of 10/19/14.
3. Where a numbered entry contains both an "a" and a "b" designation, this is because the sign contains both traditional and digital components, and the two lighting systems are measured separately.
4. Entry #34 also includes a "c" designation; in this case, (a) represents a neon component; (b) represents an internally illuminated (traditional) component; and (c) represents a digital component.
5. Entry #17 and entry #40 depict the same sign, measured on two different dates. The dramatic differences in luminance may represent the difference in messages displayed (with attendant differences in colors and luminance), and/or changes in the sign's luminance settings.
6. Entry #41 and #43 depict the same digital sign, the first at night and the second during the day. Although the daytime luminance values are nearly twice as high as those at night, the sign appears less bright to the camera (and to the human eye) because of the high luminance levels of the white building and the cloudless sky.

*Messages on this sign were often too bright to be readable. RENO/SPARKS/WASHOE COUNTY BILLBOARD/ON-PREMISE
SIGN DATA SHEET

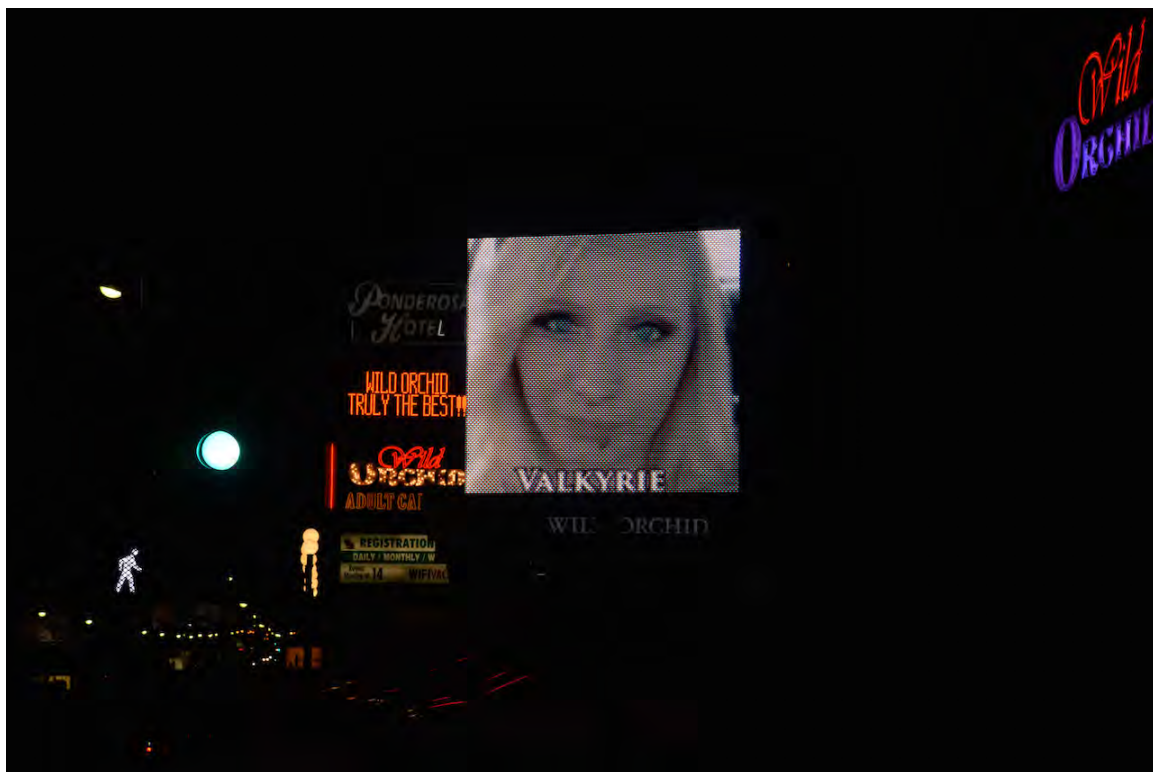
Appendix 2: Field Data for All Signs Measured

Part 1. September 22, 2014

	Relevant Sign Data and Info	Notes and Miscellar
Sign # (JW/Official)	1/001061	Clear Channel
Location- Streets	On California @ S. Virginia	"Too many pedestri roads"
Jurisdiction	City of Reno	
Location- GPS	N39-31-220 W1190-48-659	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Urban, but not brightly lit	
Reading 1	7.8	
Reading 2	7.2	
Reading 3	8.5	
Reading 4	3.3	
Reading 5	13.4	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	2	
Location- Streets	Corner California @ S. Virginia	"Wild Orchid"
Jurisdiction	City of Reno	
Location- GPS	N39-31-216 W119-48-625	
BB or On-Premise?	On premise	
Digital or Std?	Digital	
Illumination Type and Number	LED	
Background	Building with other digital signs	
Reading 1	4094	
Reading 2	3892	
Reading 3	2024	
Reading 4	5390	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	3/ 009491	Clear Channel
Location- Streets	On S. Virginia	"Yummm and get it" – Red Robin
Jurisdiction	City of Reno	
Location- GPS	N39-31-003 W119-48-518	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Urban; some on-premise lighting	
