Imagine driving along a twisting, two-lane Alabama road at night. As you slow for a curve, suddenly an enormous digital screen pops into your field of vision, temporarily blinding you before flashing an ad for an insurance company. The glaring lights of this particular sign, slapped up in suburban Vestavia Hills, blindsided city zoning officials as well. They had unknowingly given entrance to digital billboard technology when they approved what appeared to be a routine application to add lighting to a sign grandfathered in years ago. The application made no mention of changeable messages and gave no indication it would transform an old, static board into a giant vehicle for digital images. Police officers immediately complained the board posed a major safety hazard. Neighbors complained about the glaring lights. Lamar Advertising Company, which owns the board, claimed they'd made the changes in "good faith." Anyone who has been following the digital billboard movement may recognize that argument as a popular tactic employed by an industry that finds it easier to ask localities for forgiveness than permission. It's one of many strategies being used to bring this digital technology to as many cities and towns as possible, before localities have a chance to explore the implications of the technology, update their sign ordinances, or ban digital signs outright.

What are Digital Billboards?

Billboards are advertisements. They are designed to grab our attention, and hold it, just like a TV commercial or an ad in a magazine. Digital billboards, the latest in billboard technology, tries to hold our attention even longer by changing messages and pictures every few seconds using a series of extremely bright, colorful images produced mainly via LED (light emitting diode) technologies. These billboards are more of a threat than standard billboards. Because of their brightness and flashing messages, they can be seen from farther distances, they are distracting to drivers, and they negatively impact nearby communities.

Negative Effects of Digital Billboards

Common sense tells us that if we are looking at a billboard and not at the road when we are driving, that's a dangerous thing. Brightly lit signs that change messages every few seconds compel us to notice them, much the same way our eyes move to the television screen when it's on. They lure our attention away from what's happening on the road and onto the sign. It's just human nature. And it works. That's why these signs are so incredibly lucrative for the billboard industry.

Research provided by the Illuminating Engineering Society of North America (IESNA) states that drivers should be subjected to points of brightness no greater than 40 times the average brightness level of their general surroundings. This proportion is known as the contrast ratio. "As roadway lighting and automobile headlights provide ambient nighttime lighting levels of about one nit, this implies signage should appear no brighter than about 40 nits" (Luginbuhl, 2010, p.1). Surprisingly, the IESNA's own recommendations for signage luminance suggest limits between 250-1400 nits---greatly exceeding their stated maximum contrast ratio of 40:1.

There is a preponderance of evidence demonstrating the negative impacts digital billboards have on public safety by altering driver behavior. Digital billboards create dangerous and unavoidable driver distractions, by design, and for the purpose of drawing driver attention away from the road

and toward the advertisements. Human error is the leading cause of traffic accidents, and lawmakers have come to recognize the importance of reducing driver distraction by enacting laws to ban cell phone use while driving. As digital billboards have become more common, an emerging body of research indicates that digital billboards may create similar distraction conditions for drivers.

Fast Facts:

- *In a 24-hour period, a digital billboard uses the same amount of energy as 15 average U.S. homes.*
- *To be visible in daylight, digitals use more electricity and burn brighter, often requiring air conditioners during the hot summer months to cool thousands of LED lights.*
- *Digital billboards are 3 times brighter than standard billboards at nighttime.*
- *Designed for long-distance impact, digital billboards are often up to 1200 sq. ft. in size.*
- *Digital billboards have also been multiplying. In 2008, there were only about 800 digital billboards nationwide; in 2016, about 6,400.*
- *Global light pollution is increasing by 6 percent each year.*

The Two Second Rule: Studies show drivers who take their eyes off the road for more than two seconds are far more likely to suffer a crash or near crash.

- *Digital billboards often attract drivers' attention for more than two seconds because they are extremely bright and colorful and employ messages that change frequently.*
- *Most images change every six seconds because that's how long it takes to comprehend the message. That's also three times longer than it takes to cause an accident.*
- *Motorists stay focused on the sign to see what's next, and many signs have up to 10 different messages in rotation.*
- *Commuters can learn to tune out traditional boards because the message doesn't change. But digital signs change messages frequently, creating fresh, daily distractions.*
- *Young and elderly drivers are particularly susceptible to distractions, making these signs especially problematic for drivers already at higher risk.*
- *Digital billboards can often be seen from more than a half-mile away, uselessly and adversely affecting visual quality long before the viewer is close enough to read the sign. This violates the spirit of requirements regarding the spacing of signs along the highway.*

In addition to harming drivers, digital billboards harm wildlife. These structures contribute to the growing problem of light pollution, which disrupts the circadian rhythms and related behavior of local wildlife populations. People are not immune to this kind of pollution, and excessive lighting can negatively impact human health as well as ecosystems.

Billboards lower property values and reduce the local tax base. Visual blight constitutes a significant threat to property owners and to overall quality of life in a city. Research on the impacts of billboards indicates a measurable loss in property values which directly results from proximity of billboards to properties. The threats to scenic value posed by the proliferation of

both digital and traditional billboards are broadly recognized, and have served as the impetus for the creation of sign ordinance laws throughout the country.

