Community Health Commission

Community Health Commission
Thursday, July 27, 2023, 6:30 – 9:00pm
Meeting Location:
Judge Henry Ramsey Jr. South Berkeley Senior Center
2939 Ellis Street, Berkeley, CA 94703
Phone: 510-981-5170

AGENDA

Preliminary Matters

1. Call to Order by Chair Katz
2. Roll Call by Secretary
3. Announcements & Introductions
4. Confirm note taker
5. Public Comment
   The public may comment virtually about any item **not** on the agenda. Public comments are limited to two minutes per speaker.

Discussion and Action Items

Public comments regarding agenda items will be heard while the Commission is discussing the item. Public comments are limited to two minutes per speaker.

1. Approval of Draft Minutes from 5/25/2023 Regular Meeting – ***Attachment 1***
2. Approval of Draft Minutes from 6/22/2023 Regular Meeting – ***Attachment 2***
3. Add/Remove Subcommittees/ Members (Katz) – ***Attachment 4***
4. Public Health Officer's Report
5. Commission Chair's Report by Chair Katz
6. Subcommittee Reports
   a. Basic Needs
   b. Chronic Disease Prevention
   c. Entheogenic
   d. Health Equity
   e. Health Facilities
   f. Policy Tracking
7. City Council Referral on Long Term Care Facility Oversight - Bartlett (Katz) – ***Attachment 7***
8. Light Pollution Control (Katz) – ***Attachment 8***

Adjournment

Attachments

1. Draft minutes from May 27, 2023 CHC Regular meeting
2. Draft minutes from June 22, 2023 CHC Regular meeting
3. CHC 2023 Work Plan
4. CHC Subcommittee Roster 2023

5. CHC Meeting Calendar 2023
6. City Council and Community Health Commission Timeline 2023
7. Long Term Health Care Facility Oversight Referral
8. Light Pollution Control
9. Friends of Five Rivers informational correspondence

The next meeting of the Community Health Commission will be held on Thursday, September 28, 2023 with a *deadline of Tuesday, September 19, 2023 for the public's submission of agenda items and materials for the agenda packet.* Dates are subject to change. Please contact the Commission Secretary to confirm.

CONFLICT OF INTEREST INFORMATION: City commissioners, pursuant to Government Code section 1090, are responsible for recusing themselves from all commission discussions and actions in which they may have a conflict of interest. If your affiliation, paid or unpaid, with other agencies has changed since the last meeting of this commission, your ability to participate in commission activities may have changed. Individual guidance is available from the City Attorney's Office (CAO). Commissioners are encouraged to consult with the CAO if they have questions, concerns, or would like clarification about matters related to potential conflicts of interest.

The CAO may be reached at:
Email: attorney@cityofberkeley.info
TEL: (510) 981-6950 TDD: (510) 981-6903, FAX: (510) 981-6960
2180 Milvia Street 4th Floor, Berkeley, CA 94704 - Office Hours: Mon-Fri, 8am-5pm

AMERICAN DISABILITIES ACT DISCLAIMER: This meeting is being held in a wheelchair accessible location. To request a disability-related accommodation(s) to participate in the meeting, including auxiliary aids or services, please contact the Disability Services specialist at 981-6418 (V) or 981-6347 (TDD) at least three business days before the meeting date. Please refrain from wearing scented products to this meeting.

SB 343 DISCLAIMER:
Any writings or documents provided to a majority of the commission regarding any item on this agenda will be made available for public inspection at the Public Health Division located on 1947 Center Street, Berkeley, CA 94704.

COMMUNICATION DISCLAIMER:
Communications to Berkeley boards, commissions or committees are public record and will become part of the City's electronic records, which are accessible through the City's website. Please note: e-mail addresses, names, addresses, and other contact information are not required, but if included in any communication to a City board, commission or committee, will become part of the public record. If you do not want your e-mail address or any other contact information to be made public, you may deliver communications via U.S. Postal Service or in person to the secretary of the relevant board, commission or committee. If you do not want your contact information included in the public record, please do not include that information in your communication. Please contact the commission secretary for further information.

Community Health Commission

Community Health Commission

ATT - 01

DRAFT MINUTES
Regular Meeting, Thursday, May 25, 2023

The meeting convened at 6:50p.m. with Commission Chair Katz presiding.

ROLL CALL

Present: Commissioners Bechtolsheim, Nightingale, Smart, Spigner, Adams, Lee, Katz.

Absent: N/A

Excused: Commissioner Webber.

Staff present: Dr. Lisa Hernandez, Kellie Knox.

Community Members: Nefer Kelley, Monique Blodgett, Emily Pham.

COMMENTS FROM THE PUBLIC: None.

ACTION ITEM

1. M/S/C (Smart/Spigner): Motion to adopt minutes from the April 27, 2023, meeting.

Ayes: Commissioner Bechtolsheim, Nightingale, Smart, Spigner, Adams, Lee, Katz.

Noes: None.

Abstain: None.

Absent from vote: N/A

Excused: Commissioner Webber.

Motion Passed.

This meeting adjourned at 9:00 p.m.

Respectfully submitted, Kellie Knox, Commission Secretary.
Minutes will be voted on at June 22, 2023 meeting.