Reading 1	7.6	
Reading 2	71.3	
Reading 3	69.2	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	4/003321	Clear Channel
Location- Streets	On S. Virginia	"The New 106.9 More FM"
Jurisdiction	City of Reno	
Location- GPS	N39-31-003 W119-48-518	Across street from #3
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Urban - 1 story bldgs	
Reading 1	6.9	
Reading 2	35.07	
Reading 3	32.5	
Reading 4	12.3	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	5/NA	
Location- Streets	E. Taylor @ S. Virginia	Bar – USA Sports Lounge
Jurisdiction	City of Reno	
Location- GPS		
BB or On-Premise?	On premise	
Digital or Std?	Std – internally illuminated	
Illumination Type and Number	Internal	
Background	Urban, billboards in bkgd	
Reading 1	291.6	
Reading 2	110.6	
Reading 3	190/9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	6/008071	Clear Channel
Location- Streets	E. Taylor @ S. Virginia	"The New Country" (mostly white)
Jurisdiction	City of Reno	
Location- GPS	N39-30-974 W119-48-492	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background		
Reading 1	53.7	
Reading 2	36.0	
Reading 3	139.9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	7/011495	Clear Channel
Location- Streets	On California @ S. Virginia	"Hello Nightlife" (half black, half white)
Jurisdiction	City of Reno	
Location- GPS	N39-30-933 W190-48-470	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Urban, nearby buildings	
Reading 1	83.9	
Reading 2	126.5	
Reading 3	2.2	
Reading 4	41.1	



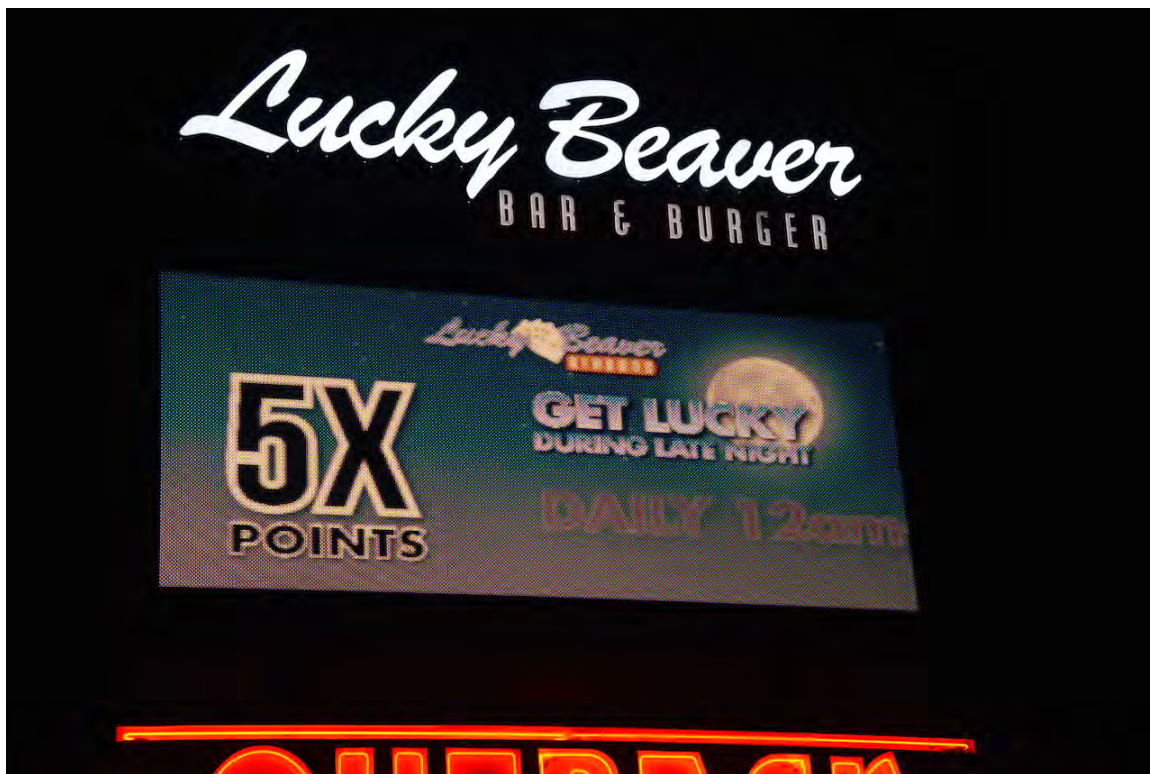
	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	8 /002141	Clear Channel
Location- Streets	Martin St. @ S. Virginia	"Confidential Support"
Jurisdiction	City of Reno	
Location- GPS	N39-30-910 W119-48-471	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Building with other digital signs	
Reading 1	15.8	
Reading 2	48.2	
Reading 3	17.2	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	9/NA	
Location- Streets	Brinkly @ S. Virginia	Peppermill Casino
Jurisdiction	City of Reno	
Location- GPS	N39-29-822 W119-47-944	
BB or On-Premise?	On premise	
Digital or Std?	Digital + video	Note: Several failed LED segments, brighter than rest of display, and appear to scintillate.
