

July 1, 2025

VIA E-MAIL PlanningCommission@santaclaraca.gov

Santa Clara Planning Commission
1500 Warburton Avenue
Santa Clara, CA 95050

Re: Proposed Outfront Digital Sign at 1700 Duane Avenue and Review of Studies on Digital
Billboard Driver Effects

Dear Commissioners:

As you know, Outfront Media is requesting approval of a relocation agreement, conditional use permit, and minor modification in connection with the development of a new single-face digital sign at 1700 Duane Avenue in the City of Santa Clara ("City"). During the Planning Commission's April 16, 2025 hearing, the Commission raised the issue of driver distraction, citing several studies concerning the impact of digital billboards on driver safety. In response to the Planning Commission's concerns, our firm has reviewed the safety studies discussed at the April 16, 2025 hearing: the 2012 field study by the Swedish National Road and Transport Institute (*Dukic et al.*) the 2015 report prepared under U.S. DOT sponsorship examining sites in Florida and Alabama (*Sisiopiku et al.*), the critical peer review of the Federal Highway Administration (FHWA) Report by (*Wachtel*), and the study of government fatality count signage (*Hall & Madsen*).

As discussed in the attached FAQ and in the analysis below, the above studies have significant limitations that diminish their value in assessing the traffic safety implications of digital signage. The Swedish study explicitly states it cannot determine whether observed glance behavior constitutes a safety hazard, and confirms that it found no measurable impact on driving performance. The Florida/Alabama study similarly concludes that further research is necessary, and does not isolate digital signage as a causal factor in its crash rate analysis. The Wachtel report appears to be a biased critique, while the Hall and Madsen study reviews unrelated signage types.

In addition to those sources, we reviewed other studies referenced by the Federal Highway Administration ("FHWA"), and have discussed them in our FAQ. FHWA's own field research, prepared during the Obama Administration, found that average glances toward digital advertising displays remained well below the two-second distraction threshold, and were not significantly different from those observed for static signs.¹ Thus, FHWA concluded that there was no indication that digital displays presented a safety risk to drivers, and instead that crashes are rare, *multicausal* events which are difficult to measure.²

¹ FHWA, *Driver Visual Behavior in the Presence of CALMS* (2015), pp. 1-2.

² FHWA, *The Effects of Commercial Electronic Variable Message Signs (CEVMS) on Driver Attention and Distraction: An Update* (2009) at p.1.

In addition, crash data sourced from the professional engineering firm Tantala Associates show that, across several digital displays in New York, Utah, and Ohio, there is no change accident frequency following billboard installation.³

In all of the studies our firm reviewed, none reported statistically significant increases purely attributable to digital billboards. In fact, in the majority of Florida locations studied in the 2015 report, crash rates were *lower* in digital billboard zones than in their adjacent control segments. With respect to Alabama displays, eight displays were evaluated, and half showed greater accidents and half showed fewer accidents. The pertinent report even concluded that the sample size was too small to allow for "a detailed statistical analysis or generalization of the findings."⁴ Taken together, the available research, including the studies raised by the City and those conducted or reviewed by FHWA, does not support the conclusion that digital billboards increase crash risk when operated in accordance with modern regulatory standards. The specific findings and limitations of the various studies are addressed in detail in the analysis below.

Finally, Outfront engaged Abrams and Associates Traffic Engineering to analyze the impact of recently constructed digital display billboards on traffic accident rates on U.S. 101 within Santa Clara. As discussed in the attached letter from Steve Abrams, the data did not indicate a traffic accident increase due to digital billboards. However, the data available was not adequate to draw any meaningful conclusions on the impacts of digital billboards on traffic incidents.

I. Review of Sweden Study (Dukic et. al., 2012, *Traffic Injury Prevention*)

A. The study fails to establish any relationship between digital billboard glances and unsafe driving.

The Swedish study was mentioned at the April 16th 2025 hearing for the proposition that electronic billboards increase driver distraction. However, the study's own authors expressly disclaim any ability to assess whether the observed visual behavior has any safety consequences. After analyzing eye-tracking data collected from 41 Swedish drivers traveling past four electronic billboards, the authors conclude, "[w]hether the billboards attract attention too much, that is, whether they are a traffic safety hazard, cannot be answered conclusively based on the present data."⁵ In fact, they note that under the Trick and Enns framework,

"a glance towards a billboard can have different reasons. The driver may employ a routine scanning behavior to assess the traffic situation continuously. Noticing the billboard, the driver may choose to have a closer look, while having a mental picture of how the traffic situation is likely to develop. Thus, the glance is planned and unlikely to result in a dangerous situation."⁶

³ OAAA, *The Truth About Digital Billboards and Traffic Safety* (2015), p.1.

