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Re: Notice of Preparation of a Draft Environmental Report for Amendments to Title 23 of the San Jose Municipal Code for Signs – File No: PP20-004

Dear Ms. Aggarwal,

Loma Prieta Chapter of the Sierra Club and the Santa Clara Valley Audubon Society submit the following EIR scoping comments for the proposed amendment to Title 23 (Sign Ordinance) of the San Jose Municipal Code to:

1. allow free-standing billboard structures on freeway-facing non-City-owned sites, and consider building-mounted programmable signage and signs displaying off-site commercial speech on certain non-City owned sites within the Downtown Sign Intensification Zone and the North San Jose Development Policy Area;
2. explore signage on public right-of-way to allow off-premise commercial advertising along public amenities, street furniture, and transit facilities; and
3. evaluate illumination parameters for illuminated and programmable signs.

Our organizations and our thousands of members in San Jose are all working to protect our common natural resources, and we are greatly concerned with detrimental impacts of programmable electronic billboards and signs to biological resources, the night sky, the aesthetic character of our region, and the health and quality of life of our region's residents.

We are opposed to allowing additional electronic billboards and signs and encourage the City of San Jose to tighten regulation and reduce, rather than increase their prevalence and impacts. We urge the City to adopt the No Project alternative.

Project Description

Please include the following information as part of the Project Description:

1. Fully describe the project objectives in plain language so alternatives can be evaluated by the public.
2. For baseline purposes, measure the current light intensity in each of the areas where electronic signs will be allowed so that incremental impacts can be mitigated as needed.
3. Describe and provide a map of all construction staging sites for both obsolete sign removals and new sign construction.

4. Describe and provide a map for required utility infrastructure improvements for each site
5. Include full-text of the proposed ordinance to the extent feasible
6. The NOP states the changes will apply to non-City owned sites as identified citywide and does not further describe specific applications within the Downtown Sign Zone and North San Jose Development Policy Area. Please elaborate and provide specific information so the public can understand how the ordinance will apply differently in these zones or in different parts of the City.

Alternatives

Our organizations are opposed to this project, and support the No Project Alternative. If the project does move forward, please study a Reduced-Scale Alternative that incorporates one or more of the following:

1. We urge the City of San Jose to shelve this project and avoid electronic billboards and signs. We support the No Project alternative.
2. If the City proceeds, we ask for an alternative that would reduce the number of permitted sites for billboards, increase the distance between sites, and disallow billboards on both sides of a road. Increase the replacement ratio (existing vs. new signs) to a minimum of 10:1.
3. Provide an alternative that uses a replacement ratio (existing vs. new signs) based on energy use instead of a replacement ratio. Per the International Dark-Sky Association guidance, "EMCs can be adjusted by time of day to changing traffic and ambient light conditions, and may require less electricity than legacy installations given the high efficiency of LEDs." A programmable electronic sign should be required to use less energy than the energy per day currently used by the signs it will replace. This would mitigate the energy impacts of this ordinance update and contribute to reducing greenhouse gas emissions.
4. Require existing billboards replaced by a new electronic sign be within a certain radius (.5 or 1 mile) of the new sign.
5. A large number of sites appear to be identified along Highway 87 which runs parallel to the Guadalupe River and especially concentrated near the Arena Green (confluence point) and near Coleman Avenue. Currently there virtually no billboards along this highway. Another concentration of sites along Highway 237 also appear to be near the River. We ask for an alternative that removes any sites within a 300-foot riparian setback from the riparian corridor (as defined by Council Policy 6-34) – including near bridges, and minimizes the concentration of new signs near the edge of this setback.
6. Increase the non-operation hours for electronic signs. Require signs be switched off completely after 11p.m. and remain off until one hour before sunrise. International Dark-Sky Association lists this timing as a minimum requirement to provide greater protection of the nighttime environment and to meet the currently accepted standards of sustainability. To further mitigate biological impacts, wait until *one hour after sunrise* due to bird migration. Night-flying migratory songbirds land right before sunrise before continuing on their migration the next evening.

