



CHAPTER

No. 411 **AN ORDINANCE IN AMENDMENT OF CHAPTER 27 OF THE CODE OF ORDINANCES OF THE CITY OF PROVIDENCE, ENTITLED: "THE CITY OF PROVIDENCE ZONING ORDINANCE," APPROVED NOVEMBER 24, 2014, AS AMENDED, TO AMEND ARTICLE 16, "SIGNS" SECTION 1604 "ILLUMINATION STANDARDS"; SECTION 1605 "PROHIBITED SIGNS"; AND ARTICLE 20, SECTION 2005, ENTITLED "NONCONFORMING SIGNS" OF THE OFFICIAL ZONING ORDINANCE OF THE CITY OF PROVIDENCE**

Be it ordained by the City of Providence:

SECTION 1. An Ordinance in Amendment of Chapter 27 of the Code of Ordinances of the City of Providence, Entitled: "The City of Providence Zoning Ordinance," Approved November 24, 2014, As Amended, to amend Article 16, "Signs" Section 1604 "Illumination Standards"; Section 1605 "Prohibited Signs"; and Article 20, Section 2005, entitled "Nonconforming Signs" of the Official Zoning Ordinance of the City of Providence.

ARTICLE 16. SIGNS

1604 ILLUMINATION STANDARDS

D. The intensity of sign illumination shall meet the requirements for exterior lighting in Section 1301. For electronic message signs, the maximum brightness is ~~limited to 5,000 nits during daylight hours, and 500 nits between dusk to dawn. The sign shall have an automatic dimmer control that produces a distinct illumination change from a higher allowed illumination level to a lower allowed level for the time period between one-half hour before sunset and one-half hour after sunrise.~~ shall be responsive to ambient lighting in real time and said brightness shall not exceed 0.3 foot candles above ambient light, as measured using a foot candle meter at a pre-set distance. Distances to measure the foot candle impact vary with the expected viewing distance of each size sign. Measurement shall be taken as close to perpendicular to the face of the sign as possible. Measurement distance criteria:

Face Size Distance to be measured from

Up to 300sf 150 feet

More than 300sf up to 378sf 200 feet

More than 378sf up to 672sf 250 feet

More than 672sf 350 feet

1605 PROHIBITED SIGNS

The following sign types are prohibited:

L. Off-premise electronic message signs are prohibited in all zones except as a nonconforming sign removal development incentive. Regardless of any development incentive, off-premise electronic message signs are prohibited as follows:

IN CITY COUNCIL
JUL 21 2022
FIRST READING
REFERRED TO COMMITTEE ON
ORDINANCES
Juan P. Matamoros CLERK
ACTING

THE COMMITTEE ON
Ordinances
Recommends
Juan P. Matamoros
CLERK
9-7-2022
Set up P.M.

THE COMMITTEE ON
Ordinances
Public Hearing Held
Juan P. Matamoros
CLERK
10-19-2022

THE COMMITTEE ON
ORDINANCES
Approves Passage of
The Within Ordinance
Juan P. Matamoros
Clerk
11-2-2022

1. Prohibited Locations

- a) Off-premise electronic message signs shall be oriented towards an interstate highway and may only be incidentally noticeable from any residential zone.
- b) Any off-premise electronic message sign shall continue to be subject to the requirements and restrictions of Sections 2005 A through E of this Ordinance.

2. Prohibited Dimensions or Uses

- a) No flashing
- b) No animation
- c) No scrolling
- d) No change of image more frequent than once every ten (10) seconds
- e) The sign face shall not be larger than 14 ft. x 48 ft

ARTICLE 20. NONCONFORMITIES

2005 NONCONFORMING SIGNS

F. Removal of Nonconforming Signs.

The removal of nonconforming signs is a public benefit. Incentive zoning is the process whereby the local authority may grant additional development capacity in exchange for the provision of a public benefit or amenity as specified in the Zoning Ordinance. An off-premise electronic message sign shall be permitted in exchange for the removal of nonconforming signs as follows:

- 1. At least two times the equivalent square footage of other off-premise sign(s) in Providence, including their footings, shall be removed prior to the completion of the off-premise electronic message sign.
 - a. The removed signs and footings may not be replaced and shall be deemed “abandoned” for purposes of this Ordinance and state law.
- 2. The off-premise electronic message sign shall be subject to the most restrictive provisions of applicable city, state, and federal law, including but not limited to:
 - a. Restrictions on hours of operation, and
 - b. Restrictions on brightness.
- 3. Off-premise electronic message signs are not subject to the provisions of Section 1607.D.4 that limit electronic message signs to a maximum of 70% of the sign area of a freestanding or wall sign.

If the state or federal government shall deem any off-premise electronic message sign or permit to be “abandoned,” then the sign shall be deemed abandoned for the purpose of these zoning regulations.

SECTION 2. This Ordinance shall take effect upon passage.

MOTION TO PASS FOR THE FIRST TIME
ON A ROLL CALL VOTE FAILED

Tina L. Mastroianni
Tina L. Mastroianni
Acting City Clerk

**IN CITY COUNCIL
DEC 01 2022**

READ AND FAILED

Tina L. Mastroianni CLERK
ACTING

City of Providence

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

PETITION TO THE CITY COUNCIL

TO THE HONORABLE CITY COUNCIL OF THE CITY OF PROVIDENCE:

The undersigned respectfully petitions your honorable body

Diony Garcia, Esq. hereby petitions the City Council to amend Article 16, "Signs" Section 1604 "Illumination Standards"; Section 1605 "Prohibited Signs"; and Article 20, Section 2005, entitled "Nonconforming Signs" of the Official Zoning Ordinance of the City of Providence as indicated by the underlined text below:

ARTICLE 16. SIGNS

1604 ILLUMINATION STANDARDS

- D. The intensity of sign illumination shall meet the requirements for exterior lighting in Section 1301. For electronic message signs, the maximum brightness is limited to 5,000 nits during daylight hours, and 500 nits between dusk to dawn. ~~The sign shall have an automatic dimmer control that produces a distinct illumination change from a higher allowed illumination level to a lower allowed level for the time period between one-half hour before sunset and one-half hour after sunrise.~~ shall be responsive to ambient lighting in real time and said brightness shall not exceed 0.3 foot candles above ambient light, as measured using a foot candle meter at a pre-set distance. Distances to measure the foot candle impact vary with the expected viewing distance of each size sign. Measurement shall be taken as close to perpendicular to the face of the sign as possible. Measurement distance criteria:

<u>Face Size</u>	<u>Distance to be measured from</u>
<u>Up to 300sf</u>	<u>150 feet</u>
<u>More than 300sf up to 378sf</u>	<u>200 feet</u>
<u>More than 378sf up to 672sf</u>	<u>250 feet</u>
<u>More than 672sf</u>	<u>350 feet</u>

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1. Prohibited Locations

- a) Off-premise electronic message signs shall be oriented towards an interstate highway and may only be incidentally noticeable from any residential zone.
- b) Any off-premise electronic message sign shall continue to be subject to the requirements and restrictions of Sections 2005 A through E of this Ordinance.

IN CITY COUNCIL
JUL 21 2022
FIRST READING
REFERRED TO COMMITTEE ON
ORDINANCES
Jane S. Mastromanni CLERK
ACTING

THE COMMITTEE ON
Ordinances
Recommends
Jane S. Mastromanni
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9-7-2022, Set up P.H.

THE COMMITTEE ON
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CLERK
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THE COMMITTEE ON
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The Within Ordinance
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ARTICLE 20. NONCONFORMITIES

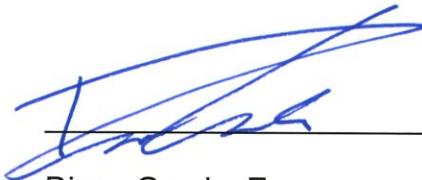
2005 NONCONFORMING SIGNS

F. Removal of Nonconforming Signs.

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1. At least two times the equivalent square footage of other off-premise sign(s) in Providence, including their footings, shall be removed prior to the completion of the off-premise electronic message sign.
 - a. The removed signs and footings may not be replaced and shall be deemed "abandoned" for purposes of this Ordinance and state law.
2. The off-premise electronic message sign shall be subject to the most restrictive provisions of applicable city, state, and federal law, including but not limited to:
 - a. Restrictions on hours of operation, and
 - b. Restrictions on brightness.
3. Off-premise electronic message signs are not subject to the provisions of Section 1607.D.4 that limit electronic message signs to a maximum of 70% of the sign area of a freestanding or wall sign.
4. If the state or federal government shall deem any off-premise electronic message sign or permit to be "abandoned," then the sign shall be deemed abandoned for the purpose of these zoning regulations.

Signature:



Name:

Diony Garcia, Esq.

Title:

Attorney

Telephone No.:

(401) 415-9835

Email Address:

dgarcia@wjclaw.com

FILED

2022 JUL 15 A 9:51

DEPT. OF CITY CLERK
PROVIDENCE, R.I.



An ordinance in amendment of City of Providence Zoning Code Article 16, "Signs" Section 1604 "Illumination Standards"; Section 1605 "Prohibited Signs"; and Article 20, Section 2005, entitled "Nonconforming Signs".

The proposed amendment would increase illumination standards by requiring that sign illumination automatically dim in response to ambient light. It would prohibit off-premise electronic message signs generally. It would create a development incentive to remove nonconforming signs through the permission of limited off-premise electronic message signs. It would prohibit electronic message signs from any form of flashing, animation, or scrolling. It would prohibit electronic message signs from any orientation focused on a residential zone and it would prohibit electronic message signs from any location that is not oriented to an interstate highway.

Mastroianni, Tina

From: Anne H <ahart.lab@gmail.com>
Sent: Sunday, October 9, 2022 8:54 AM
To: Clerk, City
Subject: Testimony: Illuminated Billboard Ordinance under consideration by Providence City Council

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Dear City Clerk and Providence City Council members,

As a long-term resident of Providence, I am strongly opposed to the proposal that would allow illuminated billboards in Providence. There is already too much night light pollution in Providence and surrounding areas, illuminating signs at night wastes energy, and - even with the proposed restrictions - each illuminated sign will incrementally decrease the attractiveness of our city. The only people who benefit from lighted signs will be those who build or lease them; they will provide no benefit to other citizens and will decrease quality of life for many.

Please completely reject this proposal

Anne Hart
162 Pratt Street
Providence RI

John M. Woolsey
27 John Street
Providence, Rhode Island 02906

October 13, 2022

Ordinance Committee
c/o City Clerk
City Hall
Providence, Rhode Island

Re: **SUPPORT Student Housing Ordinance
AGAINST Allowing Illuminated Billboards**

Via Email: cityclerk@providenceri.gov

To the Ordinance Committee,

My wife and I very much support Helen Anthony's proposed ordinance to limit occupancy to 3 college students per dwelling unit unless the house is owner occupied. This seems to be a reasonable compromise on this issue.

Our neighborhood of Fox Point has recently been invaded by outside developers buying and then subdividing former single-family houses in order to lease them to large numbers of students, the house then containing far more people than it was ever meant to hold. These people are usually very noisy and utterly transient, so of course they couldn't care less about the neighborhood. Some of these renters have threatened neighbors who call in to report them.

We strongly urge you to adopt this ordinance.

We also are against the proposal to allow illuminated billboards in Providence --- they are unnecessary, distracting and ugly. The billboard people keep bringing this up; we believe it has been rejected before and should be again.

Thank you for your consideration.

John & Ann Woolsey
27 John Street
Providence 02906

iclipp6@gmail.com

Dear City Council Members,

I write to you as a resident of Providence. I urge you NOT to allow illuminated billboards into our city.

As you know, Providence has all of the perks of a big city...a thriving downtown, restaurants, a museum, a hospital, an airport, multiple universities...but Providence is special because it is also so livable. It is dark and quiet at night. My children can get a good night sleep every night without noise, crime, commotion, and light pollution. We choose to live in Providence because it is close to everything, we can walk everywhere, my children get a city life AND because it doesn't feel like New York City or Las Vegas.

If you have ever visited New York City, Time Square isn't a place you would like to live. People live on the East Side in NYC and in Brooklyn where the nights are quiet and dark. The illuminated areas like Time Square create a tacky, shady quality to that area. Time Square is a fun place to visit. It is not a place to live.

I recognize that maybe from your perspective allowing illuminated billboards won't turn Providence into Time Square or Las Vegas. That this is an extreme position. But Moses Brown is planning to put an illuminated billboard basically in our front yard. My children's windows look right out on the field.

I think about the impact light pollution has already had on the East Side. The houses in the area around the Brown lacrosse/soccer field are selling one after the other. People don't want to live with light streaming in their windows after dusk. That isn't why people live in Providence on the East Side. Just like around the residential area near Hope High School, these decisions that we make about our city have impacts that may be slow to see but are profound and seep into our city.

I don't want this for the East Side but I don't want it for downtown either. I lived there for many years with my husband. I think about other areas of Providence where people don't have the resources or time I have to write a letter. I think about the other children living in less affluent areas of the city. They deserve sleep, safety, peace and quiet for their school day too.

If you have five minutes, scroll through the youtube documentary called "Saving The Dark". Scientists and policemen alike have found that more illumination causes more crime, more sleep stress to humans, and more disruption to animal populations.

I hope that you like me want Providence to move forward with the future: to become a greener city, a forward-thinking place, a welcome place for prosperous businesses and families trying to make a home. I don't believe illuminated billboards encourages this vision and I hope you will not allow this Ordinance to pass.

Thank you for your time,
Marian Smith
21 Weymouth Street
Providence, RI

Timothy T. More Esq
135 Benefit Street
Providence, Rhode Island 02903

To Members of the City Ordinance Committee.
October 10, 2022

Re Proposed Amendment to Zoning Ordinance to allow Illuminated Billboards

Lamar's latest proposed amendment to the Zoning Ordinance to allow illuminated billboards would have a much greater negative impact on the residents of Providence than Lamar's previous proposed amendments. The previously proposed amendments would have allowed a limited number of possible locations within industrial zoned areas of the City with restrictions (albeit inadequate) on visibility from residentially zoned neighborhoods. The current proposed amendment requires that signs "be oriented toward an interstate highway" but has no limit on the location and number of such signs and the visibility of such signs by residents (other than those in residential zones), hospital and rehab patients, workers and visitors to the City or drivers of vehicles. A sign could face across an interstate highway at residences that are not in a residential zone. As written, the Ordinance would not require the sign to be adjacent to an Interstate so long as it is "oriented toward" an Interstate. Thus a sign could be on the top of a building that is not adjacent to an Interstate or even close to an Interstate so long as the sign is oriented toward an Interstate somewhere in the City.

Expert testimony at previous hearings noted the substantive risk to drivers caused by illuminated signs with changing messages.

The Friends of Roger Williams Park strongly objected to a proposed illuminated billboard on the north side of I-195, which was rejected by the Ordinance Committee --- but which would be permitted by the proposed Ordinance.

If the previous proposed illuminated billboard ordinances were unacceptable, the proposed ordinance is thus much more unacceptable.

RE: Proposed amendment to the Providence Zoning Ordinance concerning video scoreboards

TO THE MEMBERS OF THE PROVIDENCE CITY COUNCIL:

We are writing in opposition to the addition of the proposed Section 1607(M) to the City of Providence Zoning Ordinance.

This amendment is too vague and, as written, could have significant negative impacts on residential neighborhoods in which video scoreboards may be located. We would ask that Section 1607 (M) be revised to limit the use of such scoreboards in residential zones.

We live on Weymouth Street or other streets in close proximity to the Moses Brown upper sports field. That field is located less than 200 feet from many of the Weymouth Street residences. It is on a hill and is literally right on top of the homes on Weymouth Street. The second floor of many homes on Weymouth Street are at eye level with this Moses Brown playing field, and have an up-close view and hearing of everything that happens on that field.

On Tuesday, October 11th, the City Plan Commission (following the recommendation of the City Planning Department) approved the erection of a new scoreboard by Moses Brown, close to the Weymouth Street border. This scoreboard will have built-in video capacity.

At the October 11 meeting, Moses Brown made a presentation indicating that they have many plans for the use of their new video scoreboard, not just for school athletic events, but also for outdoor movie nights, community events, collaborations with other organizations, use by various parties who may rent the field, etc. Use of the new video scoreboard will be accompanied by a sound component in many instances.

It is noteworthy that one member of the CPC, Mr. Bilodeau, expressed his opinion that such a video board was not appropriate in a residential neighborhood. He was informed that the issue before the CPC was simply the erection of the scoreboard, and use of the video component needed to be approved via an amendment to the Zoning Ordinance; i.e., the proposed Section 1607(M) for addition to the Zoning Ordinance. However, by approving the erection of the scoreboard following Moses Brown's presentation on their plans for the scoreboard, the CPC was giving its tacit approval for unlimited use of the video scoreboard by Moses Brown.

If Section 1607(M) is adopted as written, Moses Brown will have free reign to use their video board and the accompanying sound system for a myriad of uses, as often as they like. As Mr. Bilodeau expressed at the October 11 meeting of the CPC, this is not appropriate in a residential neighborhood. It will certainly have a negative impact on the residential areas adjacent to Moses Brown.

We are sure that the concerns of Weymouth Street residents are shared by folks in other neighborhoods who might be similarly situated with respect to video scoreboards. This being the case, we urge the City Council to reject the adoption of Section 1607(M) as written. Such scoreboards must be subject to reasonable restrictions in residential neighborhoods to protect (i) the character and peaceful enjoyment of our neighborhoods and (ii) our property values.

Thank you for your consideration.

[See next page for Providence residents joining in this letter]

Dayna Niwa Krakauer
Grant Brown
1 Weymouth Street
Providence, RI 02906

Donna Benoit
Robert McConnell
25 Weymouth Street
Providence, RI 02906

Joseph Diaz
Judith Diaz
27 Weymouth Street
Providence, RI 02906

James Lippincott
Catherine Schneider
43 Weymouth Street
Providence, RI 02906

Jodi Goodman
Matthew Goodman
49 Weymouth Street
Providence, RI 02906

Joanne Oechler
Hugh Oechler
95 Alumni Avenue
Providence, RI 02906

Susan Esposito
Raymond Esposito
103 Alumni Avenue
Providence, RI 02906

October 14, 2022

Council President John Iglizzi
Committee on Ordinances Chairman Nicholas Narducci, Jr.
Providence City Hall,
Providence, Rhode Island 02903

Cc:
Providence City Council
Providence Planning Director Bonnie Nickerson
Carlos Machado, Division Administrator, FHWA
Peter Alviti, RIDOT Director

Executive Summary:

Scenic America concurs with the recommendation of the Providence Planning Department and the City Plan Commission in opposing Lamar Advertising's proposal to amend the Zoning Ordinance to allow off premises electronic message signs, change billboard illumination standards, and create "removal development incentives" favorable to the developer and allow new digital billboards to be located in any zoning district.

Digital billboards are a threat to driver safety. They are harmful to human and ecological health. The luminescence standard would allow much brighter signs under certain conditions, and adversely impact residences "incidentally noticeable" to a new digital billboard. This would harm nearby properties, lowering their value. Such new digital billboards would adversely impact the state's roadway system and tourism economy.

Further, the "equivalent square footage" is a minimal compensation standard that would reap a major financial windfall for Lamar, a national company who already controls more than 450 billboards throughout Rhode Island.

Dear President Iglizzi and Chairman Narducci,

Scenic America is the nation's only nonprofit that helps citizens safeguard the scenic qualities of America's roadways, countryside and communities. We actively support local efforts to preserve scenic beauty and oppose visual blight in cities throughout the United States. Over the past forty years, our organization has identified billboards as a particularly harmful form of scenic blight, with significant negative impacts, working with national, state, and local officials to ensure that outdoor advertising is properly regulated.

We have learned that the Providence City Council is considering another proposal by Lamar Outdoor Advertising to amend its zoning ordinance to allow digital billboards in any zoning district, as long as they are oriented toward an interstate highway and are not more than incidentally noticeable from any residential zone. The proposal would provide for an offsetting reduction in billboards in Providence, based on sign panel area. Previous proposals have been rejected by your Committee notwithstanding that such proposed ordinances were more restrictive than the currently proposed ordinance. We

support the City Planning Commission decision to recommend that your Committee oppose passage of the proposed ordinance.

Based on the experiences of cities which have enacted similar laws, as well as robust research evidence, Scenic America recommends that the City of Providence reject the proposed amendment. Billboards are hazardous to driver safety as well as human and ecological health, and they harm communities. Imposing local decision upon outside stakeholders can lead to conflicts between cities and affected parties beyond their immediate jurisdictions.

First, 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 an extensive list of the dangers which digital billboards pose to drivers, please refer to this compendium of research studies which describe the hazards at length.¹ Furthermore, the latest research demonstrates that even changing electronic signs erected solely for public information purposes create hazards for drivers, indicating that the medium of digital signs is inherently dangerous.²

In addition to harming drivers, digital and brightly lit static 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.^{3,4,5}

Second, the proposed amendment has significant consequences beyond Providence. Any proposal to site a billboard adjacent to an interstate, US, or state highways should not be considered a local matter. We must express concern that the Zoning Board or City Council of a single municipality might make a decision that impacts the entire state. As of 2014, Lamar Advertising had 452 billboard faces (or “panels”) in Rhode Island, and currently holds about 90% of available RIDOT “outdoor advertising” permits required for visual access to many state roads and highways.

Third, billboards lower property values and reduce the local tax base. The threats to scenic value posed by the proliferation of both digital and static billboards are broadly recognized, and have served as the impetus for the creation of sign ordinance laws throughout the country. Title 1 of the 1965 Highway Beautification Act explicitly cites the need to regulate signage in order to

“...protect the public investment in such highways, to promote the safety and recreational value of public travel, and to preserve natural beauty.”⁶

¹<https://www.scenic.org/wp-content/uploads/2019/09/billboard-safety-study-compendium-updated-february-2018.pdf>

² <https://www.scenic.org/blog/research-shows-that-digital-traffic-safety-messages-contribute-to-highway-accidents-and-fatalities/>

³<https://www.sciencedirect.com/science/article/pii/S187770581502113X>

⁴<https://www.nature.com/articles/srep13557>

⁵<https://www.nature.com/articles/tp2016262>

⁶<https://www.law.cornell.edu/uscode/text/23/131>

Research on billboard impacts indicates a measurable loss in property values which results from proximity of billboards to properties.⁷ 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, and sign ordinance amendments must account for the costs of blight. Furthermore, the language of the proposed amendment is ambiguous as to whether the billboard would need to be adjacent to or even near an interstate highway. In addition, the restriction on visibility does not protect the many people who live in residences that are not in residential zones.

Fourth, the two square feet removal for every one square foot of a new billboard is advantageous to Lamar. Kansas City, MO considered a proposal for an equivalent seven to one conversion agreement.⁸ Gulfport, MS had an agreement for a six to one conversion ratio, and Tampa, FL had a ten to one ratio.⁹ Further, if the City was inclined to enact such an exchange ratio, it should only do so on the basis that a digital billboard can present six faces per minute, and each face would count toward the exchange rate.

Lamar's proposal is bad for the citizens of Providence. It would make driving more dangerous. It would allow billboards to negatively impact human health and the local ecosystem. It would impose on other municipalities. It would harm property owners. It would increase visual blight. Finally, it would grant undue concessions to a billboard company that already has a monopoly in Rhode Island.

We strongly recommend that the City reject this amendment.

Sincerely,



Mark Falzone,
President, Scenic America

⁷https://www.scenic.org/wp-content/uploads/2019/09/Beyond_Aesthetics1.pdf

⁸<https://martincitytelegraph.com/2020/02/07/new-ordinance-allows-more-digital-billboards-in-kc/>

⁹http://www3.dallascityhall.com/committee_briefings/briefings0411/ECO_DigitalBillboardCodeAmendmentUodate_040411.pdf



To Members of the City Ordinance Committee.
Re Proposed Amendment to Zoning Ordinance to allow Illuminated Billboards
October 17, 2022

As a resident of Providence, who lives in a neighborhood that borders Interstate 95, I oppose the repeated efforts of Lamar advertising to amend the Providence Zoning Ordinance to allow illuminated digital billboards alongside and near Interstate 95 and 195 in Providence.

Lamar's latest proposed amendment to the Zoning Ordinance to allow illuminated billboards would have an even greater negative impact on the residents of Providence than Lamar's previously proposed amendments. For example, the current proposed amendment requires that signs "be oriented toward an interstate highway" but has no limit on the location and number of such signs and the visibility of such signs by residents (other than those in residential zones), hospital and rehab patients, workers and visitors to the City and drivers of vehicles. A sign could face across an interstate highway at residences that are not in a residential zone. As written, the Ordinance would not require the sign to be adjacent to an Interstate so long as it is "oriented toward" an Interstate. Thus, a sign could be on the top of a building that is not adjacent to an Interstate or even close to an Interstate so long as the sign is oriented toward an Interstate somewhere in the City.

I would refer you to letters submitted by Scenic America at previous hearings. Among other negative impacts that they have described, they noted the added risk to drivers caused by illuminated signs with changing messages.

Lamar had previously proposed a digital illuminated billboard on the north side of I-195. Although it was rejected by the Ordinance Committee, it would be permitted by the proposed ordinance. If the previous proposed digital illuminated billboard ordinances were unacceptable, the proposed ordinance is thus much more unacceptable.

I sincerely hope that the Ordinance Committee will advise Lamar not to submit any further such amendments to allow digital billboards anywhere in the City.

Sincerely,

A handwritten signature in cursive script that reads "Karen M. Hlynsky".

Karen Hlynsky
Chair, Elmwood Neighborhood Association
225 Lenox Ave, Providence RI 0290



To Members of the City Ordinance Committee
Re: Proposed Amendment to Zoning Ordinance to allow Illuminated Billboards
October 17, 2022

Dear Committee members

Washington Park residents have expressed grave concerns regarding the above proposed zoning amendment, at the request of Lamar 'Advertising' Co. (Again) This latest proposal would allow a even greater number of illuminated signs through out Providence.

The only standard in writing, is referenced as 'footcandles' should not apply. It is my experience that the higher the sign, or 'light' the further the light travels and is a nighttime light that illuminates the area until dawn.

Digital billboards are a threat to driver safety. The very defination of advertising is to attract attention. This is a distraction equil to texting while driving .

The Providence section of highway from Cranston/ Warwick, thru Providence/Pawtucket is some of the most congested and difficult stretches to navigate. We are all aware of the Thurbers Avenue 'curve' which is one of the most dangerous in New England. Further 'distractions' along our interstate would be a safety issue.

This decision, again, comes before the Ordinance Committee who must weigh the safety needs of ALL RESIDENTS AND VISITORS alike. The health safety and welfare of the citizen public is at stake. I urge the Committee to take into account, and support, the City Planning Commission decision to recommend that your Committee OPPOSE passage of the proposed ordinance. I also urge the Committee to research the data on safety , and the financial gain Lammā stands to achieve, at the expense of the public .

In closing , I also urge the Committee to repect the proposal, completely and to consider a billboard 'ban' within Providence, Our Creative Capital. We should concentrate on increasing the tree canopy along our highway and create a needed noise and pollution barrier and elliminate distracting Billboards in Providence all together.

We urge the Committie to take a strong stand and support the health, safety, and welfare of the residents and the traveling public over the financial gains of one company.

Sincerely,

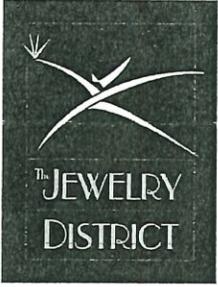
Linda Perri
Washington Park Association

bettylinda@aol.com

401-241-3522







The Jewelry District Association
Sharon Steele, President

Council President John Iglizzi
Committee on Ordinances Chairman Nicholas Narducci, Jr.
Providence City Hall
25 Dorrance St., Providence, RI 02903

October 18, 2022

Dear Sirs:

The Jewelry District Association joins our fellow neighborhood organizations and other concerned citizen groups in opposition to the proposal from Lamar Advertising (or any other outdoor display company) to change the Providence Zoning Ordinance to permit off-premises electronic billboards in our city.

It is of particular concern in the Jewelry District which for years has had traditional billboards atop buildings overlooking a mostly industrial neighborhood. Many of those billboards once lined an Interstate highway that ran through the District. Removal of the Interstate opened land to business and residential development on a large scale. This is no place for brilliantly flashing large-scale animated billboards.

Ours is not a parochial objection. These high tech signs have no place in proximity to any residential neighborhood in our city. Since the current Interstate highways run through Providence residential neighborhoods, a sign "oriented toward an Interstate" will be aimed, as well, at the residential area across the roadway.

Not incidentally, we feel that animated billboards along major highways are an extremely dangerous distraction to drivers where traffic is moving at highway speeds through urban areas. Their eye-catching displays are simply accidents waiting to happen.

We understand that the City Planning Commission has formally opposed the zoning change and we applaud their recommendation.

Sincerely,

95 Chestnut St.
Providence, RI 02903

Setting a Sparkling Example for Providence

Douglas R. Victor, Chair Elmwood and South Providence Crime Watch
c/o 103 Princeton Avenue, Providence RI 02907

October 18, 2022

Mr. Nicholas Narducci, Chair City Council Committee on Ordinances
444 Westminster Street, Suite 3A Providence, RI 02903-3215

Dear Mr. Narducci and Members of the Ordinance Committee:

I am writing to express my total opposition to the petition by Lamar Advertising to amend Zoning Ordinance Article 20 in order to permit the conversion of certain billboards in Providence from traditional "static" signs to electronic message signs.

I present to you the following reasons: Safety. According to the National Safety Council, more than 40,000 people in the US die each year as a result of automobile accidents. Other sources indicate that while the number of deaths each year attributed to distracted driving is difficult to assess (and typically under-reported), the risk of highway accidents increases when drivers are distracted.

While the State of RI requires an electronic sign to remain static for 10 seconds before switching images, it is well known anecdotally that drivers become distracted as they wait for an image to change.

Have you ever seen the electronic billboard recently installed at Wendy's on Reservoir Avenue in Cranston? It flashes so wildly that it cannot help to catch the eye, never mind what research says these devices do to the chemistry of the brain. They create even more distracted drivers in an age a distracted drivers. Not good. Not acceptable.

We need to calm roadways not support ways to up the sensory input.

I too disagree with the recent research conducted by members of the Department of Planning into best practices currently underway in Massachusetts with regard to highway signs. The very existence of a rotating image poses more of a distraction than a traditional sign. How on earth does this benefit Providence and its residents? It does not. It only benefits Lamar Advertising. Will they be held accountable for the certain increase in car accidents and injuries? No. The risk responsibility will fall squarely on the shoulders of residents and travelers through, not to mention an increase of police and fire/ rescue responses.

The cost of this change would have negative results to our already financially strapped city. Neither the city, nor the residents, can bear additional risks.

Visual Pollution: Residents, business people and tourists have made substantial investments into the visual appeal of Providence. We already have to gate out too many things while driving, adding this unnecessary additional visual element serves to diminish what enjoyment we may still have while driving. ugly signs into our environment in order to reduce the number of overall road signs is faulty enough.

In short, please vote no to amending the present Zoning Ordinance that Lamar Advertising is requesting to help retain the historic nature of our city.

I unequivocally oppose this amendment and urge you to do the same.

Thank you.

Douglas R. Victor, Chair, Elmwood and South Providence Crime Watch



IUPAT DISTRICT COUNCIL 35

25 COLGATE ROAD • ROSLINDALE, MASSACHUSETTS • 02131 • WWW.IUPATDC35.ORG



**BUSINESS MANAGER /
SECRETARY-TREASURER**
JEFFREY P. SULLIVAN

**ASSISTANT BUSINESS MANAGER /
BUSINESS REPRESENTATIVE /
CONTRACT ADMINISTRATOR**
CHARLES E. FOGELL

DIRECTOR OF SERVICING
JOSEPH GUARINO

BUSINESS REPRESENTATIVES
CHRISTIAN BRENNAN
JOSEPH E. ITRI
MICHAEL LAFFERTY
WILLIAM LEGRAND
RAYMOND PICKUP

REPRESENTATIVE / ORGANIZER
MARTIN CASTILLO
ANTONIO HERNANDEZ
PHIL LEARY

DIRECTOR OF ORGANIZING
JORGE RIVERA

ORGANIZERS
RODRIGO BADARO
RICH CABRAL
TONY JIMENEZ
JAY KINSLOW
JOE NARDELLI
MARTY RIVERA

BUSINESS DEVELOPMENT
JUSTIN DESMOND

**POLITICAL DIRECTOR/DISTRICT
COUNCIL PRESIDENT**
ROGER BRUNELLE

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NEW BEDFORD
508-979-1128

SPRINGFIELD
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MAINE
207-439-2704

NEW HAMPSHIRE
603-693-1000

VERMONT
802-766-4113

74
CONNOLLY PRINTING

October 18, 2022

Mr. John Igliazzi,
President Providence City Council
City Hall
25 Dorrance St.
Providence, RI 02903

Dear President Igliazzi,
Ordinance Committee Chair Narducci and the Honorable Members of the
Providence, RI City Council

My name is Charles E. Fogell, I am the Assistant Business Manager of the International Union of Painters and Allied Trades District Council 35. In my capacity I also represent the members of Sign Pictorial and Display Local Union 391 of which we have many members working in the Outdoor Advertising field throughout New England.

I write to you today in support of the ordinance to permit the digitization of certain existing billboards. Our members have adapted to the changing landscape of outdoor advertising by enhancing their skills in the installation and maintenance of these digital advertising devices. These conversions provide for high paying jobs that our membership takes pride in throughout New England.

We have a long-standing collective bargaining relationship with Lamar Outdoor both in Providence and beyond. Lamar Outdoor has always been a community conscious company and these digital boards have assisted local business with an affordable way to promote their goods and services. They have also in the past assisted with amber and silver alerts for the good of our communities.

I ask for your support of the ordinance and assuring its passage to law on behalf of the men and women of the IUPAT and the employees of Lamar as a whole.

We are gratefully thankful of your consideration of this so important issue.

Sincerely,

Charles E. "Chuck" Fogell
Assistant Business Manager / Business Representative
District Council 35 – Sign Local Union 391 IUPAT, AFL-CIO

GA
M/E



City Plan Commission
Jorge O. Elorza, Mayor

October 4, 2022

Councilman Nicholas Narducci
Chair, Committee on Ordinances
Providence City Hall
25 Dorrance Street
Providence, RI 02903

Attn: Tina Mastroianni, Acting City Clerk

Re: Referral 3527 – Changes to signage and illumination regulations

Petitioner: Diony Garcia, Esq

Dear Chairman Narducci,

The petitioner is requesting to amend the zoning ordinance to allow for conversion of existing nonconforming standard billboards to electronic message signs. This would be through a mechanism that the petitioner refers to as incentive zoning, which would allow conversion of any billboard that faces an interstate highway in exchange for the removal of double the square footage of the billboard to be converted. The petition states that electronic message sign billboards shall be oriented towards an interstate highway and may only be incidentally noticeable from a residential zone.

This petition is similar to one that was filed three years ago, with some notable differences. In the original petition the signs were only permitted in M1 and MMU zones, the conversion required a special use permit, and the conversion to an electronic message sign could be achieved through removal of an equivalent square footage of billboard area elsewhere in the city.

While the CPC supported the original petition, it did recommend that it be amended to ensure that the signs not be visible from residential zones, and to ensure that they are no brighter and no more distracting than non-electronic signs. At the time, the CPC felt that this could be a positive amendment because it appeared to be a means to remove some billboards in the city and return some land to other, more desirable development. However, the CPC found that there could be adverse impacts from the adoption of this amendment.

First, the new petition appears to allow electronic message sign billboards in any zone, as long as they are visible from an interstate highway. This opens the door to potentially every highway-

DEPARTMENT OF PLANNING AND DEVELOPMENT
444 Westminster Street, Providence, Rhode Island 02903
401 680 8400 ph | 401 680 8492 fax
www.providenceri.com

oriented billboard being converted. Further, the standard of "incidentally noticeable from a residential zone" is subjective, will be difficult to enforce, and is contrary to the CPC's original recommendation. Even if the sign face is not directly visible from a house in a residential zone, the reflective glare and flashing from a message that changes every 10 seconds could be an unacceptable impact. Finally, the CPC is concerned about the brightness and the frequently changing messages being a distraction to motorists.

Findings

Comprehensive Plan objectives BE-1 and BE-7 of the comprehensive plan encourage design excellence and enhancement of neighborhood character. Zoning Ordinance Section 101.E calls for promoting a high level of design and protecting the scenic character of the City. It is the CPC's opinion that, by the proliferation of billboards that are more intensive in appearance than existing static billboards, this petition would be contrary to these provisions of the plan and the ordinance.