Community Health Commission

ATT-02

Community Health Commission

DRAFT MINUTES
Regular Meeting, Thursday, June 22, 2023

The meeting convened at 6:46p.m. with Commission Chair Katz presiding.

ROLL CALL

Present: Commissioner Rodriguez (temporary appt), Smart, Lee, Katz.

Absent: Commissioner Adams.

Excused: Commissioners Webber, Bechtolsheim, Spigner.

Staff present: Dr. Lisa Hernandez, Kellie Knox.

Community Members: Susan Schwartz.

COMMENTS FROM THE PUBLIC: Susan Schwartz

DISCUSSION ITEMS: Dr. Lisa Hernandez, Community Health Assessment Presentation.

This meeting adjourned at 9:00 p.m.

Respectfully submitted, Kellie Knox, Commission Secretary.

Minutes will be voted on at July 27, 2023 meeting.

ATT -03

Community Health Commission 2023 Work Plan

Guiding Philosophy: To look at health through the lens of equity, and to address, ameliorate, and abolish health inequities in Berkeley through our work while advancing other public health efforts.

Mission/Purpose:

1. Collaborate with the community and the Berkeley Health Officer Unit and Public Health Division, and City of Berkeley to eliminate health inequity by:
   a. Advocating for good policy to council that has the potential to improve the health of Berkeley residents that can be implemented, monitored, and evaluated.
   b. Representing the community through the diversity of this commission
   c. Increasing the public education/social marketing efforts, understanding, and awareness of issues.
   d. Advocating together with the residents of Berkeley most affected by institutional, social, organizational inequities/disparities.
   e. Providing a public forum for all community members to share concerns, ideas
2. Achieve general public health progress by being responsive to community needs and facilitating general health and safety.

Overall goals, issues & priorities: All issues can be addressed through a health equity lens.

➢ Include a focus on the impact of COVID-19 and the city's response to it

➢ Increase healthy food security

➢ Advocate for the expansion of affordable housing

➢ Continue to urge that Alta Bates Berkeley Medical Campus remain open while also helping to suggest actions to address consequences of planned closure

➢ Be responsive in potential recommendations to help Berkeley residents, and care
providers and clinics cope with potential federal disruption in healthcare policy and federal spending cuts

➢ Further address more social determinants of health

➢ Continue to be a community advocate to City Council to address structural, institutional, and health inequities impacting all underserved populations

➢ Work to have community health data measures documented in a timely manner
and to promptly evaluate and act on novel data such as the Health Status Report

➢ Work to support policies and initiatives that advance UHC such as Medicare for
all

➢ Advise the City Council as HHCS and Public Health Division develop their

strategic plans, community health assessment and community health improvement plan.

General steps and actions needed to meet priorities:

1. Conduct outreach to encourage Berkeley community members to engage with the CHC
2. Collaborate with other commissions to share resources and support recommendations
3. Focused/specialized ad-hoc subcommittees, as needed
4. Keep track of local, state, and federal policy and data flow

Specific steps and actions needed to meet priorities:

- ➢ Basic Needs Security

Focus on healthy food security and affordable/accessible housing

  - ○ In terms of healthy food security:
    - ■ Advocate for policies to mitigate unhealthy food consumption
    - ■ Advocate for affordability and accessibility of healthy foods in supporting programs like the Berkeley Food Institute, etc.,
  - ○ In terms of accessible/affordable housing:
    - ■ Advocate for affordable housing
    - ■ Advocate for increased rent control
  - ○ Connect with the community based organizations and appropriate city of Berkeley departments to acquire information about available resources for Berkeley residents.

- ➢ Chronic Disease Prevention
  - ○ Recommend interventions to address diabetes, obesity, heart diseases, and other chronic conditions highlighted by the Berkeley health status report.
  - ○ Recommend interventions to respond to deferred preventative care due to COVID-19

- ➢ Health Equity
  - ○ Review the Health Status Report- dialogues with staff and community to investigate the data and identify populations experiencing inequities, and recommend program interventions for the City Public Health Division
    - ■ Engage Stakeholders on LGBT health equity issues to help complement findings of the Health Status Report
    - ■ Investigate and implement efforts to improve immigrant access to health care
  - ○ Advocate for the implementation of strategies that will reduce health inequities:
    - ■ Investigate community access to telehealth and other technologies to improve healthcare equity
    - ■ Work on cultural competency for health care providers
    - ■ Continue to support the development of the African American Holistic Resource Center

- Health Facilities
  - Continue to recommend actions to keep Alta Bates open
  - Consider ways to increase emergency care access in Berkeley
  - Respond to City Council referral regarding Long Term Care Facilities
- Policy tracking
  - Track City Council minutes, state, and national legislative actions
  - Bring policy updated to the Commission as appropriate.