References

1. International Dark-Sky Association, "Guidance for Electronic Message Centers (EMCs)," *International Dark-Sky Association*, May 10, 2019.
<https://www.darksky.org/ida-announces-lighting-guidelines-for-electronic-messaging-centers/>

Policies and Regulations

The following goals, policies and regulations may apply to this project. Please discuss how the Project complies with:

1. The California Air Resources Board targets under AB 398 to reduce GHG emission to 40% below 1990 levels by 2030 and 80% below 1990 levels by 2050.
2. Climate Smart San José.
3. San Jose Council Policy 4-3, Outdoor Lighting on Private Developments, which provides for adequate light for nighttime activities while protecting the continued enjoyment of the night sky and continuing operation of the Lick Observatory by reducing light pollution and sky glow.
4. San Jose Riparian Corridor Policy Study (1999), Council Policy 6-34 (Riparian Corridor Protection and Bird Safe Design) and Valley Water Guidelines and Standards for Land Use Near Streams.
5. The requirement to obtain a "Determination of No Hazard to Air Navigation" from the Federal Aviation Administration (FAA).

References:

1. Climate Smart San Jose
<https://www.sanjoseca.gov/your-government/environment/climate-smart-san-jos>
2. The San Jose Riparian Corridor Study can be found here: <http://calsj.org/>
3. <https://www.valleywater.org/contractors/doing-businesses-with-the-district/permits-for-working-on-district-land-or-easement/guidelines-and-standards-for-land-use-near-streams>

Analysis and Mitigation Categories

1. Aesthetics

- a. The NOP provides "the EIR will describe the existing visual character of the proposed signage sites and vicinity." Please provide existing visual character both during the day and at night for the entire area that electronic billboards will be visible from.
- b. Please provide specifications for allowed signage, including but not limited to height above ground level, sign shape, orientation regarding the freeway, massing and dimensions, brightness, density, permitted cadence (flashing, erratic displays) and sign density/spacing.
- c. Based on these specifications, please provide a Photometric Analysis for each site. Please include a cumulative analysis if more than one sign will be visible, including cumulative light shed from potential signs on both city owned and non-city owned sites.

- d. Elevated freeways such as 87 and 280 provide views of the mountains that are prized by residents. Please analyze the impact on the views of the mountains from freeways during the day and the night.
- e. For every proposed site, analyze the effect on drivers' enjoyment of visual resources such as creeks, and open space.
- f. For every proposed site, analyze the effect on users of public resources such as parks, trails and open space, including the Guadalupe Creek and other trails.
- g. Include all aspects of the recommended and Best Management Practices described in the International Dark-Sky Association's "Guidance for Electronic Message Centers (EMCs)" either in the proposed ordinance or as mitigation measures. <https://www.darksky.org/wp-content/uploads/2019/05/EMC-Guidelines-IDA2019-1.pdf>

2. Human Helath

- a. Digital billboards are extraordinarily bright, and can disrupt sleep by residents when they shine into windows. This is not a trivial impact, and one cannot expect residents near such billboards to have to purchase and install blackout shades. Sleep is necessary for restoring physiological and biological processes (Bennington and Heller 1995), in consolidating memory (Drosopoulos et al. 2007), and for maintaining a healthy metabolism (Taheri et al. 2004). Darkness in the sleeping environment is tied strongly to sleep duration and quality, including the production of key hormones such as the pineal neurohormone melatonin, which is produced at night under dark conditions (Arendt 2005). For the elderly and others in institutional care, lights (and noise) have been shown to be particularly disruptive (Schnelle et al. 1999). The evidence that outdoor lighting results in indoor exposure is found in epidemiological studies (Kloog et al. 2008; Kloog et al. 2009a; Kloog et al. 2009b; Kloog et al. 2011), and such exposure is implicated in an increased risk of breast cancer (Stevens 1987; Hansen 2001b; Hansen 2001a; Stevens and Rea 2001; Schernhammer et al. 2006; Kloog et al. 2009a; Kloog et al. 2011) and prostate cancer (Pukkala et al. 2006; Kloog et al. 2009b). Light at night from digital billboards can also harm other groups of animals, such as birds (Kempnaers et al. 2010; Longcore 2010).