RECOMMENDATION

On a motion by Commissioner Bilodeau, seconded by Commissioner Cordero, the CPC voted to recommend that the City Council deny the petition.

The CPC voted as follows:

Aye: H. Bilodeau, M. Cordero, C. Potter, M. Gazdacko

Abstain: N. Sanchez

Sincerely,



Robert E. Azar, AICP
Deputy Director

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m/2

IUPAT DISTRICT COUNCIL 35

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IUPAT DC 35

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President Providence City Council
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25 Dorrance St.
Providence, RI 02903

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International Union of Painters and Allied Trades District Council 35. In my
capacity I also represent the members of Sign Pictorial and Display Local Union
391 of which we have many members working in the Outdoor Advertising field
throughout New England.

I write to you today in support of the ordinance to permit the digitization of
certain existing billboards. Our members have adapted to the changing landscape
of outdoor advertising by enhancing their skills in the installation and maintenance
of these digital advertising devices. These conversions provide for high paying
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assisted with amber and silver alerts for the good of our communities.

I ask for your support of the ordinance and assuring its passage to law on behalf
of the men and women of the IUPAT and the employees of Lamar as a whole.

We are gratefully thankful of your consideration of this so important issue.

Sincerely,

Charles E. "Chuck" Fogell
Assistant Business Manager / Business Representative
District Council 35 – Sign Local Union 391 IUPAT, AFL-CIO

September 20, 2022

Re: Removal of Neighborhood Billboards
Digitalization of Existing Billboards in Limited Circumstances

Mr. Chairman, Honorable Members of the CPC,

Many proposals before you suffer from a large gap between perception of an application, and the reality of an application- BUT, I would submit, that there is no larger gap between reality and perception than the travel of concept.

The reality is simple:

- No new billboards
- Removal of billboards
- Digitization of existing Billboards, which has become utterly commonplace throughout the Country and RI more generally

A brief walk-through of what the proposal actually includes:

Ordinance Amendments:

1. Creates a universal prohibition of off-premises electronic message signs
2. States that the removal of non-conforming signs is a public benefit
3. Creates a development incentive to remove billboards by giving an exemption to the universal prohibition of off-premises electronic message signs
 - a. 2x square footage is removed
4. Development incentive digitals are still subject to the following:
 - a. Oriented towards an interstate highway, only incidentally visible from residential zone
 - b. No flashing
 - c. No animation
 - d. No scrolling
 - e. Image change limits to once every 10 seconds
 - f. Sign face maximum of 14x48
 - g. Requires brightness to be responsive to ambient light (automatic darkening)

In reference to the DPD report, I have a highlighted Copy for you, there are some factual inaccuracies that must be addressed.

Specifically, the report states that the proposal "opens the door to every highway-oriented billboard being converted". This is false.

The Ordinance requires compliance with State and Federal regulations. Almost all signs in Providence are not eligible for conversion to digital under those regulations.

Locations

Exhibit 1: Legal Sign Locations

Exhibit 2: Federal Highway Beautification Act

- P. 1028 – Federal Law Controls the signage in question via an agreement with the State of Rhode Island

Exhibit 3: RI FHWA Agreement

- P. 5 - No flashing or animation etc.
- P. 7-8 - Location Limitations

Exhibit 4: RIDOT Rules and Regulations

- P. 1 - Controlling Law
- P. 4 - Definition of the Signage in Question
- P. 9 – 11 - Location Limitations
- P. 11 - Maintained Control Over Lighting – this is critical relative to the DPD Report
- P. 12 - 10 Second Change

Exhibit 5: RI State Law

Exhibit 6: RIDOT Permit letter

- Please note the limited locations, Matt Renninger is here on behalf of LAMAR to explain the status of the permits, the moratorium, and availability of locations

Safety

The DPD report also states that digital sign faces are more distracting to drivers. This is also false.

Exhibit 7: Hill Article

Exhibit 8: FHWA Safety Report

- P. 1-3 Executive Summary
- P. 53-55 Conclusions

Exhibit 9: Mass DOT Safety Report

Regarding safety, RIDOT reserves the right to change standards related to digital signage based on safety. Moreover, the fact that the digitals would cause a 2x square footage of other signage is not attended to by the DPD Report.

Since the FHWA Association and Mass DOT have found that Digitals are no different than standard billboards, the only evidence on the record is that digitization has no impact on safety.

However, to the extent that the existence of a billboard causes distractions, this proposal will cause the removal of twice as much square footage of billboard than it would allow digitization and therefore inherently represents a 200% increase in roadway safety in the City of Providence.

Exhibit 10: Example Location

Exhibit 11: Example Removals

Consistency with the Comprehensive Plan

Exhibit 12: 11/1/19 CPC Decision and Referral

Exhibit 13: Comprehensive Plan Analysis

City of Providence

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS

PETITION TO THE CITY COUNCIL

TO THE HONORABLE CITY COUNCIL OF THE CITY OF PROVIDENCE:

The undersigned respectfully petitions your honorable body

Diony Garcia, Esq. hereby petitions the City Council to amend Article 16, "Signs" Section 1604 "Illumination Standards"; Section 1605 "Prohibited Signs"; and Article 20, Section 2005, entitled "Nonconforming Signs" of the Official Zoning Ordinance of the City of Providence as indicated by the underlined text below:

ARTICLE 16. SIGNS

1604 ILLUMINATION STANDARDS

- D. The intensity of sign illumination shall meet the requirements for exterior lighting in Section 1301. For electronic message signs, the maximum brightness is limited to 5,000 nits during daylight hours, and 500 nits between dusk to dawn. The sign shall have an automatic dimmer control that produces a distinct illumination change from a higher allowed illumination level to a lower allowed level for the time period between one half hour before sunset and one half hour after sunrise. shall be responsive to ambient lighting in real time and said brightness shall not exceed 0.3 foot candles above ambient light, as measured using a foot candle meter at a pre-set distance. Distances to measure the foot candle impact vary with the expected viewing distance of each size sign. Measurement shall be taken as close to perpendicular to the face of the sign as possible. Measurement distance criteria:

Face Size	Distance to be measured from
Up to 300sf	150 feet
More than 300sf up to 378sf	200 feet
More than 378sf up to 672sf	250 feet
More than 672sf	350 feet

1605 PROHIBITED SIGNS

The following sign types are prohibited:

- L. Off-premise electronic message signs are prohibited in all zones except as a nonconforming sign removal development incentive. Regardless of any development incentive, off-premise electronic message signs are prohibited as follows:

1. Prohibited Locations

- a) Off-premise electronic message signs shall be oriented towards an interstate highway and may only be incidentally noticeable from any residential zone.
- b) Any off-premise electronic message sign shall continue to be subject to the requirements and restrictions of Sections 2005 A through E of this Ordinance.

1

2. Prohibited Dimensions or Uses

- a) No flashing
- b) No animation
- c) No scrolling
- d) No change of image more frequent than once every ten (10) seconds
- e) The sign face shall not be larger than 14 ft. x 48 ft

ARTICLE 20. NONCONFORMITIES

2005 NONCONFORMING SIGNS

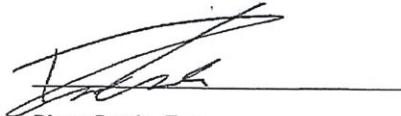
F. Removal of Nonconforming Signs.

2 The removal of nonconforming signs is a public benefit. Incentive zoning is the process whereby the local authority may grant additional development capacity in exchange for the provision of a public benefit or amenity as specified in the Zoning Ordinance. An off-premise electronic message sign shall be permitted in exchange for the removal of nonconforming signs as follows:

1 At least two times the equivalent square footage of other off-premise sign(s) in Providence, including their footings, shall be removed prior to the completion of the off-premise electronic message sign. 3

- a. The removed signs and footings may not be replaced and shall be deemed "abandoned" for purposes of this Ordinance and state law.
- 2. The off-premise electronic message sign shall be subject to the most restrictive provisions of applicable city, state, and federal law, including but not limited to:
 - a. Restrictions on hours of operation, and
 - b. Restrictions on brightness.
- 3. Off-premise electronic message signs are not subject to the provisions of Section 1607.D.4 that limit electronic message signs to a maximum of 70% of the sign area of a freestanding or wall sign.
- 4. If the state or federal government shall deem any off-premise electronic message sign or permit to be "abandoned," then the sign shall be deemed abandoned for the purpose of these zoning regulations.

Signature:



Name:

Diony Garcia, Esq.

Title:

Attorney

Telephone No.:

(401) 415-9835

Email Address:

dgarcia@wjclaw.com

Providence City Plan Commission

September 20, 2022



AGENDA ITEM 6 ■ AMENDMENT FOR SIGNAGE AND ILLUMINATION

OVERVIEW

PETITIONER:	Diony Garcia	RECOMMENDATION:	Recommend denial of the proposed zoning changes
CASE NO./ PROJECT TYPE:	CPC Referral 3527 Zoning Ordinance Amendment		
PROJECT DESCRIPTION:	Changes to the ordinance pertaining to signage	PROJECT PLANNER:	Robert E Azar, Deputy Director

Discussion

The petitioner is requesting to amend the zoning ordinance to allow for conversion of existing nonconforming standard billboards to electronic message signs. This would be through a mechanism that the petitioner refers to as incentive zoning, which would allow conversion of any billboard that faces an interstate highway in exchange for the removal of double the square footage of the billboard to be converted. The petition states that electronic message sign billboards shall be oriented towards an interstate highway and may only be incidentally noticeable from a residential zone.

This petition is similar to one that was filed three years ago, with some notable differences. In the original petition the signs were only permitted in M1 and MMU zones, the conversion required a special use permit, and the conversion to an electronic message sign could be achieved through removal of an equivalent square footage of billboard area elsewhere in the city.

While the CPC supported the original petition, it did recommend that it be amended to ensure that the signs not be visible from residential zones, and to ensure that they are no brighter and no more distracting than non-electronic signs. At the time, DPD staff felt that this could be a positive amendment because it appeared to be a means to remove some billboards in the city and return some land to other, more desirable development. However, we have come to feel that there could be adverse impacts from the adoption of this amendment. First, we are concerned that the new petition appears to allow electronic message sign billboards in any zone, as long as they are visible from an interstate highway. **This opens the door to potentially every highway-oriented billboard being converted.** Further, the standard of **"incidentally noticeable from a residential zone"** is subjective, will be difficult to enforce, and is contrary to the CPC's original recommendation. We are concerned that even if the sign face is not directly visible from a house in a residential zone, the reflective glare and flashing from a message that changes every 10 seconds could be an unacceptable impact. Finally, in the years that have passed since introduction of the original petition, staff have had the opportunity to observe many existing electronic message sign billboards. While under certain light conditions, these signs appear no more bright than static billboards, there are conditions where they appear much brighter. And the changing message is, in our opinion, a more intensive use of the sign face **and more distracting to motorists.**

①

②

③

Findings

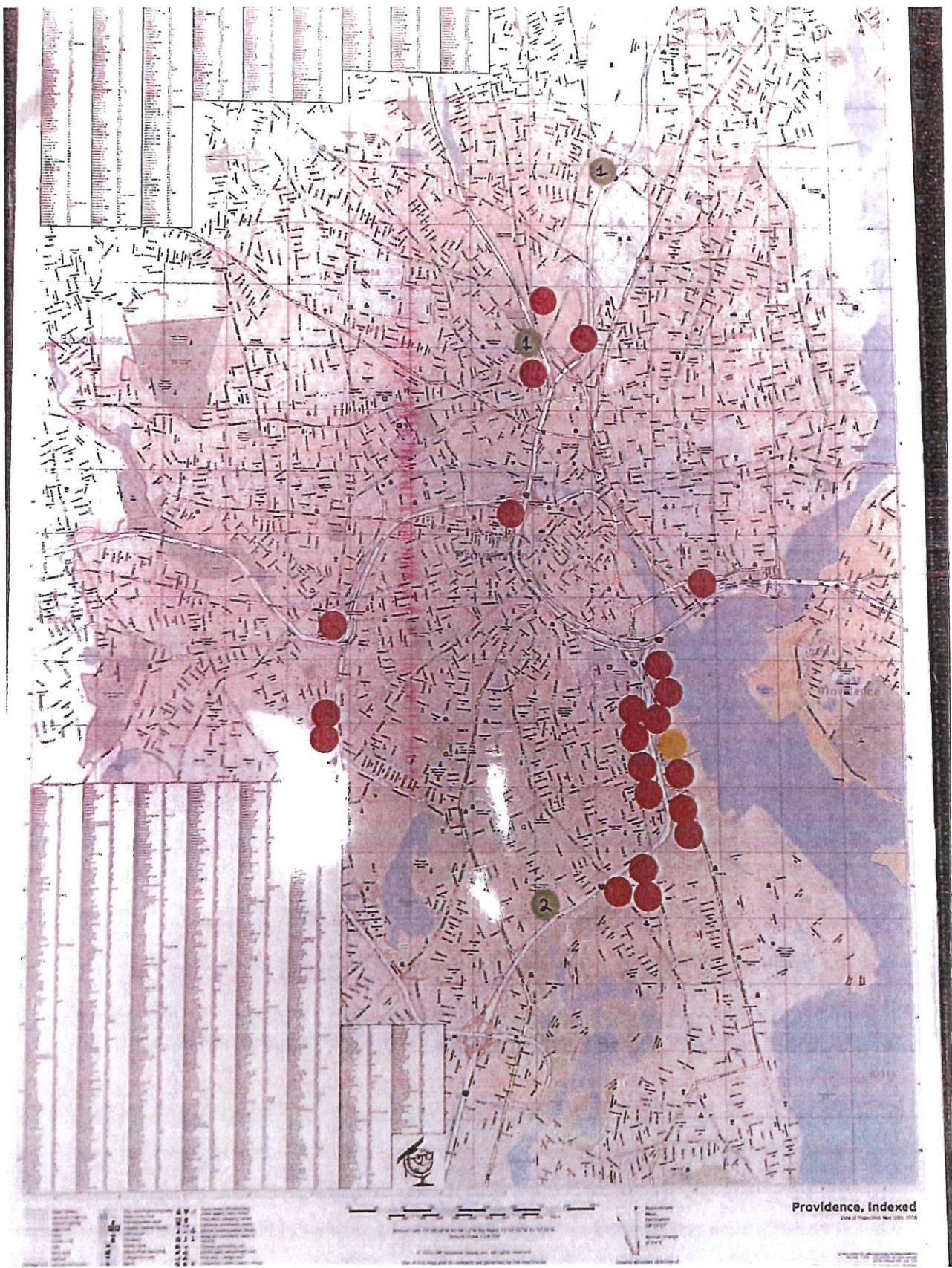
Comprehensive Plan objectives BE-1 and BE-7 of the comprehensive plan encourage design excellence and enhancement of neighborhood character. Zoning Ordinance Section 101.E calls for promoting a high level of design and protecting the scenic character of the City. It is the DPD's opinion that, by the proliferation of billboards that are more intensive in appearance than existing static billboards, this petition would be contrary to these provisions of the plan and the ordinance.

↳ inaccurate

Recommendation

Based on the foregoing discussion, the DPD recommends that the CPC advise the City Council to deny the petition.

Exhibit 1: Legal Sign Locations



Providence, Indexed

State of Providence, Nov. 20th, 1878

Exhibit 2 Federal Highway Beautification Act

Public Law 89-285

October 22, 1965
[S. 2084]

AN ACT

To provide for scenic development and road beautification of the Federal-aid highway systems.

Highway Beautification Act of 1965.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I

72 Stat. 904.

SEC. 101. Section 131 of title 23, United States Code, is revised to read as follows:

"§ 131. Control of outdoor advertising

"(a) The Congress hereby finds and declares that the erection and maintenance of outdoor advertising signs, displays, and devices in areas adjacent to the Interstate System and the primary system should be controlled in order to protect the public investment in such highways, to promote the safety and recreational value of public travel, and to preserve natural beauty.

72 Stat. 889.

"(b) Federal-aid highway funds apportioned on or after January 1, 1968, to any State which the Secretary determines has not made provision for effective control of the erection and maintenance along the Interstate System and the primary system of outdoor advertising signs, displays, and devices which are within six hundred and sixty feet of the nearest edge of the right-of-way and visible from the main traveled way of the system, shall be reduced by amounts equal to 10 per centum of the amounts which would otherwise be apportioned to such State under section 104 of this title, until such time as such State shall provide for such effective control. Any amount which is withheld from apportionment to any State hereunder shall be reapportioned to the other States. Whenever he determines it to be in the public interest, the Secretary may suspend, for such periods as he deems necessary, the application of this subsection to a State.

"(c) Effective control means that after January 1, 1968, such signs, displays, and devices shall, pursuant to this section, be limited to (1) directional and other official signs and notices, which signs and notices shall include, but not be limited to, signs and notices pertaining to natural wonders, scenic and historical attractions, which are required or authorized by law, which shall conform to national standards hereby authorized to be promulgated by the Secretary hereunder, which standards shall contain provisions concerning the lighting, size, number, and spacing of signs, and such other requirements as may be appropriate to implement this section, (2) signs, displays, and devices advertising the sale or lease of property upon which they are located, and (3) signs, displays, and devices advertising activities conducted on the property on which they are located.

"(d) In order to promote the reasonable, orderly and effective display of outdoor advertising while remaining consistent with the purposes of this section, signs, displays, and devices whose size, lighting and spacing, consistent with customary use is to be determined by agreement between the several States and the Secretary, may be erected and maintained within six hundred and sixty feet of the nearest edge of the right-of-way within areas adjacent to the Interstate and primary systems which are zoned industrial or commercial under authority of State law, or in unzoned commercial or industrial areas as may be determined by agreement between the several States and the Secretary. The States shall have full authority under their own zoning laws to zone areas for commercial or industrial purposes, and the actions of the States in this regard will be accepted for the

purposes of this Act. Nothing in this subsection shall apply to signs, displays, and devices referred to in clauses (2) and (3) of subsection (c) of this section.

"(e) Any sign, display, or device lawfully in existence along the Interstate System or the Federal-aid primary system on September 1, 1965, which does not conform to this section shall not be required to be removed until July 1, 1970. Any other sign, display, or device lawfully erected which does not conform to this section shall not be required to be removed until the end of the fifth year after it becomes nonconforming.

"(f) The Secretary shall, in consultation with the States, provide within the rights-of-way for areas at appropriate distances from interchanges on the Interstate System, on which signs, displays, and devices giving specific information in the interest of the traveling public may be erected and maintained. Such signs shall conform to national standards to be promulgated by the Secretary.

"(g) Just compensation shall be paid upon the removal of the following outdoor advertising signs, displays, and devices—

"(1) those lawfully in existence on the date of enactment of this subsection,

"(2) those lawfully on any highway made a part of the interstate or primary system on or after the date of enactment of this subsection and before January 1, 1968, and

"(3) those lawfully erected on or after January 1, 1968.

The Federal share of such compensation shall be 75 per centum. Such compensation shall be paid for the following:

"(A) The taking from the owner of such sign, display, or device of all right, title, leasehold, and interest in such sign, display, or device; and

"(B) The taking from the owner of the real property on which the sign, display, or device is located, of the right to erect and maintain such signs, displays, and devices thereon.

"(h) All public lands or reservations of the United States which are adjacent to any portion of the Interstate System and the primary system shall be controlled in accordance with the provisions of this section and the national standards promulgated by the Secretary.

"(i) In order to provide information in the specific interest of the traveling public, the State highway departments are authorized to maintain maps and to permit informational directories and advertising pamphlets to be made available at safety rest areas. Subject to the approval of the Secretary, a State may also establish information centers at safety rest areas for the purpose of informing the public of places of interest within the State and providing such other information as a State may consider desirable.

Information
centers.

"(j) Any State highway department which has, under this section as in effect on June 30, 1965, entered into an agreement with the Secretary to control the erection and maintenance of outdoor advertising signs, displays, and devices in areas adjacent to the Interstate System shall be entitled to receive the bonus payments as set forth in the agreement, but no such State highway department shall be entitled to such payments unless the State maintains the control required under such agreement or the control required by this section, whichever control is stricter. Such payments shall be paid only from appropriations made to carry out this section. The provisions of this subsection shall not be construed to exempt any State from controlling outdoor advertising as otherwise provided in this section.

Bonus payments.

"(k) Nothing in this section shall prohibit a State from establishing standards imposing stricter limitations with respect to signs, displays, and devices on the Federal-aid highway systems than those established under this section.

Notice of final determination.

“(1) Not less than sixty days before making a final determination to withhold funds from a State under subsection (b) of this section, or to do so under subsection (b) of section 136, or with respect to failing to agree as to the size, lighting, and spacing of signs, displays, and devices or as to unzoned commercial or industrial areas in which signs, displays, and devices may be erected and maintained under subsection (d) of this section, or with respect to failure to approve under subsection (g) of section 136, the Secretary shall give written notice to the State of his proposed determination and a statement of the reasons therefor, and during such period shall give the State an opportunity for a hearing on such determination. Following such hearing the Secretary shall issue a written order setting forth his final determination and shall furnish a copy of such order to the State. Within forty-five days of receipt of such order, the State may appeal such order to any United States district court for such State, and upon the filing of such appeal such order shall be stayed until final judgment has been entered on such appeal. Summons may be served at any place in the United States. The court shall have jurisdiction to affirm the determination of the Secretary or to set it aside, in whole or in part. The judgment of the court shall be subject to review by the United States court of appeals for the circuit in which the State is located and to the Supreme Court of the United States upon certiorari or certification as provided in title 28, United States Code, section 1254. If any part of an apportionment to a State is withheld by the Secretary under subsection (b) of this section or subsection (b) of section 136, the amount so withheld shall not be reapportioned to the other States as long as a suit brought by such State under this subsection is pending. Such amount shall remain available for apportionment in accordance with the final judgment and this subsection. Funds withheld from apportionment and subsequently apportioned or reapportioned under this section shall be available for expenditure for three full fiscal years after the date of such apportionment or reapportionment as the case may be.

62 Stat. 928.

Appropriation.

“(m) There is authorized to be appropriated to carry out the provisions of this section, out of any money in the Treasury not otherwise appropriated, not to exceed \$20,000,000 for the fiscal year ending June 30, 1966, and not to exceed \$20,000,000 for the fiscal year ending June 30, 1967. No part of the Highway Trust Fund shall be available to carry out this section.”

70 Stat. 397.
23 USC 120 note.

Sec. 102. The table of sections of chapter 1 of title 23 of the United States Code is amended by striking out

“131. Areas adjacent to the Interstate System.”

and inserting in lieu thereof

“131. Control of outdoor advertising.”

TITLE II

23 USC 101 et seq.

Sec. 201. Chapter 1 of title 23, United States Code, is amended to add at the end thereof the following new section:

“§ 136. Control of junkyards

“(a) The Congress hereby finds and declares that the establishment and use and maintenance of junkyards in areas adjacent to the Interstate System and the primary system should be controlled in order to protect the public investment in such highways, to promote the safety and recreational value of public travel, and to preserve natural beauty.

“(b) Federal-aid highway funds apportioned on or after January 1, 1968, to any State which the Secretary determines has not made pro-

Apportioned funds, withholding.

Exhibit 3: RI – FHWA Agreement

A M E N D E D A G R E E M E N T

FOR CARRYING OUT NATIONAL POLICY RELATIVE TO CONTROL OF OUTDOOR ADVERTISING
IN AREAS ADJACENT TO THE NATIONAL SYSTEM OF INTERSTATE AND DEFENSE HIGHWAYS
AND THE FEDERAL-AID PRIMARY SYSTEM.

THIS AGREEMENT made and entered into this *13* day of *July*,
19 *72*, by and between the United States of America represented by the Secretary
of Transportation acting by and through the Federal Highway Administration,
hereinafter referred to as the "Administrator", and the State of Rhode Island,
represented by the Department of Transportation, acting by and through its
Director, hereinafter referred to as the "State".

Witnesseth:

WHEREAS, Section 131 (d) of Title 23, United States Code provides for
agreement between the Secretary of Transportation and the several States to
determine the size, lighting and spacing of signs, displays and devices, con-
sistent with customary use, which may be erected and maintained within 660 feet
of the nearest edge of the right-of-way within areas adjacent to the Interstate
and primary systems which are zoned industrial or commercial under authority
of State law or in unzoned commercial or industrial areas, also to be determined
by agreement; and

WHEREAS, the purpose of said agreement is to promote the reasonable,
orderly and effective display of outdoor advertising while remaining consistent
with the National policy to protect the public investment in the Interstate and
primary highways, to promote the safety and recreational value of public travel
and to preserve natural beauty; and

WHEREAS, the State of Rhode Island elects to implement and carry out the
provisions of Section 131 of Title 23, United States Code, and the National
policy in order to remain eligible to receive the full amount of all Federal-aid
Highway funds to be apportioned to such State on or after January 1, 1968, under
Section 104 of Title 23, United States Code; and

WHEREAS, the State of Rhode Island and the Federal Highway Administrator
entered into an agreement dated *June 28, 1967* whereby the State
agreed to control the erection and maintenance of outdoor advertising signs,
displays and devices in areas adjacent to the National System of Interstate and
Defense Highways in accordance with the provisions of Section 131 of Title 23,

United States Code, and the national standards as in effect on June 30, 1965;
and

WHEREAS, Section 131(j) of Title 23, United States Code, provides that a State shall be entitled to receive the bonus payments as set forth in the agreement provided the State maintains the control required under such agreement or the control required by the section whichever control is stricter; and

WHEREAS, the State of Rhode Island elects to implement and carry out the stricter provisions in order to remain eligible to receive payment of the one-half of one percent increase in the Federal share payable on account of any project on the Interstate System within the State.

NOW THEREFORE, the parties hereto do mutually agree as follows:

I. Definitions

A. The term "Act" means Section 131 of Title 23, United States Code (1965), commonly referred to as Title I of the Highway Beautification Act of 1965.

B. Commercial or industrial zone means areas which were zoned industrial or commercial under authority of law as of December 21, 1959.

C. Unzoned commercial or industrial area means those areas not zoned by State or local law, regulation or ordinance, which are occupied by one or more industrial or commercial activities, other than outdoor advertising signs, and the lands along the highway for a distance of 500 feet immediately adjacent to the activities.

All measurements shall be from the outer edges of the regularly used buildings, parking lots, storage or processing areas of the activities, not from the property lines of the activities, and shall be along or parallel to the edge of pavement of the highway. Measurements shall not be from the property lines of the activities unless said property lines coincide with the limits of the activities. Unzoned industrial or commercial areas shall not include land on the opposite side of the highway from the activities or land predominately used for residential purposes, or land adjacent to Interstate or primary highways constructed on right-of-way, the entire width of which was acquired subsequent to July 1, 1956.

D. Commercial or industrial activities, for purposes of the above unzoned area definition, mean those activities generally recognized as commercial or industrial by zoning authorities in this State, except that none of the following shall be considered commercial or industrial:

1. Agricultural, forestry, ranching, grazing, farming and related activities, including, but not limited to, wayside fresh produce stands.
2. Transient or temporary activities.
3. Activities not visible from the main traveled way.
4. Activities more than 300 feet from the nearest edge of the main traveled way.
5. Activities conducted in a building principally used as a residence.
6. Railroad tracks and minor sidings.
7. Activities normally and regularly in operation less than 5 months per year.

E. "Sign" means an outdoor sign, display, device, figure, painting, drawing, message, placard, poster, billboard, structure or other thing which is designed, intended or used to advertise or inform, any part of the advertising or informative contents of which is visible from any place on the main traveled way of the Interstate or primary system.

F. Traveled way means the portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

G. Erect means to construct, build, raise, assemble, place, affix, attach, create, paint, draw, or in any other way bring into being or establish, but it shall not include any of the foregoing activities when performed as an incident to the change of advertising message or customary maintenance or repair of a sign or sign structure.

H. Safety rest area means an area or site established and maintained within or adjacent to the right-of-way by or under public supervision or control, for the convenience of the traveling public.

I. Information center means an area or site established and maintained as safety rest areas for the purpose of informing the public of places of interest within the State and providing such other information as the Director of Transportation may consider desirable.

J. Main-traveled way means the traveled way of a highway on which through traffic is carried. In the case of a divided highway, the traveled way of each of the separated roadways for traffic in opposite directions is a main-traveled way. It does not include such facilities as frontage roads, turning roadways or parking areas.

K. Visible means capable of being seen (whether or not legible) without visual aid by a person of normal visual acuity.

L. Scenic area means any area of natural or man-made scenic beauty or historical significance designated by the Department.

M. Major official guide sign means a sign with a total area of not less than 12 square feet, erected and authorized by the State or Federal Government to designate route numbers or route names, distances and directions to certain localities or municipalities.

II. Scope of Agreement

This agreement shall apply to the following areas:

(1) All zoned and unzoned commercial and industrial areas as defined herein within 660 feet of the nearest edge of the right-of-way of all portions of the Interstate and Primary Systems within the State of Rhode Island in which outdoor advertising signs may be visible from the main traveled way of either or both of said systems.

III. State Control

A. The State hereby agrees that, in all areas within the scope of this agreement, the State shall effectively control, or cause to be controlled, the erection and maintenance of outdoor advertising signs, displays and devices other than those advertising the sale or lease of the property on which they are located, or activities conducted thereon, in accordance with the following criteria:

General

1. Signs shall not be erected or maintained in such a manner as to obscure or otherwise physically interfere with an official traffic sign, signal or device or to obstruct or physically interfere with the driver's view of approaching, merging or intersecting traffic.
2. Signs shall not be erected or maintained which imitate or resemble any official traffic sign, signal or device, or are erected or maintained upon trees or painted or drawn upon rocks or natural features, or which are structurally unsafe or in disrepair.
3. No signs may be located on the same side of the main traveled way within 250 feet of a major official guide sign.
4. All signs shall be set back at least 25 feet from the nearest edge of the right-of-way except in areas zoned by authority of law either industrial or commercial where the setback established by such authority will be observed.
5. No sign shall be erected within a distance of 1000 feet from the property lines of any official State tourist information center.
6. No sign may be erected or maintained which contains, includes or is illuminated by any flashing, intermittent or moving light or lights, except in the use of public information devices which indicate the correct time and temperature.
7. No lighting may be used in any way in connection with any sign unless it is so effectively shielded as to prevent beams or rays of light from being directed at any portion of the main traveled way of the highway, or is of such low intensity or brilliance as not to cause glare or to impair the vision of the driver of any motor vehicle, or to otherwise interfere with any driver's operation of a motor vehicle.
8. No sign may be erected or maintained which moves or has any animated or moving parts, except as provided in Section 6, General.
9. The standards herein contained pertaining to the size, shape, description, lighting and spacing of outdoor advertising signs permitted in commercial or industrial zones and areas shall apply only to those signs

no flashing

No animation

erected subsequent to the effective date of these regulations. When highways are added to the Interstate and Primary system, standards contained in these regulations shall apply only to signs erected in commercial or industrial zones and areas adjacent thereto subsequent to the date that such highways are added to the system.

10. Notwithstanding anything contained in the preceding paragraph, should any activity which has been used in defining and delineating an unzoned area after the effective date of these regulations cease to operate, the unzoned areas shall be redefined and redelineated based on the remaining activity. Any signs located within the former unzoned area, but located outside the unzoned area, based upon its new dimensions, shall become non-conforming under Chapter 24-10.1 of the General Laws of Rhode Island.

SIZE OF SIGNS

1. A. No sign shall exceed the following limits:

(1) For signs which are located within 150 feet from the nearest edge of the right-of-way, maximum area - 675 square feet, maximum height - 20 feet, maximum length - 50 feet. Dimensions include border trim, cut-outs, extensions, but exclude bases and supports.

(2) For signs which are located 150 feet or more from the nearest edge of the right-of-way, maximum area - 1200 square feet, maximum length - 60 feet, maximum height - 25 feet. Dimensions include border, trim, cut-outs and extensions but exclude bases and supports.

(3) Cut-outs and extensions are not to exceed the following limits:

(a) Five (5) feet from top of trim.

(b) One and one-half feet from either vertical side of trim.

(c) Two (2) feet from bottom of trim.

(d) No one cut-out shall exceed more than ten percent (10%) of the total copy area or no combination of cut-outs shall exceed thirty percent (30%) of the total copy area.

B. Signs may be double faced (abutting and facing the same direction) provided that the total dimensions and area of double faced signs on the structure do not exceed the stipulations of A (1), A (2) and A (3) above.

C. Back to back signs shall be considered as two signs.

D. V Type signs shall be considered as two signs, but must be erected so that only one sign face is visible to traffic proceeding in any one direction on any Interstate or Primary system.

SPACING OF SIGNS

1. Interstate and Primary Highways

A. Signs may not be located within 750 feet of any of the following which are adjacent to the highway right-of-way regardless of whether there is direct access from the main traveled way.

(1) Recreational Public Parks

(2) Public Forests

(3) Public Playgrounds

(4) Scenic Overlooks

B. In connection with sub-paragraph A above, the 750 foot limitation which will be measured from the property lines of recreational public parks, public forests and public playgrounds will not be interpreted to extend beyond the opposite side of said highway right-of-way. In the case of scenic overlooks which are constructed so as to utilize the view across said highway, no sign shall be allowed which obscures the intended view.

C. If there is an existing structure or building other than outdoor advertising structure within the 750 foot zone, a sign may be erected within said area provided that such sign does not otherwise obstruct the view of the area designated.

D. Any areas falling under the above categories A (1), (2), (3) and (4) must be areas designated and maintained as such by a public governmental agency.

2. Interstate Highways and Freeways on the Primary System

A. Zoned industrial or commercial area - spacing between signs along each side of the highway shall be a minimum of 750 feet. Back to back and V type signs may be erected at a single location. No structure may be located adjacent to or within 500 feet of an interchange, intersection at grade or safety rest area. Said 500 feet to be measured along the Interstate or freeway highway from the beginning or ending of pavement widening at the exit from or entrance to the main traveled way.

• Space between signs 750 feet

• not w/in 500' ft of interch

B. Unzoned industrial or commercial area - spacing between signs along each side of the highway shall be a minimum of 1500 feet. Back to back and V type signs may be erected at a single location.

No structure may be located adjacent to or within 1000 feet of an interchange, intersection at grade or safety rest area. Said 1000 feet to be measured along the Interstate or freeway highway from the beginning or ending of pavement widening at the exit from or entrance to the main traveled way.

3. Non-Freeway Primary Routes

A. The location of signs shall conform to the following minimum criteria to be applied separately to each side of the primary highway:

1. Spacing between signs along each side of the highway shall be a minimum of 250 feet. V type or back to back signs may be erected at a single location, but any such signs shall be at least 500 feet from any other sign on the same side of the highway.

250' between signs on opposite side

• 500' same side

2. No sign may be located within 100 feet of an intersection (unless there is an existing building or structure other than an outdoor advertising structure in said area). One sign shall be permitted within said area if it does not obstruct the existing

• 100'

view of the intersection to approaching traffic and meets all other rules and regulations herein contained. (Distance shall be measured as under Interstate highways and freeways on Primary System above).

4. EXPLANATORY NOTES

A. Alleys, undeveloped rights-of-way, private roads and driveways, shall not be regarded as intersecting streets, roads or highways.

B. Only roads, streets and highways which enter directly into the main traveled way of the primary highway shall be regarded as intersecting.

C. The minimum distances between signs of 250 feet and 750 feet shall be measured along the nearest edge of the pavement between points directly opposite the signs.

D. On premise signs and other signs authorized by Section 24-10.1-3 (a) (b) (c) of the General Laws of Rhode Island shall not be considered for purposes of measurement.

IV. Interpretation

The provisions contained herein shall constitute the minimum acceptable standards for effective control of signs, displays and devices within the scope of this agreement.

Nothing contained herein shall be construed to abrogate or prohibit the State from exercising a greater degree of control of outdoor advertising than that required or contemplated by the Act or from adopting standards which are more restrictive in controlling outdoor advertising than the provisions of this Agreement.

V. In the event the provisions of the Highway Beautification Act of 1965 are amended by subsequent act of Congress and the State legislation is amended, the parties reserve the right to re-negotiate this Agreement or to modify it to conform to any amendments.