Illumination Type and Number	LED	
Background		
Reading 1	1631	
Reading 2	989	
Reading 3	1154	
Reading 4	1339	
Reading 5	734	
Reading 6	289	
Reading 7	2253	
Reading 8	2602	



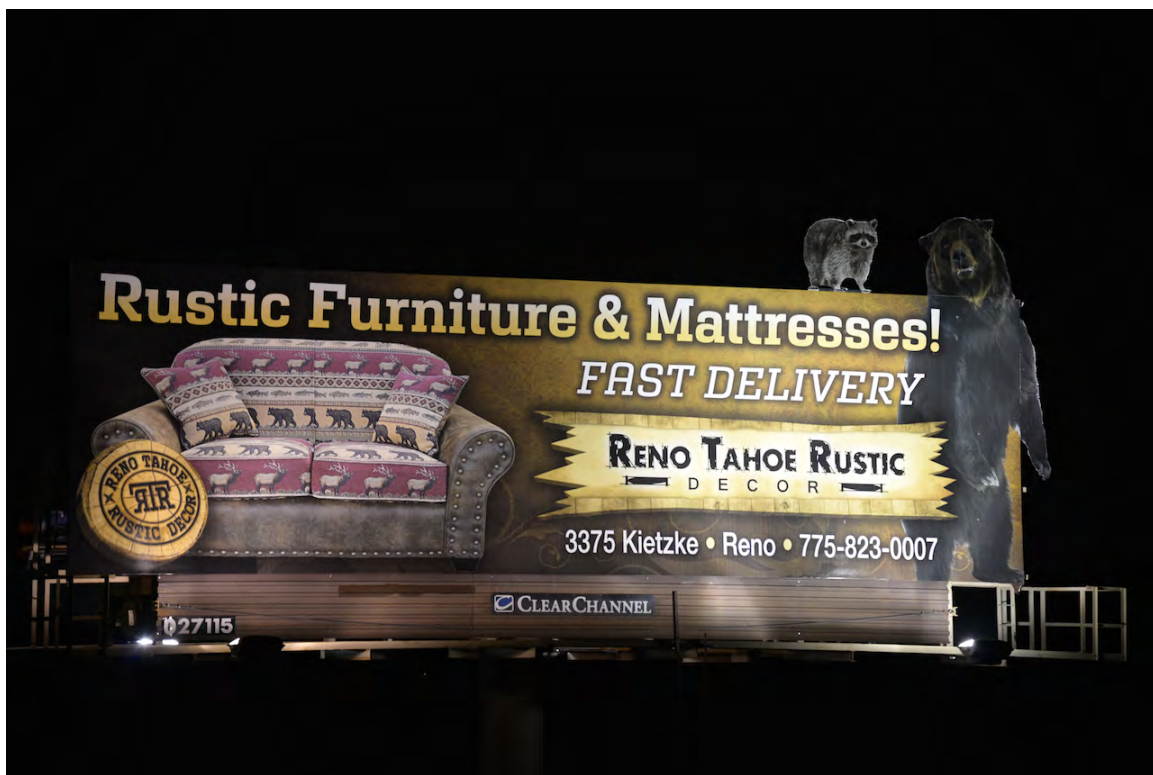
	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	10/NA	
Location- Streets	Moana St @ S. Virginia	"Lucky Beaver Bar and Burger"
Jurisdiction	City of Reno	
Location- GPS	N39-29/417 W119-47-765	
BB or On-Premise?	On premise	
Digital or Std?	Digital + video	
Illumination Type and Number	Internal and LED	
Background		
Reading 1	782	
Reading 2	519	
Reading 3	264	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	11/NA	
Location- Streets	W. Peckham @ S. Virginia	Atlantis Casino
Jurisdiction	City of Reno	
Location- GPS	N39-29-306 W119-46-676	
BB or On-Premise?	On premise	
Digital or Std?	Digital + video	
Illumination Type and Number	LED, some neon	
Background	Lighted parking lot	
Reading 1	1062	
Reading 2	640	
Reading 3	209	
Reading 4	107	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	12/027115	Clear Channel
Location- Streets	W4 near Del Curto Drive	"Rustic Furniture and Mattresses"
Jurisdiction	City of Reno	
Location- GPS	N39-30-841 W119-51-224	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Dark rural	
Reading 1	28.2	
Reading 2	38.9	



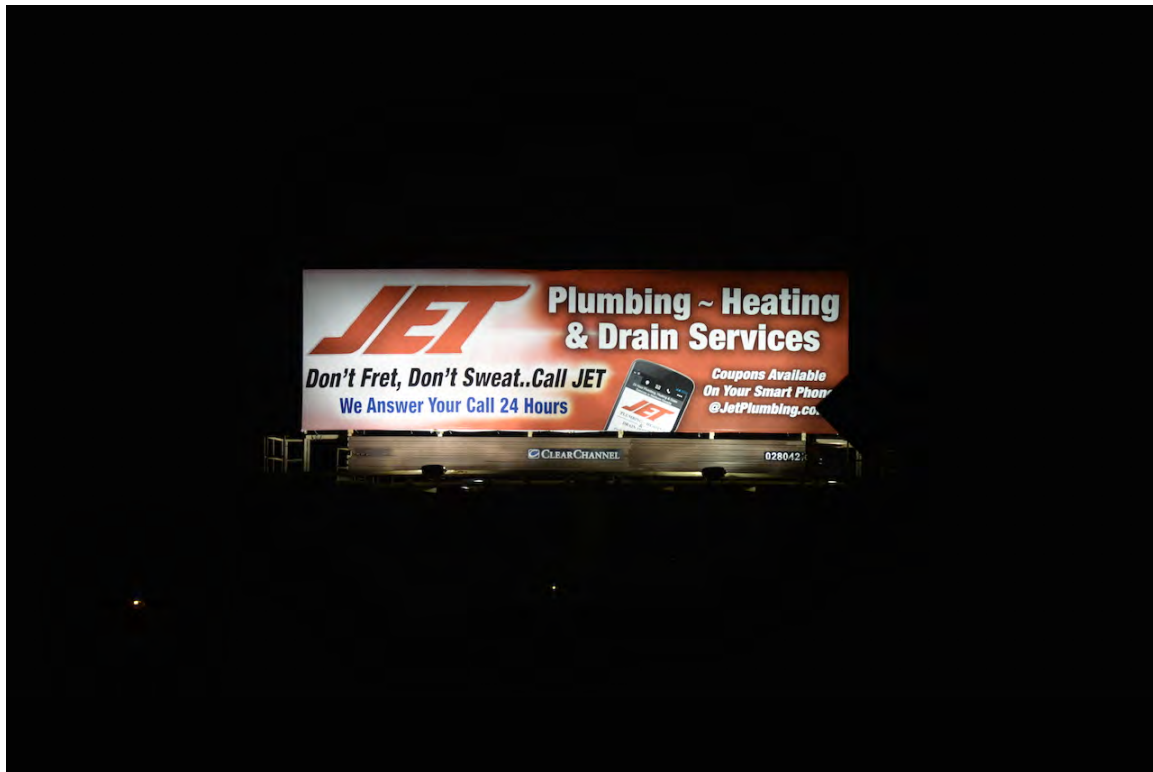
	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	13/?	Unknown
Location- Streets	W4 St betw Mayberry and Woodland	"Accident-Inured Search Joey Albert Law"
Jurisdiction	City of Reno	
Location- GPS	N39-30-544 W119-453-703	
BB or On-Premise?	BB	No name or number
Digital or Std?	Std	
Illumination Type and Number	2 downlights	
Background	Rural - dark	
Reading 1	301	
Reading 2	201	
Reading 3	65	
Reading 4	427.5	
Reading 5	19.5	
Reading 6	30.9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	14/51008N	Yesco
Location- Streets	On W 4 St @ Mayberry	"Tory D. Allen Law"
Jurisdiction	City of Reno	
Location- GPS	N39-30-536 W119-53-417	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Rural – near houses	
Reading 1	3.6	
Reading 2	5.6	
Reading 3	8.0	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	15/ 028042	Clear Channel
Location- Streets	W. 4 St @ Del Curto	"Jet Plumbing"
Jurisdiction	City of Reno	
Location- GPS	N39-30-841 W119-451-224	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Dark - rural	
Reading 1	118	
Reading 2	107	