References:

1. Bennington, J. H., and H. C. Heller. 1995. Restoration of brain energy metabolism as the function of sleep. *Progress in Neurobiology* 45:347–360.
2. Drosopoulos, S., C. Schulze, S. M. Fischer, and J. Born. 2007. Sleep's function in the spontaneous recovery and consolidation of memories. *Journal of Experimental Psychology: General* 136:169–183.
3. Taheri, S., L. Lin, D. Austin, T. Young, and E. Mignot. 2004. Short sleep duration is associated with reduced leptin, elevated ghrelin, and increased body mass index. *PLoS Medicine* 1:e62.
4. Arendt, J. 2005. Melatonin: characteristics, concerns, and prospects. *Journal of Biological Rhythms* 20:291–303.

5. Schnelle, J. F., C. A. Alessi, N. R. Al-Samarrai, R. D. Fricker, Jr., and J. G. Ouslander. 1999. The nursing home at night: effects of an intervention on noise, light, and sleep. *Journal of the American Geriatrics Society* 47:430–438.
6. Kloog, I., A. Haim, and B. A. Portnov. 2009a. Using kernel density function as an urban analysis tool: investigating the association between nightlight exposure and the incidence of breast cancer in Haifa, Israel. *Computers, Environment and Urban Systems* 33:55–63.
7. Kloog, I., A. Haim, R. G. Stevens, M. Barchana, and B. A. Portnov. 2008. Light at night co- distributes with incident breast but not lung cancer in the female population of Israel. *Chronobiology International* 25:65-81.
8. Kloog, I., A. Haim, R. G. Stevens, and B. A. Portnov. 2009b. Global co-distribution of light at night (LAN) and cancers of prostate, colon, and lung in men. *Chronobiology International* 26:108–125.
9. Kloog, I., B. A. Portnov, H. S. Rennert, and A. Haim. 2011. Does the modern urbanized sleeping habitat pose a breast cancer risk? *Chronobiology International* 28:76–80.
10. Stevens, R. G. 1987. Electric power use and breast cancer: a hypothesis. *American Journal of Epidemiology* 125:556–561.
11. Stevens, R. G., and M. S. Rea. 2001. Light in the built environment: potential role of circadian disruption in endocrine disruption and breast cancer. *Cancer Causes & Control* 12:279– 287.
12. Hansen, J. 2001a. Increased breast cancer risk among women who work predominantly at night. *Epidemiology* 12:74–77.
13. Hansen, J. 2001b. Light at night, shiftwork, and breast cancer risk. *Journal of the National Cancer Institute* 93:1513–1515.
14. Schernhammer, E. S., C. H. Kroenke, F. Laden, and S. E. Hankinson. 2006. Night work and risk of breast cancer. *Epidemiology* 17:108–111.
15. Pukkala, E., M. Ojamo, S. Rudanko, R. G. Stevens, and P. K. Verkasalo. 2006. Does incidence of breast cancer and prostate cancer decrease with increasing degree of visual impairment. *Cancer Causes and Control* 17:573–576.
16. Kempnaers, B., P. Borgström, P. Loës, E. Schlicht, and M. Valcu. 2010. Artificial night lighting affects dawn song, extra-pair siring success and lay date in songbirds. *Current Biology* 20:1735–1739.
17. Longcore, T. 2010. Sensory ecology: night lights alter reproductive behavior of blue tits. *Current Biology* 20:R893–R895.