ATT-04

District	Last	First	Community Health Commission Subcommittees 2023				
			Health Facilities	Health Equity	Basic Needs Security	Chronic Disease Prevention	Entheogenic
1	Webber	Sara			X		
2	Bechtolsheim	Benjamin	X			X	
3	Nightingale	~~Jamila~~				X	
4	Smart	Karma		X	X		X
5	Spigner	Tora	X	X			
6	Adams	Joseph					X
7	Lee	Eric	X				
8							
M	Katz	Andy	X				
			4	2	2	2	2

2023 Commission Meeting Dates

ATT -05

Name of Commission: Community Health Commission

Commission Secretary: Kellie Knox

Please Note the Commission Meeting Dates for 2023 Below

Please fill in meeting date below. If no meeting for the month is scheduled please note as "No Meeting."

Example

Month	Meeting Day and Date	Time
February 2022	**Wednesday 2/10/2022**	**7:00 pm**

Month	Meeting Day and Date	Time
July 2022	**No Meeting**	

2023 Meeting Dates

Month	Meeting Day and Date	Time
January 2023	Thursday 1/26/2023	6:30 pm
February 2022	Thursday 2/23/2023	6:30 pm
March 2023	Thursday 3/23/2023	6:30 pm
April 2023	Thursday 4/27/2023	6:30 pm
May 2023	Thursday 5/25/2023	6:30 pm
June 2023	Thursday 6/22/2023	6:30 pm

Month	Meeting Day and Date	Time
July 2023	Thursday 7/27/2023	6:30 pm
August 2023	CHC Does not meet in August 2023	
September 2023	Thursday 9/28/2023	6:30 pm
October 2023	Thursday 10/26/2023	6:30 pm
November 2023	Thursday 11/23/2023	6:30 pm
December 2023	CHC does not meet in December 2023	

commission@cityofberkeley.info
City Clerk Department
Please contact our office at (510) 981-6908 with any questions.

ATT-06

2023			Thursday 12:00 PM	Thursday 12:00 PM	Monday 2:30 PM	Wednesday 11:00 AM	Thursday 5:00 PM
COUNCIL MEETING DATE	Reports Due to Dept. Director	Reports Due to CAO	Dept. Reports Due to Clerk **Day 33**	Agenda Committee Packet to Print **Day 19**	Agenda Committee Meeting **Day 15**	Final Agenda Meeting - (Print Agenda on wed.) **Day 13**	Council Agenda Delivery **Day 12**
Winter Recess [December 14, 2022 through January 16, 2023]							
Jan 17	12/1	12/1	12/15	12/29	1/4	1/4	1/5
Jan 31	12/9	12/9	12/29	1/12	1/16	1/18	1/19
Feb 14	12/29	12/29	1/12	1/26	1/30	2/1	2/2
Feb 28	1/12	1/12	1/26	2/9	2/8 (Tues)	2/15	2/10
Mar 14	1/26	1/26	2/9	2/23	2/22 (Tues)	3/1	3/2
Mar 21	2/2	2/2	2/16	3/2	3/6	3/8	3/9
Spring Recess [March 22 through April 10, 2023]							
Apr 11	2/23	2/23	3/9	3/23	3/27	3/29	3/30
Apr 25	3/9	3/9	3/23	4/6	4/10	4/12	4/13
May 9	3/23	3/23	4/6	4/20	4/24	4/26	4/27
May 23	4/6	4/6	4/20	5/4	5/8	5/10	5/11
May 30	4/13	4/13	4/27	5/11	5/15	5/17	5/18
Jun 6	4/20	4/20	5/4	5/18	5/31 (Tues)	5/24	5/25
Jun 13	4/27	4/27	5/11	5/25	5/29	5/31	6/1
Jun 27	5/11	5/11	5/25	6/8	6/12	6/14	6/15
Jul 11	5/25	5/25	6/8	6/22	6/26	6/28	6/29
Jul 25	6/8	6/8	6/22	7/6	7/10	7/12	7/13
Summer Recess [July 26 through September 11, 2023]							
Sep 12	7/27	7/27	8/10	8/24	8/28	8/30	8/31
Sep 19	8/3	8/3	8/17	8/31	9/6 (Tues)	9/6	9/7
Oct 3	8/11	8/11	8/25	9/8	9/12	9/14	9/15
Oct 10	8/25	8/25	9/8	9/22	9/28 (Wed)	9/28	9/29
Nov 7	9/15	9/15	9/29	10/13	10/19 (Wed)	10/19	10/20
Nov 14	9/28	9/28	10/12	10/26	10/30	11/1	11/2
Nov 28	10/12	10/12	10/26	11/10	11/13	11/15	11/16
Dec 5	10/19	10/19	11/2	11/17	11/20	11/22	11/23 (Wed)
Dec 12	10/27	10/27	11/9	11/23 (Wed)	11/27	11/29	11/30
Winter Recess [December 13, 2023 through January 15, 2024]							

Revised 09/29/2022

VTO Affected Dates

Holiday Affected Dates

Religious Holiday Affected Date

BEN BARTLETT
CITY COUNCILMEMBER, DISTRICT 3

ATT-07

CONSENT CALENDAR
December 14, 2021

To: Honorable Mayor and Members of the City Council
From: Councilmember Ben Bartlett
Subject: Health Care Facility Oversight

RECOMMENDATION

Refer to the City Manager and the Community Health Commission an assessment of the breadth of regulatory control the City of Berkeley can exert on skilled nursing facilities, and create a process of accountability if complaints are found to be substantiated that threaten, or could potentially escalate to the point of threatening, the wellbeing of patients and/or violate federal, state, or local law; the business license of the offending facility will be suspended until the skilled nursing facility submits a report demonstrating rectification of the situation.

