Scenic Nevada

July 23, 2016

Nevada Department of Transportation Board of Directors
1263 South Stewart Street
Third Floor Conference Room
Carson City, Nevada 89701

Re: NDOT's proposed digital billboard regulations

Dear Governor Sandoval and Board Members,

Thanks very much for postponing your vote in June to get more information from NDOT staff on the proposed digital billboard regulations, expected to be reviewed next at your August 8 board meeting.

Our position remains the same. We believe that the proposed regulations fall short of what's needed to preserve Nevada's scenic beauty and to protect driver safety.

Since the June meeting, we've submitted further information to NDOT staff and we are including much of that with this correspondence.

Our requests also remain the same:

- Conversions from standard to digital lighting of nonconforming billboards are prohibited
- State billboard permits are only granted if permitted first by the local jurisdiction, where applicable
- Flip time should be at least 10 seconds
- No sign may exceed 0.3 footcandles above the ambient illuminated environment in the immediate vicinity of the sign, or the value of 250 nits, whichever is less.
- Most restrictive regulations apply, where local and state rules are different
- Signs are prohibited from collecting data from passing motorists
- Interactive signs are prohibited
- Spacing should be at least 1,000 feet apart
- Size should be limited to 672 square feet and 35 feet tall

BOARD OF DIRECTORS

OFFICERS

John W. Hara, president
West Reno
Huntington Learning Center

Jennifer Kaufman, vice president
Northwest Reno
Department of Education

Lori Wray, treasurer
Southwest Reno
Law Offices of Mark Wray

Brian Dean, secretary
Northern Nevada
Certified Consulting Arborist

DIRECTORS

Rosemary Gurpide
South Reno
Artist

Berry Hall
Northwest Reno
Teacher

Diane McCormack
Southwest Reno
Author

ADVISORS

Mark Wray
Law Offices of Mark Wray

W. Chris Wicker, Esq.
Woodburn and Wedge

608 Lander Street
Reno, NV 89509
Scenicnevada.org
info@scenicnevada.org
f/ScenicNevada

The reasons for our requests are included in the following pages. In bold are NDOT's proposed regulations and the yellow highlighted regulations are our suggested alternatives.

Conversions of Nonconforming Billboards

Conversions from standard to digitally lit signs should be limited to conforming billboards. Conversion of existing billboards to digitals is addressed in two sections of the draft NDOT regulations: 3. (a) and 3. (i)

3. (a) NDOT Proposed – An existing sign may be modified or updated if the sign conforms with established criteria relating to zoning, size, lighting and spacing *or meets the requirements of NAC 410.703*.

3. (a) Our Alternative: *An existing sign may be modified or updated if the sign conforms with established local and state criteria relating to zoning, size, lighting and spacing.*

We are asking NDOT to strike, "or meets the requirements of NAC 410.703." This regulation states that nonconforming billboards will not be required to be removed, if they are in compliance.

"Signs which were lawfully erected in zoned and unzoned commercial or industrial areas before the effective date of the control of a route, or segment thereof, by the Department, including, without limitation, new interchanges, extensions of routes and redesignations of routes, shall be deemed to be conforming and will not be required to be removed if they are in conformity with the local ordinances and laws of this state relating to the erection and maintenance of such signs."

- NAC 410.703 grants conforming status and prohibits removals when a sign is within the public right of way because the sign existed in the location before the primary road was built. While it makes sense to allow them to remain, it isn't necessary, and it might be dangerous, to allow them to convert to digital, especially if they are too close to the public road.
- For the sake of clarity, the regulations should simply drop the reference to NAC 410.703. Billboards would keep their grandfathered status in the right of way and continue to remain, but would not be allowed to convert to digital lighting.

3. (i) NDOT Proposed - An existing static outdoor advertising sign may be upgraded to a CEVMS, or a CEVMS may be converted to a static display sign, provided that:

1. **the sign has been approved by the local government, if applicable, or is a legal nonconforming sign, (under local law only); and**
2. **is a conforming sign or meets the requirements of NAC 410.703; and**
3. **all applicable and outstanding fees paid**

3. (i) Our Alternative - *An existing static outdoor advertising sign may be upgraded to a CEVMS, or a CEVMS may be converted to a static display sign, provided that:*

1. *the sign has been approved by the local government, if applicable; and*
2. *is a conforming sign; and*
3. *all applicable and outstanding fees paid*

The conversion of a static outdoor advertising device to a changeable electronic variable message sign must be approved by the applicable local governmental entity as well as written permission

from the property owner. No existing static outdoor advertising device may be converted to a changeable electronic variable message sign technology if the sign has a nonconforming or grandfathered status without first conforming and vacating the existing grandfathered status. (This text proposed by Scenic Nevada actually was included in the second NDOT draft of the proposed regulations, but was later removed by NDOT staff without explanation).

- 3(i) 1., as proposed, says, the sign must be approved by the "local government, if applicable, or is a legal nonconforming sign...". We are asking that the phrase "or is a legal nonconforming sign" be removed. If a local government allows legal nonconforming signs to convert, it will grant a permit and the addition of "or is a legal nonconforming sign" becomes unnecessary. If a local government prohibits legal nonconforming signs from converting, adding this section allows a legal nonconforming sign to convert to digital, overriding local rules and control.
- 3(i) 2., as proposed, says, "is a conforming sign or meets the requirements of NAC 410.703." this language seems to allow signs in the public right of way, which is prohibited, to convert to digital. We are asking that "or meets the requirements of NAC 410.703..." also be removed here for the same reasons cited above. Grandfathered status may protect existing signs from removal but billboards cannot convert to digital to protect driver safety.
- The Federal Highway Administration 2007 guidance memorandum **(Attachment #1)** makes clear that nonconforming billboards cannot be substantially altered to CEVMS: "This guidance is applicable to conforming signs, as applying updated technology to nonconforming signs would be considered a substantial change and inconsistent with the requirements of 23 CFR 750.707(d)(5)." **(Attachment #2)**
- Other states including New Mexico followed this FHWA guidance memo and prohibit conversions of nonconforming signs:

  New Mexico: ***18.21.5.14 D Conversions***

  (1) An existing static outdoor advertising device may be converted to a changeable electronic variable message sign, provided the existing sign:

  (a) has been approved by the local government;

  (b) is a legal, conforming sign;

  (c) is in good repair;

  (d) has had all permit fees timely paid; and

  (e) does not violate any applicable sections of this rule or of the Beautification Act.

  (2) No existing static outdoor advertising device may be converted to changeable electronic variable message sign technology if the existing sign has a non-conforming or grandfathered status.

  (3) The conversion of a static outdoor advertising device to a changeable electronic variable message sign must be approved by the applicable local governmental entity.

  (4) The application shall include written assurance from the applicant that the sign structure will meet or exceed current engineering standards or practices and all applicable building codes.

  (5) The conversion of a static outdoor advertising device to a changeable electronic variable message sign must be accomplished within one hundred twenty (120) days after the issuance of the applicable permit.
- The proposed NDOT regulation encourages the continuation of nonconforming signs. The goal should be to eventually eliminate nonconforming signs, to protect and improve

aesthetics, property values and for safety reasons.

- Some local jurisdictions in Nevada prohibit digital conversions of nonconforming billboards. **(*See* Regulations Chart, Attachment #3)** NDOT's proposed regulation would allow nonconforming boards to convert to digital, posing a conflict and creating confusion. Is a digital conversion allowed because it's a legal nonconforming billboard under local law or is it prohibited because the local jurisdiction prohibits legal, nonconforming billboards from converting to digital?
- For example, in Sparks nonconforming billboards cannot convert to digital:

  Neither the sign nor supporting structure may be increased in size or height, nor may there be an addition or enhancement to the structure that increases the visual effect or increases the impact on the use of the site, including conversion to digital sign." **Section 20.56.320**

Flip Times

In the proposed regulations, flip times are dangerously short at six seconds. Increasing the flip time reduces distractions and increases driver safety.