Reading 3	40	
Reading 4	59	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	16/012392	Clear Channel
Location- Streets	E. 4 St @ I-395	"Moving Nevada Forward"
Jurisdiction	City of Reno	
Location- GPS	N39-32-043 W119-47-139	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	Oriented to I-395
Background	High mast highway lighting	
Reading 1	124.5	
Reading 2	115	
Reading 3	62.2	
Reading 4	83.6	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	17/NA	
Location- Streets	I395/580 Exit 67	GSR Grand Resort and Casino
Jurisdiction	City of Reno	
Location- GPS	N39-31-443 W119-46-974	
BB or On-Premise?	On premise	
Digital or Std?	Digital + video	
Illumination Type and Number	LED	
Background	Some parking lot illumination	
Reading 1	392	
Reading 2	421	
Reading 3	574	
Reading 4	114	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	18/NA	GSR Grand Sierra Resort
Location- Streets	I395/580 Exit 67	
Jurisdiction	City of Reno	
Location- GPS	N39-31-443 W119-46-974	
BB or On-Premise?	On premise	
Digital or Std?	Digital + video	
Illumination Type and Number	LED +internal	
Background	Illuminated parking lot, building	
Reading 1	434	
Reading 2	338	
Reading 3	593	
Reading 4	277	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	19/66139A	CBS Outdoor
Location- Streets	Faces I-395 @ E 2 nd St	"Galloway Jensen - Accident"
Jurisdiction	City of Reno	
Location- GPS	N39-31-693 W119-46-991	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	4 uplights	
Background		
Reading 1	2.9	
Reading 2	9.1	
Reading 3	11.5	
Reading 4	6.0	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	20 /022212	Clear Channel
Location- Streets	Faces I-395 @ E. 2 nd Street; on grounds of Wal-Mart	Varied messages
Jurisdiction	City of Reno	
Location- GPS	N39-31-760 W119-47-000	
BB or On-Premise?	BB	
Digital or Std?	Digital	
Illumination Type and Number	LED	
Background		
Reading 1	2876	
Reading 2	3142	
Reading 3	1066	
Reading 4	1472	
Reading 5	578	
Reading 6	2638	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	21/222	Saunders
Location- Streets	I-395 at Clear Acre Lane	"Free Play Fridays"
Jurisdiction	City of Reno	
Location- GPS	N39-33-515 W119-47-503	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	4 uplights	
Background		
Reading 1	43.4	
Reading 2	14.5	
Reading 3	20.7	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	22/51016N	Yesco
Location- Streets	I-395 @ Clear Acre Lane	"Car insurance"