⁴ *Digital Advertising Billboards and Driver Distraction*, (2015) p. 43 [Sisipoku, et. al.].

⁵ *Traffic Injury Prevention*, p.2.

⁶ *Id.* at p. 4.

This concession is critical. The Swedish study was not designed to measure crashes, conflicts, or even operational degradation such as swerving or braking. Rather, it solely focused on glance patterns and fixation times. The analysis is descriptive, not normative – there is no correlation, much less causation, drawn between billboard glances and adverse driving outcomes. Indeed, the authors confirm that no measurable change in vehicle control was observed, they wrote, "[n]o effect was found for the driving behavior data."⁷ This result is consistent with the limited nature of the study. Participants were recruited in the 35-55 age range, and driven along a single 40-kilometer test route during off-peak hours. Only four digital billboards were included, each configured with image transitions every seven seconds and operating under Swedish regulatory controls (note that the Outfront signs are proposed to change copy every eight seconds). Additionally, and as noted above, there were also only 41 participants, which is too small of a sample size to generate a meaningful conclusion applicable to millions of California drivers. Under these tightly controlled conditions, the absence of effect on driving behavior actually counters the argument that digital billboards materially impair driver performance.

B. The study relies on arbitrary metrics for 'distraction' that are not validated by crash data.

The distraction thresholds used in the study are derived from metrics that do not appear to have been validated against crash data. A driver was classified as "distracted" if: (1) a single glance to a billboard exceed two seconds; or (2), if the "dwell time" exceeded a variable threshold set by a mathematical expression "dwell time > (exposure time +12)/9." (*Id.* at p. 8.) These thresholds are lifted from separate naturalistic driving studies⁸ which investigated crash risks in unrelated contexts. For example, one study⁹ researched the impact of driver inattention near crash sites, not how digital billboards impact driver behavior. Indeed, the authors concede that, "[i]t is difficult to separate intended from reflexive glances based on eye movement measurements,"¹⁰ Yet, even with those assumptions baked in, the study does not report a single instance in which gaze behavior correlated with any form of operational impairment. Nor do the authors suggest that any threshold breach led to a safety-critical event.

C. Swedish roadway conditions and signage context are not analogous to urban California environments.

It is also important to contextualize this study within its geographic and regulatory setting. As the authors explain, roadside billboards have been largely prohibited in Sweden for decades.¹¹ The electronic billboards examined in this study were installed under a temporary trial approved in 2009 by the Swedish Transport Administration, which at the time only permitted twelve digital

⁷ *Id.* at p.2.

⁸ Naturalistic driver studies are a research method that observes and analyzes driver behavior via small cameras and sensors in real-world driving conditions without any experimental intervention or instruction from researchers.

⁹ Klauer et al., *The Impact of Driver Inattention on Near-Crash/Crash Risk: An Analysis Using the 100-Car Naturalistic Driving Study Data* (U.S. Dept. of Transportation, National Highway Traffic Safety Administration, 2006).

¹⁰ *Id.* at p.4.

¹¹ *Id.* p.3. [noting that Sweden had previously been very restrictive on roadside billboards and electronic billboards have not been permitted.]

billboards in the entire country.¹² In Sweden, drivers have limited prior exposure to digital signs, likely increasing the likelihood of attention effects not present in other countries. As such, this significantly reduces this study's relevance to California drivers, where billboards have been present for many years. It is important to understand that billboard safety is highly dependent on the context of a specific site, so especially here, where the context is so dramatically different, the study's effect on distractions cannot be directly correlated to California billboards. Of course, the absence of operational effects in an area without much history with digital billboards further supports the conclusion that digital billboards would not degrade driver safety in Santa Clara.