3. (b) NDOT proposed – A message on a digital billboard sign shall have a minimum display time of six (6) seconds and shall transition instantaneously to the human eye.

3. (b) Our Alternative: *A message on a digital billboard sign shall have a minimum display time of 10 seconds and shall transition instantaneously to the human eye.*

- FHWA recommends 8 seconds. "Duration of each display is generally between 4 and 10 seconds - 8 seconds is recommended." *See* FWHA memo, "Duration of Message", **(Attachment #1)**
- Some local governments – Henderson, Reno and Sparks -- use eight seconds; Washoe County bans billboards but allows on-premise digital signs with eight second flip times.
- Many state jurisdictions use 8 to 10 seconds. **(Attachment #4)**. The National Alliance of Highway Beautification Agencies list shows 18 states use 8 seconds; 6-7 states use 10 seconds; 6 states use 6 seconds; 2-3 states use 4 seconds; 1 state each at 5 and 7 seconds. (The mission of the NAHBA is to provide leadership in the interpretation, analysis and research of the regulatory process governing the effective control of outdoor advertising consistent with the federal laws and regulations through the fostering of collaborative partnerships, dissemination of information, development of best practices, and necessary training.)
- Digital billboards are different because they are brighter at night and flip ads, causing them to be more distracting and intrusive. *See* the excerpt of Jerry Wachtel's 2009 PowerPoint presentation. (Attachment #5)
    - The human eye is hard-wired to be drawn to the brightest objects in the scene and to those that display motion, or apparent motion.
    - This phenomenon is sometimes called phototaxis or phototropism.
    - Recent research (e.g. Theeuwes) shows that this response is both automatic and unavoidable.

- Digital billboards use both brightness and movement to capture attention. Increasing the flip time should decrease driver distractions, especially at night.

Brightness Limits

Digital sign brightness must be regulated to control glare in the driver's eyes and to promote driver safety. Sign brightness is often a major complaint from the public. Scenic Nevada submitted a study to NDOT which we commissioned from the Veridian Group to measure sign brightness and make recommendations for brightness limits. NDOT also conducted its own field study with the aid of the digital sign industry. NDOT's method and approach for measuring was different than the Veridian Group's, making a comparison of the results difficult.

We believe digital signs at night should be no brighter than traditional billboards, which obviously can be viewed at night and, as far as we know, without complaints of glare from drivers. The Veridian measurements show that traditional billboards in the presence of ambient light can be easily viewed by drivers at less than 150 nits. Nevertheless, as a compromise, we think a possible alternative is to set the maximum at 250 nits to help protect drivers from glare. Other experts recommend similar brightness limits ranging from 100 to 250 nits. **(Attachment #6, Brightness Recommendations)**

3. (f) If the foot-candle reading exceeds three tenths (0.3) foot-candles maximum, then the nighttime luminance shall not exceed two-hundred-fifty (250) nits (candelas per square meter (cd/m2)) which may be measured with a nit gun or luminance meter that can read to the accuracy of five (5) nits. To insure the proper measurement of a digital billboard using nits, the user should measure from a location that is as close to perpendicular both horizontally and vertically as possible due to the LED light output pattern decreasing dramatically from the perpendicular position to off angles.

3. (f) Our Alternative - *No sign may exceed 0.3 footcandles above the ambient illuminated environment in the immediate vicinity of the sign, or the value of 250 nits, (candelas per square meter (cd/m2)) whichever is less. The measurement may be taken with a nit gun or luminance meter that can read to the accuracy of five (5) nits.*

We are asking NDOT to add "the ambient illuminated environment in the immediate vicinity of the sign" for clarity. No digital sign can meet the brightness limit without the ambient light reading added into the measurement.

- The way it is now written it could be interpreted differently by different people, and, therefore, raise problems with enforcement. Respectfully, we believe our alternative regulation is clear, concise and would avoid different interpretations.
- The entire key to the 0.3 footcandles (fc) issue is that the max must be not more than 0.3 fc above the ambient environment. NDOT's regulation eliminates that key phrase and thus changes the meaning, by making the 0.3 fc limit the absolute limit, instead of the limit relative to the environment of the sign.
- An illuminance meter measures light in footcandles at the position of the meter. It's impossible to block out the ambient light surrounding the sign. Every digital billboard measurement will exceed 0.3 fc because it's including the ambient light. So, in a "typical" ambient environment, no digital billboard will measure as low as .3 footcandles (the stated

maximum) using an illuminance meter because of the surrounding ambient light. Therefore, NDOT needs to include "above the ambient environment" so that the regulation makes sense.

- NDOT also must add "whichever is less" to minimize the possibility and impacts of glare in a really bright environment. When the nit gun is used to measure brightness, NDOT staff won't need the sign owner to turn the sign on and off to do the measuring. Simply point the nit gun at the brightest spot on the ad and press the trigger to get the nit reading. If it's over 250 nits, the sign is too bright and must be turned down, even if it reads .3 foot-candles over ambient light with an illuminance meter. That just means the ambient light is so bright that even .3 footcandles over that is brighter than the maximum limit which is 250 nits.

We are asking NDOT to remove the draft language: "To insure the proper measurement of a digital billboard using nits, the user should measure from a location that is as close to perpendicular both horizontally and vertically as possible due to the LED light output pattern decreasing dramatically from the perpendicular position to off angles." Respectfully, this is a nonsensical addition, which will cause confusion and makes it unnecessarily more difficult to measure the sign using a nit gun. The definition of a "nit" should also be corrected in the draft regulations to eliminate similar wording, "measured perpendicular to the rays of the source."

- NDOT's additional sentence (about where to position the nit gun) is exactly opposite of what is appropriate and necessary. The 0.3 fc (illuminance) measurement is the one that must be measured from a specific distance (which differs depending on the size of the sign), and directly in line with the sign both vertically and horizontally. This should not be a controversial fix. After all, the illuminance measurement was developed by Dr. Ian Lewin working for the billboard industry association, the Outdoor Advertising Association of America (OAAA). Both he and OAAA specified these requirements.
- The luminance measurement, using the nit gun, is the Veridian recommendation. The advantage to the nit gun is that measurements do not require elaborate positioning and angles. It's true that it's best to align yourself with the sign, but, there is no necessity to be in line either vertically or horizontally. NDOT has it exactly backwards. Yes, the light output decreases dramatically to off angles, but this only effects illuminance (the fc) because it is measuring the light at the position of the meter. Because luminance (nits) measures the light <u>at the source</u>, the angle at which the meter is used makes no difference. The Veridian report cites a number of sources that describes this very thing. Respectfully, NDOT needs to check these facts with lighting specialists not just the industry billboard sales people.

The Veridian report proves that traditional billboards can be easily viewed at night at less than 100 nits. Measurements were taken in Reno, Sparks and the unincorporated areas of Washoe County. Measurements included billboards and on-premise signs, both digital and traditional. There is no reason to set the state limit any higher than 150 nits, yet we compromised and asked for .3 footcandles or 250 nits, whichever is less. Please insert our compromise without mixing in the billboard industry's nonsensical interpretations.