VI. Effective Date

This Agreement shall become effective when signed and executed on behalf of both the State and the Federal Highway Administration.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of *13 July 1972*

WITNESS:

Louise E. DeLoe

STATE OF RHODE ISLAND

Morris Chorney
Morris Chorney, Acting Director
Rhode Island Department of Transportation

UNITED STATES OF AMERICA

Ralph R. Bartelsmeyer
Ralph R. Bartelsmeyer
Acting Federal Highway Administrator

Exhibit 4: RIDOT Rules and Regulations

RHODE ISLAND
DEPARTMENT OF
TRANSPORTATION

OUTDOOR ADVERTISING
RULES AND
REGULATIONS

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
RHODE ISLAND DEPARTMENT OF TRANSPORTATION
OUTDOOR ADVERTISING RULES AND REGULATIONS

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STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
RHODE ISLAND DEPARTMENT OF TRANSPORTATION
OUTDOOR ADVERTISING
RULES AND REGULATIONS

DECLARATION OF POLICY

In order to prevent unreasonable distraction of operators of motor vehicles, to prevent confusion with respect to compliance with traffic lights, *signs*, signals and regulations, to promote safety, convenience, and enjoyment of travel upon highways within this State and to protect the public investment therein, to preserve and enhance the natural scenic beauty or aesthetic features of the highways and adjacent areas, and in the general welfare of the people of this State, the general assembly declared it to be the policy of this State that the erection and maintenances of outdoor advertising in areas adjacent to the rights-of-way of the interstate, *primary*, *secondary* road systems within the State shall be regulated in accordance with the terms of the RIGL 24-10.1 "et al" and the regulations promulgated by the Director of Transportation pursuant thereto and finds that all outdoor advertising which does not conform to the requirements of the RIGL and these *Rules and Regulations* is a public nuisance. Note: No new outdoor advertising structures may be erected except as provided in the state statute [RIGL 24-10.1]

JURISDICTION

The Rhode Island Department of Transportation shall have the legal jurisdiction to enforce the Federal Law, State Law, and the *Rules and Regulations* for Outdoor Advertising upon the identified *state-ways* [See Exhibit A and Exhibit A1]. Furthermore any future routes or additions thereto, added to the highway system inventory will also come under the *Department's* jurisdiction.

I. PURPOSE

The purpose of these *Rules and Regulations* is to control the erection and maintenance of *outdoor advertising signs* in accordance with the following Statutory and Regulatory empowerments:

- The United States Constitution
- The Rhode Island Constitution
- 23 United States Code (23 USC 131)
- 23 Code of Federal Regulations 750 (23 CFR 750)
- General Laws of Rhode Island, 1956, as amended, included but not limited to Chapter 24-10.1
- Federal-Aid Highway Act of 1958 (P.L. 85-381 the Bonus Act)
- Agreement for Carrying Out the National Policy Relative to Advertising Adjacent to the National System of Interstate and Defense Highways (1963) (Bonus Act)
- Amended Agreement for Carrying Out the National Policy Relative to Control of Advertising in Areas Adjacent to the National System of Interstate and Defense Highways and the Federal-Aid Primary System (1972) (Bonus Act)
- Highway Beautification Act of 1965, as amended (P.L. 89-285)
- Intermodal Surface Transportation Efficiency Act of 1991 (P.L. 102-240)
- National Environmental Policy Act
- National Historic Preservation Act, Section 106
- RIDOT Rules Regarding the Use of Highways, *Freeways*, Bridges and Structures
- RIDOT *Rules and Regulations* for Accommodating Utility Facilities Within Railroad Rights-of-Way

- RIDOT *Rules and Regulations* for Accommodating Utility Facilities Within Freeway Rights-of-Way
- RIDOT *Rules and Regulations* Relating to Highways and Outdoor Advertising
- Telecommunication Act of 1996
- Transportation Equity Act of 1998

II. APPLICATION

These *Rules and Regulations* are applicable to all areas *visible* from the *state-way* in the State, as designated by the General Assembly. These provisions apply regardless of whether Federal funds participated in the cost of such *state-ways*. Nothing contained in these *Rules and Regulations* shall prohibit a *municipality* from establishing regulations imposing stricter limitations. Where a sign is erected with the purpose of its message being read from two or more highways, one or more of which is a controlled highway, the more stringent of applicable control requirements will apply.

III. DEFINITIONS [All italicized terms or words throughout this document refer to definitions found in this Section]

1. Billboard means a *panel* designed to carry outdoor advertising. *Billboards* are considered to be personal property by the *Department* and all municipal governments in the State of Rhode Island.
2. Commercial or industrial activities, for the purposes of the *unzoned area* definition, mean those activities generally recognized as *commercial or industrial* by zoning authorities in this State, except that none of the following shall be considered *commercial or industrial*:
 1. Agricultural, forestry, ranching, grazing, farming, and related activities, including, but not limited to wayside fresh produce stands.
 2. Transient or temporary activities.
 3. Activities not *visible* from the *state-way*.
 4. Activities more than 300 feet from the nearest edge of the *state-way*.
 5. Railroad tracks and minor sidings
 6. Activities normally and regularly in operation less than 5 months per year.
 7. Activities conducted in a building principally used as a residence.
3. Commercial or industrial zone means areas, which were zoned industrial or commercial, under authority of the law as of September 21, 1959, and any newly developed commercial or industrial areas set forth by City or Town Planning Authorities.
4. Controlled area means:
 1. In an *urban area*, those areas adjacent to, and within 660 feet of, the edge of the *right-of-way* of the *state-way*.

2. Outside an *urban area*, those areas adjacent to the edge of the *right-of-way* of the Interstate and Federal-Aid *primary* and *secondary highway systems* and *visible* from the *state-way*.
5. Controlled Routes means: The Federal-aid *primary* system in existence on June 1, 1991, and any highway which is not on such a system, but which is on the National Highway System.
6. Department means the Department of Transportation of the State of Rhode Island.
7. Designated Scenic Roadways are any State Roadways that have been designated a "Rhode Island Scenic Roadway" by the Rhode Island Scenic Roadway Board, under the current Rhode Island legislation for Scenic Roadways.
8. Directional and *official signs and notices* include only *official signs and notices, public utility signs, service clubs and religious notices, public service signs, agricultural signs, and directional signs*.
9. Directional Signs means *signs* containing *directional* information about public places owned or operated by Federal, State, or Local governments or their agencies; publicly or privately owned natural phenomena, historic, agricultural, cultural, scientific, educational, and religious sites; and areas of natural scenic beauty or naturally suited for outdoor recreation, including bicycle paths, and state-owned railroad corridors deemed to be in the interest of the public.
10. Double Panel Signs means two [2] *signs* side by side facing the same direction no more than five [5] feet apart.
11. Erect means to construct, build, raise, assemble, place, affix, attach, create, paint, draw, or in any other way bring into being or establish, but it shall not include any of the foregoing activities when performed as an incident to the change of advertising message or customary maintenance or repair of a *sign* or *sign structure*.
12. Erected with the purpose of its message being read means any *sign* that is *visible* from the *state-way*.
13. Freeway means a way especially designed for through traffic over which abutters have no easement or right of light, air, or access by reason of the fact that their property abuts upon the way.
14. Illegal sign means a *sign erected or maintained* in violation of the Federal Law, State Law, State *Rules and Regulations*, local law or ordinance.
15. Immediate vicinity means the area bounded by the buildings, driveways and parking areas where the *sign* is located, in which the principal activity is conducted and is within 50 feet of the activity.
16. Information center means an area or site established and *maintained* as *safety rest areas* for the purpose of informing the public of places of interest within the state and providing such other information as the Director of Transportation may consider desirable.

17. Interchange means a system of interconnecting roadways in conjunction with one or more grade separations that provides for the movement of traffic between two or more roadways or highways on different levels. *Interchanges* may be of various types or a combination of types as set forth in "A Policy on Geometric Design of Highways and Streets" 1984, published by the American Association of State Highway and Transportation Officials, as may be amended, which is incorporated by reference.
18. Interstate System means that a portion of the national system of interstate and defense highways located within this State, or highways built to interstate or defense highway standards [See Exhibit A1], as officially designated, or as may hereafter be so designated, by the Director of Transportation, and approved pursuant to the provisions of Title 23, United States Code, Highways.
19. Maintain means to allow to exist, or keep in repair.
20. Major official guide sign means a sign with a total area of not less than 12 square feet, erected and authorized by the State or Federal Government to designate route numbers or route names, distances and directions to certain localities or municipalities.
21. Municipality means a city or town in the State of Rhode Island.
22. Non-Conforming signs [grandfathered] are those *signs* which were lawfully *erected*, but which do not comply with the provisions of subsequent State law or *rules and regulations* or which later fail to comply with State law or *rules and regulations* due to changed conditions.
23. Official signs and notices means *signs* and notices *erected* and *maintained* by public officers or public agencies within their territorial or zoning jurisdiction and pursuant to and in accordance with direction or authorizations contained in Federal, State, or local law for the purposes of carrying out an official duty or responsibility. Historical markers authorized by State law and *erected* by State or local government or nonprofit historical societies may be considered official *signs*.
24. On-Premise Advertising Sign means a *sign* at a business location advertising a business or businesses that are conducted on the property [the principal activity], or *signs* advertising the sale or lease of the real property upon which they are located, subject to the requirements of Section VII.
25. Outdoor Advertising Sign means advertising *signs*, displays, and devices in adjacent areas consistent with the terms of these *Rules and Regulations*, the Federal-Aid Highway Act of 1958 [P.L. 85-381], and the Highway Beautification Act of 1965, as amended [P.L. 85-381], and any and all subsequent amendments and laws. Any outdoor *sign*, device, figure, painting, drawing, message, notices, placard, poster, *billboard*, *billboard structure*, *monopole structure*, letter board, or other thing which is designed, including lighting, intended or used to advertise or inform, any part of the advertising or informative contents of which is *visible* from any place on the *state-way* or the Interstate, *Primary* or *Secondary Systems*.
26. Panel means a flat piece of material, usually rectangular, made to form part of a sunken or raised surface set in a frame for the sole purpose of advertising, or any other shaped surface and/or structure [i.e., Digital Display, Trivision, other type of Commercial Electronic Changeable Message Sign (CEVMS), etc.] approved by the *Department*.

27. Permit means a revocable certificate issuing permission by the *Department* authorizing the erection and maintenance of a *sign* at the location described thereon for a twelve [12] month period **beginning from the date of issuance**. The issuance of an outdoor advertising *permit* does not supersede municipal or other agency *sign* requirements or restrictions. Permits are not chattel.
28. Permit Holder means any *person* holding a valid and unrevoked outdoor advertising *permit*. *Permit holders* must demonstrate to the satisfaction of the *Department* that they have legal control of the real property [i.e., footprint] where the *sign* is located and legal control of the *sign*.
29. Person means any individual, group, corporation, limited liability company, partnership, association, any public entity, as the context may require, or combination thereof.
30. Primary means that portion of connected main highways, as officially designated, or as may hereafter be so designated, by the Director of Transportation, and approved by the U.S. Secretary of Transportation, pursuant to the provisions of Title 23, United States Code entitled, "Highways."
31. Public Service signs means *signs* located on bus stop shelters, which *sign*:
1. Identify the donor, sponsor, or contributor of said shelters;
 2. Contain safety slogans or messages, which shall occupy not less than fifty percent [50%] of the area of the *sign*;
 3. Contain no other message;
 4. Are located on bus shelters which are authorized or approved by city, county, or State law, regulation, or ordinance, and at places approved by the city, county or State agency controlling the *state-way* involved; and must be located on a designated, active transit system.
 5. May not exceed 32 square feet in area. Not more than one *sign* on each shelter shall face in any one direction
32. Public utility signs means warning *signs*, informational *signs*, notices, or markers, which are customarily *erected* and *maintained* by publicly or privately owned public utilities, as essential to their operations.
33. Replacement Costs are based on a mixture of *signs* in each category with different components such as backbracing, aprons, scaffolds, and differing heights above ground level. The basic *structure* cost figure will thus apply whether or not the *sign* being valued has any (or all) of the above-mentioned features. Additives for such items as incandescent lighting, mercury vapor lights, quartz floodlights, unusual features, or differing heights above ground level over eleven (11) feet, should be made when appropriate and the costs are verified by the *Department's* Appraisal Unit.
34. Right-of-Way means the easement in or property acquired by the public through the *Department* of Transportation, for the purposes of highway construction, *safety rest areas*, landscaping or any other purpose incidental to highway travel or highway use.
35. Rules and Regulations means the State of Rhode Island and Providence Plantations, Rhode Island *Department* of Transportation, Outdoor Advertising *Rules and Regulations*.

36. Safety Rest Area means an area or site established and *maintained* within or adjacent to the *right-of-way* by or under public supervision or control, for the convenience of the traveling public. No advertising of any form will be allowed and is strictly prohibited within *Safety Rest Areas* unless previously reviewed and approved by the Director of the *Department* of Transportation.
37. State-way: for the purpose of this document when the term “*State-way*” appears it means the following: an interstate, a road, highway, route, traveled way, *interchange*, *primary*, Federal-aid *primary* or secondary system, designated scenic roadway and arterials [see Exhibits A and A1].
38. Secondary Systems means that portion of state *maintained* roads that are neither interstate nor *primary* roads.
39. Service club and religious notices means *signs* and notices, whose erection is authorized by law, relating to meetings of nonprofit service clubs or charitable associations, or religious services, which *signs* do not exceed 8 square feet in area.
40. Sign for the purpose of this document, when the term “*sign*” or “*signs*” appears it means the following: a display as a lettered board, a posted command, warning, or direction, including messages utilizing new technologies such as Trivision or equivalent technologies such as CMS, Digital LED, Video LED, Price Pack [changed by satellite or other], Lottery [changed by satellite or other], Electronic Water Art, Holographic, Projectorized, Gas Plasma, or other changeable messages as approved by the *Department* of Transportation, and if and when necessary the Federal Highway Administration, any outdoor advertising *sign*, device, figure, painting, drawing, message, notices, placard, poster, *billboard*, *billboard structure*, monopole structure, letter board, or other thing which is designed, including lighting, intended or used to advertise or inform, any part of the advertising or informative contents of which is visible from any place on the *state-way* of the Interstate or *primary* system, or *secondary* system.
41. Structure: means any device, engineered or not which provides support for *panels* that provide an advertising message, including but not limited to monopoles, multipoles, or any other thing used to provide support.
42. Unzoned commercial or industrial area means those areas not zoned by State or local law, regulation or ordinance, which are occupied by one or more industrial or *commercial activities*, other than *outdoor advertising signs*, and the lands along the *state-way* for a distance of 500 consecutive feet immediately adjacent to the activities. All measurements shall be from the outer edges of the regularly used buildings, parking lots, storage or processing areas of the activities, not from the property lines of the activities, and shall be along or parallel to the edge of pavement of the *state-way*. Measurements shall not be from the property lines of the activities unless said property lines coincide with the limits of the activities. Unzoned industrial or commercial areas shall not include land predominately used for residential purposes, or land adjacent to Interstate or *primary* highway constructed on *right-of-way*, the entire width of which was acquired subsequent to the Federal Aid Highway Act of July 1, 1956. In addition, “spot or strip zoning,” will not be considered as a commercial or an industrial area.
43. Urban Area means an urbanized area or an urban place as designated by the Bureau of the Census having a population of five thousand or more and not within any urbanized area, which boundaries to be fixed by the Office of Statewide Planning, subject to approval by the Secretary of the U.S. Department of Transportation. Such boundaries shall be as a minimum, encompass the entire urban place designated by the Bureau of the Census. *Urbanized area* means an area so

designated by the Bureau of the Census, within boundaries to be fixed by the Office of Statewide Planning, subject to approval by the Secretary of the U.S. Department of Transportation. Such boundaries shall, as a minimum, encompass the entire *urbanized area* within the State as designated by the Bureau of the Census.

44. *Visible* means capable of being seen, discovered, or perceived [whether or not legible] without visual aid by a *person* of normal visual acuity.

IV *SIGNS OUTSIDE URBAN AREAS*

The following *signs* shall be allowed outside *urban areas*. Outside *urban areas* means those areas outside the definition of "*Urban Area*" in "Section III – Definitions" of these *Rules and Regulations*, and depicted on "Exhibit C" attached.

- A. *Directional* and other official *signs*.
- B. *Signs* in areas, which were zoned commercial or industrial under authority of law as of the institution of the Bonus Act [see "Exhibit A"] on September 21, 1959. However, *signs* that are more than 660 feet from the edge of the *right-of-way*, and *erected* with the purpose of their message being read from the main-traveled way are prohibited.
- C. *Signs* located in *unzoned commercial or industrial areas* as defined in Section III. However *signs*, which are more than 660 feet from the edge of the *right-of-way*, and *erected* with the purpose of their message being read from the main-traveled way are prohibited.
- D. *Signs* lawfully in existence on October 22, 1965 [the institution of the Highway Beautification Act], determined by the Director of the *Department*, subject to the concurrence of the U.S. Secretary of Transportation, to be landmark *signs*, including *signs* on farm *structures* or natural surfaces, of historic or artistic significance the preservation of which would be consistent with the purposes of these regulations. There exist no landmark *signs* outside *urban areas* in the State of Rhode Island.
- E. Any and all types of *signs* not listed above are hereby prohibited outside *urban areas*.

V. *GENERAL REGULATIONS*

The following *Rules and Regulations* shall apply to all legally conforming and legally *non-conforming signs*:

- A. *Signs* shall not be *erected* or *maintained* or altered in such a manner as to obscure or otherwise physically interfere with an official traffic *sign*, signal or device, or to obstruct or physically interfere with the driver's view of approaching, merging, or intersecting traffic.
- B. *Signs* shall not be *erected* or *maintained* which imitate or resemble official traffic *signs*, signals or devices, or are *erected* or *maintained* upon trees or painted or drawn upon rocks or natural features, or which are structurally unsafe or in disrepair.

- C. Nothing in these Rules and Regulations shall be construed to abrogate or affect the provisions of any lawful ordinance, regulation or resolution, which are more restrictive than the provisions of this chapter.

VI. CRITERIA FOR A LEGAL CONFORMING SIGN

For a *sign* to be designated legal conforming, it must comply with the following location, size, spacing, and lighting criteria, pursuant to RIGL 24-10.1-3. Existing Conforming Signs – Conforming signs are signs that are lawfully *erected* and *maintained* and comply entirely with all provisions of the law. Conforming signs may remain or be *erected* adjacent to controlled highway systems after the effective date of the State law, which is May 6, 1966, and any subsequent amendments thereto.

A. Location

1. Signs must be located in a zoned commercial or industrial area or a non-urban area that is unzoned commercial or industrial.
2. All signs shall be set back at least 25' feet from the nearest edge of *right-of-way* except in areas zoned by authority of law either industrial or commercial where the setback established by such authority will be observed.
3. No sign shall be *erected* in any area regardless of zoning or other considerations in areas either of natural or manmade scenic beauty or historical significance, including designated scenic roadways and bicycle paths, designated as such by the Rhode Island Department of Transportation.

B. Size

No sign panel shall exceed the following limits:

1. For signs panel which are located within 150 from the nearest edge of the *right-of-way*, maximum area – 675 square feet, maximum height – 20 feet, maximum length – 50 feet. Dimensions include border trim, cutouts, extensions, but exclude bases and supports.
2. For signs which are located 150 feet or more from the nearest edge of the *right-of-way*, maximum area – 1200 square feet, maximum length – 60 feet, maximum height – 25 feet. Dimensions include border, trim, cutouts and extensions but exclude bases and supports.
3. Cutouts and extensions are not to exceed the following limits:
 - [a] Five [5] feet from the top of trim.
 - [b] One and one-half feet from either vertical side of trim.
 - [c] Two [2] feet from bottom of trim.
 - [d] No one cutout shall exceed more than ten percent [10%] of the total copy area or no combination of cutouts shall exceed thirty percent [30%] of the total copy area. Prior to the installation of any and all cutouts, a *permit holder* must submit to the *Department* a written explanation providing the

exact design, dimensions, *panel* number, and specifications of the proposed cutout. The *permit holder* must make this request no less than ten [10] business days prior to the anticipated installation of the cutout, and must strictly adhere to the restrictions listed above. No erection of a cutout will be *permitted* without first submitting a schematic of the proposed cutout for review, and receiving prior written approval of the *Department*.

4. *Signs* may be double faced [abutting and facing the same direction] provided that the total dimensions and area of double faced *signs* on the *structure* do not exceed the stipulations of a [1], a [2], and a [3] above.
5. Back-to-back *signs* shall be considered as two *signs*.
6. V-type *signs* shall be considered as two *signs*, but must be *erected* so that only one face is *visible* to traffic proceeding in any one direction on any Interstate or *Primary System*.

C. **Spacing**

If a *sign* is located on and/or adjacent to an Interstate or *Primary Highways* or Secondary Roads the followings applies:

1. *Signs shall not be located within 750 feet of items [a], [b], [c], [d], [e], [f] or [g] listed below, which are adjacent to the highway right-of-way regardless of whether there is direct access from the state-way, including but not limited to those areas being designated and maintained as such by public governmental agencies as follows:*

- [a] Recreational Public Parks
- [b] Public Forests
- [c] Public Playgrounds
- [d] Scenic Overlooks or Designated Scenic Roadways
- [e] Bicycle Paths
- [f] Schools
- [g] *Safety Rest Areas*

In connection with sub-paragraph [1] above, the 750 foot limitation, which will be measured from the property lines of recreational public parks, schools, public forests, *safety rest areas*, public playgrounds, and bicycle paths will not be interpreted to extend beyond the opposite side of said highway *right-of-way*. In the case of scenic overlooks, which are constructed so as to utilize the view across said *state-way*, no *sign* shall be allowed which obscures the intended view. If there is an existing *structure* or building other than outdoor advertising within the 750 foot zone, a *sign* may be *erected* within said area provided that such *sign* does not otherwise obstruct the view of the area designated.

2. If an entity with a *sign* exists within an unzoned area, and said entity ceases to exist or operate for a minimum period of 90 calendar days, said *signs* would then be considered non-conforming. If the same area becomes zoned, in any designation but commercial or industrial, the *sign* will still remain non-conforming under Chapter 24-10.1 of the General Laws of the State of Rhode Island.
3. *Signs* that are located in zoned and unzoned commercial and industrial areas and were legally *erected* in accordance with the laws and regulations in effect at the time of their erection, but do not comply with the criteria contained in Section VI "A" of these *Rules and Regulations* may continue to be *maintained*. All such *signs* shall be classified as grandfathered *non-conforming* and must comply with the requirements of Section VIII. When highways are added to the Interstate and *Primary* System, standards contained in Section VI "A" shall apply only to *signs erected in commercial or industrial zones* and areas adjacent thereto subsequent to the date that such *state-ways* are added to the system
4. The minimum distances between *signs* of 250 feet and 750 feet shall be measured along the nearest edge of the pavement between points directly opposite the *signs*.
5. On-premise *signs* and other *signs* authorized and defined by Section 24-10.1-3 [a] [b] [c] of the General Laws of Rhode Island shall not be considered for purposes of measurement. Alleys, undeveloped rights-of-way, private roads and driveways are not intersections, and will not be utilized for measurement purposes.
6. No *signs* may be located on the same side of the *state-way* within 250 feet of a *major official guide sign*.

C(i) **Spacing of Legal Conforming Signs Adjacent to Interstate Highways and Freeways On the Primary System or Secondary Systems**

- A. **Zoned industrial or commercial area [does not apply to secondary systems]** – spacing between *signs* along each side of the highway shall be a minimum of 750 feet from the *sign structure* to *sign structure*. Back-to-back and V-type *signs* may be *erected* at single locations. *No structure may be located adjacent to or within 500 feet of an Interchange, exit or entrance ramp, intersection at grade, or a safety rest area*. Said 500 feet to be measured along the edge of pavement along the *Interchange*, ramp, intersection at grade, or a safety rest area or *state-way* from the beginning or ending of the pavement widening at the entrance to and exist from the *state-way*. Said distance limitation shall be measured separately for each direction of travel.
- B. **Unzoned industrial or commercial area [applies to all systems including secondary systems]** – spacing between *signs* along each side of the *state-way* shall be a minimum of 1500 feet. back-to-back and V-type *signs* may be *erected* at a single location. *No structure may be located adjacent to or within 1000 feet of an Interchange, exit or entrance ramp, intersection at grade, or a safety rest area*. Said 1000 feet to be measured along the *state-way* from the beginning or ending of pavement widening at the exit from or entrance to the *state-way*.

C(ii) Spacing of Legal Conforming Signs Adjacent to Secondary Systems Zoned Industrial/Commercial

A. The location of *signs* shall conform to the following minimum criteria to be applied separately to each side of the secondary system.

[1] Spacing between *signs* along each side of the secondary system shall be a minimum of 250 feet. V-type or back-to-back *signs* may be *erected* at a single location, but any such *signs* shall be at least 500 feet from any other *sign* the same side of the secondary system.

[2] No *sign* may be located within 100 feet of an intersection [unless there is an existing building or *structure* other than an outdoor advertising *structure* in said area]. One *sign* shall be *permitted* within said area if it does not obstruct the existing view of the intersection to approaching traffic and meets all other *rules and regulations* herein contained. [Distance shall be measured as under Interstate Highways and *Freeways* on *Primary Systems* above].

D. Lighting

1. No *sign* may be *erected* or *maintained* which contains, includes or is illuminated by any flashing, intermittent or moving light or lights, except in the use of public information devices which indicate the correct time and temperature, or other changeable LED message *signs* or *billboards* with changeable messages.

2. No lighting may be used in any way in connection with any *sign* unless it so effectively shielded as to prevent beams or rays of light from being directed at any portion of the *state-way*, or is of such low intensity or brilliance as not to cause glare or to impair the vision of the driver of any motor vehicle, or to otherwise interfere with any driver's operation of a motor vehicle.

3. The Department has the right to require adjustments to lighting.

E. New Technologies

Adjacent to the *state-way*, no legally conforming *signs* advertising copy may be converted to Trivision or equivalent technologies unless approved by the Department, and if and when necessary, the Federal Highway Administration [non-conforming *signs* do not qualify for conversion and no video shall be allowed]. The Department will not allow the conversion of signs utilizing LED technology pending its study of safety issues.

If a *signs* advertisement copy is converted to a type of new technology, the *Department* may require a percentage of the advertisement copy be dedicated to public service (e.g. Amber Alert)

However, in accordance with Title 24 "Highways," Chapter 24-10.1-2, for each *sign* using such technology, two [2] valid *permits* for *signs* or *billboards* of equivalent size shall be required. Provided, further, however, that in the event that a *person*, firm or corporation does not hold more than one *permit*, only one *permit* for *signs* of equivalent size shall be required.

F. **Timing of Messages**

A sign that is converted to Trivision or equivalent technologies, or message *signs*, or any other types of *signs* with changeable messages, shall display said messages for ten [10] continuous seconds or more without interruption. The Department may adjust the timing of messages based on public safety concerns.

VII. **LEGAL NON-CONFORMING SIGNS**

1 **Legal Non-Conforming Signs** – A *sign* is considered to be legal *non-conforming* if it was lawfully *erected* prior to the effective date of the Federal and State law but does not conform to the current law’s requirements, and has a current State *permit*. A legal *non-conforming sign* must be lawfully *maintained* in accordance with applicable state law and these *Rules and Regulations*. Failure to do so may result in the revocation of *permit* and require the removal of the legal non-conforming *sign* without compensation. There are several ways in which a legal non-conforming *sign permit* may be revoked:

[a] A legal non-conforming sign that is abandoned or discontinued is a *sign* that may lose its legal non-conforming status if the *sign* owner fails to operate the *sign* 90 calendar days unless receiving prior approval by the Director of the *Department of Transportation*. Examples are:

1. Obsolete message content on the *sign*.
2. Blanked-out *Signs* void of any message content.
3. *Signs* in need of such substantial repair where *replacement costs* exceeds 25 percent of the *sign’s* current fair market value. Repairs must not begin without the prior written approval of the Director of the *Department of Transportation*. Reasonable repair and maintenance is *permitted* as prescribed in Section IX, part D of these *Rules and Regulations*.

[b] **Destruction of a Legal Non-Conforming Sign.**

1. A legal non-conforming *sign* that is destroyed by Acts of God, such as high winds, lightening, or floods, whose replacement cost exceeds 25% of its current fair market value, shall not be *re-erected* and the *permit* shall be revoked.

[c] **Vandalism**

A legal *non-conforming sign* that is vandalized by criminal or tortuous acts may be *re-erected* with the prior approval of the Director of the *Department of Transportation*.

[d] **Sale, Leasing, Transferring**

A legal *non-conforming sign* may be sold, leased, or otherwise transferred without affecting its status. However, the location, size, spacing, lighting, or duration of the message [if applicable], of the *sign* shall not be changed, and the *sign* must have been actually in existence at the time the applicable State law or regulations became effective [May 6, 1966].

VIII. MAINTENANCE OF LEGAL *NON-CONFORMING SIGNS*

- A. **Customary Maintenance** – Legal *non-conforming signs* must remain substantially the same as they were on the date they became nonconforming. Reasonable repair and maintenance are *permitted*. Changes to the physical *structure* on the *sign*, other than a change of message, must be accomplished in accordance with these *Rules and Regulations*. These requirements include:
1. No change in the size of the legal non-conforming sign or the advertising *panel*.
 2. No change in the type of existing *structure*, i.e., from a legal non-conforming sign with wooden posts to a monopole.
 3. No addition of lighting, either attached or unattached.
 4. No repairs exceeding 25% of the *replacement cost* of the legal non-conforming sign structure subject to these *Rules and Regulations*.
- B. **The permission to maintain any legal *non-conforming sign* shall be terminated by:**
- [1] **Abandonment of the sign.** A legal non-conforming *sign* shall be deemed to be abandoned if, for a period of 90 calendar days, it ceased to display advertising content or displays obsolete or obliterated advertising content or for which no rent has been paid to the owner for a six [6] month period or more. Obsolete or obliterated advertising content is advertising matter that does not identify a particular product, service or facility that is currently available to the motorist. If for a period of 90 calendar days, an “available for lease” or similar message that concerns the availability of the sign itself, and which does not constitute advertising matter, is left in place, the legal non-conforming sign may be considered abandoned.
 - [2] Increase of any dimension of the legal non-conforming *sign* from its original dimensions [height, width, length], in existence at the time the applicable Federal and State laws or regulations became effective.
 - [3] Change of any aspect or character or the increase of the lumens of the lighting or the replacement of the legal non-conforming sign.
 - [4] Performing maintenance of legal *non-conforming signs* from within the *right-of-way* of access-controlled *state-ways* without the written permission of the Director of the *Department* of Transportation.

- [5] Damage to the legal non-conforming *sign* from any cause whatsoever, except by willful acts, where the cost of repairing the damage exceeds 25% of the *replacement cost* of such legal non-conforming *sign* structure and/or where the legal non-conforming *sign* is at a minimum, 25% destroyed on the date of damage will not be replaced. Any legal non-conforming *sign* structure damaged by criminal or deliberate acts may be replaced upon a showing of the legal non-conforming *sign* owner that the legal non-conforming *sign* was so destroyed and upon prior written approval from the Director of the *Department* of Transportation.
- [6] Deterioration of the legal non-conforming *sign* where the cost of repairing or maintaining the legal non-conforming *sign* structure exceeds 25% of the *replacement cost* of such legal non-conforming *sign* on the date that the *Department* determines that the legal non-conforming *sign* is obsolete.
- [7] A legal non-conforming *sign* may be relocated to a legal conforming location with the prior approval of the *Department*.

C. Standards for Normal Maintenance and Minor Repairs

- [1] Normal maintenance shall include change of message, normal upkeep, and minor repairs.
- [2] Minor repairs, once determined by the *Department* that the cost will not exceed 25% of the *replacement cost* of the legal non-conforming *sign* shall be completed so as to result in the legal non-conforming *sign* being in satisfactory condition in the sole judgment of the *Department*. These repairs must be completed within ninety [90] calendar days from the date of notification to the legal non-conforming *sign* owner to repair, or the legal non-conforming *sign* or *billboard structure* will be removed as an *illegal sign*.

IX. ILLEGAL SIGNS

Illegal *signs* mean a *sign erected or maintained* in violation of the Federal Law, and/or State Law, and/or State *Rules and Regulations*, and/or Local Law, and/or ordinances.

1. A *sign* shall be classified as illegal including but not limited to the following:

- [a] If *erected* in a *controlled area* where *signs* are not allowed; or
- [b] If violates size, lighting or spacing requirements; or
- [c] If fails to have a proper *permit*.

2. Removal and Penalty of Illegal Signs

See RIGL 24-10.1

3. *Signs* advertising activities that are illegal under State, Federal or Local Laws, or State Regulations in effect at the location of such *signs* are prohibited

X. **ON-PREMISE ADVERTISING SIGNS**

On-Premise advertising signs may not be required to have a permit under Section X, and may be permissible if they conform to the following rules:

- [1] The *on-premise advertising sign* shall be located within 50 feet of the *immediate vicinity* of the principal activity.
- [2] The *on-premise advertising sign* shall be located on the same premises as the principal activity or property advertised. Any sign that consist solely of the name of the establishment is an on-premise sign.
- [3] The *on-premise advertising sign* shall have as its purpose [a] advertising of the sole and/or principal activity and/or it's products being sold and/or services rendered, or [b] advertising of the sale or lease of property on which the *on-premise advertising sign* is located, rather than the purpose of general advertising. An *on-premise advertising sign* identifying the establishments' principal and/or accessory products and/or services offered on the premises is an *on-premise advertising sign*
- [4] A "For Sale" or "For Lease" advertising *sign* which advertises a product or a service located upon and related to the business of selling or leasing the land on which the advertising *sign* is located, is an *on-premise advertising sign*.
- [5] If any or all portion of a *sign* advertises activity or activities not conducted on the premises, and/or products or services not part of the principal activity, it is not an on-premise *sign*.
- [6] The *on-premise advertising sign* owner bears the burden of proving, by a preponderance of the evidence, that the advertised activity is conducted on the premises. The following shall be used for determining whether a *on-premise advertising sign* is located on the same premises as the activity or property advertised.
 - [a] The premises on which an activity is conducted is determined by physical facts rather than property lines, ownership, recorded plats and lots, etc. Generally, it is defined as the improved land occupied by the buildings or other physical uses that are necessary and customarily incident to the activity on a regular basis including such open spaces as are reasonably arranged and designed to be used in connection with such buildings or uses on a regular basis. *On-Premise advertising signs* shall be no more than 50 feet from said activity.

An on-premise advertising sign shall not be located on:

- [1] Any land or site, which is not, used as an integral part of the principal activity. This would include, but is not limited to, land which is separated from the activity by a *state-way* or other obstruction, and not used by the activity, and/or extensive undeveloped *state-way* frontage contiguous to

the land actually used by a commercial facility, even though it might be under the same ownership.

[2] Any land or site, which is used for, or devoted to, a separate purpose unrelated to the advertised activity. For example, land adjacent to or adjoining a service station but devoted to raising of crops, residence, or farmstead uses or other commercial or industrial uses having no relationship to the service station activity would not be part of the premises of the service station, even though under the same ownership.

[3] Any land or site occupied solely by *structures* or uses which are only incidental to the principal activity, and which serve no reasonable or integral purpose related to the activity other than to attempt to qualify the land for *signing* purposes. Generally, these will be inexpensive facilities, such as picnic, playground, or camping areas, dog kennels, golf-driving ranges, common or private roadways or easements, walking paths, bicycle paths, fences, and *sign* maintenance sheds

A. **Narrow Strips**

Where the *sign* site is located at or near the end of a narrow strip contiguous to the activity, the *sign* shall not be considered part of the premises on which the activity being advertised is conducted. A narrow strip shall include any configuration of land, which is such that it cannot be put to any reasonable use related to the activity other than for *signing* purposes. In no event shall a *sign* site be considered part of the *replacement cost* premises on which the advertised activity is conducted if it is located upon a narrow strip of land:

- [a] which is non-buildable land, such as a swampland, marshland, or other wetland, or
- [b] which is a common or private roadway, or
- [c] held by easement or other lesser interest than the premises where the advertised activity is located. Exception to the above would be a commercial or industrial complex / park marquee *sign*.

B. **On-Premise Advertising Signs Located on Interstate and National Highway System**

All on-premise *signs* including but not limited to those located adjacent to those roadways listed in Exhibit A1, are under the jurisdiction of the *Department* and these *Rules and Regulations*, and they must be in compliance with the provisions contained herein including the following:

- [1] No *sign panels* will exceed a maximum area of 150 square feet
- [2] *Signs* with new technologies will not be *erected* without the express written approval of the Director of the *Department* of Transportation
- [3] Lighting will be in conformance with the provisions provided in Section VI – Criteria For A Legal Conforming *Sign*

- [4] No *sign* will block the view of an official *directional sign*
- [5] All *signs* must be a minimum of 50 feet from the state highway line
- [6] *Signs* utilizing digital display technology are limited to a continuous 10-second motionless display

XI. DIRECTIONAL, REGULATORY, WARNING AND AGRICULTURAL SIGNS

Directional, Regulatory and Warning *Signs* are not under the jurisdiction of these *Rules and Regulations*. The erection and maintenance of these types of *signs* will be referred to and are under the jurisdiction of the *Department's* Traffic Engineering Section, and are in conformance with the "Manual for Uniform Traffic Control Devices" [MUTCD].