Jurisdiction	City of Reno	
Location- GPS	N39-33-515 W119-47-503	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Illuminated building and street	
Reading 1	78.7	
Reading 2	15.8	
Reading 3	10.2	
Reading 4	31.6	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	23/51016S	Yesco
Location- Streets	W. Peckham @ S. Virginia	Auto insurance
Jurisdiction	City of Reno	
Location- GPS	N39-33-515 W119-47-503	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Illuminated building and street	
Reading 1	43	
Reading 2	25	
Reading 3	96	



Part 2. October 18, 2014

	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	24/	
Location- Streets	Facing I-80 East near Exit 2, Verdi, service road	"Pancakes, Eggs & Bacon"
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-30-102 W119-59-897	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	3 uplights	
Background	Dark rural	
Reading 1	3.0	
Reading 2	14.3	
Reading 3	22.0	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	25/	
Location- Streets	Facing I-80 East near Exit 2, Verdi, service road	"Boomtown Casino and Hotel"
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-30-203 W119-59-922	
BB or On-Premise?	BB	
Digital or Std?	Std + neon	"Rooms available" in neon
Illumination Type and Number	3 floodlights	
Background	Dark rural	
Reading 1	2.3	
Reading 2	5.2	
Reading 3	16.6	
Reading 4	21.3	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	26/04169A	CBS
Location- Streets	Mae Anne Ave between Leroy and Coventry	"Italian is Grand – GSR Casino"
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-30-797 W119-54-050	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	5 floodlights	
Background	Dark rural	
Reading 1	58.2	
Reading 2	113.5 (white chef's coat)	
Reading 3	11.8	
Reading 4	2.1	
Reading 5	5.0	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	27/009911	Clear Channel
Location- Streets	Sun Valley Blvd. just north of Skaggs	"Elect Don Gustavson State Senate"
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-34-432 W119-46-861	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	1 uplight	
Background	Dark rural, but nearby floodlights	
Reading 1	2.2	
Reading 2	2.5	
Reading 3	5.9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	28/NA	Hobey's Casino
Location- Streets	Sun Valley Blvd @ 2 nd Ave	
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-34-890 W119-46-802	