II. Review of Florida/Alabama Study (*Sisiopiku et al.*)

A. The study's authors admit that its and pre-existing study conclusions are inconclusive and require further study.

The Florida/Alabama Study, prepared under contract with the U.S. DOT's University Transportation Centers Program, purports to assess whether digital billboards are correlated with increased crash rates. However, the authors repeatedly acknowledge that their findings are incomplete and do not establish causation. The abstract explicitly concedes, "An objective evaluation is still needed to determine if the presence of digital billboards really distracts driver's attention or not and, if distraction occurs, then to what extent."¹³

This is reiterated in the introduction, where the authors note that the relationship between driver behavior and digital advertising is "very complex" and that existing studies produce "somewhat contradictory conclusions."¹⁴ Further, in a review of previous existing studies, the study provides that those previous studies such as the Tantala and Tantala (2010) study examined the correlation between digital billboards and crashes and found that "crash rates near the digital boards showed a 0.3% decrease in crash rate...and the spatial component of the study found no significant clustering of crashes in the vicinity of billboard sites."¹⁵ Later in the study, the authors concluded the sample size was too small to allow for "a detailed statistical analysis or generalization of the findings."¹⁶

Thus, despite the findings of the Florida/Alabama study, those results may be only applied to the context of their geographical space, as other billboard studies have found that there is no correlation in crashes and the existence of digital billboards.

B. The crash data analysis lacks necessary controls and cannot isolate the effect of signage.

The study's crash analysis compares "digital billboard influence zones" with "control areas downstream of the original billboard location."¹⁷ But, the analysis fails to control for confounding factors such as roadway geometry, signal spacing, turning movements, or localized traffic

¹² *Id.* at p.3.

¹³ *Digital Advertising Billboards and Driver Distraction*, (2015) p. xi [Sisiopiku, et. al.].

¹⁴ *Id.* at p.4.

¹⁵ *Id.* at p.8.

¹⁶ *Id.*, at p. 43.

¹⁷ *Id.* at p. xi.

generators – i.e., site specific risks.¹⁸ Instead, the analysis relies on raw crash counts aggregated at locations with similar conditions in their respective states, but not entirely analogous to Highway 101.

For the Florida study, there are mixed results. While it provides that, in the aggregate, that was a 24.79% reduction in accidents at highway segments at locations "downstream" of digital displays, as opposed to the "upstream" approach to these displays, this conclusion does not tell the entire story. The data shows increased accidents because a handful of the highway segments analyzed had a disproportionately higher raw number of accident rates, possibly because these segments had greater volumes of traffic. It would have been more accurate to look at average crash rate per million trips. Indeed, the authors' own summary admits that certain crash types, such as rear-end and sideswipe collisions, are "overrepresented" in some zones.¹⁹ However, even then, no causative linkage is offered, and in most study areas, crash rates either remained flat, or actually *declined* after billboard installation (See fig. 1 below, illustrating that 70 percent of Florida sites showed *decreased* accidents near digital billboards). The analysis can be better described as merely correlation, and not indicative of any material evidence to a link of causation.

Table 3.2: Crash Summary Statistics at the Ten Digital Billboard Locations

Loc.	City	Upstream				Downstream				% Change in Crash Rate
		Len. (mi)	Total Crash Count	AADT	Crash Rate*	Len. (mi)	Total Crash Count	AADT	Crash Rate*	
1	Delray Beach	0.23	1	195,000	0.041	0.54	14	193,250	0.245	501.70
2	Miami	0.39	13	123,808	0.492	0.21	9	143,333	0.546	11.06
3	Doral	0.40	21	210,000	0.457	0.35	36	211,667	0.888	94.38
4	Miami	0.20	15	162,900	0.841	0.20	41	160,720	2.330	177.04
5	Miami	0.19	97	245,000	3.806	0.26	35	251,543	0.977	-74.32
6	Hallandale Beach	0.28	54	232,389	1.516	0.24	15	238,253	0.479	-68.39
7	Eatonville	0.40	3	160,000	0.086	0.40	3	151,500	0.090	5.61
8	Orlovista	0.36	1	60,000	0.085	0.17	2	60,000	0.358	323.53
9	Orlando	0.40	2	42,750	0.214	0.17	0	---	0.000	-100.00
10	Tampa	0.40	8	153,750	0.238	0.34	7	153,929	0.244	2.82
Total Crashes		3.25	215	---	0.809	2.88	162	---	0.608	-24.79

* Crash rate is in crashes per million vehicle miles per year.

¹⁸ See e.g., FHWA, *Driver Visual Behavior in the Presence of CEVMS*, at p.2. [where review of sites more analogous to Highway 101 provided that "the presence of CEVMS did not appear to be related to a decrease in looking toward the road ahead."]

¹⁹ *Digital Advertising Billboards and Driver Distraction* at p.8.

Fig 1. Showing that in highlighted sites, crash rates decreased .