BACKGROUND

The California Department of Public Health (CDPH) mandates that skilled nursing facilities provide 3.5 hours of patient care to each patient per day.[1] For instance, some care facilities in Berkeley are reported to have as few as 6 staffers serving 66 patients, meaning that even if the staff worked around the clock, at most they would be able to offer 2.1 staff hours per patient per day. In 2021 alone, the facility has received 12 complaints, but not a single one has been followed up by an enforcement action[2]. This is just a single example in an egregious pattern of lack of care met with lack of enforcement. In 2019, for example, skilled nursing facilities were found to violate an average of 23 federal and state laws per facility. Yet, in the 77 skilled nursing facilities across California, not a single regulation was enforced. As a result, there has been a history of negligence, mistreatment, and patient abuse within Californian care facilities.[3]

CURRENT SITUATION

The City has received numerous grievances from concerned community members over the quality of care in certain skilled nursing facilities in Berkeley. Community members complain of neglect, indifference, and harmful, negligent behavior with sometimes tragic consequences.

The City must address these hazards by creating internal procedures and policies designed to prevent further harmful acts. Precedence for license revocation policies can be found in other municipalities. For example, Chapter 6 Section 1.80 of Superior, Colorado Municipal Code states that business licenses can be suspended “when any activity conducted by the licensee, his or her employee or agent violates any federal, state or local rule, regulation or law.[4] The City

[1] https://canhrnews.com/guidelines-for-3-5-direct-care-service-hours-per-patient-day-dhppd-staffing-audits/
[2] https://www.cdph.ca.gov/Programs/CHCQ/LCP/CalHealthFind/Pages/SearchResult.aspx
[3] https://calmatters.org/health/2021/10/nursing-homes-oversight-california-hearing/
[4] https://library.municode.com/co/superior/codes/municipal_code?nodeId=CH6BULIRE

of Berkeley could adopt such an ordinance to shutter inept care facilities and deter improper conduct and mismanagement.

Furthermore, to ensure enforcement, the City could mandate that all complaints be forwarded to the Environmental Health Division to be reviewed in a timely manner. This would prevent a backlog of complaints and strengthen City follow-through.

The City of Berkeley needs to enforce strict regulations over the performance and conditions of skilled nursing care facilities to ensure that patients are not stripped of their right to quality care. As stated above, a particularly skilled nursing care facility received 12 complaints in 2021, but there was zero enforcement action taken against them. With this recommendation, there will be a strict standard that skilled nursing care facilities must meet to guarantee that issues are adequately addressed by the City of Berkeley. Furthermore, it provides safeguards to ensure that patients are not neglected by those assigned to look after them.

FINANCIAL IMPLICATIONS

Determine as part of City Manager and Commission response.
Suppose the City can regulate skilled nursing facilities (generally not a City role). In that case, there could be significant financial implications because there is currently no staff assigned to this work in the City.

COMMUNITY CONSULTATIONS

This item was informed by consultations with and complaints raised by community members.

CONTACT PERSONS

Councilmember Ben Bartlett bbartlett@cityofberkeley.info
James Chang jchang@cityofberkeley.info
Hillary Phan 510-981-7130
Jerry Wong 510-981-7135

ATT-08

Date of Hearing: March 28, 2023

ASSEMBLY COMMITTEE ON BUSINESS AND PROFESSIONS
Marc Berman, Chair
AB 38 (Lee) – As Introduced December 5, 2022

SUBJECT: Light pollution control.

SUMMARY: Requires state agencies to ensure that an outdoor lighting fixture that is installed or replaced, on or after January 1, 2024, on a structure or land that is owned, leased, or managed by the state agency is shielded and adheres to additional lighting requirements.

EXISTING LAW:

1) Establishes the California Building Standards Commission (CBSC) within the Department of General Services and requires any building standards adopted or proposed by state agencies to be submitted to, and approved by, the CBSC prior to codification into the California Building Standards Code. (Health and Safety Code §§ 18901 *et seq*.)

2) Requires the State Energy Resources Conservation and Development Commission to adopt, among other regulations, lighting and other building design and construction standards that increase efficiency in the use of energy for new residential and nonresidential buildings to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including energy associated with the use of water, and to manage energy loads to help maintain electrical grid reliability. (Public Resources Code §§ 25000 *et seq*.)

THIS BILL:

1) Defines "correlated color temperature" to mean the temperature, measured in Kelvin, of a radiating black body that presents the same apparent color to the human eye as the light source.

2) Defines "Department" to mean the Department of General Services.

3) Defines "light trespass" to mean light emitted by an outdoor lighting fixture that shines beyond the boundary of the property on which the fixture is located.

4) Defines "outdoor lighting fixture" to mean an outdoor artificial illuminating device or luminaire, whether permanent or portable, including, but not limited to, artificial illuminating devices installed on a building or structure and used for illumination or advertisement, including, but not limited to, searchlights, spotlights, and floodlights, used for architectural lighting, parking lot lighting, landscape lighting, billboards, or street lighting.