No rule or regulation of the Department of Transportation shall be enforced against any agricultural operation to prevent it from placing a seasonal *directional sign* or display on the state's right-of-way, on the condition that that *sign* or display conforms with the local zoning ordinance, and that *sign* or display is promptly removed by the agricultural operation upon the conclusion of the season for which said *sign* or display was placed, in accordance with RIGL 2-23.

XII. RECLASSIFICATION OF SIGNS

The *Department* reserves the right to reclassify *signs* which are legally conforming that become legal non-conforming [and vice versa] due to revisions in the Federal Law, State Law, and/or *Rules and Regulations*, and/or change in business activity, and/or re-zoning by proper authority, and/or change in state-way configuration.

XIII. PERMIT PROCESS

All *signs* lawfully *erected* [which include both conforming and *non-conforming signs*] require a *permit* and a *panel* identification number. *Permits* are issued to site-specific locations. Applicants requesting a *permit* must provide proof of legal control of the real property [footprint] and sign. *Permits* are issued under this application process will expire on December 31st in the year in which they were issued, unless sooner revoked for cause [outlined in these *Rules and Regulations*] by the *Department*. No *permits* shall be transferred or assigned to another entity without the approval of the *Department*.

A. Requirements for a Permit Application

- [1] A separate application for a *permit* shall be made for each separate *sign* as so defined in these *Rules and Regulations* on a form furnished by the *Department*; which application shall be signed by the applicant or the applicant's representative duly authorized in writing, to act for the applicant.

The following items shall be required for the *permit* application process:

- [a] written proof of legal control through the calendar year, and/or ownership of the real property [footprint of the *sign*] upon which the *sign* is located [i.e. lease, rental agreement, deed, etc.];

- [b] written proof of legal control through the calendar year and/or ownership of the *sign* [i.e. lease, rental agreement, bill of sale];
- [c] written proof of insurance with language indemnifying and naming the State of Rhode Island as co-insured where applicable [if the *sign* is located on State-owned property];
- [d] name and address of the present legal owner of the real property on which the *sign* is located;
- [e] Assessor's Plat and Lot Number of the real property upon which the *sign* is located;
- [f] name and address of the present *sign* owner.

[2] *The *Permit Rate Structure* shall be as follows:

- 72 square foot stagnant *signs* \$200 per *panel*
 - 300 and 672 square foot stagnant *signs* \$450 per *panel*
 - Changeable Message Sign /Mechanical [any size] \$1,300 per *panel*
 - Changeable Message Sign /Electronic [any size] \$2,000 per *panel*
- [Also Includes Any Other New Technology]

*RIDOT Reserves the right to examine the above fees on an annual basis. Fee structures will be commensurate with actual costs to administer the Outdoor Advertising Program.

NOTE: Fees are charged on a per *panel* basis, and shall be paid in the form of a non-refundable check made payable to the "General Treasurer, State of Rhode Island." Applications for a new *sign* location shall have a non-refundable fee of \$100. If the application is approved for a new location, the fee schedule above shall determine the cost of the *permit*.

- [3] The *Department* may respond to a completed application within a reasonable time, not to exceed 60 calendar days. However if it is found that the information in the application is incomplete or incorrect, the *Department* reserves the right to suspend the 60 calendar day response time until all required information is submitted, reviewed, and found to be complete. Only at that time will the *Department* be held to the 60 calendar day response time.

B. **Revocation of *Permit*:** The *Department* of Transportation shall have the right after thirty [30] calendar days notice in writing to the *permit holder*, to revoke any *permit* granted if the *sign* fails to comply with these *Rules and Regulations*, Federal or State Laws that pertain to the governing of *signs*. If within the 30 calendar day period the *permit holder* amends the *sign* to conform to these *Rules and Regulations*, Federal or State Laws that pertain to the governing of *signs*, the revocation will be suspended. The *Department* will revoke immediately any *permit* whose *sign* message content resembles a traffic, *directional* or official guide *sign* or illegal content.

C. **Identification of *Sign*:** Every *sign* erected under these *Rules and Regulations* shall be erected in the exact location described on the *permit* and shall have a clearly visible *permit* number; said number to be not less than two [2] inches in height for *signs* closer than 150 feet from the nearest edge of the *right-of-way*, and four [4] inches in height for *signs* located beyond 150 feet from the nearest edge of the *right-of-way* and are to be placed on the furthest left support post, 2 ½ feet from the bottom of the *sign*; provided; however, that wherever *signs* are erected on a single post,

the number shall be placed on the face of the post under the *sign*. All *signs* having been issued a *permit* shall bear the clearly *visible* imprint of the *permit* number.

The *Department* will assign *panel* numbers for each *sign panel*. Each *panel* number shall be clearly *visible*, and shall not be less than two [2] inches in height for *signs* closer than 150 feet from the nearest edge of the *right-of-way*, and four [4] inches in height for *signs* located beyond 150 feet from the nearest edge of the *right-of-way* and are to be placed on the furthest left support post, 2 ½ feet from the bottom of the *sign*; provided; however, that wherever *signs* are *erected* on a single post, the number shall be placed on the face of the post under the *sign*.

D. Appeal:

- [1] Any applicant aggrieved by a final written decision of a subordinate official of the *Department* of Transportation, may within thirty [30] calendar days after receipt of said written decision, appeal in writing to the Director of Transportation.
- [2] Any applicant aggrieved by a final written decision of the Director, may within thirty [30] calendar days after receipt of said written decision, appeal to the Superior Court in Providence County by filing a complaint pursuant to the Rhode Island General Laws, 42-35-15, as amended.

XIV. ADOPT-A-SPOTS, ADOPT-A-HIGHWAY, AND SPONSOR-A-HIGHWAY PROGRAMS

The erection of signage on *Department* owned and controlled *right-of-way* and *state-ways* is governed by several *Department* Programs. For information about these Programs, please contact:

Adopt-A-Spot Program:	RIDOT Real Estate Section	(401) 222-4501
Adopt-A-Highway Program:	RIDOT Maintenance Division	(401) 222-2378
Sponsor -A - Highway Program	RIDOT Maintenance Division	(401) 222-2378

XV. VEGETATION CONTROL

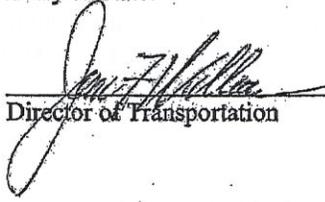
Vegetation Control as it relates to these *Rules and Regulations* shall fall under the jurisdiction of the *Department's* Property Management Procedures. Please contact the Property Management Unit for further instruction.

XVI. SEVERABILITY

- A. If any section, clause, or provision of these *Rules and Regulations* shall be held either unconstitutional or ineffective in whole or in part, to the extent that it is not unconstitutional or ineffective, it shall be valid and effective and no other section, clause or provision shall on account thereof be termed invalid or ineffective.

XVII. EFFECTIVE DATE

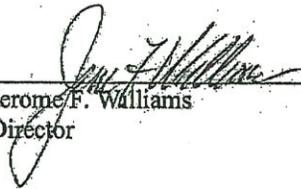
These *Rules and Regulations* are hereby adopted by the undersigned on this 22nd day of February A.D. 2007, and shall be effective upon filing a certified copy hereof in the office of the Secretary of State.



Director of Transportation

CERTIFICATION

I, the Director of the Department of Transportation for the State of Rhode Island hereby certify that the foregoing is a true and exact copy of the Rules and Regulations for Outdoor Advertising, governing the regulating, erection and maintenance of outdoor advertising adopted on September 12, 1980, pursuant to Chapter 24-10.1 of the General Laws of Rhode Island, 1956 amended, entitled, "Outdoor Advertising" and incorporates Outdoor Advertising Rules and Regulations Amendments effective February 22, 2007.



Jerome F. Williams
Director

STATE OF Rhode Island
COUNTY OF Providence

In Providence on this 22nd day of February, 2007, before me personally appeared Jerome F. Williams to me known and known by me to be the Director for the Rhode Island Department of Transportation, and to be the party executing the foregoing instrument and he acknowledged said instrument by him executed to be his free act and deed individually and in his said capacity.



Notary Public

My Commission expires: 1-13-09

PROVIDENCE

Allens Avenue (US 1A) Narragansett Avenue	Cranston CL to Eddy St.
Broad Street (US 1)	Elmwood Ave. to Weybosset St. (Service Rd.)
Elmwood Avenue (US 1)	Cranston CL to Broad St.
Hartford Avenue (US 6A)	US 6 (old Rte. 195) exit ramp outside of Olneyville to Johnston TL
I-95	Cranston CL to Pawtucket CL
I-195	I-95 to E. Providence CL
New Red Bridge (aka Henderson Bridge)	E. Providence CL to S. Angell St.
Niantic Avenue	Cranston St. to Reservoir Ave.
North Main Street (US 1)	Smith St. to Pawtucket CL
Route 10	Cranston TL to US 6
Route 146	I-95 to N. Providence TL
Smith Street (US 44)	N. Providence TL to N. Main St.
South Main Street/N. Main St. (US 44)	Wickenden St./I-195 to Smith St.
US 6	Johnston TL to I-95/Civic Center Interchange

Exhibit 5: RI State Law

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-1

§ 24-10.1-1 Declaration of policy. – In order to prevent unreasonable distraction of operators of motor vehicles, to prevent confusion with respect to compliance with traffic lights, signs, signals and regulations, to promote the safety, convenience, and enjoyment of travel upon highways within this state and to protect the public investment therein, to preserve and enhance the natural scenic beauty or aesthetic features of the highways and adjacent areas, and in the general welfare of the people of this state, the general assembly declares it to be the policy of this state that the erection and maintenance of outdoor advertising in areas adjacent to the rights-of-way of the interstate, primary, secondary road systems within this state shall be regulated in accordance with the terms of this chapter and the regulations promulgated by the director of transportation pursuant thereto and finds that all outdoor advertising which does not conform to the requirements of this chapter is a public nuisance. It is the intention of the general assembly in this chapter to provide a statutory basis for regulation of outdoor advertising consistent with the public policy relating to areas adjacent to the interstate and primary highway systems as declared by congress in title 23 of the United States Code, Highways. Further, the general assembly declares the policy also to regulate other roads within the state.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-2

§ 24-10.1-2 Definitions. – As used in this chapter:

(1) "Information center" means an area or site established and maintained as safety rest areas for the purpose of informing the public of places of interest within the state and providing such other information as the director of transportation may consider desirable.

(2) "Interstate system" means that portion of the national system of interstate and defense highways located within this state, as officially designated, or as may hereafter be so designated, by the director of transportation, and approved pursuant to the provisions of title 23, United States Code, Highways.

(3) "Maintenance" means the normal repair of outdoor advertising due to wear and tear. Maintenance shall not include the relocation nor the increase of advertisement size nor height. Maintenance shall not permit any alterations such as the addition of face lighting nor lit panels, moving parts, sparkling surfaces, cutouts nor temporary extensions of advertising space.

(ii) Maintenance shall permit the change in the advertisement copy by means of trivision technology or other equivalent technology approved by the department of transportation and, if necessary, the federal highway administration; provided, however, for each sign using such technology two (2) valid permits for signs of equivalent size shall be required. Provided, further, however, that in the event that a person, firm or corporation does not hold more than one permit, only one permit for signs of equivalent size shall be required.

(4) "Outdoor advertising" means an outdoor sign, display, light, device, figure, painting, drawing, message, plaque, poster, billboard, structure, or other thing which is designed, intended or used to advertise or inform, any part of the advertising or information contents of which is visible from any place on the main-traveled way of the interstate, primary, or secondary systems.

(5) "Primary systems" means that portion of connected main highways, as officially designated, or as may hereafter be so designated, by the director of transportation, pursuant to the provisions of title 23, United States Code, Highways.

(6) "Safety rest area" means an area or site established and maintained within or adjacent to the right-of-way by or under public supervision or control, for the convenience of the traveling public.

(7) "Secondary systems" means that portion of state maintained roads that are neither interstate nor primary roads.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-3

§ 24-10.1-3 Limitations of outdoor advertising devices. – No outdoor advertising shall be erected in this state except the following:

(1) Directional and other official signs and notices erected, maintained, or authorized by a public agency or body, which signs and notices shall include, but not be limited to, signs and notices pertaining to natural wonders and scenic and historic attractions, as authorized or required by law.

(2) Signs, displays, and devices advertising the sale or lease of property upon which they are located, subject, however, to the national standards as promulgated pursuant to the federal Highway Beautification Act of 1965.

(3) Signs, displays, and devices advertising activities conducted on the property upon which they are located, subject, however, to the national standards as promulgated pursuant to the federal Highway Beautification Act of 1965 including spacing requirements of the Rhode Island department of transportation rules and regulations governing outdoor advertising, except for signs that are allowed to be relocated as permitted in subsection (5).

(4) Bus shelters erected under the authority of the state department of transportation or Rhode Island public transit authority which shall be permitted no more than one two (2) sided sign. Each sign face shall be no more than twenty-four (24) square feet in size.

(5) Lawfully permitted signs, displays, and devices already in existence may be relocated to other permitted locations with the approval of the appropriate governmental agency(s), provided that the relocated outdoor advertising remains the same or smaller in size, and that such outdoor advertising conforms and is consistent with the municipal comprehensive plan and related zoning requirements.

(6) This chapter shall not preclude the maintenance of existing outdoor advertising.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-4

§ 24-10.1-4 Regulation of advertising. – The director of transportation is hereby authorized to promulgate regulations governing the issuance of permits for the erection and maintenance of outdoor advertising coming within the exceptions contained in subsections (1), (4) and (5) of § 24-10.1-3 consistent with the safety and welfare of the traveling public, and as may be necessary to carry out the policy of the state declared in this chapter, and consistent with the national standards promulgated by the secretary of commerce pursuant to title 23, United States Code. All permit fees collected pursuant to regulations promulgated under this section shall be deposited in the intermodal surface transportation fund.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-5

§ 24-10.1-5 Removal of nonconforming advertising. – Any sign, display, or device lawfully in existence along the interstate system or the primary system on May 6, 1966 and which is not in conformity with the provisions contained in this chapter shall not be required to be removed until July 1, 1970. Any other sign, display, or device lawfully erected which does not conform to this chapter shall not be required to be removed until the end of the fifth year after it becomes nonconforming.

TITLE 24 Highways

CHAPTER 24-10.1 Outdoor Advertising

SECTION 24-10.1-6

§ 24-10.1-6 Compensation for removal of advertising. – (a) Any person, firm, association, or corporation having any property interest either in any real property upon which is located any prohibited advertising sign, display, or device, or having any property interest in any prohibited advertising sign, display, or device, or having any property interest in both, shall be justly compensated by the director of transportation for any damages sustained by reason of the removal of the following prohibited advertising signs, displays, and devices:

(1) Those lawfully in existence as of May 6, 1966.

(2) Those lawfully on any highway made a part of the interstate or primary system on or after May 6, 1966 and before January 1, 1968.

(3) Those lawfully erected on or after January 1, 1968.

(b) Compensation is authorized to be paid only for the following:

(1) The taking, by virtue of the enactment of this chapter, from the owner of a prohibited sign, display or device of all right, title, leasehold, and interest in the sign, display or device; and

(2) The taking, by virtue of the enactment of this chapter, from the owner of the real property on which the prohibited sign, display, or device is located, of the right to erect and maintain such signs, displays, and devices thereon.

(c) Any person or party so entitled to compensation who cannot agree with the director of transportation as to the amount of just compensation to which he or she is so entitled, by virtue of the enactment of this chapter, may within one year from the time that the removal of such advertising is required apply for the damages to the superior court in accordance with the procedures of §§ 37-6-18 through 37-6-23.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-7

§ 24-10.1-7 Unlawful advertising. – Any advertising device which violates the provisions of this chapter is hereby declared to be a public nuisance. The director of transportation shall give thirty (30) days' notice, by certified mail, postage prepaid, to the owner of the land on which the advertising device is located to remove the device if it is a prohibited device or cause it to conform to regulations if it is an authorized device. If the owner of the property fails to act within thirty (30) days as required in the notice, the director of transportation, or any of the director's authorized subordinates, may enter upon the real property where the outdoor advertising is located and abate and remove it.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-8

§ 24-10.1-8 Penalty. – Any person, firm, corporation, or association who shall violate any of the provisions of this chapter shall, upon conviction, be fined not more than five hundred dollars (\$500).

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-9

§ 24-10.1-9 Interpretation. – (a) Nothing in this chapter shall be construed to abrogate or affect the provisions of any lawful ordinance, regulation or resolution, which are more restrictive than the provisions of this chapter.

(b) Nothing in this chapter shall be interpreted in any way to show a preference for commercial copy over any other lawful noncommercial message.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-10

§ 24-10.1-10 Advertising in safety rest areas. – In order to provide information in the specific interest of the traveling public, the director of transportation is hereby authorized to maintain maps and to permit informational directories and advertising pamphlets to be made available at safety rest areas, and to establish information centers at safety rest areas for the purpose of informing the public of places of interest within the state and providing such other information as may be considered desirable.

TITLE 24 Highways

CHAPTER 24-10.1 Outdoor Advertising

SECTION 24-10.1-11

§ 24-10.1-11 Agreements with the United States authorized. – The director of transportation is hereby authorized to enter into agreements with the United States secretary of commerce as provided by title 23, United States Code, relating to the control of outdoor advertising in areas adjacent to the interstate and primary systems, including the establishment of information centers at safety rest areas, and to take action in the name of the state to comply with the terms of such an agreement.

TITLE 24

Highways

CHAPTER 24-10.1

Outdoor Advertising

SECTION 24-10.1-12

§ 24-10.1-12 Severability. – If any section, clause, or provision of this chapter shall be held either unconstitutional or ineffective in whole or in part, to the extent that it is not unconstitutional or ineffective, it shall be valid and effective and no other section, clause or provision shall on account thereof be termed invalid or ineffective.

Exhibit 6: RIDOT Permit Letter



Department of Transportation
Division of Highway and Bridge Maintenance
360 Lincoln Avenue
Warwick, RI 02888

MEMO:

To: Peter Aviti, Jr., P.E.
Director

From: Paul T. Caroleri, Ph.D.,
Chief Real Estate Specialist

Subject: Converting Legal Conforming Outdoor Advertising to Digital Technology

Date: June 12, 2016

Handwritten note: Had been OK'd June 15, 2016

Lamar Advertising has requested permission to convert the following conventional legal conforming outdoor advertising billboards to digital technology billboards:

- Blw. permit*
- Permit No. 0958500 Cadillac Drive, Providence (2 Panels)
 - 146S250 Route 146, Providence
 - 095S350 Smithfield Avenue, Providence
 - 106W045 Waterman Avenue, East Providence
 - 010S110 West Russe Street, Cranston
 - 095N080 Wellington Avenue, Cranston

Section III, E, entitled "New Technologies," of the Department's Outdoor Advertising Rules and Regulations requires final approval by the Department prior to the conversion of legal, conforming billboards to new technologies. In addition, the regulations require that the individual sign messages be displayed at least 10 continuous seconds, and that the sign be made available for public service emergency messages (Amber Alerts, etc.).

This office recommends your execution of this memorandum.

Thank you for your attention to this matter.

I hereby approve the conversion to digital technology of the outdoor advertising billboards listed above.

Approval: *[Signature]*
Peter J. Aviti, Jr., P.E.

Approval: *[Signature]*
Joseph Baker, P.E.

Approval: *[Signature]*
Ann Hollands, MAI

Cc: Baker, P.E, Buccol, P.E., Iglizzo, Esq., Hollands, MAI, Catala, Esq., Cadden, file



Exhibit 7: Hill Article



DOT study finds digital billboards don't distract drivers

BY KEITH LAING - 01/07/14 02:57 PM EST

7 SHARES

SHARE

TM

Just In...

Australia drops more than 4K pounds of food from helicopters to help hungry wallabies

BLOG BRIEFING ROOM
— 14M 53S AGO

'Jeopardy!' earns backlash for answer picking Israel over Palestine

MEDIA — 15M 7S AGO

Man arrested after attacking flight attendant, ramming cockpit: report

TRANSPORTATION — 15M 25S AGO

It's time for the Democratic candidates to talk more about national security

OPINION — 20M 8S AGO

Pompeo, tech leaders to huddle over dinner: report

TECHNOLOGY — 30M 8S AGO

Carville backing Bennet's 2020 White House bid

CAMPAIGN — 40M 54S AGO

A GOP-led edge: Red states see less unemployment, more economic growth

OPINION — 50M 8S AGO

US will not extradite American diplomat's

Drivers are not distracted by digital billboards alongside roads, according to a study conducted by the Department of Transportation (DOT).

The study, which was released by the Federal Highway Administration (FHA), found that drivers are not any more likely to be distracted by digital billboards than stationary signs.

"On average, the drivers in this study devoted between 73 and 85 percent of their visual attention to the road ahead for both [Commercial Electronic Variable Message Signs] and standard billboards," the study said. "This range is consistent with earlier field research studies. In the present study, the presence of CEVMS did not appear to be related to a decrease in looking toward the road ahead."

The study surveyed drivers in Richmond, Va. and Reading, Pa. and found that the average length of time drivers spent looking at digital billboards was 379 milliseconds, compared to 335 milliseconds for standard signs.

The results were both well below the "currently accepted threshold of 2,000 milliseconds," the study said.

"The results did not provide evidence indicating that CEVMS, as deployed and tested in the two selected cities, were associated with unacceptably long glances away from the road," the study said. "When dwell times longer than the currently accepted threshold of 2,000 [milliseconds] occurred, the road ahead was still in the driver's field of view. This was the case for both CEVMS and standard billboards."

The results were cheered by the Washington, D.C.-based Outdoor Advertising Association of America (OAAA), which has pushed the transportation department to relax its rules regarding digital billboards.

"Studies have long shown that digital billboards do not cause distracted driving," the outdoor advertising agency said in a statement. "The new federal study released on Dec. 30 comes to the same conclusion."

TAGS BILLBOARDS ADVERTISING

SHARE

FACEBOOK



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THE CONTENTS OF THIS SITE ARE ©2020 CAPITOL HILL PUBLISHING CORP., A SUBSIDIARY OF NEWS COMMUNICATIONS, INC.

Exhibit 8: FHWA Safety Report

**DRIVER VISUAL BEHAVIOR IN THE PRESENCE OF COMMERCIAL
ELECTRONIC VARIABLE MESSAGE SIGNS (CEVMS)**

SEPTEMBER 2012



FHWA-HEP-

FOREWORD

The advent of electronic billboard technologies, in particular the digital Light-Emitting Diode (LED) billboard, has necessitated a reevaluation of current legislation and regulation for controlling outdoor advertising. In this case, one of the concerns is possible driver distraction. In the context of the present report, outdoor advertising signs employing this new advertising technology are referred to as Commercial Electronic Variable Message Signs (CEVMS). They are also commonly referred to as Digital Billboards and Electronic Billboards.

The present report documents the results of a study conducted to investigate the effects of CEVMS used for outdoor advertising on driver visual behavior in a roadway driving environment. The report consists of a brief review of the relevant published literature related to billboards and visual distraction, the rationale for the Federal Highway Administration research study, the methods by which the study was conducted, and the results of the study, which used an eye tracking system to measure driver glances while driving on roadways in the presence of CEVMS, standard billboards, and other roadside elements. The report should be of interest to highway engineers, traffic engineers, highway safety specialists, the outdoor advertising industry, environmental advocates, Federal policymakers, and State and local regulators of outdoor advertising.

Monique R. Evans
Director, Office of Safety
Research and Development

Nelson Castellanos
Director, Office of Real Estate
Services

Notice

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in this document. This report does not constitute a standard, specification, or regulation.

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Quality Assurance Statement

The Federal Highway Administration (FHWA) provides high-quality information to serve government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. The FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

TECHNICAL DOCUMENTATION PAGE

1. Report No. FHWA-HRT-		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Driver Visual Behavior in the Presence of Commercial Electronic Variable Message Signs (CEVMS)				5. Report Date	
				6. Performing Organization Code	
7. Author(s) William A. Perez, Mary Anne Bertola, Jason F. Kennedy, and John A. Molino				8. Performing Organization Report No.	
9. Performing Organization Name and Address SAIC 6300 Georgetown Pike McLean, VA 22101				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Office of Real Estate Services Federal Highway Administration 1200 New Jersey Avenue SE Washington, DC 20590				13. Type of Report and Period Covered	
				14. Sponsoring Agency Code	
15. Supplementary Notes The Contracting Officer's Technical Representatives (COTR) were Christopher Monk and Thomas Granda.					
16. Abstract This study was conducted to investigate the effect of CEVMS on driver visual behavior in a roadway driving environment. An instrumented vehicle with an eye tracking system was used. Roads containing CEVMS, standard billboards, and control areas with no off-premise advertising were selected. Data were collected on arterials and freeways in the day and nighttime. Field studies were conducted in two cities where the same methodology was used but there were differences in the roadway visual environment. The gazes to the road ahead were high across the conditions; however, the CEVMS and billboard conditions resulted in a lower probability of gazes as compared to the control conditions (roadways not containing off-premise advertising) with the exception of arterials in Richmond where none of the conditions differed from each other. Examination of where drivers gazed in the CEVMS and standard billboard conditions showed that gazes away from the road ahead were not primarily to the billboards. Average and maximum fixations to CEVMS and standard billboards were similar across all conditions. However, four long dwell times were found (sequential and multiple fixations) that were greater than 2,000 ms. One was to a CEVMS on a freeway in the day time, two were to the same standard billboard on a freeway once in the day and once at night; and one was to a standard billboard on an arterial at night. In Richmond, the results showed that drivers gazed more at CEVMS than at standard billboards at night; however, in Reading the drivers were equally likely to gaze towards CEVMS or standard billboards in day and night. The results of the study are consistent with research and theory on the control of gaze behavior in natural environments. The demands of the driving task tend to affect the driver's self-regulation of gaze behavior.					
17. Key Words Driver visual behavior, visual environment, billboards, eye tracking system, commercial electronic variable message signs, CEVMS, visual complexity				18. Distribution Statement No restrictions.	
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages	22. Price

SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
AREA				
in ²	square inches	645.2	square millimeters	mm ²
ft ²	square feet	0.093	square meters	m ²
yd ²	square yard	0.836	square meters	m ²
ac	acres	0.405	hectares	ha
mi ²	square miles	2.59	square kilometers	km ²
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft ³	cubic feet	0.028	cubic meters	m ³
yd ³	cubic yards	0.765	cubic meters	m ³
NOTE: volumes greater than 1000 L shall be shown in m ³ .				
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
TEMPERATURE (exact degrees)				
°F	Fahrenheit	$5(F-32)/9$ or $(F-32)/1.8$	Celsius	°C
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m ²	cd/m ²
FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N
lbf/in ²	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
LENGTH				
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
AREA				
mm ²	square millimeters	0.0016	square inches	in ²
m ²	square meters	10.764	square feet	ft ²
m ²	square meters	1.195	square yards	yd ²
ha	hectares	2.47	acres	ac
km ²	square kilometers	0.386	square miles	mi ²
VOLUME				
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m ³	cubic meters	35.314	cubic feet	ft ³
m ³	cubic meters	1.307	cubic yards	yd ³
MASS				
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
TEMPERATURE (exact degrees)				
°C	Celsius	$1.8C+32$	Fahrenheit	°F
ILLUMINATION				
lx	lux	0.0929	foot-candles	fc
cd/m ²	candela/m ²	0.2919	foot-Lamberts	fl
FORCE and PRESSURE or STRESS				
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in ²

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380. (Revised March 2003)

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LIST OF ACRONYMS AND SYMBOLS

CEVMS	Commercial Electronic Variable Message Sign
EB	Empirical Bayes
DCZ	Data Collection Zone
ROI	Region of Interest
LED	Light-Emitting Diode
IR	Infra-Red
CCD	Charge-Coupled Device
MAPPS	Multiple-Analysis of Psychophysical and Performance Signals
GEE	Generalized Estimating Equations
FHWA	Federal Highway Administration
DOT	Department of Transportation

EXECUTIVE SUMMARY

This study examines where drivers look when driving past commercial electronic variable message signs (CEVMS), standard billboards, or no off-premise advertising. The results and conclusions are presented in response to the three research questions listed below:

1. Do CEVMS attract drivers' attention away from the forward roadway and other driving-relevant stimuli?
2. Do glances to CEVMS occur that would suggest a decrease in safety?
3. Do drivers look at CEVMS more than at standard billboards?

This study follows a Federal Highway Administration (FHWA) review of the literature on the possible distracting and safety effects of off-premise advertising and CEVMS in particular. The review considered laboratory studies, driving simulator studies, field research vehicle studies, and crash studies. The published literature indicated that there was no consistent evidence showing a safety or distraction effect due to off-premise advertising. However, the review also enumerated potential limitations in the previous research that may have resulted in the finding of no distraction effects for off-premise advertising. The study team recommended that additional research be conducted using instrumented vehicle research methods with eye tracking technology.

The eyes are constantly moving and they fixate (focus on a specific object or area), perform saccades (eye movements to change the point of fixation), and engage in pursuit movements (track moving objects). It is during fixations that we take in detailed information about the environment. Eye tracking allows one to determine to what degree off-premise advertising may divert attention away from the forward roadway. A finding that areas containing CEVMS result in significantly more gazes to the billboards at a cost of not gazing toward the forward roadway would suggest a potential safety risk. In addition to measuring the degree to which CEVMS may distract from the forward roadway, an eye tracking device would allow an examination of the duration of fixations and dwell times (multiple sequential fixations) to CEVMS and standard billboards. Previous research conducted by the National Highway Traffic Safety Administration (NHTSA) led to the conclusion that taking your eyes off the road for 2 seconds or more presents a safety risk. Measuring fixations and dwell times to CEVMS and standard billboards would also allow a determination as to the degree to which these advertising signs lead to potentially unsafe gaze behavior.

Most of the literature concerning eye gaze behavior in dynamic environments suggests that task demands tend to override visual salience (an object that stands out because of its physical properties) in determining attention allocation. When extended to driving, it would be expected that visual attention will be directed toward task-relevant areas and objects (e.g., the roadway, other vehicles, speed limit signs) and that other salient objects, such as billboards, would not necessarily capture attention. However, driving is a somewhat automatic process and conditions generally do not require constant, undivided attention. As a result, salient stimuli, such as CEVMS, might capture driver attention and produce an unwanted increase in driver distraction. The present study addresses this concern.

This study used an instrumented vehicle with an eye tracking system to measure where drivers were looking when driving past CEVMS and standard billboards. The CEVMS and standard billboards were measured with respect to luminance, location, size, and other relevant variables to characterize these visual stimuli extensively. Unlike previous studies on digital billboards, the present study examined CEVMS as deployed in two United States cities. These billboards did not contain dynamic video or other dynamic elements, but changed content approximately every 8 to 10 seconds. The eye tracking system had nearly a 2-degree level of resolution that provided significantly more accuracy in determining what objects the drivers were looking at compared to an earlier naturalistic driving study. This study assessed two data collection efforts that employed the same methodology in two cities.

In each city, the study examined eye glance behavior to four CEVMS, two on arterials and two on freeways. There were an equal number of signs on the left and right side of the road for arterials and freeways. The standard billboards were selected for comparison with CEVMS such that one standard billboard environment matched as closely as possible that of each of the CEVMS. Two control locations were selected that did not contain off-premise advertising, one on an arterial and the other on a freeway. This resulted in 10 data collection zones in each city that were approximately 1,000 feet in length (the distance from the start of the data collection zone to the point that the CEVMS or standard billboard disappeared from the data collection video).

In Reading, Pennsylvania, 14 participants drove at night and 17 drove during the day. In Richmond, Virginia, 10 participants drove at night and 14 drove during the day. Calibration of the eye tracking system, practice drive, and the data collection drive took approximately 2 hours per participant to accomplish.

The following is a summary of the study results and conclusions presented in reference to the three research questions the study aimed to address.

Do CEVMS attract drivers' attention away from the forward roadway and other driving relevant stimuli?

- On average, the drivers in this study devoted between 73 and 85 percent of their visual attention to the road ahead for both CEVMS and standard billboards. This range is consistent with earlier field research studies. In the present study, the presence of CEVMS did not appear to be related to a decrease in looking toward the road ahead.

Do glances to CEVMS occur that would suggest a decrease in safety?

- The average fixation duration to CEVMS was 379 ms and to standard billboards it was 335 ms across the two cities. The average fixation durations to CEVMS and standard billboards were similar to the average fixation duration to the road ahead.
- The longest fixation to a CEVMS was 1,335 ms and to a standard billboard it was 1,284 ms. The current widely accepted threshold for durations of glances away from the road ahead that result in higher crash risk is 2,000 ms. This value comes from a NHTSA

naturalistic driving study that showed a significant increase in crash odds when glances away from the road ahead were 2,000 ms or longer.

- Four dwell times (aggregate of consecutive fixations to the same object) greater than 2,000 ms were observed across the two studies. Three were to standard billboards and one was to a CEVMS. The long dwell time to the CEVMS occurred in the daytime to a billboard viewable from a freeway. Review of the video data for these four long dwell times showed that the signs were not far from the forward view while participant's gaze dwelled on them. Therefore, the drivers still had access to information about what was in front of them through peripheral vision.
- The results did not provide evidence indicating that CEVMS, as deployed and tested in the two selected cities, were associated with unacceptably long glances away from the road. When dwell times longer than the currently accepted threshold of 2,000 ms occurred, the road ahead was still in the driver's field of view. This was the case for both CEVMS and standard billboards.

Do drivers look at CEVMS more than at standard billboards?

- When comparing the probability of a gaze at a CEVMS versus a standard billboard, the drivers in this study were generally more likely to gaze at CEVMS than at standard billboards. However, some variability occurred between the two locations and between the types of roadway (arterial or freeway).
- In Reading, when considering the proportion of time spent looking at billboards, the participants looked more often at CEVMS than at standard billboards when on arterials (63 percent to CEVMS and 37 percent to a standard billboard), whereas they looked more often at standard billboards when on freeways (33 percent to CEVMS and 67 percent to a standard billboard). In Richmond, the drivers looked at CEVMS more than standard billboards no matter the type of road they were on, but as in Reading, the preference for gazing at CEVMS was greater on arterials (68 percent to CEVMS and 32 percent to standard billboards) than on freeways (55 percent to CEVMS and 45 percent to standard billboards). When a gaze was to an off-premise advertising sign, the drivers were generally more likely to gaze at a CEVMS than at a standard billboard.
- In Richmond, the drivers showed a preference for gazing at CEVMS versus standard billboards at night, but in Reading the time of day did not affect gaze behavior. In Richmond, drivers gazed at CEVMS 71 percent and at standard billboards 29 percent at night. On the other hand, in the day the drivers gazed at CEVMS 52 percent and at standard billboards 48 percent.
- In Reading, the average gaze dwell time for CEVMS was 981 ms and for standard billboards it was 1,386 ms. The difference in these average dwell times was not statistically significant. In contrast, the average dwell times to CEVMS and standard billboards were significantly different in Richmond (1,096 ms and 674 ms, respectively).

The present data suggest that the drivers in this study directed the majority of their visual attention to areas of the roadway that were relevant to the task at hand (e.g., the driving task). Furthermore, it is possible, and likely, that in the time that the drivers looked away from the forward roadway, they may have elected to glance at other objects in the surrounding environment (in the absence of billboards) that were not relevant to the driving task. When billboards were present, the drivers in this study sometimes looked at them, but not such that overall attention to the forward roadway decreased.

It also should be noted that, like other studies in the available literature, this study adds to the knowledge base on the issues examined, but does not present definitive answers to the research questions investigated.

INTRODUCTION

“The primary responsibility of the driver is to operate a motor vehicle safely. The task of driving requires full attention and focus. Drivers should resist engaging in any activity that takes their eyes and attention off of the road for more than a couple of seconds. In some circumstances even a second or two can make all the difference in a driver being able to avoid a crash.” – US Department of Transportation⁽¹⁾

The advent of electronic billboard technologies, in particular the digital Light-Emitting Diode (LED) billboard, has prompted a reevaluation of regulations for controlling outdoor advertising. An attractive quality of these LED billboards, which are hereafter referred to as Commercial Electronic Variable Message Signs (CEVMS), is that advertisements can change almost instantly. Furthermore, outdoor advertising companies can make these changes from a central remote office. Of concern is whether or not CEVMS may attract drivers' attention away from the primary task (driving) in a way that compromises safety.