Likewise, in Alabama, the data provides that in 50 percent of sites, accidents decreased in upstream sections of highway (See Fig 2.) This further strengthens the idea that there is no causative link between digital billboards and increased crash risk. Thus, these inconsistencies further erode the value of any analysis conducted.

Table 4.2: Crash Summary Statistics at the Digital Billboard Locations (Aggregate Value)

Loc	City	DBB Influence Zone (U/S)				DBB Non-Influence Zone (D/S)				% in Crash Rate
		Len. (mi)	Total Crash Count	Total VMT	Crash Rate*	Len. (mi)	Total Crash Count	Total VMT	Crash Rate*	
1	Mobile	0.453	6	30505326	0.197	0.453	7	30505326	0.229	16.67
2	Mobile	0.467	15	40099539	0.374	0.237	9	20350301	0.442	18.23
3	Montgomery	0.396	5	16523813	0.303	0.396	2	16523813	0.121	-60.00
4	Madison	0.373	4	19848580	0.202	0.373	1	19848580	0.050	-75.00
5	Huntsville	0.353	3	29193700	0.103	0.353	4	29193700	0.137	33.33
6	Huntsville	0.486	3	40193026	0.075	0.207	0	17119252	0.000	-100.00
7	Bessemer	0.505	4	23026801	0.174	0.505	5	23026801	0.217	25.00
8	Bessemer	0.497	9	22537757	0.399	0.497	0	22537757	0.000	-100.00
Total crashes		3.53	49	221928541	0.221	3.021	28	179105529	0.156	-29.19

*Crash rate refers to 'average annual crash rate' and is in crashes per million vehicle miles per year

Fig 2. Showing that in highlighted sites, crash rates decreased.

C. Driver perception surveys and simulator data are subjective and not predictive of real-world risk.

A large component of the study consists of online surveys and driving simulator exercises designed to assess driver attitudes and visual attention. These tools are useful for perception research, but they cannot substitute for field data. The surveys merely report that drivers, "perceived digital billboards as more dangerous than their static counterparts"²⁰ – a subjective opinion untethered to any performance outcome.

Similarly, the driving simulator study observed that drivers were more likely to look at digital billboards. However, the authors concede "[w]hile driving simulators provide much needed experimental control to test hypotheses with regard to driving safety, it is difficult to truly ascertain the degree to which simulated driving performance models real world driving behavior." thus, these results cannot be generalized without caution.²¹ Additionally, the simulation data should not be relied upon. When polled, 70 percent of simulation users said that the simulated signs looked dissimilar from a real driving experience.²² In looking at photos of the simulated environment (See Fig. 3.) the environment is not lifelike, and is very analog. The billboard in the environment is a big, glaring presence and not representative of actual driving conditions. Furthermore, A simulator is devoid of any real risk, thus a person in the simulator would likely not respect the digital road as much as they would a real life driving event, where there is actual risk of harm. And, even with this deescalated risk, no crash events or near-misses were recorded during these simulations.

²⁰ *Id.*

²¹ *Id.* at p. 82.

²² *Id.* at p. 77



Fig 3. Showing that simulator does not reflect a realistic driving environment.

III. Review of FHWA and OAAA studies on Digital Billboard Safety

A. Federal field research confirms no operational safety risk from digital billboards.

The FHWA has conducted multiple field and laboratory-based studies evaluating the potential for digital billboards to impair driver attention or increase crash risk. Unlike the perception-based methodologies used above, FHWA's research design employed real-time instrumented vehicle monitoring²³ across multiple jurisdictions, including urban corridors in Richmond, Virginia and Reading, Pennsylvania.

The results consistently demonstrated that drivers maintained appropriate levels of forward roadway attention and that glances to digital signage were brief and well within accepted safety thresholds. FHWA concluded that the average glance duration toward a digital display was only 0.7 seconds, and that glances rarely exceeded two seconds.²⁴ The agency further noted that drivers directed their attention, typically, to the forward roadway at high levels across all conditions, and found similarly that there was no indication that digital displays present a safety risk to drivers.²⁵ These findings directly contradict the speculative assumptions underlying earlier distraction concerns and are based on substantially stronger empirical methods.

²³ See e.g., FHWA, *Driver Visual Behavior in the Presence of CEVMS*, at p.3.

²⁴ FHWA, *Driver Visual Behavior in the Presence of CEVMS*, at p.2.