3. Biological Resources

- a. During the migratory season birds can confuse bright light with the sun, drawing them towards illuminated structures and often causing them to collide with the facade. Corridors along rivers, streams, and creeks provide habitat to many migratory and resident avian species and are especially sensitive to increases in light pollution. In San Jose, we must also consider the sensitivity of the burrowing owl population at the Water Pollution Control Plant.
- b. For all wildlife, critical behaviors such as sleep, reproduction, communication, foraging for food, and hiding from predators are sensitive to

increased illumination even on a temporary basis. Artificial lighting generated by billboards and other advertisements eliminate a significant period of potential activity time for a species, posing long-term negative consequences. Illumination of billboards and other signs should be controlled to minimize cumulative effects of lighting on wildlife.

- c. Please note that the incremental and cumulative impacts of light pollution to biological resources are not disputable, and that scientific evidence shows that the effects of light pollution are incremental and cumulative (Rich and Longcore, 2006). The analysis of this impact cannot assume that, because light pollution already exists at or near any of the potential sites, additional disruption (incremental and cumulative impact) has no adverse effects on the environment.
- d. Electronic signs can potentially have ecosystem-wide, pervasive and significant impact to biological resources because they affect every living thing throughout the entire food chain.
- e. Please provide meaningful mitigation, including turning off electronic billboard at 11 p.m. and keeping it off until an hour after sunrise at the earliest. This should help mitigate impacts to ecosystem and human health, to migratory birds and to aquatic species.

References:

1. Catherine Rich and Travis Longcore (Editors). Ecological Consequences of Artificial Night Lighting. 2006. <http://www.urbanwildlands.org/ecanlbook.html> and <http://urbanwildlands.org/Resources/LongcoreRich2004.pdf>
2. Elizabeth Perkin et al. The influence of artificial light on stream and riparian ecosystems: questions, challenges, and perspectives. 2011. <https://esajournals.onlinelibrary.wiley.com/doi/10.1890/ES11-00241.1>
3. Monika Henn, Effects of artificial light on the drift on macroinvertebrates in urban central Texas streams. 2013. <https://digital.library.txstate.edu/handle/10877/4615>
4. Zúñiga, D. *et al.* Abrupt switch to migratory night flight in a wild migratory songbird. *Sci. Rep.* **6**, 34207; doi: 10.1038/srep34207 (2016). <https://www.nature.com/articles/srep34207>
5. Raap, T. *et al.* Light pollution disrupts sleep in free-living animals. *Sci. Rep.* **5**, 13557; doi: 10.1038/srep13557 (2015). <https://www.nature.com/articles/srep13557>
6. Perry, Gad & Buchanan, Bryant & Fisher, R. & Salmon, Michael & Wise, Sharon. (2008). Effects of night lights on urban reptiles and amphibians.. *Herpetological Conservation* 3. https://www.researchgate.net/publication/216453854_Effects_of_night_lights_on_urban_reptiles_and_amphibians

4. Cultural Resources

- a. Consider impacts on the cultural and recreational resource provided by the James Lick Observatory on Mount Hamilton just outside of San Jose. The observatory and UC Berkeley should be notified of these ordinance changes and given the opportunity to provide comments.

- b. Analyze the impacts of small digital billboards in the public right of way on public sidewalks and street furniture as well as any potential impacts on the aesthetics and character of historic and other landmark buildings.