Conflicts Between State and Local Rules

Addition 3. (j) – *"If there is a conflict between local and state regulations, the most restrictive regulations shall apply."*

We are requesting the above addition be included in the regulations. In Nevada, sign regulations vary among local jurisdictions and also between local jurisdictions and the state. **(Attachment #3)** The digital billboard regulations eventually adopted by the state should make it perfectly clear which regulations should be imposed when differences exist between state and local regulations.

For example, Reno and Sparks require eight second flip times. As proposed, the state regulation is six seconds. It may be stated elsewhere in the NAC, but for clarity's sake we think there should be a regulation saying the most restrictive regulations shall apply.

Data Collection and Interactive Billboards

Addition 3. (k) - Signs shall not include any device or technology to scan, track, photograph, collect, compile or record information about vehicles or passengers on the public roadway, and any use of any sign to collect such information is prohibited.

Addition 3. (l) - Interactive signs, which is defined as signs that change their messages based on a passing vehicle or person, are prohibited.

There is no proposed regulation regarding the ability of billboard companies to collect data from passing motorists nor one for prohibiting interactive signs.

We have concerns on several levels. Billboards are already considered public nuisances under two chapters of Nevada Revised Statutes (billboards and auto junkyards are in the same chapter of NRS). Allowing a nuisance to become even more of a nuisance by spying on citizens is bad public policy. Nevadans rightfully object to being spied upon. For example, they object to cameras posted at intersections by government agencies for traffic control. Allowing commercial interests to spy on citizens and target them for more billboard and spam advertising would be an unwarranted invasion of citizens' privacy for no public purpose and shouldn't be allowed on our public roads.

Unless "data mining" is simply banned, the State will be forced to come up with new legislation and regulations for when, where, and how "data mining" is allowed, with almost insurmountable problems of enforcing those regulations. Also, unregulated, the billboard industry would be getting free reign to use our public roads to their advantage, turning them from a public service to a business enterprise and without anyone's permission. Therefore, interactive billboards also should be banned.

To read an article on "data mining" see:
http://www.computerworld.com/article/3040614/security/billboards-can-track-your-location-and-privacy-advocates-dont-like-it.html

To read one on interactive billboards see: http://money.cnn.com/2016/06/27/technology/smart-billboard-japan/index.html?iid=ob_homepage_tech_pool

Additional Restrictions on Size, Height and Spacing

Digital billboards are different than traditional billboards. They are brighter at night, more intrusive and more distracting. Therefore, the regulations should be more restrictive than traditional billboards to minimize blight and protect Nevada's scenic vistas.

- Most jurisdictions recognize that there is a difference between static and digital billboards requiring more restrictive rules for digital signs.
- The current draft treats digital and static billboards the same as to size, height and spacing.
- Local jurisdictions and other DOTs limit digital billboards to 672 square feet while NDOT is allowing 1,200 square feet for both digital and static billboards.
- Spacing of at last 1,000 feet apart or further is required in other jurisdictions, while NDOT's regulation is only 500.

All digital billboards in Nevada should be limited to 672 square feet, 35 feet tall, spaced at least 1,000 feet apart.

State Should Provide the Most Restrictive Regulations Possible

We recommend NDOT approve the most restrictive regulations possible for the following reasons:

Protecting Taxpayers - Before digital billboards are allowed, state policy should address the burden to taxpayers. Nevada state law says billboard owners must be reimbursed for the removed sign and the ad revenue lost. For traditional billboards, that cost is high; for digitals, it's astronomical. A digital billboard costs between $250,000 and $500,000 and can rotate up to 16 ads on a two-sided sign. In St. Paul, Minn., to remove one digital for a bridge project cost taxpayers $4,321,000.

- We recommend adding a rule to provide that each digital billboard permit include the following statement: *This permit does not create an interest of any kind in real property. By the issuance of this permit, the permit holder acknowledges that the State considers outdoor advertising structures to be personal property with no compensable interest in the structure or future business income. The holder of this permit agrees not to make legal claims to the contrary.*
- This recommendation would not alter a billboard owner's right to relocate the billboard allowed under NDOT rules but it could potentially eliminate billboard owners from making claims (and filing lawsuits) that billboards should be classified as real property versus personal property.

Preserving Scenic Beauty – It's common sense that tourists don't want to drive along ugly roads to get to ugly destinations. It's also true that people flock to communities with better scenic qualities than to those that have been ruined by sign clutter. It follows that preserving scenic beauty through restrictive regulations of digital billboards is a way to boost economic development through tourism and improve and protect the quality of life for residents. In our view the fewer digital billboards, the better for all.

Protecting Property Values – A few years ago a study in Philadelphia proved what most scenic advocates had believed all along – billboards bring down property values and negatively impact neighborhoods. The mono poles are targets for graffiti. The structures are usually so tall, intrusive lights at night shine in nearby windows. The study results showed that homes within 500 feet of a billboard sold for $31,000 less than those farther from billboards. To view the report: http://www.scenicnevada.org/wp/wp-content/uploads/2014/10/2011-Paper-Beyond-Aesthetics-2.pdf

Reducing Light Pollution - Digital billboards contribute to sky glow which is the light pollution that has dimmed the night sky, interferes with bird migration and has a negative impact on human and animal health. As the lighting experts in Illinois concluded, "So, the sunshade louvers built into many digital signs do little to minimize their impact on the night sky." It's reasonable to believe that fewer digitals will help curb these negative impacts. To view the report: http://illinoislighting.org/billboards.html

Wasting Energy - In an era of global warming where climate change is apparent all around us, it makes no sense to support an industry that uses far more energy than is necessary to display ads. Some researchers say that one digital billboard uses more electricity than 15 homes in a 24-hour period. We know that Reno has about 250 sunny days a year. Digital signs use more energy on sunny days and in hot climates need electric fans to cool the billboard components. These billboards will be draining the grid just when business and residents need it the most. See the report at pages 1-5 http://scenicphiladelphia.org/wp-content/uploads/2015/04/Illuminating-the-Issues-Report-on-Digital-Signs.pdf

Traffic Safety – The billboard industry claims digital billboards are safe and don't pose safety hazards, even though these signs are meant to distract drivers from the task at hand, driving. Often times, industry representatives site debunked studies they commissioned or the flawed FHWA study results recently released. But, a review of recent research on driver distraction near digital billboards finds growing evidence that the bright, constantly changing signs negatively impact traffic safety. See our chart, **(Attachment #7)**, or to view the full report by Jerry Wachtel of the Veridian Group at http://www.scenic.org/storage/PDFs/compendium%20final%202-22.pdf

We appreciate the time and effort NDOT staff has taken to develop regulations for digital billboards in Nevada. And, we look forward to discussing these issues and alternatives. Our sincere hope is that Nevada will provide a restrictive set of regulations that will protect driver safety and our state's exceptional scenery from the negative impacts of digital billboards.

Sincerely,

John Hara
Lori Wray
Scenic Nevada Directors

ATTACHMENT #1

Realty | *Providing Global Leadership and Innovation in Public Sector Real Estate and Outdoor Advertising Control through Information Sharing and Knowledge Exchange*

Laws, Regs and Policy Guidance

Guidance On Off-Premise Changeable Message Signs

U.S. Department of Transportation **Federal Highway Administration**	**Memorandum**

Subject:	**INFORMATION:** Guidance On Off-Premise Changeable Message Signs	Date:	September 25, 2007
	ORIGINAL SIGNED BY: Gloria M. Shepherd		
From:	Gloria M. Shepherd Associate Administrator for Planning, Environment, and Realty	Reply to	HEPR-20
To:	Division Administrators ATTN: Division Realty Professionals		

Purpose

The purpose of this memorandum is to provide guidance to Division Realty Professionals concerning off-premises changeable message signs adjacent to routes subject to requirements for effective control under the Highway Beautification Act (HBA) codified at 23 U.S.C. 131. It clarifies the application of the Federal Highway Administration (FHWA) July 17, 1996, memorandum on this subject. This office may provide further guidance in the future as a result of additional information received through safety research, stakeholder input, and other sources.