5) Specifies that "outdoor lighting fixture" does not include artificial illuminating devices that are worn or held in the hand, including flashlights, lanterns, and headlamps.

6) Defines "shielded" to mean that all of the light rays emitted by an outdoor lighting fixture in its installed position, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where the light is emitted and effectively obscures visibility of the lamp.

7) Defines “state agency” to include every state office, officer, department, division, bureau, board, and commission; and to exclude the California State University.

8) Requires state agencies to ensure that an outdoor lighting fixture that is installed or replaced on or after January 1, 2024, on a structure or land that is owned, leased, or managed by the state agency is shielded and meets all of the following criteria:

   a) Uses a lamp with a correlated color temperature that does not exceed 2700 Kelvin.

   b) Uses the minimal illuminance required for the intended purpose of the outdoor lighting fixture, with consideration to recognized building and safety standards, including, but not limited to, recommended practices adopted by the Illuminating Engineering Society.

   c) Is one or more of the following:

      i) Dimmable to no more than 50% of its maximum possible brightness and dimmed between the hours of 11 p.m. and sunrise, unless a compelling safety or other state interest requires the fixture to be at full illumination.

      ii) Extinguishable by an automatic or manual shutoff device.

      iii) Motion-activated with an activated duration of fewer than 15 minutes and equipped with an automatic shutoff device.

   d) Requires a state agency to consider cost efficiency, energy conservation, minimization of light trespass and glare, and preservation of the natural night environment.

9) Specifies that the requirements above do not apply in any of the following circumstances:

   a) A federal law or regulation that preempts state law.

   b) A local municipal or county ordinance that establishes requirements that more stringently control light trespass or glare or conserve the natural night sky.

   c) The outdoor lighting fixtures are advertisement signs or other fixtures on interstate highways or federal primary highways.

   d) A compelling safety interest or existing legal requirement requires such lighting, including any of the following:

      i) Navigational lighting for aircraft safety.

      ii) Outdoor lighting needed for the safe navigation of watercraft, including, but not limited to, lighthouses and outdoor lighting in marinas.

      iii) Outdoor lighting fixtures necessary for worker health and safety or public health and safety, pursuant to the regulations promulgated by the Department of Industrial Relations, the Agricultural Labor Relations Board, and the Public Employment Relations Board.

iv) Lighting that is used by law enforcement officers, firefighters, medical personnel, or correctional personnel, including, but not limited to, lighting used at Department of Corrections and Rehabilitation facilities and Department of State Hospitals facilities.

v) Lighting intended for tunnels and roadway underpasses.

vi) Outdoor lighting used for programs, projects, or improvements of a state agency related to construction, reconstruction, improvement, or maintenance of a street, highway, or state building, structure, or facility.

vii) Outdoor lighting on historic sites or structures, to the extent necessary to preserve the historic appearance.

viii) Lighting sources of less than 1,000 lumens, including but not limited to, seasonal and decorative lighting.

ix) Other circumstances where a significant interest exists to protect safety or state property that cannot be feasibly addressed by another method, including, but not limited to, lighting needed to discourage vandalism of state agency buildings, structures, and facilities.

10) Specifies that if an exemption applies, a state agency shall make reasonable efforts to install fixtures and employ light management practices that conserve energy, minimize light trespass, and preserve the dark sky while still fully meeting the purposes and requirements of the light fixtures.

11) Makes numerous legislative findings and declarations.

FISCAL EFFECT: Unknown. This bill is keyed fiscal by Legislative Counsel.

COMMENTS:

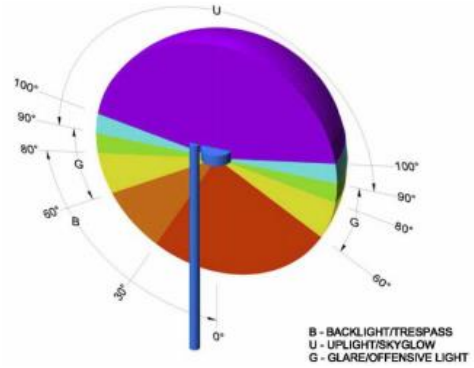
Purpose. This bill is sponsored by *Audubon California* and the *Santa Clara Valley Audubon Society*. According to the author:

> Increased light pollution throughout California and globally is disrupting the circadian rhythms and migratory patterns of animals, which is harming our ecosystems. According to the National Audubon Society, 80% of birds that migrate do so at night using the dark skies to help them navigate to and from their breeding grounds.
>
> In addition to disrupting circadian rhythms, excessive artificial light at night (ALAN) can also disorient birds, which can result in fatal collisions. To address this issue, [this bill] will require outdoor lighting fixtures on state buildings and structures to have an external shield to direct light to where it is needed or be equipped with a shutoff device. This sensible reform promotes safety for migratory birds, ecosystems, and people.

Background.

Light pollution. Light pollution, which has been found to have adverse effects on human health and wildlife, is caused by increasingly large urban areas and the excessive and inefficient use of artificial light.[1] Light pollution is characterized by skyglow (brighter sky in urban areas), light trespass (shining of lights in unneeded or unwanted areas), and glare (brightness resulting in visual discomfort).