The current Federal Highway Administration (FHWA) guidance recommends that CEVMS should not change content more frequently than once every 8 seconds.⁽²⁾ However, according to Scenic America, the basis of the safety concern is that the “...distinguishing trait...” of a CEVMS “... is that it can vary while a driver watches it, in a setting in which that variation is likely to attract the drivers' attention away from the roadway.”⁽³⁾ This study was conducted to provide the FHWA with data to determine if CEVMS capture visual attention differently than standard off-premise advertising billboards.

BACKGROUND

A 2009 review of the literature by Molino et al. for the FHWA failed to find convincing empirical evidence that CEVMS, as currently implemented, constitutes a safety risk greater than that of conventional vinyl billboards.⁽⁴⁾ A great deal of work has been focused in this area, but the findings of these studies have been mixed.^(4,5) A summary of the key past findings is presented here, but the reader is referred to Molino et al. for a comprehensive review of studies prior to 2008.⁽⁴⁾

Post-Hoc Crash Studies

Post-hoc crash studies use reviews of police traffic collision reports or statistical summaries of such reports in an effort to understand the causes of crashes that have taken place in the vicinity of some change to the roadside environment. In the present case, the change of concern is the introduction of CEVMS to the roadside or the replacement of conventional billboards with CEVMS.

The literature review conducted by Molino et al. did not find compelling evidence for a distraction effect attributable to CEVMS.⁽⁴⁾ The authors concluded that all post-hoc crash studies are subject to certain weaknesses, most of which are difficult to overcome. For example, the vast majority of crashes are never reported to police; thus, such studies are likely to underreport crashes. Also, when crashes are caused by factors such as driver distraction or inattention, the involved driver may be unwilling or unable to report these factors to a police investigator.

Another weakness is that police, under time pressure, are rarely able to investigate the true root causes of crashes unless they involve serious injury, death, or extensive property damage. Furthermore, to have confidence in the results, such studies need to collect comparable data before and after the change, and, in the after phase, at equivalent but unaffected roadway sections. Since crashes are infrequent events, data collection needs to span extended periods of time both before and after introduction of the change. Few studies are able to obtain such extensive data.

Two recent studies by Tantala and Tantala examined the relationship between the presence of CEVMS and crash statistics in Richmond, Virginia, and Reading, Pennsylvania.^(6,7) For the Richmond area, 7 years of crash data at 10 locations with CEVMS were included in the analyses. The study used a before-after methodology where most sites originally contained vinyl billboards (before) that were converted to CEVMS (after). The quantity of crash data was not the same for all locations and ranged from 1 year before/after to 3 years before/after. The study employed the Empirical Bayes (EB) method to analyze the data.⁽⁸⁾ The results indicated that the total number of crashes observed was consistent with what would be statistically expected with or without the introduction of CEVMS. The analysis approach for Reading locations was much the same as for Richmond other than there were 20 rather than 10 CEVMS and 8 years of crash statistics. The EB method showed results for Reading that were very similar to those of Richmond.

The studies by Tantala and Tantala appear to address many of the concerns from Molino et al. regarding the weaknesses and issues associated with crash studies.^(4,6,7) For example, they include crash comparisons for locations within multiple distances of each CEVMS to address concerns about the visual range used in previous analyses. They used EB analysis techniques to correct for regression-to-mean bias. Also, the EB method would better reflect crash rate changes due to changes in average daily traffic and the interactions of these with the roadway features that were coded in the model. The studies followed approaches that are commonly used in post-hoc crash studies, though the results would have been strengthened by including before-after results for non-CEVMS locations as a control group.

Field Investigations

Field investigations include unobtrusive observation, naturalistic driving studies, on-road instrumented vehicle investigations, test track experiments, driver interviews, surveys, and questionnaires. The following focuses on relevant studies that employed naturalistic driving and on-road instrumented vehicle research methods.

Lee, McElheny, and Gibbons undertook an on-road instrumented vehicle study on Interstate and local roads near Cleveland, Ohio.⁽⁹⁾ The study looked at driver glance behavior in the vicinity of digital billboards, conventional billboards, comparison sites (sites with buildings and other signs, including digital signs), and control sites (those without similar signage). The results showed that there were no differences in the overall glance patterns (percent eyes-on-road and overall number of glances) between the different sites. Drivers also did not glance more frequently in the direction of digital billboards than in the direction of other event types (conventional billboards, comparison events, and baseline events) but drivers did take longer glances in the direction of digital billboards and comparison sites than in the direction of conventional billboards and baseline sites. However, the mean glance length toward the digital billboards was less than

1,000 ms. It is important to note that this study employed a video-based approach for examining drivers' visual behavior, which has an accuracy of no better than 20 degrees.⁽¹⁰⁾ While this technique is likely to be effective in assessing gross eye movements and looks that are away from the road ahead, it may not have sufficient resolution to discriminate what specific object the driver is looking at outside of the vehicle.

Beijer, Smiley, and Eizenman evaluated driver glances toward four different types of roadside advertising signs on roads in the Toronto, Canada, area.⁽¹¹⁾ The four types of signs were: (a) billboard signs with static advertisements; (b) billboard advertisements placed on vertical rollers that could rotate to show one of three advertisements in succession; (c) scrolling text signs with a minor active component, which usually consisted of a small strip of lights that formed words scrolling across the screen or, in some cases, a larger area capable of displaying text but not video; and (d) signs with video images that had a color screen capable of displaying both moving text and moving images. The study employed an on-road instrumented vehicle with a head-mounted eye tracking device. The researchers found no significant differences in average glance duration or the maximum glance duration for the various sign types; however, the number of glances was significantly lower for billboard signs than for the roller bar, scrolling text, and video signs.

Smiley, Smahel, and Eizenman conducted a field driving study that employed an eye tracking system that recorded drivers' eye movements as participants drove past video signs located at three downtown intersections and along an urban expressway.⁽¹²⁾ The study route included static billboards and video advertising. The results of the study showed that on average 76 percent of glances were to the road ahead. Glances at advertising, including static billboards and video signs, constituted 1.2 percent of total glances. The mean glance durations for advertising signs were between 500 ms and 750 ms, although there were a few glances of about 1,400 ms in duration. Video signs were not more likely than static commercial signs to be looked at when headways were short; in fact, the reverse was the case. Furthermore, the number of glances per individual video sign was small, and statistically significant differences in looking behavior were not found.

Kettwich, Kartsen, Klinger, and Lemmer conducted a field study where drivers' gaze behavior was measured with an eye tracking system.⁽¹³⁾ Sixteen participants drove an 11.5 mile (18.5 km) route comprised of highways, arterial roads, main roads, and one-way streets in Karlsruhe, Germany. The route contained advertising pillars, event posters, company logos, and video screens. Mean gaze duration for the four types of advertising was computed for periods when the vehicle was in motion and when it was stopped. Gaze duration while driving for all types of advertisements was under 1,000 ms. On the other hand, while the vehicle was stopped, the mean gaze duration for video screen advertisements was 2,750 ms. The study showed a significant difference between gaze duration while driving and while stationary: gaze duration was affected by the task at hand. That is, drivers tended to gaze longer while the car was stopped and there were few driving task demands.

The previously mentioned studies estimated the duration of glances to advertising and computed mean values of less than 1,000 ms. Klauer et al., in his analysis of the 100-Car Naturalistic Driving Study, concluded that glances away from the roadway for any purpose lasting more than 2,000 ms increase near-crash/crash risk by at least two times that of normal, baseline driving.⁽¹⁴⁾

Klauer et al. also indicated that short, brief glances away from the forward roadway for the purpose of scanning the driving environment are safe and actually decrease near-crash/crash risk.⁽¹⁴⁾ Using devices in a vehicle that draw visual attention away from the forward roadway for more than 2,000 ms (e.g., texting) is incompatible with safe driving. However, for external stimuli, especially those near the roadway, the evaluation of eye glances with respect to safety is less clear since peripheral vision would allow the driver to still have visual access to the forward roadway.

Laboratory Studies

Laboratory investigations related to roadway safety can be classified into several categories: driving simulations, non-driving-simulator laboratory testing, and focus groups. The review of relevant laboratory studies by Molino et al. did not show conclusive evidence regarding the distracting effects of CEVMS.⁽⁴⁾ Moreover, the authors concluded that present driving simulators do not have sufficient visual dynamic range, image resolution, and contrast ratio capability to produce the compelling visual effect of a bright, photo-realistic LED-based CEVMS against a natural background scene. The following is a discussion of a driving simulator study conducted after the publication of Molino et al.⁽⁴⁾ The study focused on the effects of advertising on driver visual behavior.

Chattington, Reed, Basacik, Flint, and Parkes conducted a driving simulator study in the United Kingdom (UK) to evaluate the effects of static and video advertising on driver glance behavior.⁽¹⁵⁾ The researchers examined the effects of advertisement position relative to the road (left, right, center on an overhead gantry, and in all three locations simultaneously), type of advertisement (static or video), and exposure duration of the advertisement. (The paper does not provide these durations in terms of time or distance. The exposure duration had to do with the amount of time or distance that the sign would be visible to the driver.) For the advertisements presented on the left side of the road (recall that drivers travel in the left lane in the UK), mean glance durations for static and video advertisements were significantly longer (approximately 650 to 750 ms) when drivers experienced long advertisement exposure as opposed to medium and short exposures. Drivers looked more at video advertisements (about 2 percent on average of the total duration recorded) than at static advertisements (about 0.75 percent on average). In addition, the location of the advertisements had an effect on glance behavior. When advertisements were located in the center of the road or in all three positions simultaneously, the glance durations were about 1,000 ms and were significantly longer than for signs placed on the right or left side of the road. For advertisements placed on the left side of the road, there was a significant difference in glance duration between static (about 400 ms) and video (about 800 ms). Advertisement position also had an effect on the proportion of time that a driver spent looking at an advertisement. The percentage of time looking at advertisements was greatest when signs were placed in all three locations, followed by center location signs, then the left location signs, and finally the right location signs. Drivers looked more at the video advertisements relative to the static advertisements when they were placed in all three locations, placed on the left, and placed on the right side of the road. The center placement did not show a significant difference in percent of time spent looking between static and video.

Summary

The results from these key studies offer some insight into whether CEVMS pose a visual distraction threat. However, these same studies also reveal some inconsistent findings and potential methodological issues that are addressed in the current study. The studies conducted by Smiley et al. showed drivers glanced forward at the roadway about 76 percent of the time in the presence of video and dynamic signs where a few long glances of approximately 1,400 ms were observed.⁽¹²⁾ However, the video and dynamic signs used in these studies portray moving objects that are not present in CEVMS as deployed in the United States. In another field study employing eye tracking, Kettwich et al. found that gaze duration while driving for all types of advertisements that they evaluated was less than 1,000 ms; however, when the vehicle was stopped, mean gaze duration for advertising was as high as 2,750 ms.⁽¹⁶⁾ Collectively, these studies did not demonstrate that the advertising signs detracted from drivers' glances forward at the roadway in a substantive manner while the vehicle was moving.

In contrast, the simulator study by Chattington et al. demonstrated that dynamic signs showing moving video or other dynamic elements may draw attention away from the roadway.⁽¹⁵⁾ Furthermore, the location of the advertising sign on the road is an important factor in drawing drivers' visual attention. Advertisements with moving video placed in the center of the roadway on an overhead gantry or in all three positions (right, left, and in the center) simultaneously are very likely to draw glances from drivers.

Finally, in a study that examined CEVMS as deployed in the United States, Lee et al. did not show any significant effects of CEVMS on driver glance behavior.⁽⁹⁾ However, the methodology that was used likely did not employ sufficient sensitivity to determine at what specific object in the environment a driver was looking.

None of these studies combined all necessary factors to address the current CEVMS situation in the United States. Those studies that used eye tracking on real roads had animated and video-based signs, which are not reflective of current off-premise CEVMS practice in the United States.

STUDY APPROACH

Based on an extensive review of the literature, Molino et al. concluded that the most effective method to use in an evaluation of the effects of CEVMS on driver visual behavior was the instrumented field vehicle method that incorporated an eye tracking system.⁽⁴⁾ The present study employed such an instrumented field vehicle with an eye tracking system and examined the degree to which CEVMS attract drivers' attention away from the forward roadway.

The following presents a brief overview and discussion of studies using eye tracking methodology with complex visual stimuli, especially in natural environments (walking, driving, etc.). The review by Molino et al. recommended the use of this type of technology and method; however, a discussion laying out technical and theoretical issues underlying the use of eye tracking methods was not presented.⁽⁴⁾ This background is important for the interpretation of the results of the studies conducted here.

Standard and digital billboards are often salient stimuli in the driving environment, which may make them conspicuous. Cole and Hughes define attention conspicuity as the extent to which a stimulus is sufficiently prominent in the driving environment to capture attention. Further, Cole and Hughes state that attention conspicuity is a function of size, color, brightness, contrast relative to surroundings, and dynamic components such as movement and change.⁽¹⁷⁾ It is clear that under certain circumstances image salience or conspicuity can provide a good explanation of how humans orient their attention.

At any given moment a large number of stimuli reach our senses, but only a limited number of them are selected for further processing. In general, attention can be focused on a stimulus because it is important for achieving some goal, or because the properties of the stimulus can attract the attention of the observer independent of their intentions (e.g., a car horn may elicit an orienting response). When the focus of attention is goal directed, it is referred to as top-down. When the focus of attention is principally a function of stimulus attributes, it is referred to as bottom-up.⁽¹⁸⁾

In general, billboards (either standard or CEVMS) are not relevant to the driving task but are presumably designed to be salient stimuli in the environment where they may draw a driver's attention. The question is to what degree CEVMS draw a driver's attention away from driving-relevant stimuli (e.g., road ahead, mirrors, and speedometer) and is this different from a standard billboard? In his review of the literature Wachtel leads one to consider CEVMS as stimuli in the environment where attention to them would be drawn in a bottom-up manner; that is, the salience of the billboards would make them stand out relative to other stimuli in the environment and drivers would reflexively look at these signs.⁽¹⁹⁾ Wachtel's conclusions were in reference to research by Theeuwes who employed simple letter stimulus arrays in a laboratory task.⁽²⁰⁾ Research using simple visual stimuli in a laboratory environment are very useful for testing different theories of perception, but often lack direct application to tasks such as driving. The following discusses research using complex visual stimuli and tasks that are more relevant to natural vision as experienced in the driving task.

A recent review of stimulus salience and eye guidance by Tatler et al. shows that most of the evidence for the capture of attention by the conspicuity of stimuli comes from research in which the stimulus is a simple visual search array or in which the target is uniquely defined by simple visual features.⁽²¹⁾ In other words, these are laboratory studies that use letters, arrays of letters, or simple geometric patterns as the stimuli. Pure salience-based models are capable of predicting eye movement endpoint in simple displays, but are less successful for more complex scenes that contain task-relevant and task-irrelevant salient areas.^(22,23)

Research by Henderson et al. using photographs of actual scenes showed that subjects looked at non-salient scene regions containing a search target and rarely looked at salient non-task-relevant regions of the scenes.⁽²⁴⁾ Salience of the stimulus alone was not a good predictor of where participants looked. Additional research by Henderson using photographs of real world scenes also showed that subjects fixated on regions of the pictures that provided task-relevant information rather than visually salient regions with no task-relevant information. However, Henderson acknowledges that static pictures have many shortcomings when used as surrogates for real environments.⁽²⁵⁾

Land's review of eye movements in dynamic environments concluded that the eyes are proactive and typically seek out information required in the second before each new activity commences.⁽²⁶⁾ Specific tasks (e.g., driving) have characteristic but flexible patterns of eye movement that accompany them, and these patterns are similar between individuals. Land concluded that the eyes rarely visit objects that are irrelevant to the task, and the conspicuity of objects is less important than the objects' roles in the task. In a subsequent review of eye movement and natural behavior, Land concluded that in a task that requires fixation on a sequence of specific objects, the capture of gaze by irrelevant salient objects would, in general, be an obtrusive nuisance.⁽²²⁾

The literature examining gaze control under natural behavior suggests that it is principally top-down driven, or intentional.^(24,25,26,22,21,27) However, top-down processing does not explain all gaze control or eye movements. For example, imagine driving down a two-lane country road and a deer jumps into the road. It is most likely that you will attend and react to this deer. Unplanned or unexpected stimuli capture our attention as we engage in complex natural tasks. Research by Jovancevic-Misic and Hayhoe showed that human gaze patterns are sensitive to the probabilistic nature of the environment.⁽²⁸⁾ In this study, participants' eye movement behavior was observed while walking among other pedestrians. The other pedestrians were confederates and were either safe, risky, or rogue pedestrians. When the study began, the risky pedestrian took a collision course with the participant 50 percent of the time, and the rogue pedestrian always assumed a collision course as he approached the participant, whereas the safe pedestrian never took a collision course. Midway through the study the rogue and safe pedestrians exchanged roles but the risky pedestrian role remained the same. The participants were not informed about the behavior of the other pedestrians. Participants were asked to follow a circular path for several laps and to avoid other pedestrians. The study showed that the participants modified their gaze behavior in response to the change in the other pedestrians' behavior. Jovancevic-Misic concluded that participants learned new priorities for gaze allocation within a few encounters and looked both sooner and longer at potentially dangerous pedestrians.⁽²⁸⁾

Gaze behavior in natural environments is affected by expectations that are derived through long-term learning. Using a virtual driving environment, Shinoda et al. asked participants to look for stop signs while driving an urban route.⁽²⁹⁾ Approximately 45 percent of the fixations fell in the general area of intersections during the simulated drive, and participants were more likely to detect stop signs placed near intersections than those placed in the middle of a block. Over time, drivers have learned that stop signs are more likely to appear near intersections and, as a result, drivers prioritize their allocation of gazes to these areas of the roadway.

The Tatler et al. review of the literature concludes that in natural vision, a consistent set of principles underlies eye guidance. These principles include relevance or reward potential, uncertainty about the state of the environment, and learned models of the environment.⁽²¹⁾ Salience of environmental stimuli alone typically does not explain most eye gaze behavior in naturalistic environments.

In sum, most of the literature concerning eye gaze behavior in dynamic environments suggests that task demands tend to override visual salience in determining attention allocation. When extended to driving, it would be expected that visual attention will be directed toward task-relevant areas and objects (e.g., the roadway, other vehicles, speed limit signs, etc.) and other

salient objects, such as billboards, will not necessarily capture attention. However, driving is a somewhat automatic process and conditions generally do not require constant undivided attention. As a result, salient stimuli, such as CEVMS, might capture driver attention and provide an unwarranted increase in driver distraction. The present study addresses this concern.

Research Questions

The present research evaluated the effects of CEVMS on driver visual behavior under actual roadway conditions in the daytime and at night. Roads containing CEVMS, standard billboards, and areas not containing off-premise advertising were selected. The CEVMS and standard billboards were measured with respect to luminance, location, size, and other relevant visual characteristics. The present study examined CEVMS as deployed in two United States cities. Unlike previous studies, the signs did not contain dynamic video or other dynamic elements. In addition, the eye tracking system used in this study has approximately a 2-degree level of resolution. This provided significantly more accuracy in determining what objects the drivers were looking at than in previous on-road studies examining looking behavior (recall that Lee et al. used video recordings of drivers' faces that, at best, examined gross eye movements).⁽⁹⁾

Two studies are reported. Each study was conducted in a different city. The two studies employed the same methodology. The studies' primary research questions were:

1. Do CEVMS attract drivers' attention away from the forward roadway and other driving relevant stimuli?
2. Do glances to CEVMS occur that would suggest a decrease in safety?
3. Do drivers look at CEVMS more than at standard billboards?

EXPERIMENTAL APPROACH

The study used a field research vehicle equipped with a non-intrusive eye tracking system. The vehicle was a 2007 Jeep® Grand Cherokee Sport Utility Vehicle. The eye tracking system used (SmartEye® vehicle-mounted infrared (IR) eye-movement measuring system) is shown in figure 1.⁽³⁰⁾ The system consists of two IR light sources and three face cameras mounted on the dashboard of the vehicle. The cameras and light sources are small in size, and are not attached to the driver in any manner. The face cameras are synchronized to the IR light sources and are used to determine the head position and gaze direction of the driver.



Figure 1. Eye tracking system camera placement.

As a part of this eye tracking system, the vehicle was outfitted with a three-camera panoramic scene monitoring system for capturing the forward driving scene. The scene cameras were mounted on the roof of the vehicle directly above the driver's head position. The three cameras together provided an 80-degree wide by 40-degree high field of forward view. The scene cameras captured the forward view area available to the driver through the left side of the windshield and a portion of the right side of the windshield. The area visible to the driver through the rightmost area of the windshield was not captured by the scene cameras.

The vehicle was also outfitted with equipment to record GPS position, vehicle speed, and vehicle acceleration. The equipment also recorded events entered by an experimenter and synchronized those events with the eye tracking and vehicle data. The research vehicle is pictured in figure 2.



Figure 2. FHWA's field research vehicle.

EXPERIMENTAL DESIGN OVERVIEW

The approach entailed the use of the instrumented vehicle in which drivers navigated routes in cities that presented CEVMS and standard billboards as well as areas without off-premise advertising. The participants were instructed to drive the routes as they normally would. The drivers were not informed that the study was about outdoor advertising, but rather that it was about examining drivers' glance behavior as they followed route guidance directions.

Site Selection

More than 40 cities were evaluated in the selection of the test sites. Locations with CEVMS displays were identified using a variety of resources that included State department of transportation contacts, advertising company Web sites, and a popular geographic information system. A matrix was developed that listed the number of CEVMS in each city. For each site, the number of CEVMS along limited access and arterial roadways was determined.

One criterion for site selection was whether the location had practical routes that pass by a number of CEVMS as well as standard off-premise billboards and could be driven in about 30 minutes. Other considerations included access to vehicle maintenance personnel/facilities, proximity to research facilities, and ease of participant recruitment. Two cities were selected: Reading, and Richmond.

Table 1 presents the 16 cities that were included on the final list of potential study sites.

Table 1. Distribution of CEVMS by roadway classification for various cities.

<i>State</i>	<i>Area</i>	<i>Limited Access</i>	<i>Arterial</i>	<i>Other ⁽¹⁾</i>	<i>Total</i>
VA	Richmond	4	7	0	11
PA	Reading	7	11	0	18
VA	Roanoke	0	11	0	11
PA	Pittsburgh	0	0	15	15
TX	San Antonio	7	2	6	15
WI	Milwaukee	14	2	0	16
AZ	Phoenix	10	6	0	16
MN	St. Paul/Minneapolis	8	5	3	16
TN	Nashville	7	10	0	17
FL	Tampa-St. Petersburg	7	11	0	18
NM	Albuquerque	0	19	1	20
PA	Scranton-Wilkes Barre	7	14	1	22
OH	Columbus	1	22	0	23
GA	Atlanta	13	11	0	24
IL	Chicago	22	2	1	25
CA	Los Angeles	3	71	4	78

(1) Other includes roadways classified as both limited access and arterial or instances where the road classification was unknown. *Source:* www.lamar.com and www.clearchannel.com

In both test cities, the following independent variables were evaluated:

- **The type of advertising.** This included CEVMS, standard billboards, and no off-premise advertising. (It should be noted that in areas with no off-premise advertising, it was still possible to encounter on-premise advertising; e.g., for gas stations, restaurants, and other miscellaneous stores and shops.)
- **Time of day.** This included driving in the daytime and at night.
- **The functional class of roadways in which off-premise advertising signs were located.** Roads were classified as either freeway or arterial. It was observed that the different road classes were correlated with the presence of other visual information that could affect the driver's glance behavior. For example, the visual environment on arterials may be more complex or cluttered than on freeways because of the close proximity of buildings, driveways, and on-premise advertising, etc.

READING

The first on-road study was conducted in Reading. This study examined the type of advertising (CEVMS, standard billboard, or no off-premise advertising), time of day (day or night) and road type (freeway or arterial) as independent variables. Eye tracking was used to assess where participants gazed and for how long while driving. The luminance and contrast of the advertising signs were measured to characterize the billboards in the current study.

METHOD

Selection of Data Collection Zone Limits

Data collection zones (DCZ) were defined on the routes that participants drove where detailed analyses of the eye tracking data were planned. The DCZ were identified that contained a CEVMS, a standard billboard, or no off-premise advertising.

The rationale for selecting the DCZ limits took into account the geometry of the roadway (e.g., road curvature or obstructions that blocked view of billboards) and the capabilities of the eye tracking system (2 degrees of resolution). At a distance of 960 ft (292.61 m), the average billboard in Reading was 12.8 ft (3.90 m) by 36.9 ft (11.25 m) and would subtend a horizontal visual angle of 2.20 degrees and a vertical visual angle of 0.76 degrees, and thus glances to the billboard would just be resolvable by an eye tracking system with 2 degrees of accuracy. Therefore 960 ft was chosen as the maximum distance from billboards at which a DCZ would begin. If the target billboard was not visible from 960 ft (292.61 m) due to roadway geometry or other visual obstructions, such as trees or an overpass, the DCZ was shortened to a distance that prevented these objects from interfering with the driver's vision of the billboard. In DCZs with target off-premise billboards, the end of the DCZ was marked when the target billboard left the view of the scene camera. If the area contained no off-premise advertising, the end of the DCZ was defined by a physical landmark leaving the view of the eye tracking systems' scene camera.

Table 2 shows the data collection zone limits used in this study.

Advertising Conditions

The type of advertising present in DCZs was examined as an independent variable. DCZs fell into one of the following categories, which are listed in the second column of table 2:

- **CEVMS.** These were DCZs that contained one target CEVMS. Two CEVMS DCZs were located on freeways and two were located on arterials. Figure 3 and figure 4 show examples of CEVMS DCZs with the CEVMS highlighted in the pictures.
- **Standard billboard.** These were DCZs that contained one target standard billboard. Two standard billboard DCZs were located on freeways and two were located on arterials. Figure 5 and figure 6 show examples of standard billboard DCZs; the standard billboards are highlighted in the pictures.

- **No off-premise advertising conditions.** These DCZs contained no off-premise advertising. One of these DCZs was on a freeway (see figure 7) and the other was on an arterial (see figure 8).

Table 2. Inventory of target billboards with relevant parameters.

DCZ	Advertising Type	Copy Dimensions (ft)	Side of Road	Setback from Road (ft)	Other Standard Billboards	Approach Length (ft)	Type of Roadway
1	CONTROL	N/A	N/A	N/A	N/A	786	Freeway
6	CONTROL	N/A	N/A	N/A	N/A	308	Arterial
3	CEVMS	10'6" x 22'9"	L	12	0	375	Arterial
5	CEVMS	14'0" x 48'0"	L	133	1	853	Freeway
9	CEVMS	10'6" x 22'9"	R	43	0	537	Arterial
10	CEVMS	14'0" x 48'0"	R	133	1	991	Freeway
2	Standard	14'0" x 48'0"	L	20	0	644	Arterial
7	Standard	14'0" x 48'0"	R	35	1	774	Freeway
8	Standard	10'6" x 22'9"	R	40	1	833	Arterial
4	Standard	14'0" x 48'0"	L	10	0	770	Freeway

*N/A indicates that there were no off-premise advertising in these areas and these values are undefined.

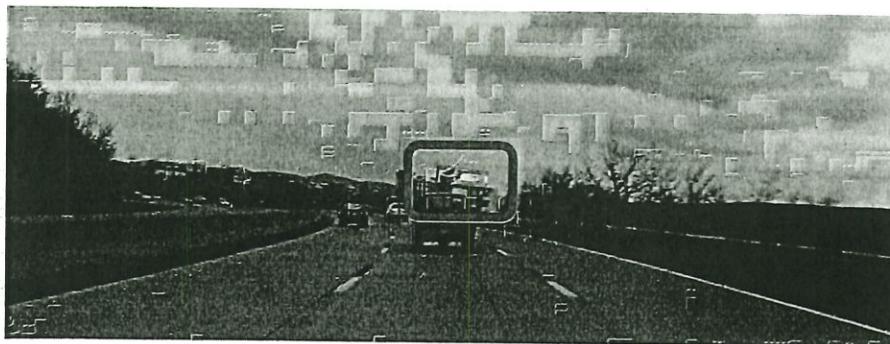


Figure 3. DCZ with a target CEVMS on a freeway.



Figure 4. DCZ with a target CEVMS on an arterial.

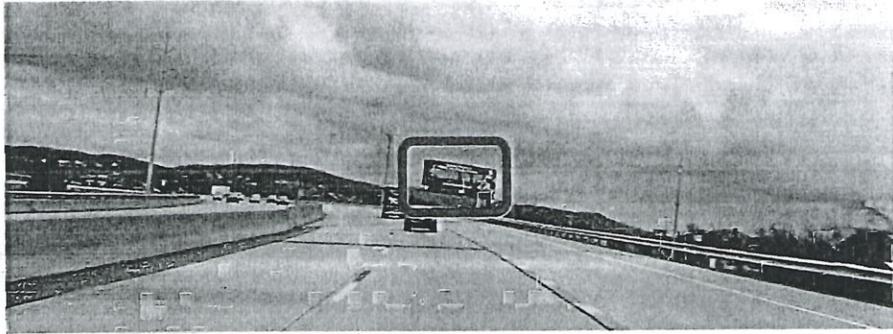


Figure 5. DCZ with a target standard billboard on a freeway.



Figure 6. DCZ with a target standard billboard on an arterial.



Figure 7. DCZ for the control condition on a freeway.



Figure 8. DCZ for the control condition on an arterial.

Photometric Measurement of Signs

Two primary metrics were used to describe the photometric characteristics of a sample of the CEVMS and standard billboards present at each location: luminance (cd/m^2) and contrast (Weber contrast ratio).

Photometric Equipment

Luminance was measured with a Radiant Imaging ProMetric 1600 Charge-Coupled Device (CCD) photometer with both a 50 mm and a 300 mm lenses. The CCD photometer provided a method of capturing the luminance of an entire scene at one time.

The photometric sensors were mounted in a vehicle of similar size to the eye tracking research vehicle. The photometer was located in the experimental vehicle as close to the driver's position as possible and was connected to a laptop computer that stored data as the images were acquired.

Measurement Methodology

Images of the billboards were acquired using the photometer manufacturer's software. The software provided the mean luminance of each billboard message. To prevent overexposure of

images in daylight, neutral density filters were manually affixed to the photometer lens and the luminance values were scaled appropriately. Standard billboards were typically measured only once; however, for CEVMS multiple measures were taken to account for changing content.

Photometric measurements were taken during day and night. Measurements were taken by centering the billboard in the photometer's field of view with approximately the equivalent of the width of the billboard on each side and the equivalent of the billboard height above and below the sign. The areas outside of the billboards were included to enable contrast calculations.

Standard billboards were assessed at a mean distance of 284 ft (ranging from 570 ft to 43 ft). The CEVMS were assessed at a mean distance of 479 ft (ranging from 972 ft to 220 ft). To include the background regions of appropriate size, the close measurement distances required the use of the 50 mm lens whereas measurements made from longer distances required the 300 mm lens. A significant determinant of the measurement locations was the availability of accessible and safe places from which to measure.

The Weber contrast ratio was used because it characterizes a billboard as having negative or positive contrast when compared to its background area.⁽³¹⁾ A negative contrast indicates the background areas have a higher mean luminance than the target billboard. A positive contrast indicates the target billboard has a higher mean luminance than the background. Overall, the absolute value of a contrast ratio simply indicates a difference in luminance between an item and its background. From a perceptual perspective luminance and contrast are directly related to the perception of brightness. For example, two signs with equal luminance may be perceived differently with respect to brightness because of differences in contrast.

Visual Complexity

Regan, Young, Lee and Gordon presented a taxonomic description of the various sources of driver distraction.⁽³²⁾ Potential sources of distraction were discussed in terms of: things brought into the vehicle; vehicle systems; vehicle occupants; moving objects or animals in the vehicle; internalized activity; and external objects, events, or activities. The external objects may include buildings, construction zones, billboards, road signs, vehicles, and so on. Focusing on the potential for information outside the vehicle to attract (or distract) the driver's attention, Horberry and Edquist developed a taxonomy for out-of-the-vehicle visual information. This suggested taxonomy includes four groupings of visual information: built roadway, situational entities, natural environment, and built environment.⁽³³⁾ These two taxonomies provide an organizational structure for conducting research; however, they do not currently provide a systematic or quantitative way of classifying the level of clutter or visual complexity present in a visual scene.

The method proposed by Rozenholtz, Li, and Nakano provides quantitative and perhaps reliable measures of visual clutter.⁽³⁴⁾ Their approach measures the feature congestion in a visual image. The implementation of the feature congestion measure involves four stages: (1) compute local feature covariance at multiple scales and compute the volume of the local covariance ellipsoid, (2) combine clutter across scale, (3) combine clutter across feature types, and (4) pool over space to get a single measure of clutter for each input image. The implementation that was used employed color, orientation and luminance contrast as features. Presumably, less cluttered

images can be visually coded more efficiently than cluttered images. For example, visual clutter can cause decreased recognition performance and greater difficulty in performing visual search.⁽³⁵⁾

Participants

In the present study participants were recruited at public libraries in the Reading area. A table was set up so that recruiters could discuss the requirements of the experiment with candidates. Individuals who expressed interest in participating were asked to complete a pre-screening form, a record of informed consent, and a department of motor vehicles form consenting to release of their driving record.

All participants were between 18 and 64 years of age and held a valid driver's license. The driving record for each volunteer was evaluated to eliminate drivers with excessive violations. The criteria for excluding drivers were as follows: (a) more than one violation in the preceding year; (b) more than three recorded violations; and (c) any driving while intoxicated violation.

Forty-three individuals were recruited to participate. Of these, five did not complete the drive because the eye tracker could not be calibrated to track their eye movements accurately. Data from an additional seven participants were excluded as the result of equipment failures (e.g., loose camera). In the end, usable data was collected from 31 participants (12 males, $M = 46$ years; 19 females, $M = 47$ years). Fourteen participants drove at night and 17 drove during the day.

Procedures

Data were collected from two participants per day (beginning at approximately 12:45 p.m. and 7:00 p.m.). Data collection began on September 18, 2009, and was completed on October 26, 2009.

Pre-Data Collection Activities

Participants were greeted by two researchers and asked to complete a fitness to drive questionnaire. This questionnaire focused on drivers' self-reports of alertness and use of substances that might impair driving (e.g., alcohol). All volunteers appeared fit.

Next, the participant and both researchers moved to the eye tracking calibration location and the test vehicle. The calibration procedure took approximately 20 minutes. Calibration of the eye tracking system entailed development of a profile for each participant. This was accomplished by taking multiple photographs of the participant's face as they slowly rotate their head from side to side. The saved photographs include points on the face for subsequent real-time head and eye tracking. Marked coordinates on the face photographs were edited by the experimenter as needed to improve the real-time face tracking. The procedure also included gaze calibration in which participants gazed at nine points on a wall. These points had been carefully plotted on the wall and correspond to the points in the eye tracking system's world model. Gaze calibration relates the individual participant's gaze vectors to known points in the real world. The eye tracking system uses two pulsating infrared sources mounted on the dashboard to create two corneal glints that are used to calculate gaze direction vectors. The glints were captured at 60 Hz. A second set

of cameras (scene cameras), fixed on top of the car close to the driver's viewpoint, were used to produce a video scene of the area ahead. The scene cameras recorded at 25 Hz. A parallax correction algorithm compensated for the distance between the driver's viewpoint and the scene cameras so that later processing could use the gaze vectors to show where in the forward scene the driver was gazing.

If it was not possible to calibrate the eye tracking system to a participant, the participant was dismissed and paid for their time. Causes of calibration failure included reflections from eye glasses, participant height (which put their eyes outside the range of the system), and eyelids that obscure a portion of the pupil.

Practice

After eye-tracker calibration, a short practice drive was made. Participants were shown a map of the route and written turn-by-turn directions prior to beginning the practice drive. Throughout the drive, verbal directions were provided by a GPS device.

During the practice drive, a researcher in the rear seat of the vehicle monitored the accuracy of eye tracking. If the system was tracking poorly, additional calibration was performed. If the calibration could not be improved, the participant was paid for their time and dismissed.

Data Collection

Participants drove two test routes (referred to as route A and B). Each route required 25 to 30 minutes to complete and included both freeway and arterial segments. Route A was 13 miles long and contained 6 DCZs. Route B was 16 miles long and contained 4 DCZs. Combined, participants drove in a total of 10 DCZs. Similar to the practice drive, participants were shown a map of the route and written turn-by-turn directions. A GPS device provided turn-by-turn guidance during the drive. Roughly one half of the participants drove route A first and the remaining participants began with route B. A 5 minute break followed the completion of the first route.