Pursuant to 23 CFR 750.705, a State DOT is required to obtain the FHWA Division approval of any changes to its laws, regulations, and procedures to implement the requirements of its outdoor advertising control program. A State DOT should request and the Division offices should provide a determination as to whether the State should allow off-premises changeable Electronic Variable Message Signs (CEVMS) adjacent to controlled routes, as required by our delegation of responsibilities under 23 CFR 750.705(j). The Divisions that already have formally approved CEVMS use on HBA controlled routes, as well as, those that have not yet issued a decision, should re-evaluate their position in light of the following considerations. The decision of the Division should be based upon a review and approval of a State's affirmation and policy that: (1) is consistent with the existing Federal/State Agreement (FSA) for the particular State, and (2) includes but is not limited to consideration of requirements associated with the duration of message, transition time, brightness, spacing, and location, submitted for the FHWA approval, that evidence reasonable and safe standards to regulate such signs are in place for the protection of the motoring public. **Proposed laws, regulations, and procedures that would allow permitting CEVMS subject to acceptable criteria (as described below) do not violate a prohibition against "intermittent" or "flashing" or "moving" lights as those terms are used in the various FSAs that have been entered into during the 1960s and 1970s.**

This guidance is applicable to conforming signs, as applying updated technology to nonconforming signs would be considered a substantial change and inconsistent with the requirements of 23 CFR 750.707(d)(5). As noted below, all of the requirements in the HBA and its implementing regulations, and the specific provisions of the FSAs, continue to apply.

Background

The HBA requires States to maintain *effective control* of outdoor advertising adjacent to certain controlled routes. The reasonable, orderly and effective display of outdoor advertising is permitted in zoned or unzoned commercial or industrial areas. Signs displays and devices whose *size, lighting and spacing are*

consistent with customary use determined by agreement between the several States and the Secretary, may be erected and maintained in these areas (23 U.S.C. § 131(d)). Most of these agreements between the States and the Secretary that determined the size, lighting and spacing of conforming signs were signed in the late 1960's and the early 1970's.

On July 17, 1996, the Office of Real Estate Services issued a memorandum to Regional Administrators to provide guidance on off-premise changeable message signs and confirmed that the FHWA has *"always applied the Federal law 23 U.S.C. 131 as it is interpreted and implemented under the Federal regulations and individual FSAs."* It was expressly noted that *"in the twenty-odd years since the agreements have been signed, there have been many technological changes in signs, including changes that were unforeseen at the time the agreements were executed. While most of the agreements have not changed, the changes in technology require the State and the FHWA to interpret the agreements with those changes in mind."* The July 17, 1996, memorandum primarily addressed tri-vision signs, which were the leading technology at the time, but it specifically noted that changeable message signs *"regardless of the type of technology used"* are permitted if the interpretation of the FSA allowed them. Further advances in technology and affordability of LED and other complex electronic message signs, unanticipated at the time the FSAs were entered into, require the FHWA to confirm and expand on the principles set forth in the July 17, 1996, memorandum.

The policy espoused in the July 17, 1996, memorandum was premised upon the concept that changeable messages that were fixed for a reasonable time period do not constitute a moving sigr If the State set a reasonable time period, the agreed-upon prohibition against moving signs is not violated. Electronic signs that have stationary messages for a reasonably fixed time merit the sam considerations.

Discussion

Changeable message signs, including Digital/LED Display CEVMS, are acceptable for conforming off-premise signs, if found to be consistent with the FSA and with acceptable and approved State regulations, policies and procedures.

This guidance does not prohibit States from adopting more restrictive requirements for permitting CEVMS to the extent those requirements are not inconsistent with the HBA, Federal regulations, and existing FSAs. Similarly, Divisions are not required to concur with State proposed regulations, policies, and procedures if the Division review determines, based upon all relevant information, that the proposed regulations, policies and procedures are not consistent with the FSA or do not include adequate standards to address the safety of the motoring public. If the Division Office has any question that the FSA is being fully complied with, this should be discussed with the State and a process to change the FSA may be considered and completed before such CEVMS may be allowed on HBA controlled routes. The Office of Real Estate Services is available to discuss this process with the Division, if requested.

If the Division accepts the State's assertions that their FSA permits CEVMS, in reviewing State-proposed regulations, policy and procedures for acceptability, the Divisions should consider all relevant information, including, but not limited to duration of message, transition time, brightness, spacing, and location, to ensure that they are consistent with their FSA and that there are adequate standards to address safety for the motoring public. The Divisions should also confirm that the State provided for appropriate public input, consistent with applicable State law and requirements, in its interpretation of the terms of their FSA as allowing CEVMS in accordance with their proposed regulations, policies, and procedures.

Based upon contacts with all Divisions, we have identified certain ranges of acceptability that have been adopted in those States that do allow CEVMS that will be useful in reviewing State proposals on this topic. Available information indicates that State regulations, policy and procedures that have been approved by the Divisions to date, contain some or all of the following standards:

- Duration of Message
  - Duration of each display is generally between 4 and 10 seconds - 8 seconds is recommended.
- Transition Time
  - Transition between messages is generally between 1 and 4 seconds - 1-2 seconds is recommended.
- Brightness
  - Adjust brightness in response to changes in light levels so that the signs are not unreasonably bright for the safety of the motoring public.

- Spacing
    - Spacing between such signs not less than minimum spacing requirements for signs under the FSA, or greater if determined appropriate to ensure the safety of the motoring public.
- Locations
    - Locations where allowed for signs under the FSA except such locations where determined inappropriate to ensure safety of the motoring public.

Other standards that the States have found helpful to ensure driver safety include a default designed to freeze a display in one still position if a malfunction occurs; a process for modifying displays and lighting levels where directed by the State DOT to assure safety of the motoring public; and requirements that a display contain static messages without movement such as animation, flashing, scrolling, intermittent or full-motion video.

Conclusion

This guidance is intended to provide information to assist the Divisions in evaluating proposals and to achieve national consistency given the variations in FSAs, State law, and State regulations, policies and procedures. It is not intended to amend applicable legal requirements. Divisions are strongly encouraged to work with their State in its review of their existing FSAs and, if appropriate, assist in pursuing amendments to address proposed changes relating to CEVMS or other matters. In this regard, the Office of Realty Estate Services is currently reviewing the process for amending FSAs, as established in 1980, to determine appropriate revisions to streamline requirements while continuing to ensure there is adequate opportunity for public involvement.

For further information on guidance on *Off-Premise Changeable Message Signs*, you may contact the Office of Real Estate Services' "Point of Contact" serving your Division or the contact on this page.

23 CFR 750.707 - Nonconforming signs.

- CFR
- eCFR
- Authorities (U.S. Code)

prev | next

§ 750.707 Nonconforming signs.

(a) *General.* The provisions of § 750.707 apply to nonconforming signs which must be removed under State laws and regulations implementing 23 U.S.C. 131. These provisions also apply to nonconforming signs located in commercial and industrial areas within 660 feet of the nearest edge of the right-of-way which come under the so-called grandfather clause contained in State-Federal agreements. These provisions do not apply to conforming signs regardless of when or where they are erected.