²⁵ *Id.*

B. Multistate crash data shows no increase in collision rates following digital billboard installation.

In addition to eye-tracking studies, crash-rate analysis across multiple states supports the conclusion that digital billboards do not increase traffic incidents. A survey compiled by the OAAA, drawing from incident data in New York, Utah, and Ohio, showed no statistically significant change in crash frequency following the installation of digital billboards.²⁶ This outcome is consistent with earlier FHWA literature reviews, which emphasized that while digital signage may attract visual attention, that existing studies have not established a definitive causal link between electronic billboards and crash risk.²⁷ Importantly, the FHWA analysis was not based on glance duration alone, but was directly tied to operational outcomes and real-world driving behavior. These methodological distinctions render the FHWA and OAAA data significantly more probative for regulatory purposes in jurisdictions like Santa Clara.

IV. Review of Wachtel critique of FHWA methodology.

A. The Wachtel critique is a commentary, not an empirical study.

Jerry Wachtel, the author and president of The Veridian Group, Inc., does not present new empirical research or original data collection. Instead, the critique is a literature-based commentary on the FHWA's *Driver Visual Behavior in the Presence of Commercial Electronic Variable Message Signs (CEVMS)* report. As Wachtel himself acknowledges, "[t]his document is my own work. No person or organization has suggested or requested that I write it. It was done on my own time, and at my own expense. It is based on my reading and interpretation of the FHWA report."²⁸²⁹ The memo's conclusions and recommendations are thus not grounded in any new fieldwork, experimental design, or statistical analysis, but rather the author's opinions and interpretations of existing reports and peer reviewer comments.

Moreover, the Veridian critique's stated purpose is to "shine a light on this long-awaited FHWA research study, to allow independent readers to review the FHWA documents and this report, and to reach their own conclusions about the validity of the agency's findings"³⁰ This self-characterization underscores that the critique is not a scientific study, but a call for further discussion and caution – it should be characterized as no different than a concerned citizen's public comment.

B. The memo relies on "red flags" and hypothetical concerns, not demonstrated causation.

²⁶ OAAA, *The Truth About Digital Billboards and Traffic Safety* (2015), p.1.

²⁷ FHWA, *Research Review of Potential Safety Effects of Electronic Billboards on Driver Attention and Distraction*, p.20.

²⁸ Wachtel, *A Peer-Reviewed Critique of the Federal Highway Administration (FHWA) Report Titled: "Driver Visual Behavior in the Presence of Commercial Electronic Variable Message Signs (CEVMS)"*, at p. 8.

²⁹ We also note that Wachtel drafted this critique after being let go as a contractor working on the FHWA COTR report.

³⁰ *Id.* at p. 12.

The Veridian critique's central approach is to identify what it calls "red flags," i.e., alleged discrepancies or limitations in the FHWA report's methodology and reporting between the draft report and the final draft. Wachtel states, "I have begun this technical discussion in this report with what I have called 'red flags'...that are so central to the conclusions reached by the authors that they call into question the adequacy and accuracy of the project as a whole."³¹ However, these "red flags" are not themselves evidence of causation between digital billboards and traffic safety impacts, Wachtel himself claims, "these red flags require no interpretation on the part of the reader to understand the serious unresolved errors made by FHWA."³² Rather, these "red flags" are hypothetical or procedural concerns that, at most, suggest areas for additional clarification or further research. The critique conceding that knowledge progresses from research that confirms its hypotheses. So, how can Wachtel's hypotheses be progressed without research? Nowhere does the critique present empirical evidence that digital billboards cause driver distraction or crashes; it merely asserts that the FHWA study could be designed differently or more comprehensively.

C. The FHWA analysis remains the most comprehensive field study to date.

The FHWA report remains the most applicable large-scale, instrumented vehicle study of its kind, utilizing direct measurement of driver eye glances in real-world traffic conditions. The Wachtel critique, by contrast, does not present any alternative data (aside from citing smaller studies). The critique's call for a "definitive study"³³ implicitly acknowledges that such a study does not yet exist and that the FHWA report, despite any perceived limitations, currently represents the best available science on the subject. Furthermore, the critique's suggestion that "[s]tate and local governments...adopt a cautious and conservative approach to digital billboard control and regulation until such time as a definitive study is available,"³⁴ is not a rebuttal of FHWA's findings, but an expression of policy preference in the absence of contrary empirical evidence.