Figure 1: Backlight, Uplight, and Glare



Source: California Energy Commission

Light pollution was first recognized as a problem by astronomers in the 1970s upon discovery that thousands of stars and other objects in space could not be seen as clearly despite the use of powerful equipment. In suburbs and cities where a few thousand stars should be visible at night, only a few hundred or a few dozen, respectively, can be seen.

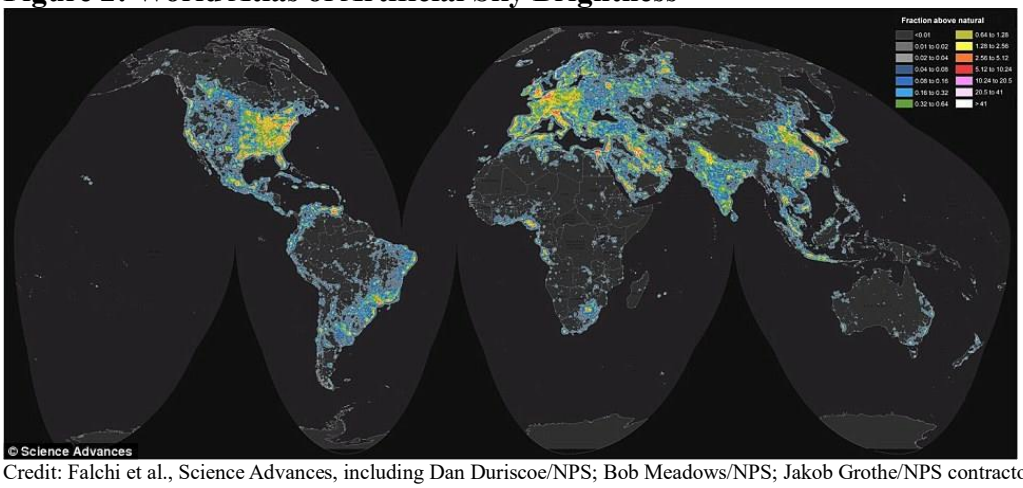
In addition to obscuring stars, light pollution can directly impact human health by interfering with natural circadian rhythms caused by a decrease in the amount of melatonin produced in the body. Sleep disorders, depression, cancer, and other adverse health conditions have been linked to circadian disruption.

Similarly, wildlife are also subject to adverse impacts of light pollution. Studies have demonstrated that light pollution can alter the behavior of wildlife, often resulting in the death or decline of species such as turtles, birds, fish, reptiles, and other wildlife.

Light pollution has also been known to impact the ability for the military to conduct nighttime trainings, which is done to simulate combat situations. In 2007, Texas, at the request of the military, began to regulate the use of outdoor lighting in counties with several military bases and more than one million residents.

[1] Schultz, J. (2022, March 25). *States Shut Out Light Pollution*. National Conference of State Legislatures. Retrieved March 16, 2023, from https://www.ncsl.org/environment-and-natural-resources/states-shut-out-light-pollution

Figure 2: World Atlas of Artificial Sky Brightness



Credit: Falchi et al., Science Advances, including Dan Duriscoe/NPS; Bob Meadows/NPS; Jakob Grothe/NPS contractor, and Matthew Price/CIRES and CU-Boulder

California Green Building Standards Code (CALGreen). In 2007, the CBSC developed green building standards to help the state achieve its greenhouse gas reduction goals.[2] CALGreen is the first-in-the-nation mandated green building standards code and includes regulations for energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CBSC is authorized to propose CALGreen standards for non-residential structures and any others that are not under the jurisdiction of another state agency. CALGreen Section 5.106.8 currently imposes specific light pollution reduction standards for non-residential buildings. Outdoor lighting systems must be designed and installed to prevent light escaping in unwanted or unnecessary directions from an outdoor light fixture. Specifically the light produced may not exceed the allowable backlight (light directed behind the fixture), uplight (light directed above the horizontal plane of the fixture), and glare (light emitted at high angles that cause a glare) (BUG) ratings per lighting zone. Lighting zones range from natural environments with extremely limited outdoor lighting to urban areas with extensive use of outdoor lighting. CALGreen specifies that if a local ordinance is more stringent than the CALGreen requirements, the building owner must comply with the local ordinance. CalGreen currently exempts a variety of light fixtures, including but not limited to those used for aviation; landscaping; temporary use outdoors; sports and athletic fields; children's playgrounds; tunnels and bridges; stairs and ramps; and lighting for industrial sites. CALGreen also exempts emergency lighting; building façade that meet specified requirements; and some custom lighting features.

Other states. Nineteen states, the District of Columbia, and Puerto Rico have enacted laws to reduce light pollution.[3] "Dark skies" laws typically require outdoor lighting fixtures to be shielded so that light is emitted downwards only, to use low-glare or low-wattage lightbulbs, or to be restricted during certain hours.

Governor's Veto: In 2021, Governor Gavin Newsom vetoed a bill substantially similar to this one, AB 2382 (Lee), stating in part the following:

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[2] Building Standards Commission. (n.d.). *CalGreen*. California Department of General Services. Retrieved March 17, 2023, from https://www.dgs.ca.gov/BSC/CALGreen
[3] Ibid.