During the drives, a researcher in the front passenger seat assisted the driver when additional route guidance was required. The researcher was also tasked with recording near misses and driver errors if these occurred. The researcher in the rear seat monitored the performance of the eye tracker. If the eye tracker performance became unacceptable (i.e., loss of calibration), then the researcher in the rear asked the participant to park in a safe location so that the eye tracker could be recalibrated. This recalibration typically took a minute or two to accomplish.

Debriefing

After driving both routes, the participants provided comments regarding their drives. The comments were in reference to the use of a navigation system. No questions were asked about billboards. The participants were given \$120.00 in cash for their participation.

DATA REDUCTION

Eye Tracking Measures

The Multiple-Analysis of Psychophysical and Performance Signals (MAPPS™) software was used to reduce the eye tracking data.⁽³⁶⁾ The software integrates the video output from the scene cameras with the output from the eye tracking software (e.g., gaze vectors). The analysis software provides an interface in which the gaze vectors determined by the eye tracker can be related to areas or objects in the scene camera view of the world. Analysts can indicate regions of interest (ROIs) in the scene camera views and the analysis software then assigns gaze vectors to the ROIs.

Figure 9 shows a screen capture from the analysis software in which static ROIs have been identified. These static ROIs slice up the scene camera views into six areas. The software also allows for the construction of dynamic ROIs. These are ROIs that move in the video because of own-vehicle movement (e.g., a sign changes position on the display as it is approached by the driver) or because the object moves over time independent of own-vehicle movement (e.g., pedestrian walking along the road, vehicle entering or exiting the road).

Static ROIs need only be entered once for the scenario being analyzed whereas dynamic ROIs need to be entered several times for a given DCZ depending on how the object moves along the video scene; however, not every frame needs to be coded with a dynamic ROI since the software interpolates across frames using the 60-Hz data to compute eye movement statistics.

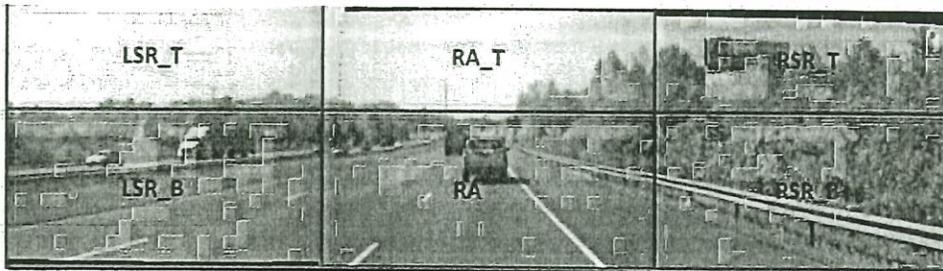


Figure 9. Screen capture showing static ROIs on a scene video output.

The following ROIs were defined with the analysis software:

Static ROIs

These ROIs were entered once into the software for each participant. The static ROIs for the windshield were divided into top and bottom to have more resolution during the coding process. The subsequent analyses in the report combines the top and bottom portion of these ROIs since it appeared that this additional level of resolution was not needed in order to address research questions:

- Road ahead: bottom portion (approximately 2/3) of the area of the forward roadway (center camera).

- Road ahead top: top portion (approximately 1/3) of the area of the forward roadway (center camera).
- Right side of road bottom: bottom portion (approximately 2/3) of the area to the right of the forward roadway (right camera).
- Right side of road top: top portion (approximately 1/3) of the area to the right of the forward roadway (right camera).
- Left side of road bottom (LSR_B): bottom portion (approximately 2/3) of the area to the left of the forward roadway (left camera).
- Left side of road bottom (LSR_T): top portion (approximately 1/3) of the area to the left of the forward roadway (left camera).
- Inside vehicle: below the panoramic video scene (outside of the view of the cameras, but eye tracking is still possible).
- Top: above the panoramic video scene (outside of the view of the cameras, but eye tracking is still possible).

Dynamic ROIs

These ROIs are created multiple times within a DCZ for stimuli that move relative to the driver:

- Driving-related safety risk: vehicle which posed a potential safety risk to the driver, defined as a car that is/may turn into the driver's direction of travel at a non-signalized or non-stop-controlled intersection (e.g., a car making a U-turn, a car waiting to turn right, or a car waiting to turn left). These vehicles were actively turning or entering the roadway or appeared to be in a position to enter the roadway.
- Target standard billboard: target standard billboard that defines the start and end of the DCZ.
- Other standard billboard: standard billboard(s) located in the DCZ, other than the target standard billboard or the target digital billboard.
- CEVMS: target digital billboard that defines the start and end of the DCZ.

The software determines the gaze intersection for each 60 Hz frame and assigns it to an ROI. In subsequent analyses and discussion, gaze intersections are referred to as gazes. Since ROIs may overlap, the software allows for the specification of priority for each ROI such that the ROI with the highest priority gets the gaze vector intersection assigned to it. For example, an ROI for a CEVMS may also be in the static ROI for the road ahead.

The 60 Hz temporal resolution of the eye tracking software does not provide sufficient information to make detailed analysis of saccade characteristics,¹ such as latency or speed. The analysis software uses three parameters in the determination of a fixation: a fixation radius, fixation duration, and a time out. The determination begins with a single-gaze vector intersection. Any subsequent intersection within a specified radius will be considered part of a fixation if the minimum fixation duration criterion is met. The radius parameter used in this study was 2 degrees and the minimum duration was 100 ms. The 2-degree selection was based on the estimated accuracy of the eye tracking system, as recommended by Recarte and Nunes.⁽³⁷⁾ The 100 ms minimum duration is consistent with many other published studies; however, some investigators use minimums of as little as 60 ms.^(37,38) Because of mini-saccades and noise in the eye tracking system, it is possible to have brief excursions outside the 2 degree window for a fixation. In this study, an excursion time outside the 2-degree radius of less than 90 ms was ignored. Once the gaze intersection fell outside the 2-degree radius of a fixation for more than 90 ms, the process of identifying a fixation began anew.

Other Measures

Driving Behavior Measures

During data collection, the front-seat researcher observed the driver's behavior and the driving environment. The researcher used the following subjective categories in observing the participant's driving behavior:

- **Driver Error:** signified any error on behalf of the driver in which the researcher felt slightly uncomfortable, but not to a significant degree (e.g., driving on an exit ramp too quickly, turning too quickly).
- **Near Miss:** signified any event in which the researcher felt uncomfortable due to driver response to external sources (e.g., slamming on brakes, swerving). A near miss is the extreme case of a driver error.
- **Incident:** signified any event in the roadway which may have had a potential impact on the attention of the driver and/or the flow of traffic (e.g., crash, emergency vehicle, animal, construction, train).

These observations were entered into a notebook computer linked to the research vehicle data collection system.

Level of Service Estimates

For each participant and each DCZ the analyst estimated the level of service of the road as they reviewed the scene camera video. One location per DCZ was selected (approximately halfway through the DCZ) where the number of vehicles in front of the research vehicle was counted. The procedure entailed (1) counting the number of travel lanes visible in the video, (2) using the

¹ During visual scanning, the point of gaze alternates between brief pauses (ocular fixations) and rapid shifts (saccades).

skip lines on the road to estimate the approximate distance in front of the vehicle that constituted the analysis zone, and (3) counting the number of vehicles present within the analysis zone. Vehicle density was calculated with the formula:

$$\text{Vehicle Density} = [(\text{Number of Vehicles in Analysis Zone})/(\text{Distance of Analysis Zone in ft}/5280)]/\text{Number of Lanes.}$$

Vehicle density is the number of vehicles per mile per lane.

Vehicle Speed

The speed of the research vehicle was recorded with GPS and a distance measurement instrument. Vehicle speed was used principally to ensure that the eye tracking data was recorded while the vehicle was in motion.

RESULTS

Results are presented with respect to the photometric measures of signs, the visual complexity of the DCZs, and the eye tracking measures. Photometric measurements were taken and analyzed to characterize the billboards in the study based on their luminance and contrasts, which are related to how bright the signs are perceived to be by drivers.

Photometric Measurements

Luminance

The mean daytime luminance of both the standard billboards and CEVMS was greater than at night. Nighttime luminance measurements reflect the fact that CEVMS use illuminating LED components while standard billboards are often illuminated from below by metal halide lamps. At night, CEVMS have a greater average luminance than standard billboards. Table 3 presents summary statistics for luminance as a function of time of day for the CEVMS and standard billboards.

Contrast

The daytime and nighttime Weber contrast ratios for both types of billboards are shown in table 3. Both CEVMS and standard billboards had contrast ratios that were close to zero (the surroundings were about equal in brightness to the signs) during the daytime. On the other hand, at night the CEVMS and standard billboards had positive contrast ratios (the signs were brighter than the surrounding), with the CEVMS having higher contrast than the standard billboards.

Table 3. Summary of luminance (cd/m^2) and contrast (Weber ratio) measurements.

Day	Luminance (cd/m^2)		Contrast	
	Mean	St. Dev.	Mean	St. Dev.
CEVMS	2126	798.81	-0.10	0.54
Standard Billboard	2993	2787.22	-0.27	0.84
Night				
CEVMS	56.00	23.16	73.72	56.92
Standard Billboard	17.80	17.11	36.01	30.93

Visual Complexity

The DCZs were characterized by their overall visual complexity or clutter. For each DCZ, five pictures were taken from the driver's viewpoint at various locations within the DCZ. In Reading, the pictures were taken from 2:00 p.m. to 4:00 p.m. In Richmond, one route was photographed from 11:00 a.m. to noon and the other from 2:30 p.m. to 3:30 p.m. The pictures were taken at the start of the DCZ, quarter of the way through, half of the way through, three quarters of the way through, and at the end of the DCZ. The photographs were analyzed with MATLAB® routines that computed a measure of feature congestion for each image. Figure 10 shows the mean feature congestion measures for each of the DCZ environments. The arterial control condition was shown to have the highest level of clutter as measured by feature congestion. An analysis of variance was performed on the feature congestion measure to determine if the conditions differed significantly from each other. The four conditions with off-premise advertising did not differ significantly with respect to feature congestion; $F(3,36) = 1.25, p > 0.05$. Based on the feature congestion measure, the results indicate that the four conditions with off-premise advertising were equated with respect to the overall visual complexity of the driving scenes.

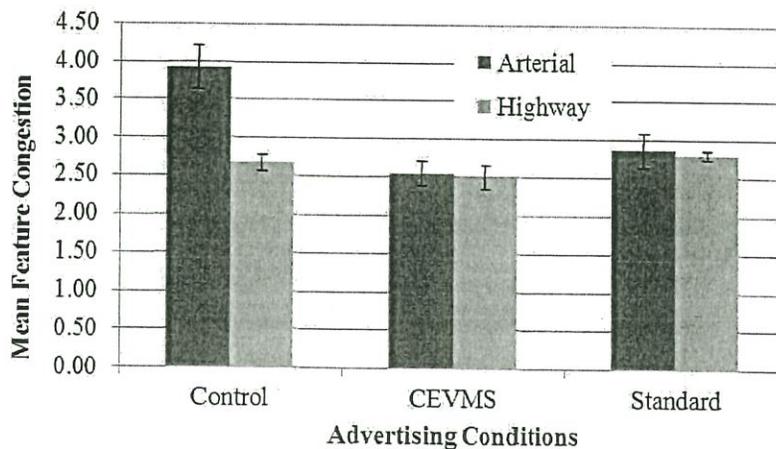


Figure 10. Mean feature congestion as a function of advertising condition and road type (standard errors for the mean are included in the graph).

Effects of Billboards on Gazes to the Road Ahead

For each 60 Hz frame, a determination was made as to the direction of the gaze vector. Previous research has shown that gazes do not need to be separated into saccades and fixations before calculating such measures as percent of time or the probability of looking to the road ahead.⁽³⁹⁾ This analysis examines the degree to which drivers gaze toward the road ahead across the different advertising conditions as a function of road type and time of day. Gazing toward the road ahead is critical for driving, and so the analysis examines the degree to which gazes toward this area are affected by the independent variables (advertising type, type of road, and time of day) and their interactions.

Generalized estimating equations (GEE) were used to analyze the probability of a participant gazing at driving-related information.^(40,41) The data for these analyses were not normally distributed and included repeated measures. The GEE model is appropriate for these types of data and analyses. Note that for all results included in this report, Wald statistics were the chosen alternative to likelihood ratio statistics because GEE uses quasi-likelihood instead of maximum likelihood.⁽⁴²⁾ For this analysis, road ahead included the following ROIs (as previously described and displayed in figure 9): road ahead, road ahead top, and driving-related risks. A logistic regression model for repeated measures was generated by using a binomial response distribution and Logit (i.e., log odds) link function. Only two possible outcomes are allowed when selecting a binomial response distribution. Thus, a variable (RoadAhead) was created to classify a participant's gaze behavior. If the participant gazed toward the road ahead, road ahead top, or driving-related risks, then the value of RoadAhead was set to one. If the participant gazed at any other object in the panoramic scene, then the value of RoadAhead was set to zero. Logistic regression typically models the probability of a success. In the current analysis, a success would be a gaze to road ahead information (RoadAhead = 1) and a failure would be a gaze toward non-road ahead information (RoadAhead = 0). The resultant value was the probability of a participant gazing at road-ahead information.

Time of day (day or night), road type (freeway or arterial), advertising condition (CEVMS, standard billboard, or control), and all corresponding second-order interactions were explanatory variables in the logistic regression model. The interaction of advertising condition by road type was statistically significant, $\chi^2(2) = 6.3, p = 0.043$. Table 4 shows the corresponding probabilities for gazing at the road ahead as a function of advertising condition and road type.

Table 4. The probability of gazing at the road ahead as a function of advertising condition and road type.

<i>Advertising Condition</i>	<i>Arterial</i>	<i>Freeway</i>
Control	0.92	0.86
CEVMS	0.82	0.73
Standard	0.80	0.77

Follow-up analyses for the interaction used Tukey-Kramer adjustments with an alpha level of 0.05. The arterial control condition had the greatest probability of looking at the road ahead ($M = 0.92$). This probability differed significantly from the remaining five probabilities. On

arterials, the probability of gazing at the road ahead did not differ between the CEVMS ($M = 0.82$) and the standard billboard ($M = 0.80$) DCZs. In contrast, there was a significant difference in this probability on freeways, where standard billboard DCZs yielded a higher probability ($M = 0.77$) than CEVMS DCZs ($M = 0.73$). The probability of gazing at the road ahead was also significantly higher in the freeway control DCZ ($M = 0.86$) than in either of the corresponding freeway off-premise advertising DCZs. The probability of gazing at road-ahead information in arterial CEVMS DCZs was not statistically different from the same probability in the freeway control DCZ.

Additional descriptive statistics were computed to determine the probability of gazing at the various ROIs that were defined in the panoramic scene. Some of the ROIs depicted in figure 9 were combined in the following fashion for ease of analysis:

- Road ahead, road ahead top, and driving-related risks combined to form *road ahead*.
- Left side of road bottom and left side of road top combined to form *left side of vehicle*.
- Right side of road bottom and right side of road top combined to form *right side of vehicle*.
- Inside vehicle and top combined to form *participant vehicle*.

Table 5 presents the probability of gazing at the different ROIs.

Table 5. Probability of gazing at ROIs for the three advertising conditions on arterials and freeways.

<i>Road Type</i>	<i>ROI</i>	<i>CEVMS</i>	<i>Standard Billboard</i>	<i>Control</i>
<i>Arterial</i>	<i>CEVMS</i>	0.07	N/A	N/A
	<i>Left Side of Vehicle</i>	0.06	0.06	0.02
	<i>Road ahead</i>	0.82	0.80	0.92
	<i>Right Side of Vehicle</i>	0.03	0.06	0.04
	<i>Standard Billboard</i>	N/A	0.03	N/A
	<i>Participant Vehicle</i>	0.03	0.05	0.02
<i>Freeway</i>	<i>CEVMS</i>	0.05	N/A	N/A
	<i>Left Side of Vehicle</i>	0.08	0.07	0.04
	<i>Road ahead</i>	0.73	0.77	0.86
	<i>Right Side of Vehicle</i>	0.09	0.02	0.05
	<i>Standard Billboard</i>	0.02*	0.09	N/A
	<i>Participant Vehicle</i>	0.04	0.05	0.05

* The CEVMS DCZs on freeways each contained one visible standard billboard.

The probability of gazing away from the forward roadway ranged from 0.08 to 0.27. In particular, the probability of gazing toward a CEVMS was greater on arterials ($M = 0.07$) than on freeways ($M = 0.05$). In contrast, the probability of gazing toward a target standard billboard was greater on freeways ($M = 0.09$) than on arterials ($M = 0.03$).

Fixations to CEVMS and Standard Billboards

About 2.4 percent of the fixations were to CEVMS. The mean fixation duration to a CEVMS was 388 ms and the maximum duration was 1,251 ms. Figure 11 shows the distribution of fixation durations to CEVMS during the day and night. In the daytime, the mean fixation duration to a CEVMS was 389 ms and at night it was 387 ms. Figure 12 shows the distribution of fixation durations to standard billboards. Approximately 2.4 percent of fixations were to standard billboards. The mean fixation duration to standard billboards was 341 ms during the daytime and 370 ms at night. The maximum fixation duration to standard billboards was 1,284 ms (which occurred at night). For comparison purposes, figure 13 shows the distribution of fixation durations to the road ahead (i.e., top and bottom road ahead ROIs) during the day and night. In the daytime, the mean fixation duration to the road ahead was 365 ms and at night it was 390 ms.

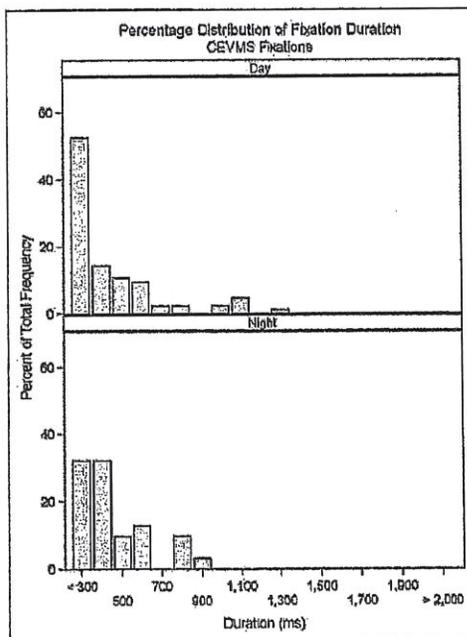


Figure 11. Distribution of fixation duration for CEVMS in the daytime and nighttime.

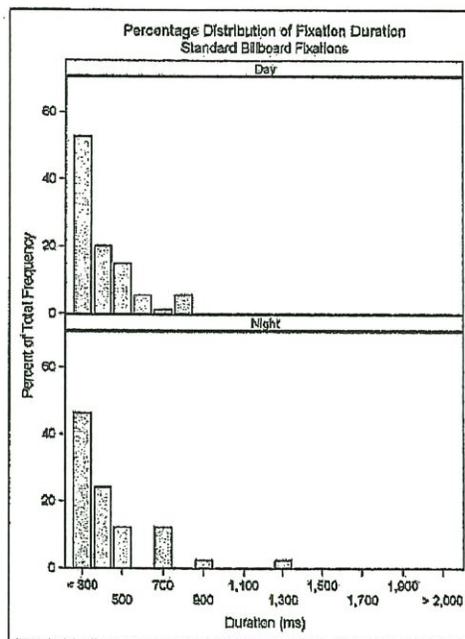


Figure 12. Distribution of fixation duration for standard billboards in the daytime and nighttime.

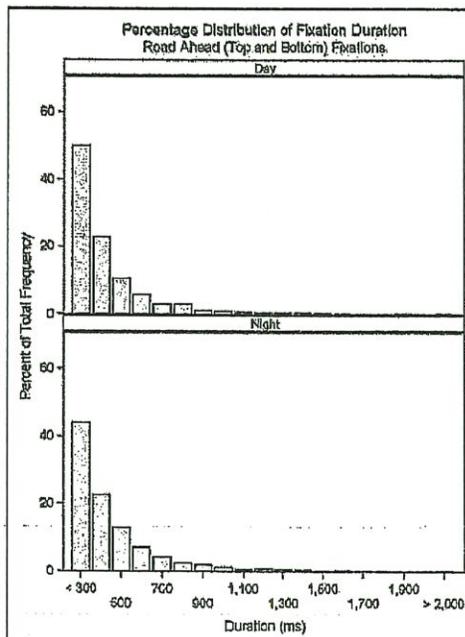


Figure 13. Distribution of fixation duration for road ahead (i.e., top and bottom road ahead ROIs) in the daytime and nighttime.

Dwell times on CEVMS and standard billboards were also examined. Dwell time is the duration of back-to-back fixations to the same ROI.^(43,44) The dwell times represent the cumulative time for the back-to-back fixations. Whereas there may be no long, single fixation to a billboard, there might still be multiple fixations that yield long dwell times. There were a total of 25 separate instances of multiple fixations to CEVMS with a mean of 2.4 fixations (minimum of 2 and maximum of 5). The 25 dwell times came from 15 different participants distributed across four different CEVMS. The mean duration of these dwell times was 994 ms (minimum of 418 ms and maximum of 1,467 ms).

For standard billboards, there were a total of 17 separate dwell times with a mean of 3.47 sequential fixations (minimum of 2 fixations and maximum of 8 fixations). The 17 dwell times came from 11 different participants distributed across 4 different standard billboards. The mean duration of these multiple fixations was 1,172 ms (minimum of 418 ms and maximum of 3,319 ms). There were three dwell-time durations that were greater than 2,000 ms. These are described in more detail below.

In some cases several dwell times came from the same participant. In order to compute a statistic on the difference between dwell times for CEVMS and standard billboards, average dwell times were computed per participant for the CEVMS and standard billboard conditions. These average values were used in a t-test assuming unequal variances. The difference in average dwell time between CEVMS ($M = 981$ ms) and standard billboards ($M = 1,386$ ms) was not statistically significant, $t(12) = -1.40, p > .05$.

Figure 14 through figure 23 show heat maps for the dwell-time durations to the standard billboards that were greater than 2,000 ms. These heat maps are snapshots from the DCZ and attempt to convey in two dimensions the pattern of gazes that took place in a three dimensional world. The heat maps are set to look back approximately one to two seconds and integrate over time where the participant was gazing in the scene camera video. The green color in the heat map indicates the concentration of gaze over the past one to two seconds. The blue line indicates the gaze trail over the past one to two seconds.

Figure 14 through figure 16 are for a DCZ on an arterial at night. The standard billboard was on the right side of the road (indicated by a pink rectangle). There were eight fixations to this billboard, and the single fixations were between 200 to 384 ms in duration. The dwell time for this billboard was 2,019 ms. At the start of the DCZ (see figure 14), the driver was directing his/her gaze to the forward roadway. Approaching the standard billboard, the driver began to fixate on the billboard. However, the billboard was still relatively close to the road ahead ROI.

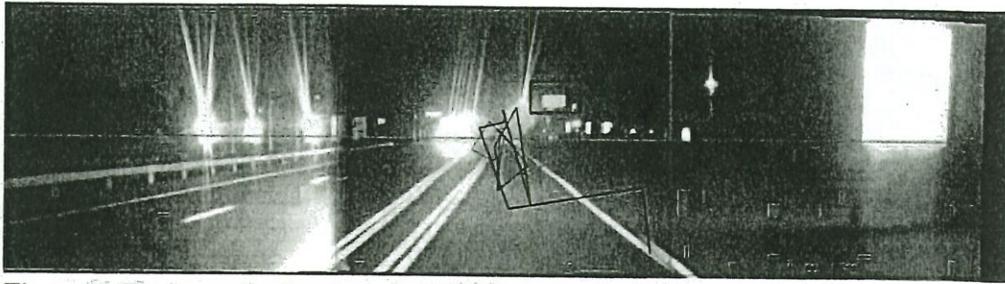


Figure 14. Heat map for the start of a DCZ for a standard billboard at night on an arterial.

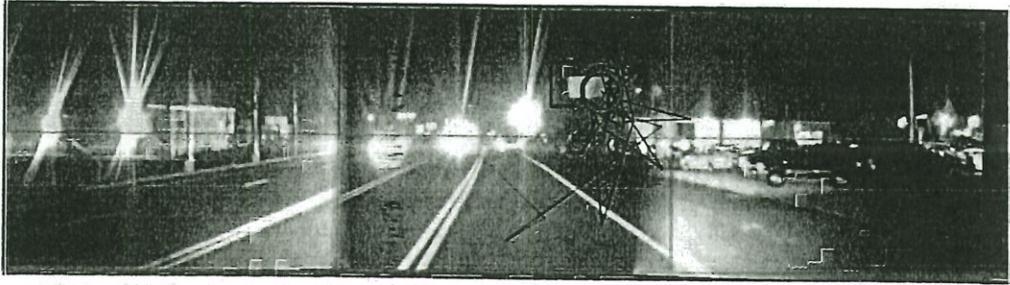


Figure 15. Heat map for the middle of a DCZ for a standard billboard at night on an arterial.



Figure 16. Heat map near the end of a DCZ for a standard billboard at night on an arterial.

Figure 17 through figure 19 are for a DCZ on a freeway at night. The standard billboard was on the right side of the road (indicated by a green rectangle). There were six consecutive fixations to this billboard, and the single fixations were between 200 and 801 ms in duration. The dwell time for this billboard was 2,753 ms. At the start of the DCZ (see figure 17), the driver was directing his/her gaze to a freeway guide sign in the road ahead and the standard billboard was to the left of the freeway guide sign. As the driver approached the standard billboard, his/her gaze was directed toward the billboard. The billboard was relatively close to the top and bottom road ahead ROIs. Near the end of the DCZ (see figure 19), the billboard was accurately portrayed as being on the right side of the road.



Figure 17. Heat map for start of a DCZ for a standard billboard at night on a freeway.

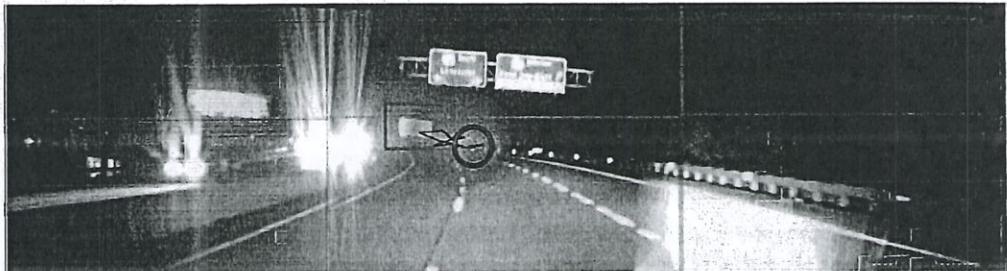


Figure 18. Heat map for middle of a DCZ for a standard billboard at night on a freeway.

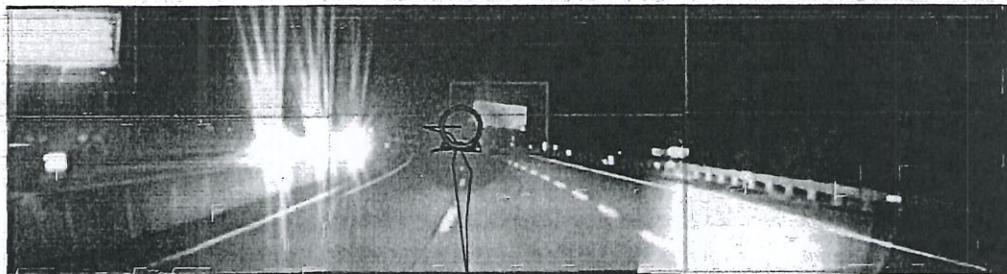


Figure 19. Heat map near the end of a DCZ for a standard billboard at night on a freeway.

Figure 20 through figure 23 are for a DCZ on a freeway during the day. The standard billboard was on the right side of the road (indicated by a pink rectangle). This is the same DCZ that was discussed in figure 17 through figure 19. There were six consecutive fixations to this billboard, and the single fixations were between 217 and 767 ms in duration. The dwell time for this billboard was 3,319 ms. At the start of the DCZ (see figure 20), the driver was principally directing his/her gaze to the road ahead. Figure 21 and figure 22 show the location along the DCZ where gaze was directed toward the standard billboard. The billboard was relatively close to the top and bottom road-ahead ROIs. As the driver passed the standard billboard, his/her gaze returned to the road ahead (see figure 23).

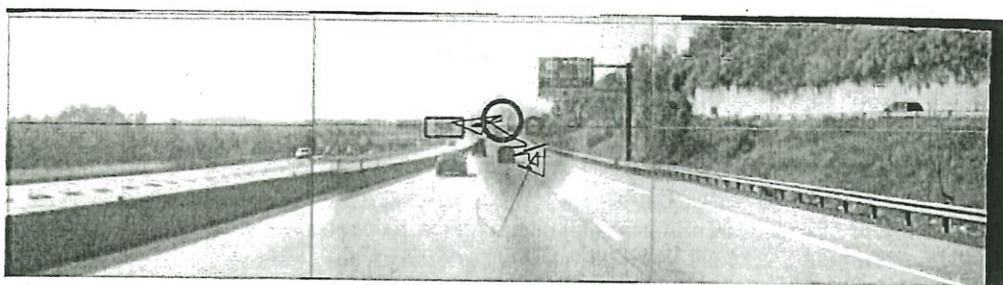


Figure 20. Heat map for the start of a DCZ for a standard billboard in the daytime on a freeway.



Figure 21. Heat map near the middle of a DCZ for a standard billboard in the daytime on a freeway.



Figure 22. Heat map near the end of DCZ for standard billboard in the daytime on a freeway.

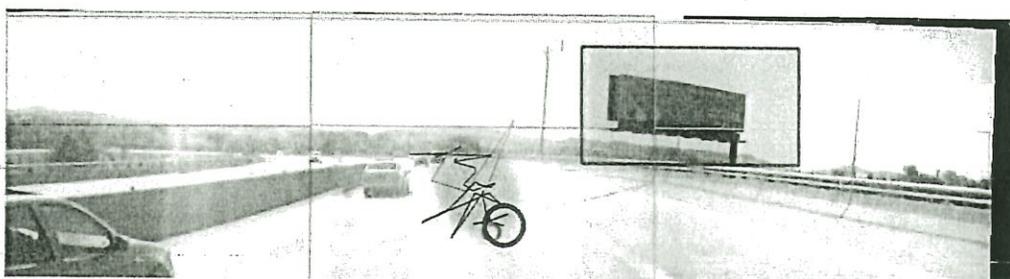


Figure 23. Heat map at the end of DCZ for standard billboard in the daytime on a freeway.

Comparison of Gazes to CEVMS and Standard Billboards

The GEE were used to analyze whether a participant gazed more toward CEVMS than toward standard billboards, given that the participant was gazing at off-premise advertising. With this analysis method, a logistic regression model for repeated measures was generated by using a binomial response distribution and Logit link function. First, the data was partitioned to include only those instances when a participant was gazing toward off-premise advertising (either to a CEVMS or to a standard billboard); all other gaze behavior was excluded from the input data set. Only two possible outcomes are allowed when selecting a binomial response distribution. Thus, a variable (SBB_CEVMS) was created to classify a participant's gaze behavior. If the participant gazed toward a CEVMS, the value of SBB_CEVMS was set to one. If the participant gazed toward a standard billboard, then the value of SBB_CEVMS was set to zero.

Logistic regression typically models the probability of a success. In the current analysis, a success would be a gaze to a CEVMS (SBB_CEVMS = 1) and a failure would be a gaze to a standard billboard (SBB_CEVMS = 0).² A success probability greater than 0.5 indicates there were more successes than failures in the sample. Therefore, if the sample probability of the response variable (i.e., SBB_CEVMS) was greater than 0.5, this would show that participants gazed more toward CEVMS than toward standard billboards when the participants gazed at off-premise advertising. In contrast, if the sample probability of the response variable was less than 0.5, then participants showed a preference to gaze more toward standard billboards than toward CEVMS when directing gazes to off-premise advertising.

Time of day (i.e., day or night), road type (i.e., freeway or arterial), and the corresponding interaction were explanatory variables in the logistic regression model. Road type was the only predictor to have a significant effect, $\chi^2(1) = 13.17, p < 0.001$. On arterials, participants gazed more toward CEVMS than toward standard billboards ($M = 0.63$). In contrast, participants gazed more toward standard billboards than toward CEVMS when driving on freeways ($M = 0.33$).

Observation of Driver Behavior

No near misses or driver errors were observed in Reading.

Level of Service

The mean vehicle densities were converted to level of service as shown in table 6.⁽⁴⁵⁾ As expected, less congestion occurred at night than in the day. In general, there was traffic during the data collection runs. Review of the scene camera data verified that all eye tracking data within the DCZs were recorded while the vehicle was in motion.

² Success and failure are not used to reflect the merits of either type of sign, but only for statistical purposes.

Table 6. Level of service as a function of advertising type, road type, and time of day.

	<i>Arterial</i>		<i>Freeway</i>	
	Day	Night	Day	Night
Control	B	A	C	B
CEVMS	C	A	B	A
Standard	A	A	B	A

DISCUSSION OF READING RESULTS

Overall the probability of gazing at the road ahead was high and similar in magnitude to what has been found in other field studies addressing billboards.^(11,9,12) For the DCZs on freeways, CEVMS showed a lower proportion of gazes to the road ahead than the standard billboard condition, and both off-premise advertising conditions had lower probability of gazes to the road ahead than the control. On the other hand, on the arterials, the CEVMS and standard billboard conditions did not differ from each other but were significantly different from their respective control condition. Though the CEVMS condition on the freeway had the lowest proportion of gazes to the road ahead, in this condition there was a lower proportion of gazes to CEVMS as compared to the arterials (see table 5 for the trade-off of gazes to the different ROIs). A greater proportion of gazes to other ROIs (left side of the road, right side of the road, and participant vehicle) contributed to the decrease in proportion of gazes to the road ahead. Also, for the CEVMS on freeways, there were a few gazes to a standard billboard located in the same DCZ and there were more gazes distributed to the left and right side of the road than in standard billboard and control conditions. The gazes to ROIs other than CEVMS contributed to the lower probability of gazes to the road ahead in this condition.

The control condition on the arterial had buildings along the sides of the road and generally presented a visually cluttered area. As was presented earlier, the feature congestion measure computed on a series of photographs from each DCZ showed a significantly higher feature congestion score for the control condition on arterials as compared to all of the other DCZs. Nevertheless, the highest probability for gazing at the road ahead was seen in the control condition on the arterial.

The area with the highest feature congestion, especially on the sides of the road, had the highest probability for drivers looking at the road ahead. Bottom-up or stimulus driven measures of salience or visual clutter have been useful in predicting visual search and the effects of visual salience in laboratory tasks.^(34,46) These measures of salience basically consider the stimulus characteristics (e.g., size, color, brightness) independent of the requirements of the task or plans that an individual may have. Models of visual salience may predict that buildings and other prominent features on the side of the road may be visually salient objects and thus would attract a driver's attention.⁽⁴⁷⁾ Figure 24 shows an example of a roadway photograph that was analyzed with the Salience Toolbox based on the Itti et al. implementation of a saliency based model of bottom-up attention.^(48,49) The numbered circles in figure 24 are the first through fifth salient areas selected by the software. Based on this software, the most salient areas in the photographs are the buildings on the sides of the road where the road ahead (and a car) is the fifth selected salient area.

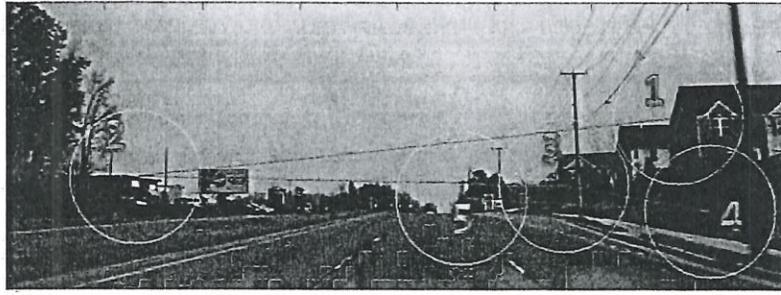


Figure 24. Example of identified salient areas in a road scene based on bottom-up analysis.

It appears that in the present study participants principally kept their eyes on the road even in the presence of visual clutter on the sides of the road, which supports the hypothesis that drivers tend to look toward information relevant to the task at hand.^(50,26,22) In the case of the driving task, visual clutter may be more of an issue with respect to crowding that may affect the driver's ability to detect visual information in the periphery.⁽⁵¹⁾ Crowding is generally defined as the negative effect of nearby objects or features on visual discrimination of a target.⁽⁵²⁾ Crowding impairs the ability to recognize objects in clutter and principally affects perception in peripheral vision. However, crowding effects were not analyzed in the present study.