BB or On-Premise?	On-premise	
Digital or Std?	Digital + neon	
Illumination Type and Number	Digital + neon	
Background		
Reading 1	1021	
Reading 2	990	
Reading 3	1646	
Reading 4	1353	
Reading 5	1810	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	29/NA	Scolari's Food & Drug Company
Location- Streets	Sun Valley Blvd @ 4 th Avenue	
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-35-406 W119-46-815	
BB or On-Premise?	On premise	
Digital or Std?	Standard – Internally illuminated	
Illumination Type and Number	Internally illuminated	
Background	Suburban mixed lighting	
Reading 1	120	
Reading 2	169	
Reading 3	205	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	30a, 30b/NA	Sun Valley Shopping Center
Location- Streets	Sun Valley Blvd @ 5 th Avenue	
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-35-520 W119-46-818	
BB or On-Premise?	On premise	
Digital or Std?	Digital and Internally Illuminated	
Illumination Type and Number	Digital reader + internally illuminated	
Background	Suburban - dark	
Reading 1	364 - Digital	
Reading 2	114 - Internally illuminated	
Reading 3	5.3 - Internally illuminated	
Reading 4	145 - Internally illuminated	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	31/009921	"Bonanza Casino - Congratulations Helena"
Location- Streets	Sun Valley Blvd @ 1 st Avenue	
Jurisdiction	Unincorporated Washoe County	
Location- GPS	N39-34-489 W119-46-881	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	Single uplight	
Background	Suburban, dark, headlights	
Reading 1	4.7	
Reading 2	9.0	
Reading 3	8.2	
Reading 4	22.9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	32a,b/NA	Shopping Center – Greenbrae Fitness
Location- Streets	Pyramid Way @ Greenbrae Drive	
Jurisdiction	City of Sparks	
Location- GPS	N39-32-892 W119-45-148	
BB or On-Premise?	On premise	
Digital or Std?	Digital and internally illuminated	
Illumination Type and Number	Digital reader; 4 separate internally illuminated signs	
Background	Suburban - dark	
Reading 1	1852-digital	
Reading 2	440-internally illuminated	
Reading 3	523-internally illuminated	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	33 a, b/NA	Smoke shop
Location- Streets	Pyramid Way and Greenbrae Drive	
Jurisdiction	City of Sparks	
Location- GPS	N39-32-892 W119-45-148	
BB or On-Premise?	On premise	
Digital or Std?	Digital and internally illuminated	