> While I appreciate the stated goals of this bill to conserve energy and decrease ambient light in the night sky, the provisions create an overly broad mandate that raises concerns for health and safety, security, and crime prevention. Further, the California Green Building Standards Code includes light pollution reduction standards for nonresidential buildings. These standards are developed during a public, deliberative process.
>
> Furthermore, the costs associated with this bill are unfunded and potentially significant. There are 24,000 state-owned buildings, in addition to the state's leased and managed properties. Requiring all outdoor lighting at these locations to be shielded, include shutoff devices, or have a motion sensor may cost millions of dollars not accounted for in the budget.
>
> With our state facing lower-than-expected revenues over the first few months of this fiscal year, it is important to remain disciplined when it comes to spending, particularly spending that is ongoing. We must prioritize existing obligations and priorities, including education, health care, public safety and safety-net programs. The Legislature sent measures with potential costs of well over $20 billion in one-time spending commitments and more than $10 billion in ongoing commitments not accounted for in the state budget. Bills with significant fiscal impact, such as this measure, should be considered and accounted for as part of the annual budget process.

This bill is a second attempt to enact legislation requiring state agencies to reduce light pollution stemming from structures or land that they own, lease, or manage.

Prior Related Legislation.

AB 2382 (Lee) of 2022 was substantially similar to this bill. *Vetoed.*

ARGUMENTS IN SUPPORT:

According to *Natural Resources Defense Council*, this bill will “provide safety for people, ecosystems, and other wildlife;” “conserve energy and reduce our state’s carbon footprint;” and “help the state save money and help us meet our climate goals.”

According to the *California Institute for Biodiversity*,

> The science is clear: Artificial Light at Night (ALAN) has increased to unprecedented levels globally. This has resulted in a disruption to circadian rhythms in plants and animals, which harm our ecosystems and sensitive biodiversity.
>
> The tremendous impacts on insects are most widely known, and contribute to the catastrophic decline in pollinators and insects known as the “Insect Apocalypse.” However, impacts are widespread. For example, light attracts nocturnal-migratory birds and diverts them from safe migration routes to human environments, where they are more susceptible to collisions with buildings and other human-made structures. A study found that reducing indoor artificial night light by half can result in roughly 60% fewer bird collisions.
>
> Excessive artificial lighting also has detrimental effects on humans. These multifold impacts are unnecessary and result from widespread and unnecessary waste. It is

estimated that at least 30% of all outdoor lighting in the United States alone is wasted – primarily by lights that aren't covered. That wasted light totals $3.3 billion in lost electricity costs and the release of 21 million tons of carbon dioxide per year. It is time to reverse this trend and protect our night sky and biosphere.

ARGUMENTS IN OPPOSITION:

None on file.

POLICY ISSUE(S) FOR CONSIDERATION:

Breadth and stringency of this bill. In 2022, this committee passed AB 2832 (Lee), which, at the time, required state agencies to ensure that outdoor lighting fixtures affixed to *buildings* or *structures* that are owned, leased, or managed by a state agency are *either* shielded, turned off manually or automatically, or motion activated between 11 p.m. and sunrise. Although the author subsequently amended that bill to limit its application to *newly installed* and *replaced* outdoor lighting fixtures, which this bill reflects, this bill applies to any structure or *land* that is owned, leased, or managed by a state agency. Consequently, this bill may affect lighting in state parks, including camp grounds. If this bill passes this committee, the author may wish to amend this bill to limit its applicability to structures only.

Additionally, this bill is more stringent than last year's bill in that it requires newly installed or replaced outdoor lighting fixtures to be both shielded *and* dimmable, turned off automatically, or motion-activated. Additionally each outdoor lighting fixture must not exceed 2700 Kelvin and use the least amount of light required for its intended purpose. Some outdoor lighting fixtures may not be compatible with a shield. Given that certain outdoor lighting fixtures may not be compatible with a shield, if this bill passes this committee, the author may wish to amend this bill to give state agencies more flexibility to select the most feasible option to reduce light pollution.

IMPLEMENTATION ISSUES:

Compatibility with CALGreen. This bill requires outdoor lighting fixtures that are installed or replaced to use a lamp with a correlated color temperature that does not exceed 2700 Kelvin, thereby regulating the *color* of the light produced. In contrast, existing CALGreen light pollution standards regulate the *brightness* of light produced by an outdoor lighting fixture. If this bill passes this committee, the author may wish to remove the requirement that lamps with a correlated color temperature not exceed 2700 Kelvin.

Although CALGreen's light pollution standards currently only apply to new, nonresidential construction that is not under the jurisdiction of another state agency (e.g., schools and state hospitals), their requirements and application can be revised during an intervening (every 18 months) or triennial (every three years) building code cycle. If this bill passes this committee, the author may wish to consider working within the existing framework of CALGreen's regulations to avoid the possibility of conflicting requirements for state agencies.

Exemptions. This bill currently exempts from its requirements "other circumstances where a *significant* interest exists to protect safety or state property than cannot be feasibly addressed by another method, including, but not limited to, lighting needed to discourage vandalism of state agency building, structures, and facilities" *(emphasis added).* The term "significant" may be

interpreted differently by state building managers, thereby resulting in inconsistent application of the bill. If this bill passes this committee, the author may wish to amend the bill to delete the qualifier, "significant."