Stimulus salience, clutter, and the nature of the task at hand interact in visual perception. For tasks such as driving, the task demands tend to outweigh stimulus salience when it comes to gaze control. Clutter may be more of an issue with the detection and recognition of objects in peripheral vision (e.g., detecting a sign on the side of the road) that are surrounded by other stimuli that result in a crowding effect.

The mean fixation durations to CEVMS, standard billboards, and the road ahead were found to be very similar. Also, there were no long fixations (greater than 2,000 ms) to CEVMS or standard billboards. The examination of multiple sequential fixations to CEVMS yielded average dwell times that were less than 1,000 ms. However, when examining the tails of the distribution, there were three dwell times to standard billboards that were in excess of 2,000 ms (the three dwell times came from three different participants to two different billboards). These three standard billboards were dwelled upon when they were near the road ahead area but drivers quit gazing at the signs as they neared them and the signs were no longer near the forward field of view. Though there were three dwell times for standard billboards greater than 2,000 ms, the difference in average dwell times for CEVMS and standard billboards was not significant.

Using a gaze duration of 2,000 ms away from the road ahead as a criterion indicative of increased risk has been developed principally as it relates to looking inside the vehicle to in-vehicle information systems and other devices (e.g., for texting) where the driver is indeed looking completely away from the road ahead.^(14,53,54) The fixations to the standard billboards in the present case showed a long dwell time for a billboard. However, unlike gazing or fixating inside the vehicle, the driver's gaze was within the forward roadway where peripheral vision could be used to monitor for hazards and for vehicle control. Peripheral vision has been shown to be important for lane keeping, visual search orienting, and monitoring of surrounding objects.^(55,56)

The results showed that drivers were more likely to gaze at CEVMS on arterials and at standard billboards on freeways. Though every attempt was made to select CEVMS and standard billboard DCZs that were equated on important parameters (e.g., which side of the road the sign was located on, type of road, level of visual clutter), the CEVMS DCZs on freeways had a greater setback from the road (133 ft for both CEVMS) than the standard billboards (10 and 35 ft). Signs with greater setback from the road would in a sense move out of the forward view (road ahead) more quickly than signs that are closer to the road. The CEVMS and standard billboards on the arterials were more closely matched with respect to setback from the road (12 and 43 ft for CEVMS and 20 and 40 ft for standard billboards).

The differences in setback from the road for CEVMS and standard billboards may also account for differences in dwell times to these two types of billboards. However, on arterials where the CEVMS and standard billboards were more closely matched there was only one long dwell time (greater than 2,000 ms) and it was to a standard billboard at night.

RICHMOND

The objectives of the second study were the same as those in the first study, and the design of the Richmond data collection effort was very similar to that employed in Reading. This study was conducted to replicate as closely as possible the design of Reading in a different driving environment. The independent variables included the type of DCZ (CEVMS, standard billboard, or no off-premise advertising), time of day (day or night) and road type (freeway or arterial). As with Reading, the time of day was a between-subjects variable and the other variables were within subjects.

METHOD

Selection of DCZ Limits

Selection of the DCZ limits procedure was the same as that employed in Reading.

Advertising Type

Three DCZ types (similar to those used in Reading) were used in Richmond:

- **CEVMS.** DCZs contained one target CEVMS.
- **Standard billboard.** DCZs contained one target standard billboard.
- **Control conditions.** DCZs did not contain any off-premise advertising.

There were an equal number of CEVMS and standard billboard DCZs on freeways and arterials. Also, there two DCZ that did not contain off-premise advertising with one located on a freeway and the other on an arterial.

Table 7 is an inventory of the target employed in this second study.

Table 7. Inventory of target billboards in Richmond with relevant parameters.

DCZ	Advertising Type	Copy Dimensions (ft)	Side of Road	Setback from Road (ft)	Other Standard Billboards	Approach Length (ft)	Roadway Type
5	CONTROL	N/A	N/A	N/A	N/A	710	Arterial
3	CONTROL	N/A	N/A	N/A	N/A	845	Freeway
9	CEVMS	14'0" x 28'0"	L	37	0	696	Arterial
13	CEVMS	14'0" x 28'0"	R	37	0	602	Arterial
2	CEVMS	12'5" x 40'0"	R	91	0	297	Freeway
8	CEVMS	11'0" x 23'0"	L	71	0	321	Freeway
10	Standard	14'0" x 48'0"	L	79	1	857	Arterial
12	Standard	10'6" x 45'3"	R	79	2	651	Arterial
1	Standard	14'0" x 48'0"	L	87	0	997	Freeway
7	Standard	14'0" x 48'0"	R	88	0	816	Freeway

* N/A indicates that there were no off-premise advertising in these areas and these values are undefined.

Figure 25 through figure 30 below represent various pairings of DCZ type and road type. Target off-premise billboards are indicated by red rectangles.

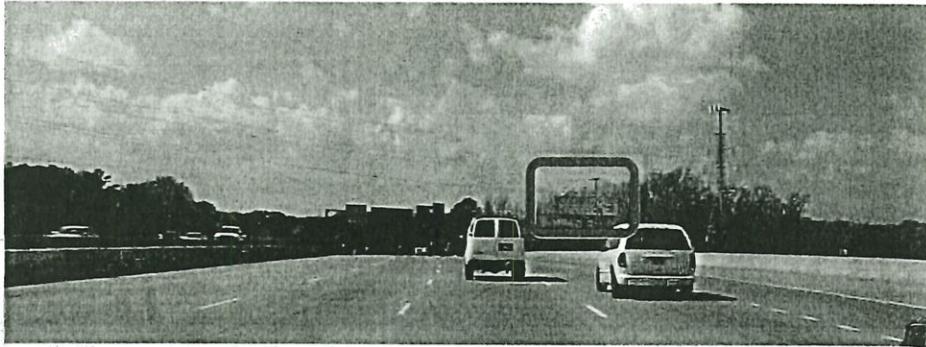


Figure 25. Example of a CEVMS DCZ on a freeway.

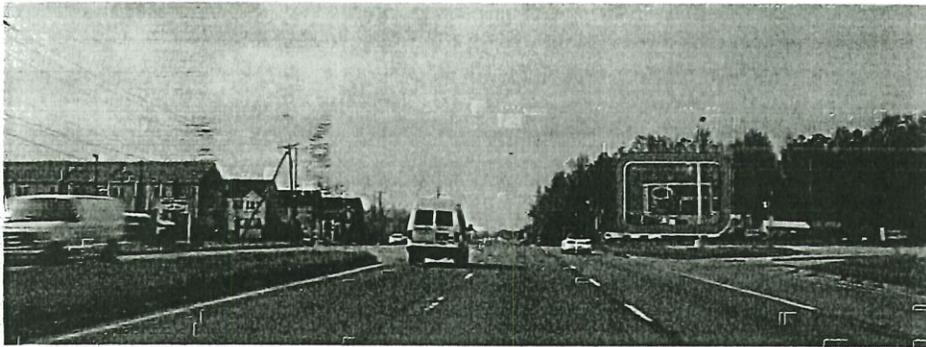


Figure 26. Example of CEVMS DCZ an arterial.



Figure 27. Example of a standard billboard DCZ on a freeway.

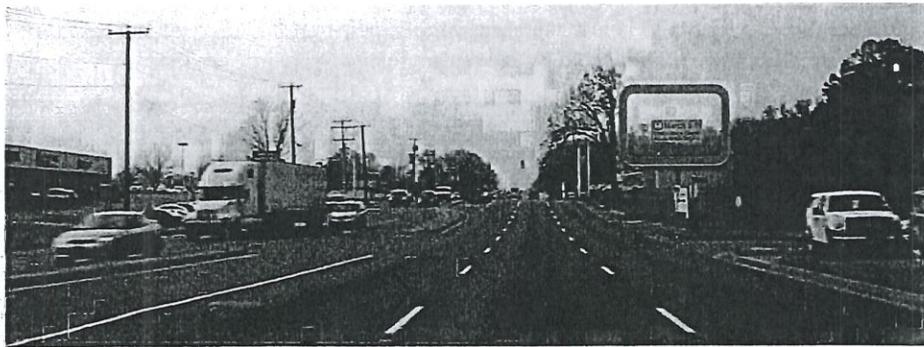


Figure 28. Example of a standard billboard DCZ on an arterial.

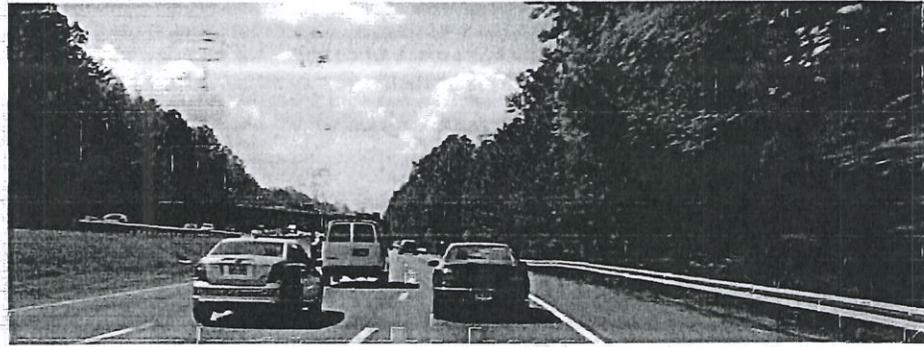


Figure 29. Example of a control DCZ on a freeway.



Figure 30. Example of a control DCZ on an arterial.

Photometric Measurement of Signs

The methods and procedures for the photometric measures were the same as for Reading.

Visual Complexity

The methods and procedures for visual complexity measurement were the same as for Reading.

Participants

A total of 41 participants were recruited for the study. Of these, 6 participants did not complete data collection because of an inability to properly calibrate with the eye tracking system, and 11 were excluded because of equipment failures. A total of 24 participants (13 male, $M = 28$ years; 11 female, $M = 25$ years) successfully completed the drive. Fourteen people participated during the day and 10 participated at night.

Procedures

Research participants were recruited locally by means of visits to public libraries, student unions, community centers, etc. A large number of the participants were recruited from a nearby university, resulting in a lower mean participant age than in Reading.

Participant Testing

Two people participated each day. One person participated during the day beginning at approximately 12:45 p.m. The second participated at night beginning at around 7:00 p.m. Data collection ran from November 20, 2009, through April 23, 2010. There were several long gaps in the data collection schedule due to holidays and inclement weather.

Pre-Data Collection Activities

This was the same as in Reading.

Practice Drive

Except for location, this was the same as in Reading.

Data Collection

The procedure was much the same as in Reading. On average, each test route required approximately 30 to 35 minutes to complete. As in Reading, the routes included a variety of freeway and arterial driving segments. One route was 15 miles long and contained two target CEVMS, two target standard billboards, and two DCZs with no off-premise advertising. The second route was 20 miles long and had two target CEVMS and two target standard billboards.

The data collection drives in this second study were longer than those in Reading. The eye tracking system had problems dealing with the large files that resulted. To mitigate this technical difficulty, participants were asked to pull over in a safe location during the middle of each data collection drive so that new data files could be initiated.

Upon completion of the data collection, the participant was instructed to return to the designated meeting location for debriefing.

Debriefing

This was the same as in Reading.

DATA REDUCTION

Eye Tracking Measures

The approach and procedures were the same as used in Reading.

Other Measures

The approach and procedures were the same as used in Reading.

RESULTS

Photometric Measurement of Signs

The photometric measurements were performed using the same equipment and procedures that were employed in Reading with a few minor changes. Photometric measurements were taken during the day and at night. Measurements of the standard billboards were taken at an average distance of 284 ft, with maximum and minimum distances of 570 ft and 43 ft, respectively. The average distance of measurements for the CEVMS was 479 ft, with maximum and minimum distances of 972 ft and 220 ft, respectively. Again, the distances employed were significantly affected by the requirement to find a safe location on the road from which to take the measurements.

Luminance

The mean luminance of CEVMS and standard billboards, during daytime and nighttime are shown below in table 8. The results here are similar to those for Reading.

Contrast

The daytime and nighttime Weber contrast ratios for both types of billboards are shown in table 8. During the day, the contrast ratios of both CEVMS and standard billboards were close to zero (the surroundings were about equal in brightness to the signs). At night, the CEVMS and standard billboards had positive contrast ratios. Similar to Reading, the CEVMS showed a higher contrast ratio than the standard billboards at night.

Table 8. Summary of luminance (cd/m^2) and contrast (Weber ratio) measurements.

<i>Day</i>	<i>Luminance (cd/m^2)</i>		<i>Contrast</i>	
	Mean	St. Dev.	Mean	St. Dev.
CEVMS	2134	798.70	-0.20	0.53
Standard Billboard	3063	2730.92	0.03	0.32
<i>Night</i>				
CEVMS	56.44	16.61	69.70	59.18
Standard Billboard	8.00	5.10	6.56	3.99

Visual Complexity

As with Reading, the feature congestion measure was used to estimate the level of visual complexity/clutter in the DCZs. The analysis procedures were the same as for Reading.

Figure 31 shows the mean feature congestion measures for each of the advertising types (standard errors are included in the figure). Unlike the results for Reading, the selected off-premise advertising DCZs for Richmond differed in terms of mean feature congestion; $F(3, 36) = 3.95, p = 0.016$. Follow up t-tests with an alpha of 0.05 showed that the CEVMS DCZs on arterials had significantly lower feature congestion than all of the other off-premise advertising conditions. None of the remaining DCZs with off-premise advertising differed from each other. The selection of DCZs for the conditions with off-premise advertising took into account the type of road, the side of the road the target billboard was placed, and the perceived level of visual clutter. Based on the feature congestion measure, these results indicated that the conditions with off-premise advertising were not equated with respect to level of visual clutter.

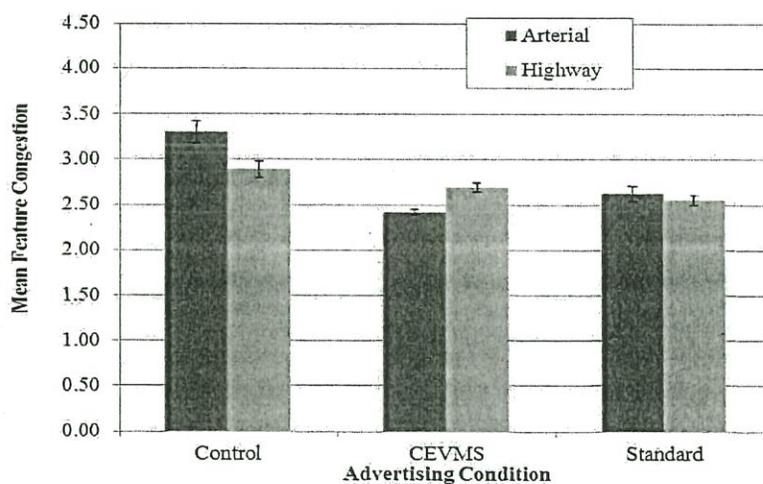


Figure 31. Mean feature congestion as a function of advertising condition and road type.

Effects of Billboards on Gazes to the Road Ahead

As was done for the data from Reading, GEE were used to analyze the probability of a participant gazing at the road ahead. A logistic regression model for repeated measures was generated by using a binomial response distribution and Logit link function. The resultant value was the probability of a participant gazing at the road ahead (as previously defined):

Time of day (day or night), road type (freeway or arterial), advertising type (CEVMS, standard billboard, or control), and all corresponding second-order interactions were explanatory variables in the logistic regression model. The interaction of advertising type by road type was statistically significant, $\chi^2(2) = 14.19, p < 0.001$. Table 9 shows the corresponding probability of gazing at the road ahead as a function of advertising condition and road type.

Table 9. The probability of gazing at the road ahead as a function of advertising condition and road type.

<i>Advertising Condition</i>	<i>Arterial</i>	<i>Freeway</i>
Control	0.78	0.92
CEVMS	0.76	0.82
Standard	0.81	0.85

Follow-up analyses for the interaction used Tukey-Kramer adjustments with an alpha level of 0.05. The freeway control had the greatest probability of gazing at the road ahead ($M = 0.92$). This probability differed significantly from the remaining five probabilities. On arterials, there were no significant differences among the probabilities of gazing at the road ahead among the three advertising conditions. On freeways, there was no significant difference between the probability associated with CEVMS DCZs and the probability associated with standard billboard DCZs.

Additional descriptive statistics were computed for the three advertising types to determine the probability of gazing at the ROIs that were defined in the panoramic scene. As was done with the data from Reading, some of the ROIs were combined for ease of analysis. Table 10 presents the probability of gazing at the different ROIs.

Table 10. Probability of gazing at ROIs for the three advertising conditions on arterials and freeways.

<i>Road Type</i>	<i>ROI</i>	<i>CEVMS</i>	<i>Standard Billboard</i>	<i>Control</i>
<i>Arterial</i>	<i>CEVMS</i>	0.06	N/A	N/A
	<i>Left Side of Vehicle</i>	0.03	0.05	0.04
	<i>Road ahead</i>	0.76	0.81	0.78
	<i>Right Side of Vehicle</i>	0.07	0.06	0.09
	<i>Standard Billboard</i>	N/A	0.02	N/A
	<i>Participant Vehicle</i>	0.07	0.06	0.09
<i>Freeway</i>	<i>CEVMS</i>	0.05	N/A	N/A
	<i>Left Side of Vehicle</i>	0.03	0.01	0.01
	<i>Road ahead</i>	0.82	0.85	0.92
	<i>Right Side of Vehicle</i>	0.04	0.04	0.03
	<i>Standard Billboard</i>	N/A	0.04	N/A
	<i>Participant Vehicle</i>	0.06	0.06	0.05

The probability of gazing away from the forward roadway ranged from 0.08 to 0.24. In particular, the probability of gazing toward a CEVMS was slightly greater on arterials ($M = 0.06$) than on freeways ($M = 0.05$). In contrast, the probability of gazing toward a standard billboard was greater on freeways ($M = 0.04$) than on arterials ($M = 0.02$). In both situations, the probability of gazing at the road ahead was greatest on freeways.

Fixations to CEVMS and Standard Billboards

About 2.5 percent of the fixations were to CEVMS. The mean fixation duration to a CEVMS was 371 ms and the maximum fixation duration was 1,335 ms. Figure 32 shows the distribution of fixation durations to CEVMS during the day and at night. In the daytime, the mean fixation duration to a CEVMS was 440 ms and at night it was 333 ms. Approximately 1.5 percent of the fixations were to standard billboards. The mean fixation duration to standard billboards was 318 ms and the maximum fixation duration was 801 ms. Figure 33 shows the distribution of fixation durations for standard billboards. The mean fixation duration to a standard billboard was 313 ms and 325 ms during the day and night, respectively. For comparison purposes, figure 34 shows the distribution of fixation durations to the road ahead during the day and night. In the daytime, the mean fixation duration to the road ahead was 378 ms and at night it was 358 ms.

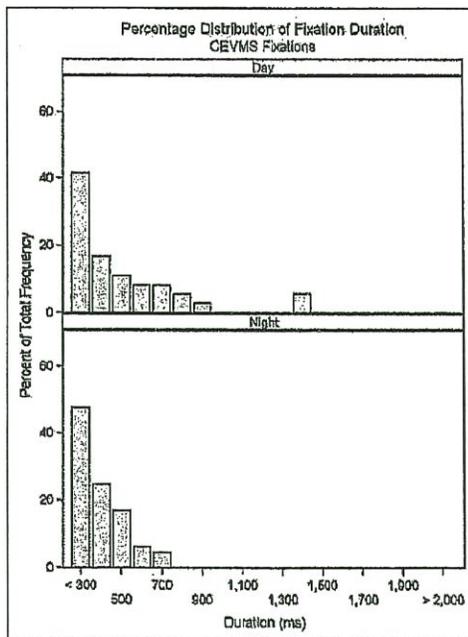


Figure 32. Fixation duration for CEVMS in the day and at night.

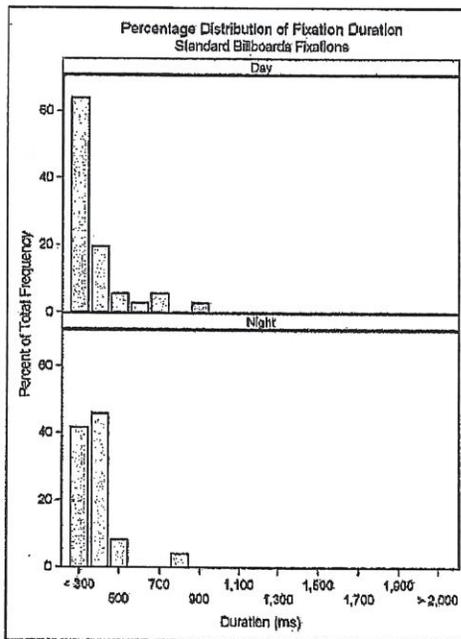


Figure 33. Fixation duration for standard billboards in the day and at night.

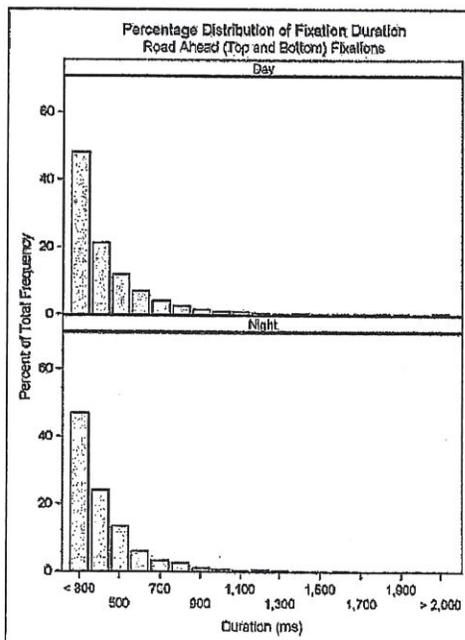


Figure 34. Fixation duration for the road ahead in the day and at night.

As was done with the data for Reading, the record of fixations was examined to determine dwell times to CEVMS and standard billboards. There were a total of 21 separate dwell times to CEVMS with a mean of 2.86 sequential fixations (minimum of 2 fixations and maximum of 6 fixations). The 21 dwell times came from 12 different participants and four different CEVMS. The mean dwell time duration to the CEVMS was 1,039 ms (minimum of 500 ms and maximum of 2,720 ms). There was one dwell time greater than 2,000 ms to CEVMS. To the standard billboards there were 13 separate dwell times with a mean of 2.31 sequential fixations (minimum of 2 fixations and maximum of 3 fixations). The 13 dwell times came from 11 different participants and four different standard billboards. The mean dwell time duration to the standard billboards was 687 ms (minimum of 450 ms and maximum of 1,152 ms). There were no dwell times greater than 2,000 ms to standard billboards.

In some cases several dwell times came from the same participant. To compute a statistic on the difference between dwell times for CEVMS and standard billboards, average dwell times were computed per participant for the CEVMS and standard billboard conditions. These average values were used in a *t*-test assuming unequal variances. The difference in average dwell time between CEVMS ($M = 1,096$ ms) and standard billboards ($M = 674$ ms) was statistically significant, $t(14) = 2.23$, $p = .043$.

Figure 35 through figure 37 show heat maps for the dwell-time durations to the CEVMS that were greater than 2,000 ms. The DCZ was on a freeway during the daytime. The CEVMS is located on the left side of the road (indicated by an orange rectangle). There were three fixations to this billboard, and the single fixations were between 651 ms and 1,335 ms. The dwell time for this billboard was 2,270 ms. Figure 35 shows the first fixation toward the CEVMS. There are no vehicles near the participant in his/her respective travel lane or adjacent lanes. In this situation, the billboard is relatively close to the road ahead ROI. Figure 36 shows a heat map later in the DCZ where the driver continues to look at the CEVMS. The heat map does not overlay the CEVMS in the picture since the heat map has integrated over time where the driver was gazing. The CEVMS has moved out of the area because of the vehicle moving down the road. However, visual inspection of the video and eye tracking statistics showed that the driver was fixating on the CEVMS. Figure 37 shows the end of the sequential fixations to the CEVMS. The driver returns to gaze directly in front of the vehicle. Once the CEVMS was out of the forward field of view, the driver quit looking at the billboard.

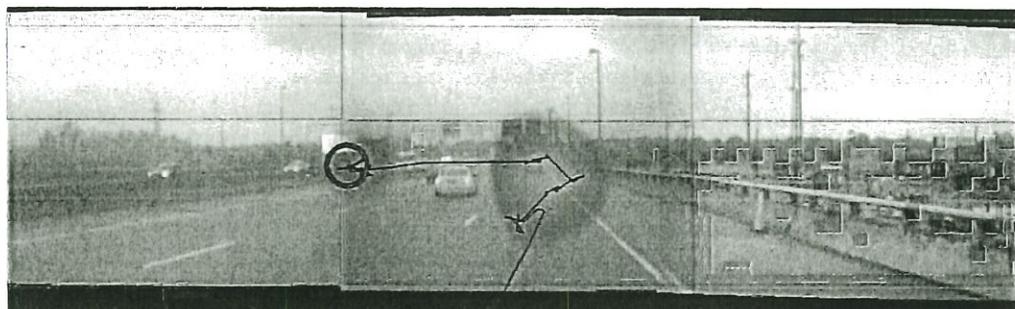


Figure 35. Heat map for first fixation to CEVMS with long dwell time.

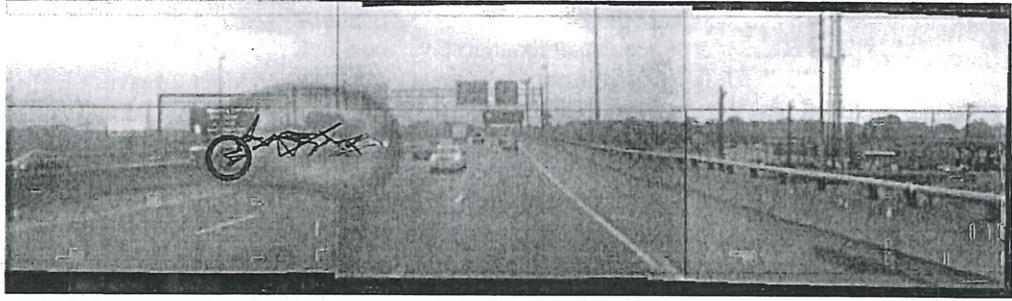


Figure 36. Heat map for later fixations to CEVMS with long dwell time.

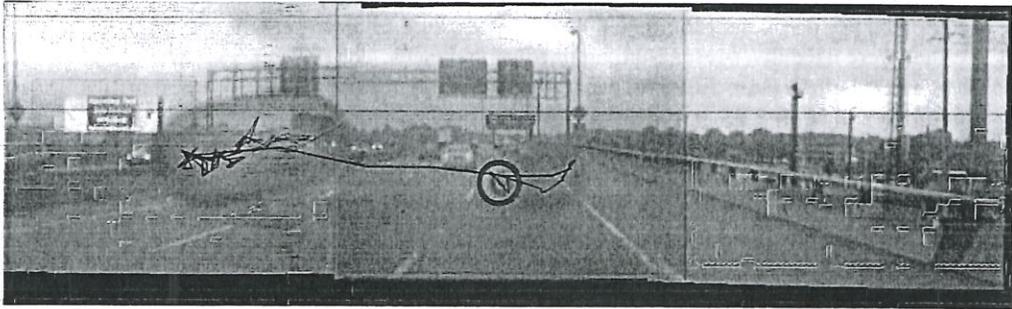


Figure 37. Heat map at end of fixations to CEVMS with long dwell time.

Comparison of Gazes to CEVMS and Standard Billboards

As was done for the data from Reading, GEE were used to analyze whether a participant gazed more toward CEVMS than toward standard billboards, given that the participant was looking at off-premise advertising. Recall that a sample probability greater than 0.5 indicated that participants gazed more toward CEVMS than standard billboards when the participants gazed at off-premise advertising. In contrast, if the sample probability was less than 0.5, participants showed a preference to gaze more toward standard billboards than CEVMS when directing visual attention to off-premise advertising.

Time of day (i.e., day or night), road type (i.e., freeway or arterial), and the corresponding interaction were explanatory variables in the logistic regression model. Time of day had a significant effect on participant gazes toward off-premise advertising, $\chi^2(1) = 4.46, p = 0.035$. Participants showed a preference to gaze more toward CEVMS than toward standard billboards during both times of day. During the day the preference was only slight ($M = 0.52$), but at night the preference was more pronounced ($M = 0.71$). Road type was also a significant predictor of where participants directed their gazes at off-premise advertising, $\chi^2(1) = 3.96, p = 0.047$. Participants gazed more toward CEVMS than toward standard billboards while driving on both types of roadways. However, driving on freeways yielded a slight preference for CEVMS over standard billboards ($M = 0.55$), but driving on arterials resulted in a larger preference in favor of CEVMS ($M = 0.68$).

Observation of Driver Behavior

No near misses or driver errors occurred.

Level of Service

Table 11 shows the level of service as a function of advertising type, type of road, and time of day. As expected, there was less congestion during the nighttime runs than in the daytime. In general, there was traffic during the data collection runs; however, the eye tracking data were recorded while the vehicles were in motion.

Table 11. Estimated level of service as a function of advertising condition, road type, and time of day.

	Arterial		Freeway	
	Day	Night	Day	Night
Control	B	A	C	B
CEVMS	B	A	B	A
Standard	C	A	C	C

DISCUSSION OF RICHMOND RESULTS

Overall the probability of looking at the forward roadway was high across all conditions and consistent with the findings from Reading and previous related research.^(11,9,12) In this second study the CEVMS and standard billboard conditions did not differ from each other. For the DCZs on arterials there were no significant differences among the control, CEVMS, and standard billboard conditions. On the other hand, while the CEVMS and standard billboard conditions on the freeways did not differ from each other, they were significantly different from their respective control conditions. The control condition on the freeway principally had trees along the sides of the road and the signs that were present were freeway signs located in the road ahead ROI.

Measures such as feature congestion rated the three DCZs on freeways as not being statistically different from each other. These types of measures have been useful in predicting visual search and the effects of visual salience in laboratory tasks.⁽³⁴⁾ Models of visual salience may predict that, at least during the daytime, trees on the side of the road may be visually salient objects that would attract a driver's attention.⁽⁴⁷⁾ However, it appears that in the present study, participants principally kept their eyes on the road ahead.

The mean fixations to CEVMS, standard billboards, and the road ahead were found to be similar in magnitude with no long fixations. Examination of dwell times showed that there was one long dwell time for a CEVMS greater than 2,000 ms and it occurred in the daytime on a sign located on the left side of the road on a freeway DCZ. Furthermore, when averaging among participants the mean dwell time for CEVMS was significantly longer than to standard billboards, but still under 2,000 ms. For the dwell time greater than 2,000 ms, examination of the scene camera video and eye tracking heat maps showed that the driver was initially looking toward the forward roadway and made a first fixation to the sign. Three fixations were made to the sign and then the

driver started looking back to the road ahead as the sign moved out of the forward field of view. On the video there were no vehicles near the subject driver's own lane or in adjacent lanes.

Only the central 2 degrees of vision, foveal vision, provide resolution sharp enough for reading or recognizing fine detail.⁽⁵⁷⁾ However, useful information for reading can be extracted from parafoveal vision, which encompasses the central 10 degrees of vision.⁽⁵⁷⁾ More recent research on scene gist recognition³ has shown that peripheral vision (beyond parafoveal vision) is more useful than central vision for recognizing the gist of a scene.⁽⁵⁸⁾ Scene gist recognition is a critically important early stage of scene perception, and influences more complex cognitive processes such as directing attention within a scene and facilitating object recognition, both of which are important in obtaining information while driving.

The results of this study do show one duration of eyes off the forward roadway greater than 2,000 ms, the duration at which Klauer et al. observed near-crash/crash risk at more than twice those of normal, baseline driving.^(14,53) When looking at the tails of the fixation distributions, few fixations were greater than 1,000 ms, with the longest fixation being equal to 1,335 ms.^(53,54) The one long dwell time on a CEVMS that was observed was a rare event in this study, and review of the video and eye tracking data suggests that the driver was effectively managing acquisition of visual information while driving and fixated on the advertising. However, additional work needs to be done to derive criteria for gazing or fixating away from the forward road view where the road scene is still visible in peripheral vision.

The results showed that drivers are more likely to look at CEVMS than standard billboards during the nighttime across the conditions tested (at night the average probability of gazing at CEVMS was $M = 0.71$). CEVMS do have greater luminance than standard billboards at night and also have higher contrast. The CEVMS have the capability of being lit up so that they would appear as very bright signs to drivers (for example, up to about $10,000 \text{ cd/m}^2$ for a white square on the sign.). However, our measurements of these signs showed an average luminance of about 56 cd/m^2 . These signs would be conspicuous in a nighttime driving environment but significantly less so than other light sources such as vehicle headlights. Drivers were also more likely to look at CEVMS than standard billboards on both arterials and freeways, with a higher probability of gazes on arterials.

In this second study, CEVMS and standard billboards were more nearly equated with respect to setback from the road. Gazes to the road ahead were not significantly different between CEVMS and standard billboard DCZs across conditions and the proportion of gazes to the road ahead were consistent with previous research. One long dwell time for a CEVMS was observed in this study; however, it occurred in the daytime where the luminance and contrast (affecting the perceived brightness) of these signs are similar to those for standard billboards.

³ "Scene gist recognition" refers to the element of human cognition that enables us to determine the meaning of a scene and categorize it by type (e.g., a beach, an office) almost immediately upon seeing it.

GENERAL DISCUSSION

This study was conducted to investigate the effect of CEVMS on driver visual behavior in a roadway driving environment. An instrumented vehicle with an eye tracking system was used. Roads containing CEVMS, standard billboards, and control areas with no off-premise advertising were selected. The CEVMS and standard billboards were measured with respect to luminance, location, size, and other relevant variables to characterize these visual stimuli. Unlike previous studies on digital billboards, the present study examined CEVMS as deployed in two United States cities and did not contain dynamic video or other dynamic elements. The CEVMS changed content approximately every 8 to 10 seconds, consistent within the limits provided by FHWA guidance.⁽²⁾ In addition, the eye tracking system used had nearly a 2-degree level of resolution that provided significantly more accuracy in determining what objects the drivers were gazing or fixating on as compared to some previous field studies examining CEVMS.

CONCLUSIONS

Do CEVMS attract drivers' attention away from the forward roadway and other driving relevant stimuli?

Overall, the probability of looking at the road ahead was high across all conditions. In Reading, the CEVMS condition had a lower proportion of gazes to the road ahead than the standard billboard condition on the freeways. Both of the off-premise advertising conditions had a lower proportion of gazes to the road ahead than the control condition on the freeway. The lower proportion of gazes to the road ahead can be attributed to the overall distribution of gazes away from the road ahead and not just to the CEVMS. On the other hand, for the arterials the CEVMS and standard billboard conditions did not differ from each other, but both had a lower proportion of gazes to the road ahead compared to the control. In Richmond there were no differences among the three advertising conditions on the arterials. However, for the freeways the CEVMS and standard billboard conditions did not differ from each other but had a lower proportion of gazes to the road ahead than the control.

The control conditions differed across studies. In Reading, the control condition on arterials showed 92 percent for gazing at the road ahead while on the freeway it was 86 percent. On the other hand, in Richmond the control condition for arterials was 78 percent and for the freeway it was 92 percent. The control conditions on the freeway differed across the two studies. In Reading there were businesses off to the side of the road; whereas in Richmond the sides of the road were mostly covered with trees. The control conditions on the arterials also differed across cities in that both contained businesses and on-premise advertising; however, in Reading arterials had four lanes and in Richmond arterials had six lanes. The reason for these differences across cities was that these control conditions were selected to match the other conditions (CEVMS and standard billboards) that the drivers would experience in the two respective cities. Also, the selection of DCZs was obviously constrained by what was available on the ground in these cities.

The results for the off-premise advertising conditions are consistent with Lee et al., who observed that 76 percent of drivers' time was spent looking at the road ahead in the CEVMS scenario and 75 percent in the standard billboard scenario.⁽⁹⁾ However, it should be kept in mind

that drivers did gaze away from the road ahead even when no off-premise advertising was present and that the presence of clutter or salient visual stimuli did not necessarily control where drivers gazed.

Do glances to CEVMS occur that would suggest a decrease in safety?

In DCZs containing CEVMS, about 2.5 percent of the fixations were to CEVMS (about 2.4 percent to standard billboards). The results for fixations are similar to those reported in other field data collection efforts that included advertising signs.^(12,11,9,13) Fixations greater than 2,000 ms were not observed for CEVMS or standard billboards.