V. Review of Hall & Madsen (2022) analysis.

A. The Hall & Madsen study examines a different phenomenon than digital billboards i.e., negative content.

The Hall & Madsen study focuses exclusively on the impact of highly salient, negatively framed fatality count messages displayed on government-operated dynamic message signs, not commercial digital billboards. The authors note that their context is "a seemingly innocuous behavior campaign" that is "expressly designed to be salient" and negatively framed to provoke an emotional response.³⁵ This is fundamentally different from the typical content and purpose of digital billboards, which are commercial, and generally do not display anxiety-inducing statistics or negative framing.

The authors acknowledge that their findings are most relevant to "generic, in-your-face safety messages" and that the message and timing of behavioral interventions should be carefully

³¹ *Id.*

³² *Id.*

³³ *Id.* at p.4.

³⁴ *Id.*

³⁵ Hall & Madsen, *Can behavioral interventions be too salient? Evidence from traffic safety messages*, p.1.

designed so as not to overburden a driver's cognitive load.³⁶ Indeed, as shown in the Figure 4 below, these displays are not digital billboards, but instead typical safety messages seen throughout the state.³⁷



Fig 4. Example of safety message displayed as part of safety campaign.

The validity of their results for other types of roadway signage, including digital billboards, is not established. In fact, the study's supplemental materials explicitly state that "there remains a debate on whether [digital] billboards cause crashes,"³⁸ noting that content may be the primary determiner on driving habits. Indeed, in another Texas study, researchers found that crash data for digital billboards was within confidence levels (i.e., not significant and within the margin of error).³⁹ Furthermore, while the study notes that driving simulators provide that driving habits are worse in the presence of digital billboards – we note above that simulators cannot be relied upon as a method to determine actual driving habits in real world environments. Hall & Madsen's proposed mechanism for increased crashes is that negatively framed messages draw too much attention and interferes with a driver's ability to respond to changes in traffic

³⁶ *Id.* at p.6.

³⁷ *Id.* at p. S17

³⁸ *Id.* at p.5.

³⁹ Texas Department of Transportation Research Project 0-7138 Video Meeting at 23:00-26:00.

conditions.⁴⁰ The study provides evidence that the effect is strongest when fatality count is the highest, and that "displaying a higher fatality count (i.e., a plausibly more attention-grabbing statistic) causes more crashes than displaying a small one."⁴¹ This mechanism is not applicable to digital billboards, which are not designed to shock or induce anxiety, but rather convey commercial messages that are typically less cognitively demanding.

B. The study's policy implications are limited to government safety campaigns.

The authors' main policy recommendation is to create fatality rate campaigns as a low-cost way to improve traffic safety.⁴² They do not recommend restrictions on digital billboards or commercial signage. Their conclusion is that negative fatality signs can be distracting, leading to the government's intent of lessening accidents backfire with increased accident rates. However, this is linked to the anxiety inducing content, and not the distraction of signage in general. Thus, the Hall & Madsen study does not address, let alone rebut, the findings of the FHWA analysis regarding digital billboards. The study is narrowly focused on the unique effects of negatively framed government messages and does not present evidence of causation between digital billboards and traffic safety impacts. As such, it provides no scientific basis to overturn the conclusions of the FHWA report, which remains a comprehensive real-world analysis of driver visual behavior in the presence of digital billboards.

Taken as a whole, the body of research – both those studies as identified by the City and others conducted by, or under the direction of federal transportation agencies – confirms that the relationship between digital billboards and driver safety is inherently complex. As several of the reports acknowledge (including the Swedish study and Florida/Alabama report) the visual impact of digital signage varies depending on numerous factors, including roadway design, driver familiarity, and sign operation parameters. This complexity is precisely why no peer-reviewed study to date has been able to conclude that digital billboards, when regulated for brightness and dwell time, cause driver impairment or increase crash risk. The evidence instead supports the view that modern digital billboards, operating in accordance with federal and state standards, does not pose a measurable safety hazard. Finally, in response to the City's concern on this issue, Outfront hired Abrams and Associates Traffic Engineers to analyze traffic accident data near the digital signs to determine any correlation. While the data available was not adequate to provide any meaningful conclusions, as discussed in Steve Abrams letter (attached), it should be noted that Outfront worked in good faith to thoroughly address all of the City's concerns. Accordingly, we respectfully request that the Planning Commission approve Outdoor Media's request for project approvals related to construction of a digital display at 1700 Duane Avenue.

⁴⁰ *Id.* at p.1.

⁴¹ *Id.* at p.1.

⁴² *Id.* at p.6.

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Sincerely,

A handwritten signature in blue ink, appearing to read "Chris Powell", is positioned above the printed name.

Christopher L. Powell
Partner

CLP