Illumination Type and Number	Digital reader for time and temperature; internally illuminated	
Background	Suburban - dark	
Reading 1	386-digital	
Reading 2	108-internally illuminated	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	34 a, b, c/NA	Sparks Florist
Location- Streets	Pyramid Way @ 1 st Street	
Jurisdiction	Sparks	
Location- GPS	N39-32-602 W119-45-181	
BB or On-Premise?	On premise	
Digital or Std?	Digital	
Illumination Type and Number	Neon, Internally Illuminated, Digital	
Background	Suburban – some street lighting	
Reading 1	521 – top	
Reading 2	88 – middle	
Reading 3	74 – bottom	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	35/026042	Clear Channel
Location- Streets	Facing I-80 East just east of Pyramid Way	
Jurisdiction	Sparks	
Location- GPS	N39-32-047 W119-44-993	
BB or On-Premise?	BB	
Digital or Std?	Digital	
Illumination Type and Number	LED	
Background	Dark - freeway	
Reading 1	44	
Reading 2	118	
Reading 3	163	
Reading 4	863	
Reading 5	917	



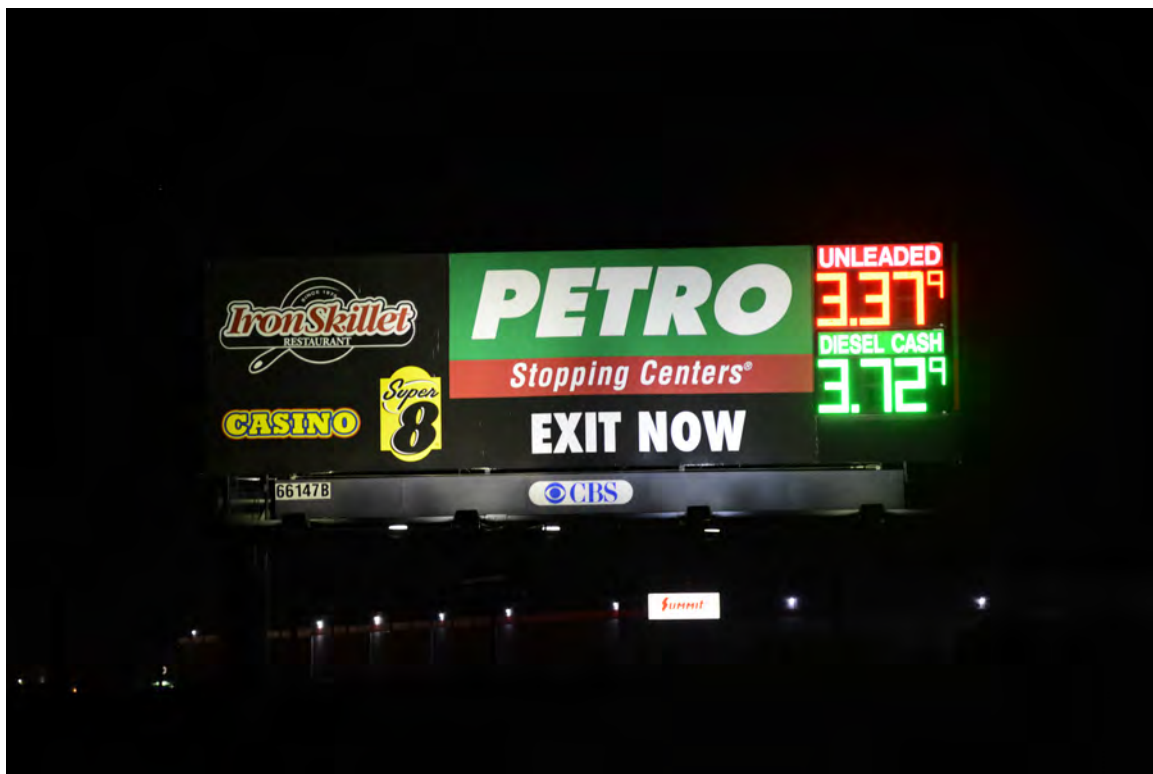
	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	36/51044W	Yesco
Location- Streets	I-80 east and Nugget Avenue at Exit 19	"Peppermill Sports Book App"
Jurisdiction	City of Sparks	
Location- GPS	N39-32-044 W119-44-640	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	4 uplights	
Background	Dark freeway	
Reading 1	5.9	
Reading 2	12.4	
Reading 3	24.9	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	37/	Coors Beer
Location- Streets	Nugget Avenue (service road); I-80 east past Exit 19	
Jurisdiction	City of Sparks	
Location- GPS	N39-31-924 W119-44-246	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	3 uplights	
Background	Dark - freeway	
Reading 1	17	
Reading 2	19	
Reading 3	24	
Reading 4	26	
Reading 5	5	



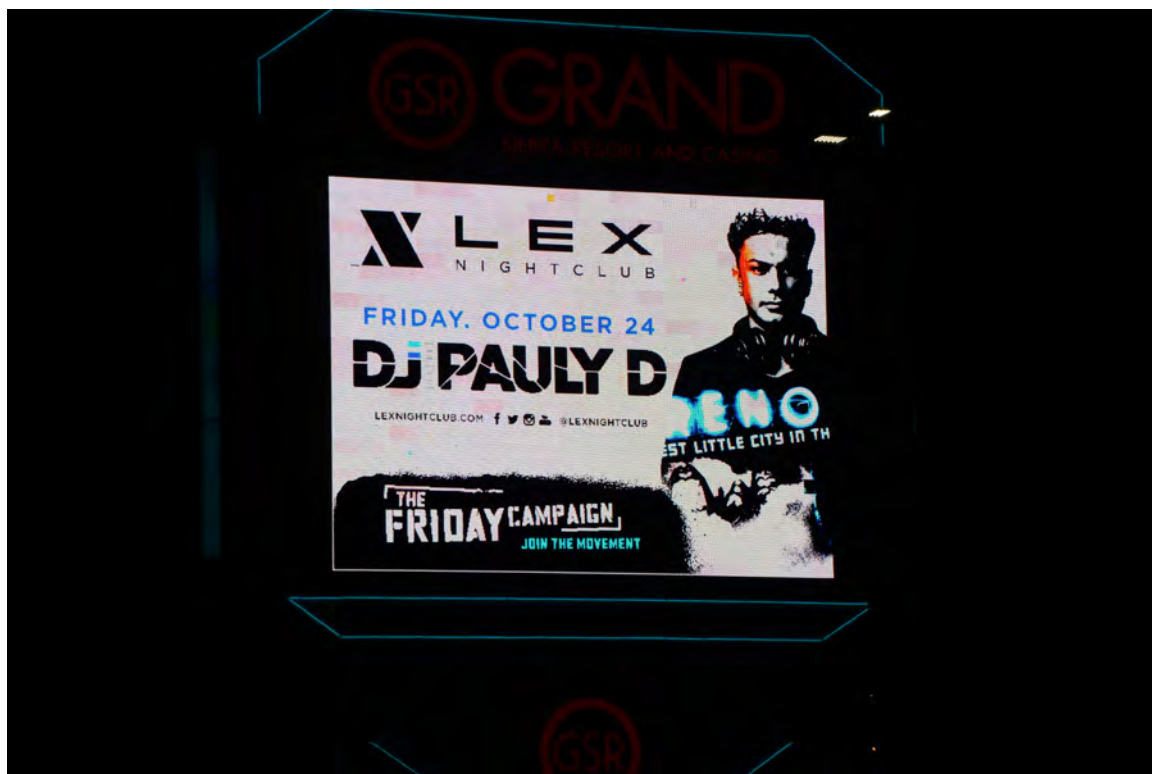
	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	38 a, b/66147B	CBS
Location- Streets	I-80 East past Exit 19 on service road	"Petro Shopping Centers"
Jurisdiction	City of Sparks	
Location- GPS	N39-31-775 W119-43-855	
BB or On-Premise?	BB	
Digital or Std?	Std- Digital display for gas prices	
Illumination Type and Number	4 uplights	
Background	Freeway – some nearby lighting	
Reading 1	6.2-Std	
Reading 2	8.3-Std	
Reading 3	20.8-Std	
Reading 4	204-Digital gas prices	
Reading 5	369-Digital gas prices	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	39/?	Stott