(b) *Nonconforming signs.* A nonconforming sign is a sign which was lawfully erected but does not comply with the provisions of State law or State regulations passed at a later date or later fails to comply with State law or State regulations due to changed conditions. Changed conditions include, for example, signs lawfully in existence in commercial areas which at a later date become noncommercial, or signs lawfully erected on a secondary highway later classified as a primary highway.

(c) *Grandfather clause.* At the option of the State, the agreement may contain a grandfather clause under which criteria relative to size, lighting, and spacing of signs in zoned and unzoned commercial and industrial areas within 660 feet of the nearest edge of the right-of-way apply only to new signs to be erected after the date specified in the agreement. Any sign lawfully in existence in a commercial or industrial area on such date may remain even though it may not comply with the size, lighting, or spacing criteria. This clause only allows an individual sign at its particular location for the duration of its normal life subject to customary maintenance. Preexisting signs covered by a grandfather clause, which do not comply with the agreement criteria have the status of nonconforming signs.

(d) *Maintenance and continuance.* In order to maintain and continue a nonconforming sign, the following conditions apply:

(1) The sign must have been actually in existence at the time the applicable State law or regulations became effective as distinguished from a contemplated use such as a lease or agreement with the property owner. There are two exceptions to actual existence as follows:

(i) Where a permit or similar specific State governmental action was granted for the construction of a sign prior to the effective date of the State law or regulations and the sign owner acted in good faith and expended sums in reliance thereon. This exception shall not apply in instances where large numbers of permits were applied for and issued to a single sign owner, obviously in anticipation of the passage of a State control law.

(ii) Where the State outdoor advertising control law or the Federal-State agreement provides that signs in commercial and industrial areas may be erected within six (6) months after the effective date of the law or agreement provided a lease dated prior to such effective date was filed with the State and recorded within thirty (30) days following such effective date.

(2) There must be existing property rights in the sign affected by the State law or regulations. For example, paper signs nailed to trees, abandoned signs and the like are not protected.

(3) The sign may be sold, leased, or otherwise transferred without affecting its status, but its location may not be changed. A nonconforming sign removed as a result of a right-of-way taking or for any other reason may be relocated to a conforming area but cannot be reestablished at a new location as a nonconforming use.

(4) The sign must have been lawful on the effective date of the State law or regulations, and must continue to be lawfully maintained.

(5) The sign must remain substantially the same as it was on the effective date of the State law or regulations. Reasonable repair and maintenance of the sign, including a change of advertising message, is not a change which would terminate nonconforming rights. Each State shall develop its own criteria to determine when customary maintenance ceases and a substantial change has occurred which would terminate nonconforming rights.
(6) The sign may continue as long as it is not destroyed, abandoned, or discontinued. If permitted by State law and reerected in kind, exception may be made for signs destroyed due to vandalism and other criminal or tortious acts.
(i) Each state shall develop criteria to define destruction, abandonment and discontinuance. These criteria may provide that a sign which for a designated period of time has obsolete advertising matter or is without advertising matter or is in need of substantial repair may constitute abandonment or discontinuance. Similarly, a sign damaged in excess of a certain percentage of its replacement cost may be considered destroyed.
(ii) Where an existing nonconforming sign ceases to display advertising matter, a reasonable period of time to replace advertising content must be established by each State. Where new content is not put on a structure within the established period, the use of the structure as a nonconforming outdoor advertising sign is terminated and shall constitute an abandonment or discontinuance. Where a State establishes a period of more than one (1) year as a reasonable period for change of message, it shall justify that period as a customary enforcement practice within the State. This established period may be waived for an involuntary discontinuance such as the closing of a highway for repair in front of the sign.
(e) *Just compensation.* The States are required to pay just compensation for the removal of nonconforming lawfully existing signs in accordance with the terms of 23 U.S.C. 131 and the provisions of subpart D, part 750, chapter I, 23 CFR. The conditions which establish a right to maintain a nonconforming sign and therefore the right to compensation must pertain at the time it is acquired or removed.
Beta! The text on the eCFR tab represents the unofficial eCFR text at ecfr.gov.

§ 750.707 Nonconforming signs.

(a) *General.* The provisions of § 750.707 apply to nonconforming signs which must be removed under State laws and regulations implementing 23 U.S.C. 131. These provisions also apply to nonconforming signs located in commercial and industrial areas within 660 feet of the nearest edge of the right-of-way which come under the so-called grandfather clause contained in State-Federal agreements. These provisions do not apply to conforming signs regardless of when or where they are erected.

(b) *Nonconforming signs.* A nonconforming sign is a sign which was lawfully erected but does not comply with the provisions of State law or State regulations passed at a later date or later fails to comply with State law or State regulations due to changed conditions. Changed conditions include, for example, signs lawfully in existence in commercial areas which at a later date become noncommercial, or signs lawfully erected on a secondary highway later classified as a primary highway.

(c) *Grandfather clause.* At the option of the State, the agreement may contain a grandfather clause under which criteria relative to size, lighting, and spacing of signs in zoned and unzoned commercial and industrial areas within 660 feet of the nearest edge of the right-of-way apply only to new signs to be erected after the date specified in the agreement. Any sign lawfully in existence in a commercial or industrial area on such date may remain even though it may not comply with the size, lighting, or spacing criteria. This clause only allows an individual sign at its particular location for the duration of its normal life subject to customary maintenance. Preexisting signs covered by a grandfather clause, which do not comply with the agreement criteria have the status of nonconforming signs.

(d) *Maintenance and continuance.* In order to maintain and continue a nonconforming sign, the following conditions apply:

(1) The sign must have been actually in existence at the time the applicable State law or regulations became effective as distinguished from a contemplated use such as a lease or agreement with the property owner. There are two exceptions to actual existence as follows:

(i) Where a permit or similar specific State governmental action was granted for the construction of a sign prior to the effective date of the State law or regulations and the sign owner acted in good faith and expended sums in reliance thereon. This exception shall not apply in instances where large numbers of permits were applied for and issued to a single sign owner, obviously in anticipation of the passage of a State control law.

(ii) Where the State outdoor advertising control law or the Federal-State agreement provides that signs in commercial and industrial areas may be erected within six (6) months after the effective date of the law or agreement provided a lease dated prior to such effective date was filed with the State and recorded within thirty (30) days following such effective date.

(2) There must be existing property rights in the sign affected by the State law or regulations. For example, paper signs nailed to trees, abandoned signs and the like are not protected.

(3) The sign may be sold, leased, or otherwise transferred without affecting its status, but its location may not be changed. A nonconforming sign removed as a result of a right-of-way taking or for any other reason may be relocated to a conforming area but cannot be reestablished at a new location as a nonconforming use.

(4) The sign must have been lawful on the effective date of the State law or regulations, and must continue to be lawfully maintained.

(5) The sign must remain substantially the same as it was on the effective date of the State law or regulations. Reasonable repair and maintenance of the sign, including a change of advertising message, is not a change which would terminate nonconforming rights. Each State shall develop its own criteria to determine when customary maintenance ceases and a substantial change has occurred which would terminate nonconforming rights.

(6) The sign may continue as long as it is not destroyed, abandoned, or discontinued. If permitted by State law and reerected in kind, exception may be made for signs destroyed due to vandalism and other criminal or tortious acts.

(i) Each state shall develop criteria to define destruction, abandonment and discontinuance. These criteria may provide that a sign which for a designated period of time has obsolete advertising matter or is without advertising matter or is in need of substantial repair may constitute abandonment or discontinuance. Similarly, a sign damaged in excess of a certain percentage of its replacement cost may be considered destroyed.