Digital Billboards are also substantially more expensive to remove, so localities without amortization laws could find themselves unable to afford taking them down. This would be especially true for signs along federal-aid highways where the use of amortization is prohibited by the Highway Beautification Act.

Warning Signs: Billboard Industry Tactics to Watch Out For

Billboard owners often lament on industry websites that current regulations and public sentiment present their biggest hurdles to mass deployment of digital signs. But in addition to the industry's normal political influence, it frequently employs some common strategies with local officials for overcoming those roadblocks. Here is what your community can expect to encounter if permission is sought for electronic signs:

1. **Amber Alerts and Other Public Service announcements**

   When Clear Channel installed a network of 10 digital billboards in Albuquerque, part of its deal with the state was that it would run Amber Alerts and other emergency messages for free. It made the same deal in Cleveland. "Strategic relationships with the community are important," a company representative told the *Albuquerque Tribune*.

   But many cities and states don't need digital billboards to run Amber Alerts. Existing government-operated digital highway signs, which have been in place for many years, as well as television and cell phones, already provide a system for emergency communication.

   Nonprofits and police departments should not allow themselves to be used as justification for the visual degradation of their community. No amount of donated ad space or Amber Alerts can compensate for the aesthetic and safety damage done by these signs.

2. **Let's Trade**

   To erect seven digital billboards on highways entering Cleveland, Clear Channel took down several hundred billboards elsewhere in the city.

   This might look like a good deal, but the truth is most of the billboards taken down in these swaps are nonconforming or unprofitable signs anyway. Billboard companies are willing to make the swap because the digital boards are so much more profitable, and because they would otherwise be unable to erect them, since many localities have limitations on erecting new boards. And once the digital signs go up, they become cost-prohibitive to remove should the government later need to buy them out due to road improvements, commercial development, or if the signs are proven to be hazardous.

Governments should not fall for offers to take down old signs in exchange for permitting new digital ones. Whatever perceived benefits accrue from such deals don't outweigh the introduction of devices that will potentially lead to traffic deaths and injuries, and degrade the visual character of the community. Further, in the absence of a complete moratorium on new signs, the old signs will inevitably be replaced somewhere within the jurisdiction.

3. **When an Improvement is Not an Improvement**

   These days, governments should be wary of seemingly innocuous applications to "improve" old signs or "add or upgrade lighting," which may hide a plan by a sign company to replace a traditional billboard with a digital one. Installing digital technology over a regular billboard is not an update or "improvement," but should be treated as construction of an entirely new sign.

   Some sign companies, in their eagerness to convert their signs, simply ignore rules and regulations and make changes without permission, hoping to intimidate local governments with the prospect of long and expensive legal battles or counting on a lack of political will to enforce the law.

Tension between the Billboard Industry and Local Communities

Lobbyists are pushing state legislators to pass bills that clear the way for LED signs on state and federal roads, and the industry is pressuring state departments of transportation to rewrite regulations to allow them to transform traditional billboards into digital billboards. And in cities and counties across America, they are pressing for looser sign ordinances or simply installing the new technology without permission to do so.

When digital comes to town, local governments are often caught off guard. As was the case in Vestavia Hills, billboard owners are not always upfront about what they are doing, and the technology may be installed without notice. It's not unusual for billboard operators to erect digital signs even when State-Federal agreements or local ordinances prohibit them, knowing that local enforcement can be difficult due to lax or inefficient enforcement, or the prospect of the lengthy and costly litigation that inevitably follows.

Despite higher installation costs and friction with the affected communities, the profitability of digital boards provides a powerful incentive for companies to put up as many as possible. That's because digital boards allow companies to sell ad space to 10 times as many clients as static ones because of the ability to switch between messages. They also allow advertisers to change content several times a day or week. Unlike traditional billboards, which require contractors to change messages manually, digital boards allow operators to change content from remote locations in a matter of seconds, right from their own computers.

Proponents of billboards describe them as sources of economic growth, but there is no evidence that billboards sufficiently offset the losses they impose on others, or that they function as net positive assets for a community. More than 700 towns in America have banned billboards, and

billboards are not necessary to support economic growth. Billboards impose significant negative externalities upon the communities which host them, and sign ordinance amendments must account for the blight which spurred the creation of those laws.

For many outraged citizens, traditional concerns about "litter on a stick," have now been supplanted by the prospect of confronting "PowerPoint on a stick" along their communities' roadways. This digital technology has opened another front in the battle against blight—with more at stake than ever before.

Additional Resources:

- Compendium of Recent Research Studies on Distraction from Commercial Electronic Variable Message Signs (CEVMS), Jerry Wachtel, CPE President, The Veridian Group, Inc. Berkeley, California, Feb., 2016 https://www.scenic.org/wp-content/uploads/2019/09/billboard-safety-study-compendium-updated-february-2018.pdf
- Illuminating the Issues, Gregory Young, 2010
- ecologyandsociety.org/vol15/iss4/art13/2013