5. Energy

- a. Please provide an analysis of how electronic billboards and signs comply with the City climate-resilience and energy saving ordinances and policies, including Climate Smart San José.
- b. Several articles have looked at energy use of electronic signs. Depending on how they are designed these signs have the potential to use substantial amounts of electricity. Please analyze the potential high-end of energy use for each alternative.
- c. Please consider the following factors when analyzing energy use (from “Shedding Light on Digital Signs,” Heather LaVarnway and Emily Dozier):
 - i. The number of bulbs involved. Although one LED bulb is more efficient than one incandescent bulb, digital signs are made up of thousands of LED bulbs.
 - ii. The number of hours the sign is on. Digital signs are lit all the time, while lamps providing external sign illumination are only lit at night.
 - iii. Keeping the LED display cool. Digital signs work best within a certain temperature range. When placed outside and exposed to the elements, they must include a cooling system to ensure the sign doesn’t overheat.
- d. Please do not use studies funded by the outdoor advertising industry to estimate energy use. Look to more objective studies. Research by the Central Texas chapter of the U.S. Green Building Council found the energy consumption of one digital billboard 49 times that of a conventional billboard (see Edward T. McMahon, “Billboards: The Case for Control”).
- e. As a Best Management Practice, energy use and luminance should be measured at the time of installation to verify that any requirements to reduce energy use have been met.

References:

1. Heather LaVarnway and Emily Dozier, “Shedding Light on Digital Signs,” Plan On It, March/April 2019, Dutchess County Planning Federation.
<https://www.dutchessny.gov/Departments/Planning/Docs/MarchApril2019-DCPFNews-DigitalSigns-printerfriendly.pdf>
2. “Do Digital Billboards Waste Energy?”, New York Times, December 20, 2010.
https://green.blogs.nytimes.com/2010/12/20/do-digital-billboards-waste-energy/?_php=true&_type=blogs&_r=0
3. Edward T. McMahon, “Billboards: The Case for Control,” Planning Commissioners Journal, Number 81, Winter, 2011, p. 1.
<http://plannersweb.com/2011/01/billboards-the-case-for-control/>
4. BanBillBoardBlight, Do Electronic Billboards Belong in a “Green” City?
<http://banbillboardblight.org/do-electronic-billboards-belong-in-a-green-city/>

6. Greenhouse Gas Emissions

- a. Please analyze greenhouse gas emissions that would be generated due to:
 - i. Operations of the signs
 - ii. Demolition of obsolete signs and construction of new signs
 - iii. Traffic jams due to increase in the frequency of accidents (see Transortation below)

7. Transportation

- a. Please analyze the impact of progammable electronic signs on traffic safety. A growing number of studies from around the world are showing that digital billboards negatively affect traffic safety:
 - i. A 2016 study by Berkeley Veridian Group's president Jerry Wachtel reviewed over 40 studies and research papers published by academic, industry and government entities. The study broadly summarizes that “the more recent studies have tended to find that outdoor advertising signs, particularly CEVMS, attract drivers’ attention, and that more dramatic and salient signs attract longer and more frequent glances. This attention is often captured through a ‘bottom up’ physiological process, in which the driver attends to the sign unintentionally and unconsciously, with the eyes captured involuntarily by the sign’s changing imagery, brightness, conspicuity, and/or movement. Several of the reported studies suggested that the distraction caused by outdoor advertising signs could be tolerated by experienced drivers and when attentional or cognitive demands of the driving task were low, but that the risk increased when such signs competed for the driver’s visual attention with more demanding road, traffic, and weather conditions, when travel speeds were higher, or when an unanticipated event or action (such as a sudden lane change or hard braking by a lead vehicle) occurred to which the driver had to respond quickly and correctly. In addition, the more recent research continues to show that the drivers most susceptible to unsafe levels of distraction from roadside billboards are the young (who are more prone to distraction and less adept at emergency vehicle response) and the elderly (who have more difficulty with rapidly shifting attention, poorer night vision and glare susceptibility, and slower mental processing time). As will be seen in this Compendium, these concerns are heightened today, with our elderly driver population growing quickly, traffic increasingly dense, more roads under maintenance or repair (construction and work zones create added risks), and larger, brighter digital and video roadside advertising signs competing for the driver’s attention. Finally, the most recent epidemiological studies (dating from 2014 and 2015) have begun to demonstrate what has long been suspected but not proven – that roadside billboards are associated with increases in crash rates where such billboards are located”