(ii) Where an existing nonconforming sign ceases to display advertising matter, a reasonable period of time to replace advertising content must be established by each State. Where new content is not put on a structure within the established period, the use of the structure as a nonconforming outdoor advertising sign is terminated and shall constitute an abandonment or discontinuance. Where a State establishes a period of more than one (1) year as a reasonable period for change of message, it shall justify that period as a customary enforcement practice within the State. This established period may be waived for an involuntary discontinuance such as the closing of a highway for repair in front of the sign.

(e) *Just compensation.* The States are required to pay just compensation for the removal of nonconforming lawfully existing signs in accordance with the terms of 23 U.S.C. 131 and the provisions of subpart D, part 750, chapter I, 23 CFR. The conditions which establish a right to maintain a nonconforming sign and therefore the right to compensation must pertain at the time it is acquired or removed.

This is a list of United States Code sections, Statutes at Large, Public Laws, and Presidential Documents, which provide rulemaking authority for this CFR Part.

This list is taken from the Parallel Table of Authorities and Rules provided by GPO [Government Printing Office].

It is not guaranteed to be accurate or up-to-date, though we do refresh the database weekly. More limitations on accuracy are described at the GPO site.

Hide United States Code

Hide U.S. Code: Title 23 - HIGHWAYS

§ 131 - Control of outdoor advertising

§ 315 - Rules, regulations, and recommendations

Hide U.S. Code: Title 49 - TRANSPORTATION
§ 1651

Digital Billboard Regulations Comparison Chart
Attachment #3

Standards	NDOT Proposed	Washoe County	Reno	Sparks	Clark County	Henderson	North Las Vegas	Las Vegas
Night Brightness	250 nits		*350 nits	*350 nits	*350 nits	500 nits	500 nits	300 nits
Flip Time	6 sec		8 sec	8 sec	6 sec	8 sec/20 sec	6 sec	6 sec
Separation (between billboards)	500 ft		750 ft std 1,000 ft dig	1500 ft std 3000 ft dig		750 ft std 250 ft dig	750 ft	300 ft (streets) 750 ft (Hwys)
Zones	Commercial and Industrial	New BBs Banned	Commercial and Industrial	Industrial	New BBs Banned	Billboard Zones	New BBs Banned	Commercial and Industrial
Max Size	1200 sf		672 sf	672 sf		672 sf	672 sf	672 sf
Max Height			35 ft	40 ft		50 ft		40 ft
**Legal Non-conforming Conversions Allowed	Yes	No	No	No	Yes (in certain locations)	No	Yes (in certain locations)	No
*jurisdictions using foot candle measurement - converted to nits (0.3 foot candles roughly is equal to about 350 nits at night)								
** Conversions are allowed without requiring full conformance with state and local laws								
std - standard billboard								
dig - digital billboard								

ATTACHMENT #4

STATE	A. Allow Digitals?	B. Any regs?	C. Any addition/al spacing?	D. Interstate Digital Spacing Require-ments	E. 6/1/91 Primary Digital Spacing Require-ments	F. Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright-ness?	I. Regulate height of digital signs?	J. Same height require-ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
AL																		
AK	no billboards allowed																	
AZ	Yes	Yes	No	500	300	Yes	Konica Minolta LS-110	No	No	Yes	8	0	Yes	Not separate sign category	Not separate sign category	Yes: found in favor of allowing	$20, same as others. annual	$5 annual, same as others
AR	Yes	Yes	Yes	1500 digital to digital, 500 digital to static	1000 digital to digital, 300 digital to static	No	No	No	No	No	8	2	No			Yes	$40, same as static signs	$20, every 2 yrs
CA	Yes	Yes	Yes	1000	1000	No	No	No	Yes	Yes	4	n/a	No	110	79	Yes	$70 Annually	$70/yr (may change to another figure in 2014)
CO	Yes	Draft version	1000	1000	1000	Not yet	Spectra Candela II A with Spectra 1 degree photospot attachment, about $1400	Based on Dr. Ian Lewin 2007 Study	No	Yes	Currently 4 Proposed 10	Currently 4 Proposed 10	Yes	Not separate sign category	Not separate sign category	No	$10 – $75 depending on size for 1 year	Same as permit fee for 1 year
CT	Yes	Yes	No	500	100 / 300	No	No	No	No	Face	6	3	Yes	34	0	No	$20, $40, $60	Same Annually
DE	Yes	No	Yes	2500 between another digital sign	Same as Interstate	No	No	No	No	Yes	10	1 or <	Yes	1	0	No	Digital sign fees are currently the same as static fees.	Initial sign fees and renewal fees are the same.
DC																		
FL	Yes	Yes	No	1500	1000	Yes	No	No	Yes	Yes	8	2	Yes	Not separate sign category	Not separate sign category	No	Same as other signs	Same as other signs
GA	Yes	Yes	Yes	5000	5000	Yes	No	No	No		10	0-2	Yes	134 Multiple Message Signs Not separate sign category	305 Multiple Message Signs Not separate sign category	No	None currently	None currently
HI	no billboards allowed																	
ID	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	8	2	Yes	9	14	No	$10 same as multi message	$3 / year
IL	Yes	Yes	No	N/A	N/A	No	No	No	No	Yes	10	3	Yes	Pending	Pending	No		

STATE	A. Allow Digitals?	Any regs?	C. Any additional spacing?	D. Interstate Digital Spacing Require ments	E. 6/1/91 Primary Digital Spacing Require ments	F.Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright-ness?	I. Regulate height of digital signs?	J. Same height require-ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
IH	Yes	No	No			No		No	No				No				Same as regular permit fee- $100 initial application fee	Same as regular permit fee- based on size between $15-50 yrly
IA	Yes	Yes	Yes	500/1000	500/1000	General only	No	No	No		8	0-1	No	Not separate sign category	Not separate sign category	No	All new applications are charged $250; no different fee for digital	
KS	Yes	Yes	Yes	1000	1000	No	No	No	50' to top	Yes	8	0-2	Yes	21 (17 built)	60 (56 built)	No		
KY	No	Yes	n/a	n/a	n/a	n/a	No	No	n/a	n/a	n/a	n/a	n/a			Yes	Same as traditional signage	Annual permit fee renewal by sq footage Fees are same as reg boards
LA	Yes	No	No	1000	1000	No	No	No	No	Yes	8	4	Yes	50	48	No	Same as regular signs	Same as regular signs
ME	no billboards allowed																	
MD	Yes	No	No	n/a	300	No	No	No	No	Yes	10	No	No	Not separate sign category	Not separate sign category	No	$1000 per year	$1000 per year
MA	Yes	Yes	Yes	1000	1000	Yes			Yes	Yes	10	0	Yes				Application fee is same for all types of signs - $100; annual permit fees for commercial signs is $50 for up to and including 300 sq ft; and $80 for 301 sq ft and above	annual permit fees for commercial signs is $50 for up to and including 300 sq ft; and $80 for 301 sq ft and above
MI	Yes	No	No	n/a	n/a	Yes	No	No	no	Yes	Yes	1 sec or less	Yes	Not separate sign category	Not separate sign category	no	$120/ year	Renewed annually for same amount
MN	Yes	No	No	No	No	No	No	No	No								$85 for as long as the permit remains active	$20 (both amounts should be raised but they are subject to legislative authority)