However, an analysis of dwell times to CEVMS showed a mean dwell time of 994 ms (maximum of 1,467 ms) for Reading and a mean of 1,039 ms (maximum of 2,270 ms) for Richmond. Statistical comparisons of average dwell times between CEVMS and standard billboards were not significant in Reading; however, in Richmond the average dwell times to CEVMS were significantly longer than to standard billboards, though below 2,000 ms. There was one dwell time greater than 2,000 ms to a CEVMS across the two cities. On the other hand, for standard billboards there were three long dwell times in Reading; there were no long dwell times to these billboards in Richmond. Review of the video data for these four long dwell times showed that the signs were not far from the forward view when participants were fixating. Therefore, the drivers still had access to information about what was in front of them through peripheral vision.

As the analyses of gazes to the road ahead showed, drivers distributed their gazes away from the road ahead even when there were no off-premise billboards present. Also, drivers gazed and fixated on off-premise signs even though they were generally irrelevant to the driving task. However, the results did not provide evidence indicating that CEVMS were associated with long glances away from the road that may reflect an increase in risk. When long dwell times occurred to CEVMS or standard billboards, the road ahead was still in the driver's field of view.

Do drivers look at CEVMS more than at standard billboards?

The drivers were generally more likely to gaze at CEVMS than at standard billboards. However, there was some variability between the two locations and between type of roadway (arterial or freeway). In Reading, the participants looked more often at CEVMS when on arterials, whereas they looked more often at standard billboards when on freeways. In Richmond, the drivers looked at CEVMS more than standard billboards no matter the type of road they were on, but as in Reading the preference for gazing at CEVMS was greater on arterials (68 percent on arterials and 55 percent on freeways). The slower speed on arterials and sign placement may present drivers with more opportunities to gaze at the signs.

In Richmond, the results showed that drivers gazed more at CEVMS than standard billboards at night; however, for Reading no effect for time of day was found. CEVMS do have higher luminance and contrast than standard billboards at night. The results showed mean luminance of about 56 cd/m² in the two cities where testing was conducted. These signs would appear clearly visible but not overly bright.

SUMMARY

The results of these studies are consistent with a wealth of research that has been conducted on vision in natural environments.^(26,22,21) In the driving environment, gaze allocation is principally controlled by the requirements of the task. Consistent results were shown for the proportion of gazes to the road ahead for off-premise advertising conditions across the two cities. Average fixations were similar to CEVMS and standard billboards with no long single fixations evident for either condition. Across the two cities, four long dwell times were observed: one to a CEVMS on a freeway in the day, two to the same standard billboard on a freeway (once at night and once in the daytime), and one to a standard billboard on an arterial at night. Examination of the scene video and eye tracking data indicated that these long dwell times occurred when the billboards were close to the forward field of view where peripheral vision could still be used to gather visual information on the forward roadway.

The present data suggest that the drivers in this study directed the majority of their visual attention to areas of the roadway that were relevant to the task at hand (i.e., the driving task). Furthermore, it is possible, and likely, that in the time that the drivers looked away from the forward roadway, they may have elected to glance at other objects in the surrounding environment (in the absence of billboards) that were not relevant to the driving task. When billboards were present, the drivers in this study sometimes looked at them, but not such that overall attention to the forward roadway decreased.

LIMITATIONS OF THE RESEARCH

In this study the participants drove a research vehicle with two experimenters on board. The participants were provided with audio turn-by-turn directions and consequently did not have a taxing navigation task to perform. The participants were instructed to drive as they normally would. However, the presence of researchers in the vehicle and the nature of the driving task do limit the degree to which one may generalize the current results to other driving situations. This is a general limitation of instrumented vehicle research.

The two cities employed in the study appeared to follow common practices with respect to the content change frequency (every 8 to 10 seconds) and the brightness of the CEVMS. The current results would not generalize to situations where these guidelines are not being followed.

Participant recruiting was done through libraries, community centers and at a university. This recruiting procedure resulted in a participant demographic distribution that may not be representative of the general driving population.

The study employed a head-free eye tracking device to increase the realism of the driving situation (no head-mounted gear). However, the eye tracker had a sampling rate of 60 Hz, which made determining saccades problematic. The eye tracker and analyses software employed in this effort represents a significant improvement in technology over previous similar efforts in this area.

The study focused on objects that were 1,000 feet or less from the drivers. This was dictated by the accuracy of the eye tracking system and the ability to resolve objects for data reduction. In addition, the geometry of the roadway precluded the consideration of objects at great distances.

The study was performed on actual roadways, and this limited the control of the visual scenes except via the route selection process. In an ideal case, one would have had roadways with CEVMS, standard billboards, and no off-premise advertising and in which the context surrounding digital and standard billboards did not differ. This was not the case in this study, although such an exclusive environment would be inconsistent with the experience of most drivers. This presents issues with the interpretation of the specific contributions made by billboards and the environment to the driver's behavior.

Sign content was not investigated (or controlled) in the present study, but may be an important factor to consider in future studies that investigate the distraction potential of advertising signs. Investigations about the effect of content could potentially be performed in driving simulators where this variable could be systematically controlled and manipulated.

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Exhibit 9: Mass DOT Safety Report



massDOT
Massachusetts Department of Transportation
Highway Division
Traffic and Safety Engineering
MEMORANDUM

TO: Edward Farley, Director MassDOT Office of Outdoor Advertising

THROUGH: Neil Boudreau, State Traffic Engineer, and Thomas F. Broderick, P.E., Acting Chief Engineer *Neil E Boudreau* *Thomas F. Broderick*

FROM: Bonnie Polin, Chief Safety Analyst *B Polin*

DATE: November 22, 2011

RE: Digital Advertising Board – Pilot Program

In 2008, the MassDOT Highway Division (then MassHighway) Traffic and Safety Engineering Section worked closely with the Office for Outdoor Advertising (OOA) and established a pilot program to evaluate the safety impacts of Digital Advertising Boards (DAB) in Massachusetts. The program consisted of a diverse selection of DAB locations (selected by OOA) and a "pre-installation study" (scope of work is attached), a 30-day post installation and a "post-installation study" one year following the DAB installation. This memo summarizes the findings of the pilot program.

In 2008, the OOA met with the Traffic and Safety Engineering Section to discuss the DAB pilot program. Together, we drafted scopes of work for the pre- and post-installation studies and then presented it to several potential DAB owners to explain the process. We worked with Massachusetts State Police to obtain copies of one full year of crash data, within the study areas. The crash reports were received at MassDOT in April 2009. Personal information was then redacted from the crash reports and copies of the crash reports were provided to the potential DAB owners. Over the next year, pre-installation reports were received and reviewed for a number of locations.

Generally, the pre-installation studies identified the areas along the roadway in which the DAB would be visible, the existing crash data were summarized and the geometry and traffic operations within the area of visibility were described. The pre-installation studies were reviewed and the DAB owners were directed to proceed with the installation of the DABs. In some cases (based on existing crash data or traffic operations within the visibility of the proposed DAB), the owners were directed to proceed with caution. In some cases, cities or towns did not grant approval for DAB installation so those pilot locations had to be dropped.

Ultimately, eight DABs were all installed between June 2, 2009 and June 30, 2010 and the 30-day post-installation studies were submitted shortly after each installation. The 30-days installation report covered a search through local/regional media regarding the DABs and a conversation with the State Police barracks to learn if the installation of the DAB put the location on the radar screen. In no cases was there an outcry of safety concerns and the police barracks were not aware of any issues. A summary of the DAB locations is listed in the following table.

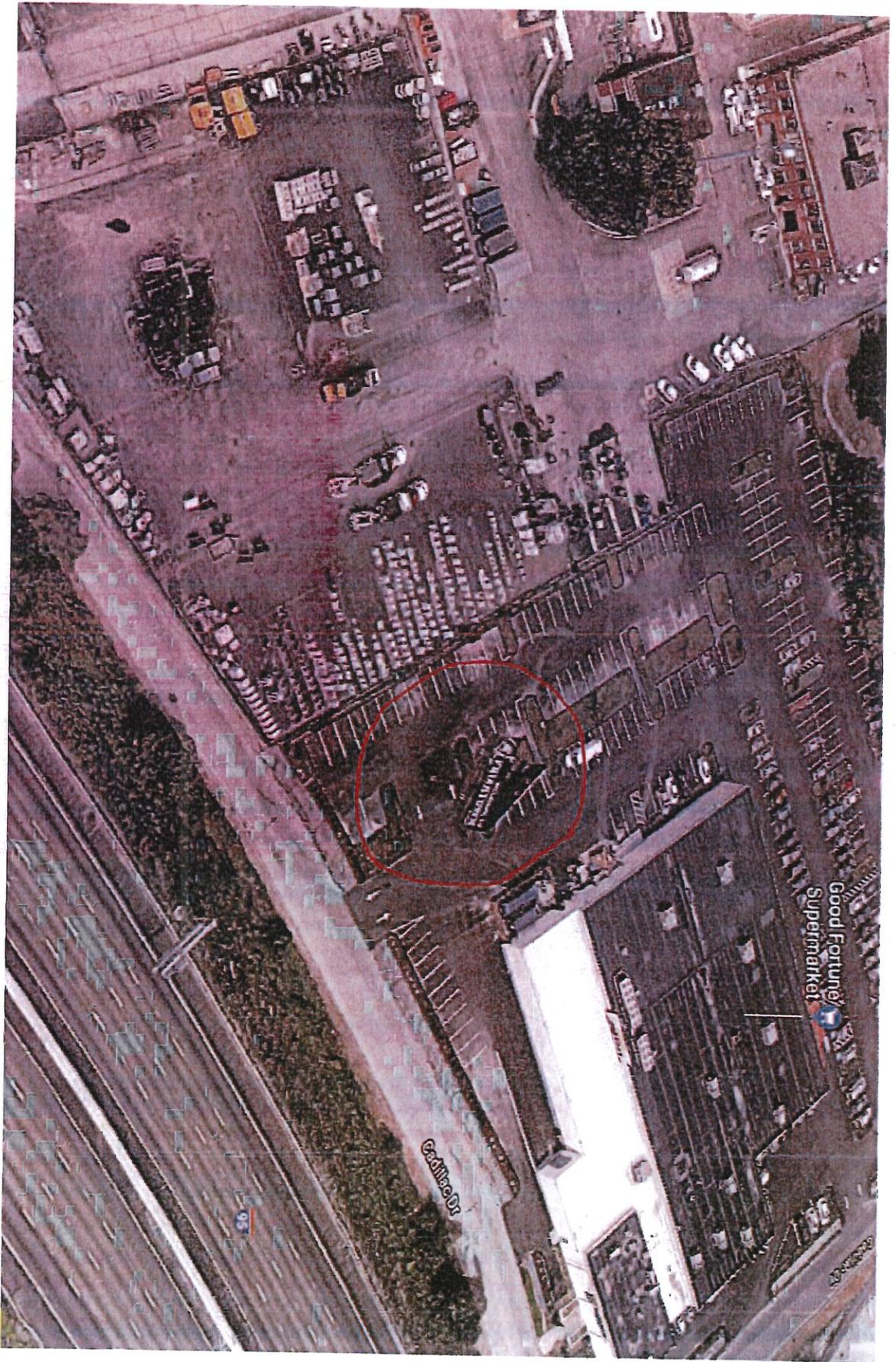
Subsequent to that, the State Police were once again requested to gather and submit one-year post crash data for the eight study area locations. The crash data was received at OOA in September 2011 and distributed to each DAB owner (after the personal information was redacted). Post-installation reports were submitted between September 2011 and November 2011.

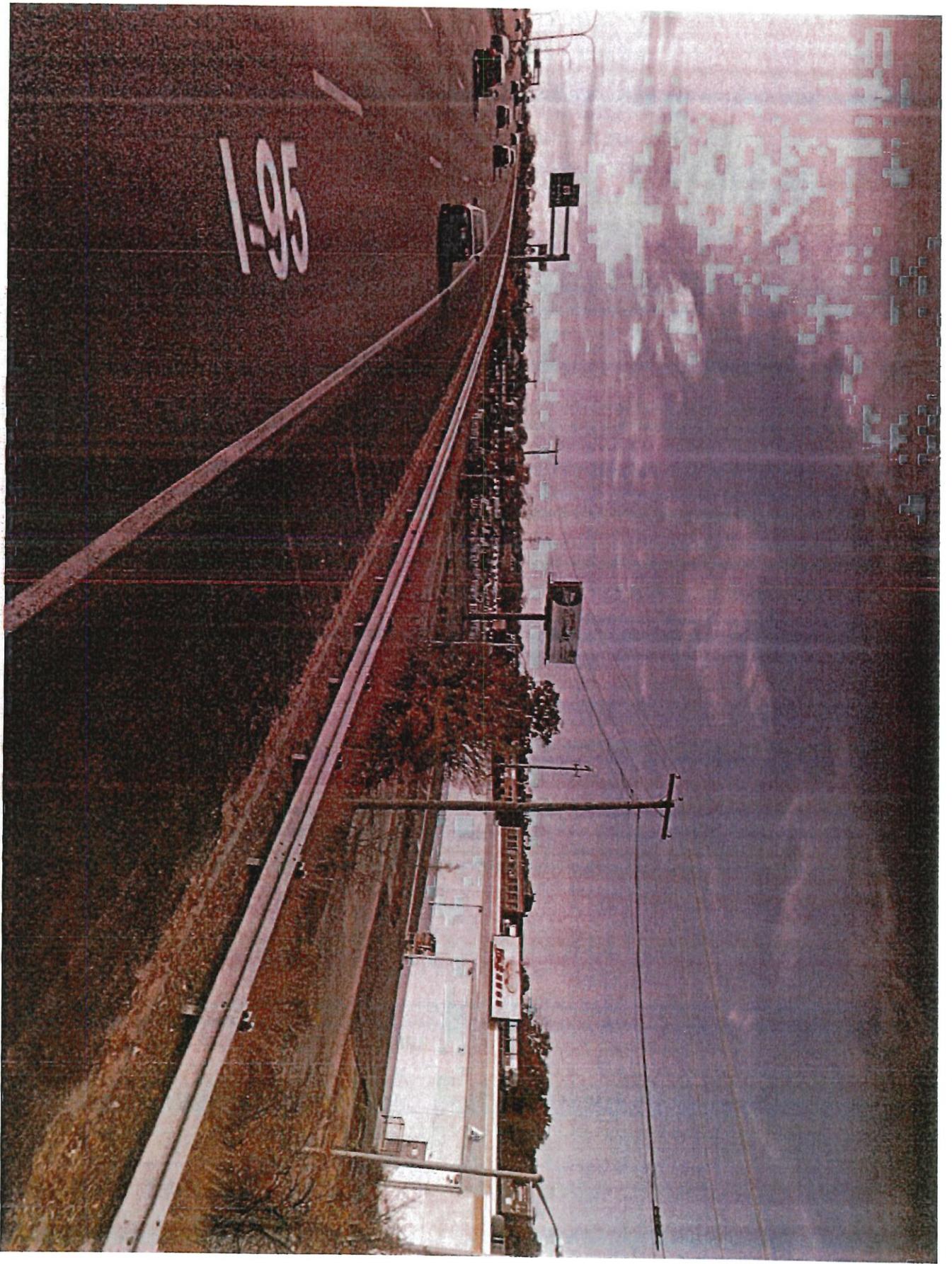
District	City/Town	DAB Route	Address of DAB	Company of DAB	Date DAB Operational	Latitude	Longitude
5	Fall River	I-195	240 Hartwell St	Catahoula Realty Trust	6/30/2010	41.69743	71.15168
4	Stoneham	I-93	21 Manison St	Clear Channel Outdoor	10/23/2009	42.47765	71.11269
4	Lawrence	I-495	8 Commonwealth Dr	Clear Channel Outdoor	12/8/2009	42.35743	71.14210
4	Medford	I-93	162 Mystic Ave (Rear)	Clear Channel Outdoor	4/30/2010	42.41020	71.10399
4	Medford	I-93	232 Mystic Ave (Rear)	Clear Channel Outdoor	5/30/2010	42.40478	71.09903
5	New Bedford	I-195	2031 Purchase St	Murray Outdoor	5/1/2010	41.65378	70.93069
5	Foxboro	Route 1	29 Washington St	Carroll Advertising	6/2/2009	42.10186	71.25943
2	Chicopee	I-90	374 Montgomery St	D'Auria Series	4/30/2010	42.17019	72.58509

The post-installation studies described the existing conditions, the one year post-installation crash summary and a general finding with regard to the safety impacts of the DAB. As one would expect, crash data fluctuates so in some cases crashes increased and in other cases the number of crashes decreased when comparing pre-and post-installation conditions. The role of the study was to gain a better understanding around the circumstances of the crashes. In cases where the number of crashes increased between pre and post-installation, much of this was able to be attributed to work zones within the area or in areas immediately outside the visibility of the DABs. The traffic engineers preparing the reports found no detrimental safety impacts of the DABs in any of the eight study area locations.

Therefore, the Traffic and Safety Engineering Section believes the Digital Advertising Board pilot program was successful and did not create an adverse safety condition on Massachusetts' Highways. The MassDOT Office of Outdoor Advertising can move forward with permitting the installation of additional DABs on a regional basis. However, Traffic & Safety Engineering believe that guidelines should be established to direct the placement of DABs in safe areas (as an example: not in the immediate vicinity of lane drops, merge / diverge points and other areas in which a driver needs to make a decision in travel) and not obstructing other guide, regulatory and warning signs on the highway. Finally, we believe that the DAB's have been a tremendous benefit to MassDOT through the agreement to allow a portion of the broadcast time for Public Service Announcements (PSA). This program should continue as part of the standard OOA permitting process for Digital Billboards,

Exhibit 10: Example Location





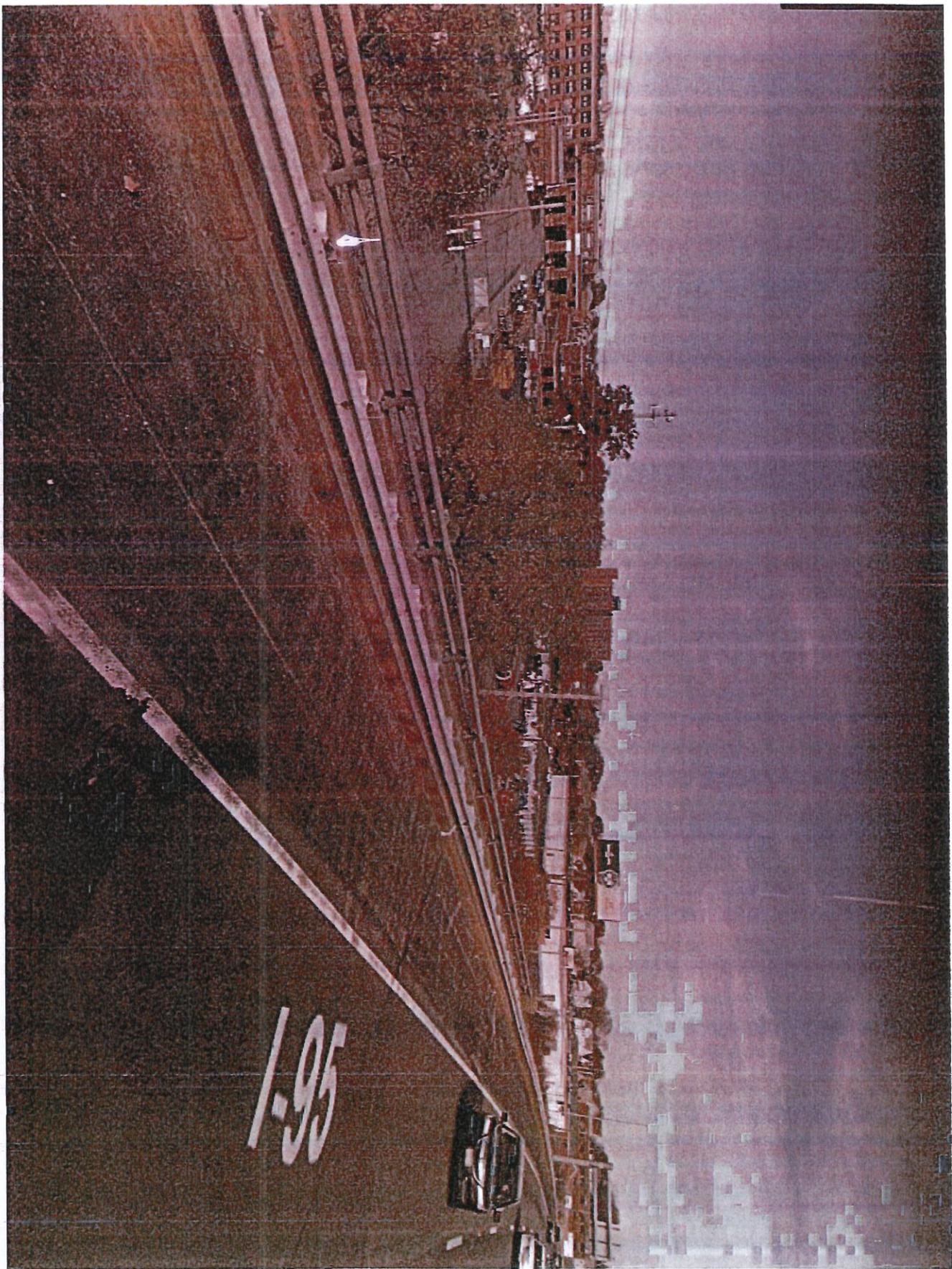
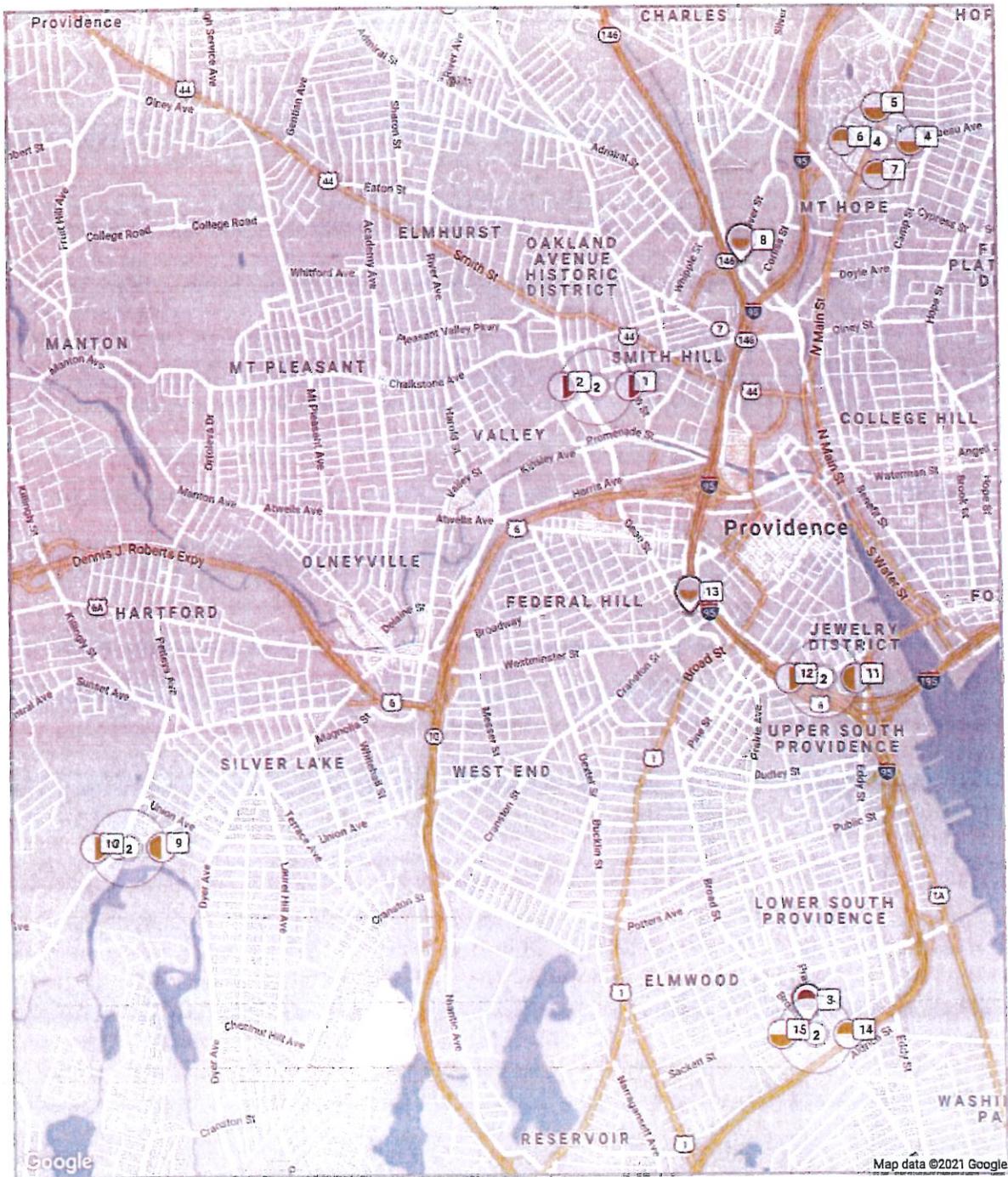


Exhibit 11: Example Removals

MAP #1

PROVIDENCE DIGITAL TAKEDOWN PROJECT - 10/27/2021



LOCATION LIST

PROVIDENCE DIGITAL TAKEDOWN PROJECT - 10/27/2021

*Impression values based on: Total Population

Map Icon	Label	Panel #	Geopath Id	Media/Style	Facing	H x W	*Weekly Impressions	Illum.
	1	1589	307774	Poster / Retro	West	10' 6" x 22' 9"	50,721	NO
Location: VALLEY ST. E/O JEWETT ST. PROVIDENCE Current Advertiser: BCBS RI								
	2	1590	307775	Poster / Retro	West	10' 6" x 22' 9"	76,182	NO
Location: VALLEY ST. E/O JEWETT ST. PROVIDENCE Current Advertiser: HEALTH SOURCE RI								
	3	1077	307336	Poster / Retro	South	10' 6" x 22' 9"	71,154	NO
Location: 1089 BROAD ST./O EARLY ST, PROVIDENCE Current Advertiser: RHODE ISLAND DEPARTMENT OF HEALTH								
	4	7004	307881	Junior Poster / Retro	North	5' 1" x 11' 1"	33,965	NO
Location: 933 NORTH MAIN ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	5	7005	307882	Junior Poster / Retro	North	5' 1" x 11' 1"	47,709	NO
Location: 933 NORTH MAIN ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	6	7006	307883	Junior Poster / Retro	South	5' 1" x 11' 1"	37,784	NO
Location: 933 NORTH MAIN ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	7	7007	307884	Junior Poster / Retro	South	5' 1" x 11' 1"	34,909	NO
Location: 933 NORTH MAIN ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								

LOCATION LIST

PROVIDENCE DIGITAL TAKEDOWN PROJECT - 10/27/2021

*Impression values based on: Total Population

Map Icon	Label	Panel #	Geopath Id	Media/Style	Facing	H x W	*Weekly Impressions	Illum.
	8	7012	307889	Junior Poster / Retro	North	5' 1" x 11' 1"	165,172	NO
Location: ASHBURTON ST 50' E/O CHARLES ST. PROV. Current Advertiser: RESMINI LAW ASSOCIATES								
	9	7029	307906	Junior Poster / Retro	East	5' 1" x 11' 1"	30,873	NO
Location: 170 SILVER LAKE AVE. PROVIDENCE Current Advertiser: TUFTS								
	10	7030	307907	Junior Poster / Retro	West	5' 1" x 11' 1"	28,052	NO
Location: 170 SILVER LAKE AVE. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	11	7051	307926	Junior Poster / Retro	East	5' 1" x 11' 1"	87,098	NO
Location: 184 POINT ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	12	7052	307927	Junior Poster / Retro	West	5' 1" x 11' 1"	79,325	NO
Location: 184 POINT ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								
	13	7060	307935	Junior Poster / Retro	North	5' 1" x 11' 1"	34,116	NO
Location: DEAN ST @ WESTMINSTER ST. PROVIDENCE Current Advertiser: REMAX STEARNS/MCGEE FREDDIE RODRIGUEZ								
	14	7066	307941	Junior Poster / Retro	South	5' 1" x 11' 1"	48,424	NO
Location: 1115 BROAD ST. PROVIDENCE Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE								

LOCATION LIST

PROVIDENCE DIGITAL TAKEDOWN PROJECT - 10/27/2021

*Impression values based on: Total Population

Map Icon	Label	Panel #	Geopath Id	Media/Style	Facing	H x W	*Weekly Impressions	Illum.
	15	7067	307942	Junior Poster / Retro	North	5' 1" x 11' 1"	55,941	NO

Location: 1115 BROAD ST. PROVIDENCE

Current Advertiser: THE ADVERTISING COUNCIL - PUBLIC SERVICE

Total Weekly Impressions: 881,425

Exhibit 12: 11/1/19 CPC Decision and Referral



City Plan Commission
Jorge O. Elorza, Mayor

November 1, 2019

Councilwoman Jo-Ann Ryan
Chair, Committee on Ordinances
Providence City Hall
25 Dorrance Street
Providence, RI 02903

Attn: Shawn Sallack, City Clerk

Re: Referral 3458-Petition to amend Sections 2005 of the zoning ordinance pertaining to nonconforming signage

Petitioner: Lamar Outdoor Advertising

Dear Chairwoman Ryan,

The City Plan Commission (CPC) reviewed the petition to amend section 2005 of the zoning ordinance pertaining to nonconforming signage at a regular meeting on October 29, 2019. The CPC voted as described below to make certain findings of fact and to recommend that the petition be approved.

FINDINGS OF FACT

The petitioner is proposing to amend Section 2005 of the zoning ordinance pertaining to nonconforming signs. The amendment would permit conversion of nonconforming off-premise signs in M-1 and M-MU 75 zones to electronic message signs, subject to certain conditions. To convert to electronic signage, the applicant shall permanently remove and abandon an equivalent amount of off-premise signage in the City. Electronic signage shall be oriented toward an Interstate highway or state highway and shall be minimally noticeable from residential zones. All electronic signs shall be subject to applicable state and federal regulations pertaining to restrictions on operation, brightness and animation.

The CPC found that the change would have a positive effect in transforming the landscape of the City, reduce nonconforming uses and improve the neighborhood landscape. Installation of electronic signs would necessitate removal of existing billboards, which are nonconforming uses. This reduction would have a positive impact on the City's neighborhoods. The amendment would require that billboards be oriented to a highway, away from residences, further reducing the impact of visual clutter on neighborhoods. The CPC expressed concern about intense glare and distractions caused by moving lights. The applicant said that the images would be static and change infrequently.

DEPARTMENT OF PLANNING AND DEVELOPMENT
444 Westminster Street, Providence, Rhode Island 02903
401 680 8400 ph | 401 680 8492 fax
www.providenceri.com

As the operation of electronic billboards would be subject to local, state and federal statutes, the CPC found that the effect on vehicles is expected to be limited by applicable regulations.

The applicant amended the change at the meeting to state that the sign as well as the sign structure could be altered so as to not be visible from residential zones. Any altered signs would continue to be considered nonconforming. The brightness of signs shall be regulated to not distract drivers.

The CPC found that the amendment would create a mechanism for removing nonconforming signage, which would have a positive effect on neighborhood character. By improving the character of the City, the change would be in conformance with objectives BE-1 and BE-7 of the comprehensive plan, which encourage design excellence and enhancement of neighborhood character. The CPC found that the change would also be in conformance with the purposes of zoning by promoting a high level of design and protecting the scenic character of the City.

RECOMMENDATION

Upon a motion by Commissioner Verdi, seconded by Commissioner Quezada, the CPC voted as follows to recommend that the City Council approve the ordinance subject to the following conditions:

M. Quezada AYE; L. Torrado AYE; C. West AYE; M. Gazdacka AYE; N. Verdi AYE; C. Potter AYE;
H. Bilodeau NAY

In accordance with the CPC's action, the CPC made a positive recommendation to the City Council subject to the following conditions:

1. The ordinance should be amended to allow for sign structures to be altered so as to not be visible from residential zones.
2. The ordinance should be amended to be more specific about the brightness of electronic signs to ensure that they are no brighter and no more distracting than non-electronic signs.
3. The ordinance should state that any altered signs would continue to be considered nonconforming.

Sincerely,

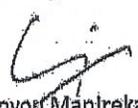

Choyon Manjrekar
Administrative Officer

Exhibit 13: Comprehensive Plan Analysis

1. Comprehensive Plan

- a. Providence Comprehensive Plan specifically cites transferable development rights as "Smart Growth",¹
 - i. Objective M7 is to "Promote Smart Growth"
 - 1. Smart Growth calls for development in urbanized areas, including under the Rhode Island Land Use Plan.² This proposal would open up land for development.
 - ii. Objective M3: Walking
 - 1. Strategy D specifically identifies "sign management" as a means to accomplish the goal of, "Promote walking for commuting, recreation and other trips by creating safe and attractive Pedestrian environments throughout the city.
 - 2. This proposal specifically seeks to take down neighborhood signs.
 - iii. Objective BJ1: Business Retention and Expansion
 - 1. This proposal is a rare opportunity where a business can be retained and expanded through a decrease in use of land at no cost to the City.
 - a. The strategies specifically call out the working with the State, as noted throughout our presentations, the State has already signed off on digitization of the specific sign face identified in our proposal.
 - iv. Objective BJ4: Business Environment
 - 1. This proposal is at least four (4) years old at this juncture. This delay seems at odds with Strategy G.
 - v. Objective LU1: Protect and Enhance Stable Neighborhoods
 - 1. Strategy A.5 seeks potential redevelopment opportunities. This proposal would create at least 1 developable lot.
 - 2. Strategy B.4 seeks to mitigate impacts of non-residential uses on neighboring residential uses/ This proposal seeks to take down neighborhood billboards in direct conformation with that goal.
 - vi. Objective LU4: Maintain and Enhance Residential Areas
 - 1. Strategy C: seeks to target vacant lots for revitalization, this proposal will create comparable opportunities at neighborhood lots.
 - vii. Future Land Use Map
 - 1. The Location of the Existing Billboard set to be digitized is in a "Business/Mixed Use" District, the most intense use district on the Future Land Use Map
 - 2. The location of billboards to be removed are in a myriad of different districts, almost if not all of them are in less intense use districts
 - 3. In other words, the proposal in total is appropriate to be maintained in the digitization location and a de-intensification comparable to the

¹ Comp. Plan Glossary, Appendix E, Page 303

² Comp. Plan, Page 49

Future Land Use Map relatively less intense areas where neighborhood signs would be removed.

- b. 1 Lot change to a specific use - the City routinely does this with specific restrictions on specific lots and has done it with specific relief as to specific lots. I have done two (2) of these on Vinton Street in this past year.
 - i. The question is whether or not it conforms to the comprehensive plan, not whether or not it is a single-lot
 - c. The concept of spot zoning is a vernacular reference to the legal requirement that proposed changes in land use meet the goals of the comprehensive plan. As noted herein, the proposal to remove 15 signs in exchange for digitization of an existing sign located within an industrial zone conforms to the comprehensive plan. This was supported by the original CPC decision and DPD review.
2. Comparable Legal theory: Transferable Development Rights, Nonconforming Uses, Takings
- a. Amortization of a nonconforming use
 - i. Cities and Towns cannot amortize or forcibly remove nonconforming uses under RI Law.³
 - ii. In effect, requiring the removal of a nonconforming use via regulations is violative of the Fifth Amendment to the United States Constitution⁴ and further not permissible under R.I. Statute.
 - b. ~~Removal of Neighborhood Billboards~~ requires compensation under the Fifth Amendment and RI Statute.
 - i. A transferable development right is legal theory most often association with preservation, but at its core is simply compensation for limitations of use on land.⁵
 - ii. R.I. Gen. Laws §45-24-33(b)(2) expressly authorizes transfer of development rights within or between zoning districts designated in the zoning ordinance.

³ R.I. Gen. Laws §45-24-39: <http://webserver.rilegislature.gov//Statutes/TITLE45/45-24/45-24-39.HTM>

⁴ Brunelle v. Town of South Kingston, 700 A.2d 1075, 1081-1082 (R.I. 1997).

⁵ RICLE-PGLU § 8.5.1, Timothy C. Twardowski, Esq., Massachusetts Continuing Legal Education, Inc. (MCLE) A Practical Guide to Land Use Law in Rhode Island. *Citing Penn Cent. Transp. Co. v. New York City*, 438 U.S. 104 at 129 (1978).

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