- ii. Research on driver behavior and performance shows that drivers are more distracted by digital billboards than by other signs on the same stretch of road (Dukic et al., 2013). This study was conducted on a heavily trafficked stretch of highway in Stockholm, Sweden, where the digital billboards were installed for the experiment. Drivers looked at the digital billboards longer and more often than they did at non-digital signs (Dukic et al. 2013); this has also been shown by other studies (Beijer et al. 2004; Smiley et al. 2005). The Swedish results confirmed previous simulator research showing that drivers took more time to react to road conditions when exposed to electronic billboards, especially among novice and elderly drivers (Edquist et al. 2011). Previous researchers have also found an increase in side-swipe and rear-end crashes attributable to electronic billboards (Wisconsin Department of Transportation 1994). Based on the results of the Swedish study described above, which demonstrated driver distraction from electronic billboards, the Swedish government discontinued the tests and removed the billboards (Dukic et al. 2013). The City of San Jose should do the same to protect the health and safety of its residents, and to make the environment friendlier for other species as well, by removing all existing digital billboards and banning them permanently.
- iii. The most recent systematic literature review of 90 unique documents is titled 'Impact of road advertising signs on driver behavior and implications for road safety: A critical systematic review' (Oviedo-Trespalacios et.al, 2019). This review concludes, "When comparing the effect of different types of roadside advertising signs on driver task demands, it has been demonstrated that changeable (i.e., digital with multiple advertising signs) roadside advertising signs represent a greater distraction to drivers than static (i.e., single advertising sign) roadside advertising signs".
- iv. In contrast, a recent study demonstrated that static roadside advertising does not affect situation awareness of drivers (Young et al., 2017).
- v. Vision Zero San Jose aims to provide "safe, comfortable, attractive and convenient access and travel." While the focus of the plan is City Streets, its goals should extend to ALL roads in San Jose. Please analyze how electronic billboards will affect the achievement of Vision Zero's transportation safety in San Jose.

References:

1. Compendium of Recent Research Studies on Distraction from Commercial Electronic Variable Message Signs (CEVMS). 2016 J. Wachtel, CPE President, The Veridian Group, Inc. Berkeley, California
2. Dukic, T., C. Ahlstrom, C. Patten, C. Kettwich, and K. Kircher. 2013. Effects of electronic billboards on driver distraction. *Traffic Injury Prevention*
3. Beijer, D., A. Smiley, and M. Eizenman. 2004. Observed driver glance behavior at roadside advertising signs. *Transportation Research Record* 1899:96–103.
4. Smiley, A., B. Persaud, G. Bahar, C. Mollett, C. Lyon, T. Smahel, and W. L. Kelman. 2005. Traffic safety evaluation of video advertising signs. *Transportation Research Record* 1937:104–112.
5. Edquist, J., T. Horberry, S. Hosking, and I. Johnston. 2011. Effects of advertising billboards during simulated driving. *Applied Ergonomics* 42:619–626.
6. Wisconsin Department of Transportation. 1994. Milwaukee County Stadium Variable Message Sign Study. Wisconsin Department of Transportation.
7. Oviedo-Trespalacios, O., V. Truelovea, B. WatsonaJane and A.Hintonb. 2019.
8. Impact of road advertising signs on driver behavior and implications for road safety: A critical systematic review. *Transportation Research Part A* 122 (2019) 85–9886
9. K.L. Young, A.N. Stephens, D.B. Logan, M.G. Lenné. 2017. Investigating the impact of static roadside advertising on drivers' situation awareness. *Appl. Ergon.*, 60, pp. 136-14
10. Vision Zero San Jose
http://sanjose.granicus.com/MetaViewer.php?meta_id=630650

8. Cumulative Impacts

- a. Please include a map that shows both City owned and non-City-owned potential sites, please provide an estimate of how many electronic billboards can be placed on each of these sites.