STATE	A. Allow Digitals?	Any regs?	C. Any addition/al spacing?	D. Interstate Digital Spacing Require-ments	E. 6/1/91 Primary Digital Spacing Require-ments	F.Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright ness?	I. Regulate height of digital signs?	J. Same height require ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
MS	Yes	Yes	Yes	1000	1000	Yes	No	No	Yes	Yes	8	1	Yes	15	0	No	$200 application fee; two years to build; same as static permit fee.	$100 renewal fee every two years; same as static renewal.
MO	Yes	Yes	No	1400	1400	Pending	Pending	Yes	No	Yes	8	2	Yes	25	47	No	Digital off-premises signs are not allowed	n/a
MT	No						No	Yes								No	$15 / 2 years for each Class III billboard regardless of technology	Renewed every two years for $15
NE	Yes	Yes	Yes	5000	5000		No	No	Yes	Yes	10	2	Yes	3	55		No different than traditional board	All signs are charged an annual fee of $50
NV	Yes	Yes	No	500	500	No	No	No	No	Yes	6	3	No			No		
NH	Yes	No	No			No		No	No	Yes	N/A			0	0	N/A	Same as for a static sign	Fees are annual fees; there is no difference between initial fees and renewal fees
NJ	Yes	Yes	Yes	3000	3000	No	No	No	No	Yes	8	1	Yes			No	Initial $50 inspection fee for all signs; also charged for subsequent permit updates requiring a field inspection of the sign.	All permit renew automatically each year until cancelled; no addition/al charges for digital.
NY	Yes	Policy. Regs to be adopted	Yes	5000	5000	Yes	Permittee certifies comliance. State in process of obtaining equipment to verify.	No	No	n/a	6	Instant	No			No	Initial $50 inspection fee for all signs; also charged for subsequent permit updates requiring a field inspection of the sign.	All permit renew automatically each year until cancelled; no addition/al charges for digital.
NC	Yes	yes Admin Rules	Yes	1000	1000	No	No	No	Yes	Yes	8	2	Yes	26	61	No	One time $50 fee (same as any other outdoor advertising fee)	Do not have renewal fees

STATE	A. Allow Digitals?	Any regs?	C. Any addition/al spacing?	D. Interstate Digital Spacing Require ments	E. 6/1/91 Primary Digital Spacing Require ments	F.Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright-ness?	I. Regulate height of digital signs?	J. Same height require-ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
ND	Yes	No	No	n/a	n/a	No	No	No	No	Yes	7	0 - 2	Yes	Not separate sign category	Not separate sign category	No	$625 application fee for 2 yr. condition/al permit. Covers first two-year fee period.	$325 due at billing cycle (every two years)
OH	Yes	Yes	Yes	1000	1000	No	No	No	Yes	Yes	8	3	Yes				$100 application fee / if approved good for 2 yrs	$20 renewal fee every two years
OK	Yes	Yes	No	1000	300	Not Specifically	No	No	Yes	Yes	8	Immediate for Digital 4 secs for Tri-V	Yes	95 (approved)	155 (approved)	No	$500-$2,000 based on sq ft of display face	$120 - 160 annually based on total sf of display face
OR	Yes	Yes	No	2000 out side of incorp cities/500 inside	same as other OAS	Yes	yes Extech LT 300 Light Meter	No	Yes	Yes	8	2 or less	Yes	2	8	No	No difference between digital and non digital; $10 each face up to 300 sf; $20 each face 301 - 600 sf; $30 each face 601 - 1200 sf	Annual renewal fee same as initial application fee
PA	Yes	Yes	No	500 - applies to all signs	500 - applies to all signs	No	No	No	Max. height of all signs - 30 feet	Yes	5	1	No	Unknown	Unknown	No	$2000 per panel per year	$2000 per panel per year
RI							No	No									Application fee $100; Covers current calendar year	$20 for signs less than $350 sq ft; $30 for signs 350 sq ft or more; Time frame is the calendar year
SC	Yes	Yes	No	500	300	No	No	No	No	Yes	6	2	No	2	2	No	No permit fee	Normal permit fee for one year
SD	Yes	No	No			No	No	No	No	Yes		6	Yes			No	1) $200 Application fee for a new digital location (TN permits faces) 2) Existing permitted conforming sites can be upgraded by submitted a permit addendum and $200	All permits are the same with $70 renewal fee per permit every calendar year

STATE	A. Allow Digitals?	Any regs?	C. Any addition/al spacing?	D. Interstate Digital Spacing Require-ments	E. 6/1/91 Primary Digital Spacing Require-ments	F.Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright-ness?	I. Regulate height of digital signs?	J. Same height require-ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
TN	Yes	Laws	Yes for fully access controlled highways	2000	No addition/al spacing require-ments for non-access control routes.	No	No	No	Same as other signs	Yes	8	2	S.O. excellent about digital complying	Estimated 81 (Interstates)	Estimated 58? (Primary & NHS)	No	$100 for initial permit application fee; if approved, permit holder has 12 months to erect the sign	$75 annual renewal fee
TX	Yes	Yes	1500	1500	1500	No	No	No	Yes	Yes	8	2	Yes	168	168	No	$125 same as static sign	$25 annually
UT	Yes	Yes	No	500	500	No	No	No	Yes	Yes	8	3	No	10 approx.	Not separate sign category	No		
VT	no billboards allowed																	
VA	Yes	No	No	500	300	No		No	No	Yes	4		No	8	3	No	$500 each	$60 each
WA	Currently not allowed																Washington legislature is currently considering legislation that would allow digital signs and has directed WSDOT to develop a fee schedule	
WV	Yes	Yes	Yes	1000	1000	Yes	Legislative brightness preset letter req'd from sign designer; would hire a company to establish brightness	No	Yes	Yes	8	2	Yes	0	5	No	$175 nonrefundable in effect for life of the sign; same as static sign	None
WI	Yes	Yes	No	500	300	Yes	No	No	No	Yes	6	1	No	26 known, owners not required to report LED capability	36 known, owners not required to report LED capability	No	$10 / 3 years; same as static sign (changing to $100/# years on July 1, 2013)	$5 beginning the 4th year ($15 annual/beginning on the 4th year, as of July 1, 2013)

STATE	A. Allow Digitals?	Any regs?	C. Any addition/al spacing?	D. Interstate Digital Spacing Require-ments	E. 6/1/91 Primary Digital Spacing Require-ments	F.Specify bright-ness & intensity?	G. Do you measure & what do you use?	H. Was a survey done on bright-ness?	I. Regulate height of digital signs?	J. Same height require-ments as other signs	K. # of sec of req'd hold display	L. # of seconds of req'd change display	M. Static default req'd?	N. # of permitted digital signs on Interstate	O. # of permitted digital signs on 6/1/91 Primary Rts	P. Any Litigation?	Q. Initial Digital Permit Fee and Time Frame	R. Renewal Digital Permit Fee and Time Frame
WY	Yes	No	No	500	300 outside incorporated village/ city limits, 100 within incorporated village/city limits	Yes	No	No	Yes	Yes	8	3	No	Not separate sign category	Not separate sign category	No		

*data gathered March 2013

ATTACHMENT #5

Digital Billboards: What we Know Now

Presented to ASHTO SCOTE

Manchester, New Hampshire

Jerry Wachtel, The Veridian Group, Inc.

June 16, 2009

Why are DBBs Different?

- The human eye is hard-wired to be drawn to the brightest objects in the scene and to those that display motion, or apparent motion.
  - This phenomenon is sometimes called phototaxis or phototropism.
  - Recent research (e.g. Theeuwes) shows that this response is both is automatic and unavoidable.
- DBBs use both brightness and movement to capture attention.