Location- Streets	I-80 east at Exit 20	"What's your number?"
Jurisdiction	City of Sparks	
Location- GPS	N39-31-637 W119-42-898	
BB or On-Premise?	BB	
Digital or Std?	Std	
Illumination Type and Number	2 uplights	
Background	Freeway - dark	
Reading 1	61.1	
Reading 2	116.7	
Reading 3	97.8	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	40/NA	GSR Casino
Location- Streets	I-395 @ Exit 67	
Jurisdiction	City of Reno	
Location- GPS	N39-31-417 W119-46-958	
BB or On-Premise?	On premise	
Digital or Std?	Digital	
Illumination Type and Number	LED	
Background	Freeway – lighted parking lot	
Reading 1	4440	
Reading 2	3211	
Reading 3	2906	
Reading 4	4142	
Reading 5	2215	
Reading 6	3220	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	41/NA	Pinocchio's Bar and Grill
Location- Streets	I-395@Neil Road Exit	
Jurisdiction	City of Reno	
Location- GPS	N39-28-25- W119-47-336	
BB or On-Premise?	On premise	
Digital or Std?	Digital	Msg change very fast; ~ 3 sec.
Illumination Type and Number	LED	
Background	Building wall; nearby security lights	
Reading 1	2474	
Reading 2	2086	
Reading 3	2435	
Reading 4	2510	
Reading 5	3076	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	42/NA	Pinocchio's Bar and Grill
Location- Streets	I-395 @ Neil Road Exit	
Jurisdiction	City of Reno	
Location- GPS	N39-28-250 W119-47-336	
BB or On-Premise?	On premise	
Digital or Std?	Standard – internally illuminated	
Illumination Type and Number	Internal	
Background	Building wall – nearby security lights	
Reading 1	240	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign #	43/NA	Pinocchio's Bar and Grill
Location- Streets	I-395@Neil Road Exit	
Jurisdiction	City of Reno	
Location- GPS	N39-28-25- W119-47-336	
BB or On-Premise?	On premise	
Digital or Std?	Digital	Msg change very fast; ~ 3 sec.
Illumination Type and Number	LED	DAYLIGHT MEASUREMENT
Background	White building wall; blue sky	
Reading 1	4072	
Reading 2	4461	
Reading 3	4351	
Reading 4	4885	



	Relevant Sign Data and Info	Notes and Miscellaneous Info
Sign # (JW/Official)	44/NA	Pinocchio's Bar and Grill
Location- Streets	I-395 @ Neil Road Exit	
Jurisdiction	City of Reno	
Location- GPS	N39-28-250 W119-47-336	
BB or On-Premise?	On premise	
Digital or Std?	Standard – internally illuminated	
Illumination Type and Number	Natural light only	DAYLIGHT MEASUREMENT
Background	White building wall – blue sky	
Reading 1	1391	
Reading 2	1776	
Reading 3	1414	