ATTACHMENT #6

Maximum Brightness Recommendations

Year	Author	Study/Report	Daytime Brightness	Nighttime Brightness	Measurement Method	Link
2006	Freyssinier	Luminance Requirements for Lighted Signage		100 nits	Luminance; using a Photometer (nit gun)	http://www.lrc.rpi.edu/programs/solidstate/pdf/Freyssinier-SPIE6337-52.pdf
2010	D. Carhart - Illinois Coalition for Responsible Outdoor Lighting	Digital Billboards:New Regulations for New Technology	5,000 nits	150 nits	Luminance; using a Photometer (nit gun)	http://www.illinoislighting.org/billboards
2010	Luginbuhl	Digital LED Billboard Luminance Recommendations How Bright is Bright Enough?		100 nits	Luminance; using a Photometer (nit gun)	http://www.flagstaffdarkskies.org/WPdev/wp-content/uploads/2013/03/Digital-Billboard-Luminance-Recommendation-ver-4.pdf
2010	Gregory Young	Illuminating the Issues Digital Signage and Philadelphia's Green Future		100 nits	Luminance; using a Photometer (nit gun)	http://www.scenicnevada.org/wp/wp-content/uploads/2014/10/Illuminating-the-Issues-Digital-Billboard-Study.pdf
2010	Clarion Associates	Pittsburgh Electronic Sign Ordinance Review	1,000 nits	100 nits	Luminance; using a Photometer (nit gun)	http://www.scenicnevada.org/wp/wp-content/uploads/2016/07/Pittsburgh-Electronic-Sign-Ordinance-Review.doc
2011	Bullough & Skinner	Luminance Criteria and Mesurement Considerations for LED Billboards		130 to 250 nits	Luminance; using a Photometer (nit gun)	
2014	Jerry Wachtel	Report on Digital Sign Brightness	3,000 nits	100 to 150 nits	Luminance; using a Photometer (nit gun)	https://www.thelibrarybook.net/view.php?res=http://scenicstpete.org/public/resources/NDOT%20Digital%20Sign%20Brightness.pdf&keyword=REPORT+ON+DIGITAL+SIGN+BRIGHTNESS+-+scenicstpete.org

Year	Author	Location	Result
2008	Chan	USA, Amherst, MA	"...we think that our drivers engaged in the external search task were truly distracted with potentially serious consequences."
2009	Young	England	The authors reached a "persuasive overall conclusion that advertising has adverse effects on driving performance and driver attention."
2009	Backer-Grøndahl, & Sagberg	Norway	when the researchers applied the statistical method known as quasi-induced exposure, they found that distractions with the "highest relative risk" were: (1) billboards outside the vehicle, and, (2) searching for addresses. The authors note that both of the highest risk distractors were visual distractions, rather than physical, auditory, or cognitive ones.
2009	Chattington	England	The study showed that several aspects of driving performance were adversely affected by both video and static billboards, with the video signs generally more harmful to such performance than the static signs. The authors list these effects as: speed control, braking, and lane position maintenance.
2009	Horberry	Australia	The authors recommend that their client (Queensland, Australia) adopt advertising restrictions at known areas of high driver workload, including "locations with high accident rates, lane merges, curves/bends, hills and road/works/abnormal traffic flows."
2010	Gitelman	Israel	After adjusting for traffic volume, crashes were reduced at the treatment sites (where billboards had been covered) by the following percentages: all crashes by 60%; injury/fatal crashes by 39%; property damage crashes by 72%.
2010	Bendak & Al-Saleh	Saudia Arabia	Results of the simulator study showed that the driving speed of participants was not affected by the presence of advertising signs. However, two of the five indicators were statistically significant. Both "drifting unnecessarily from (the) lane" and "recklessly crossing dangerous intersections" were significantly more prevalent in the presence of billboards.

Year	Author	Location	Result
2011	Milloy & Caird	Canada	The results demonstrated a *causal* (italics original) relationship between the presence of a video billboard and collisions with, and delays in responding to, the lead vehicle.
2011	Elquist	Australia	"The finding that the presence of billboards increases time to detect changes is an important one." Billboards can automatically attract attention when drivers are engaged in other tasks, delaying their responses to other aspects in the environment. The effect of billboards was particularly strong in scenes where response times are already lengthened by high levels of visual clutter.
2012	Dukic	Sweden	In this on-road, instrumented vehicle study, drivers had a significantly longer dwell time (time looking at the billboards), a greater number of fixations, and a longer maximum fixation duration when driving past digital billboards compared to other signs along the same road sections.
2012	Perez	USA, Washington DC	The routes were driven during daylight and at night, and the report found that digital billboards "were not associated with 'unacceptably long glances away from the road'." As noted above, however, the draft report of this study was strongly criticized by the agency's selected peer reviewers, particularly with regard to the efficacy of the obtained eye glance data. Indeed, the participants in the study did gaze more often to digital billboards than to other signs, in some cases more than twice as much.
2013	Divekar	USA, Amherst, MA	However, the researchers were surprised to find that experienced and novice drivers are at an equal and elevated risk of getting into a crash when they are performing a secondary task outside the vehicle such as looking at billboards.
2013	Roberts	Australia	The appearance of movement or changes in luminance can involuntarily capture attention, and engaging information can capture attention to the detriment of driving performance, particularly in inexperienced drivers. Where this happens in a driving situation that is also cognitively demanding, the consequences for driving performance are likely to be significant.

Year	Author	Location	Result
2013	Herrstedt	Denmark	The overall findings of the studies demonstrate that "advertising signs do affect driver attention to the extent that road safety is compromised."
2014	Hawkins	USA, College Station, TX	A total of 135 sign locations and 1,301 control sites were used, and the researchers found "no evidence the installation of on-premise signs at these locations led to an automatic increase in the number of crashes."
2014	Schieber	USA, Vermillion, SD	"clear evidence of impaired performance became apparent at the higher (50 MPH) driving speed." The analysis revealed that, rather than weaving in and out of lane while reading the billboards with longer messages, participants tended to slowly drift away from the lane center and then execute a large amplitude corrective steering input about eight (8) seconds after passing the billboard.
2014	Gitelman	Israel	"The results support and strengthen the previous findings." Removal/covering of the billboards from the highway (condition [b]) was associated with a 30-40% reduction in injury crashes from condition (a) according to two different databases, whereas the reintroduction/uncovering of the billboards (condition [c]) was associated with a 40-50% or 18-45% increase in such crashes, depending on the database cited. The trends were similar and consistent across damage-only, injury, and total accidents as well as nighttime vs. daytime injury accidents.
2015	Sisiopiku	USA, AL, FL	Although the data set was too small to employ statistical analyses, the authors found that "the presence of digital billboards increased the overall crash rates in areas of billboard influence compared to control areas downstream of the digital billboard locations. The increase was 25% in Florida and 29% in Alabama."
2015	Rempel	Canada	The key principle documented in the Guidelines is that they "provide recommendations designed to control (digital billboards) such that they emulate static advertising signs (italics added), and therefore result in a similar distracting and road safety effect as static advertisements."

Year	Author	Location	Result
2015	Samsa & Phillips	Australia	The route took them past a "number" of advertising signs, including static, digital, and on-premise signs. The results showed that fixation durations "were well below" 0.75 seconds, and that there were no significant differences in vehicle headways between the three types of signage. One statistically significant finding was that lateral deviation was poorer when billboards were present. (Note that, at present, only an Abstract of this industry-sponsored study is available).
2016	Belyusar	USA, Cambridge, MA	"In contrast to the recent FHWA report (Perez, et al., 2012), the findings revealed statistically significant changes in total number of glances and, depending upon the direction of travel, moderate-to-long duration glances in the direction of the billboard." Older drivers were thought to be particularly affected. The authors also found that: "Drivers glanced more at the time of a switch to a new advertisement display than during a comparable section of roadway when the billboard was simply visible and stable."