Bill structure. This bill currently lists a number of specified exemptions that are included because of "a compelling safety interest or existing legal requirement." However, some of the exemptions listed (e.g., outdoor lighting to preserve the appearance of historic buildings and holiday lights) are not intended to protect safety or necessary to comply with an existing legal requirement. If this bill passes this committee, the author may wish to consider removing the broad and ambiguous description of the nature of the exemptions listed in this bill.

Lessee/Lessor Arrangements. This bill would apply to any outdoor lighting fixture that is installed or replaced on a building or structure that is owned, *leased*, or managed by the state agency. As a lessee, a state agency may not have the authority to make changes to lighting fixtures affixed to privately owned buildings or structures. If this bill passes this committee, the author may wish to consider exempting outdoor lighting fixtures affixed to privately owned structures or land that are leased by state agencies.

In contrast, this bill would also apply to buildings and properties that are owned by a state agency and leased to non-state agency. If this bill passes this committee, the author may wish to consider the bill's potential impact on buildings and structures that are subject to public-private partnerships.

Availability of Outdoor Lighting Fixtures and Accessory Components. This bill does not include an exemption for state agencies in the event that no compliant outdoor lighting fixtures or required accessory components (i.e. shield) are available. If this bill passes this committee, the author may wish to include an exemption that addresses this circumstance.

Enforcement. While this bill directs state agencies to adhere to specified outdoor lighting requirements, there is no mechanism for enforcement.

Definitions. This bill defines "department" but makes no reference to the department elsewhere in the bill.

Drafting error. This bill erroneously includes the word "preservation" twice in the same sentence.

AMENDMENTS:

1) Because this bill makes no reference to "department" other than to define it as the Department of General Services, this bill should be amended as follows:

   11901. For purposes of this chapter, all of the following definitions apply:

   (a) "Correlated color temperature" means the temperature, measured in Kelvin, of a radiating black body that presents the same apparent color to the human eye as the light source.

   ~~(b) "Department" means the Department of General Services.~~

~~(c)~~(b) "Light trespass" means light emitted by an outdoor lighting fixture that shines beyond the boundary of the property on which the fixture is located.

~~(d)~~(c) "Outdoor lighting fixture" means an outdoor artificial illuminating device or luminaire, whether permanent or portable, including, but not limited to, artificial illuminating devices installed on a building or structure and used for illumination or advertisement, including, but not limited to, searchlights, spotlights, and floodlights, used for architectural lighting, parking lot lighting, landscape lighting, billboards, or street lighting. "Outdoor lighting fixture" does not include artificial illuminating devices that are worn or held in the hand, including flashlights, lanterns, and headlamps.

~~(e)~~(d) "Shielded" means all of the light rays emitted by an outdoor lighting fixture in its installed position, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where the light is emitted and effectively obscures visibility of the lamp.

~~(f)~~(e) "State agency" means a state agency as defined in Section 11000.

2) To correct a drafting error, this bill should be amended as follows:

11902. (a) Except as specified in Section 11903, a state agency shall ensure that an outdoor lighting fixture that is installed or replaced on or after January 1, 2024, on a structure or land that is owned, leased, or managed by the state agency is shielded and meets all of the following criteria:

(1) Uses a lamp with a correlated color temperature that does not exceed 2,700 Kelvin.

(2) Uses the minimal illuminance required for the intended purpose of the outdoor lighting fixture, with consideration to recognized building and safety standards, including, but not limited to, recommended practices adopted by the Illuminating Engineering Society.

(3) Is one or more of the following:

(A) Dimmable to no more than 50 percent of its maximum possible brightness and dimmed between the hours of 11 p.m. and sunrise, unless a compelling safety or other state interest requires the fixture to be at full illumination.

(B) Extinguishable by an automatic or manual shutoff device.

(C) Motion-activated with an activated duration of fewer than 15 minutes and equipped with an automatic shutoff device.

(b) In complying with this section, a state agency shall consider cost efficiency, energy conservation, minimization of light trespass and glare, and preservation of the natural night environment ~~preservation~~.

REGISTERED SUPPORT:

Active San Gabriel Valley

Audubon California *(co-sponsor)*
California Institute for Biodiversity
California Waterfowl Association
Chemical and Toxics Safety
Defenders of Wildlife
District
FACTS Families Advocating for
Green Foothills
Greenbelt Alliance
Midpeninsula Regional Open Space
Mono Lake Committee
Planning and Conservation League
Santa Clara Valley Audubon Society *(co-sponsor)*
Breast Cancer Prevention Partners
California Institute for Biodiversity
Natural Resources Defense Council
Santa Clara Valley Open Space Authority
Sierra Nevada Alliance
Trust for Public Land

REGISTERED OPPOSITION:

None on file.

Analysis Prepared by: Kaitlin Curry / B. & P. / (916) 319-3301

AMENDED IN ASSEMBLY MAY 18, 2023

AMENDED IN ASSEMBLY MARCH 29, 2023

CALIFORNIA LEGISLATURE—2023–24 REGULAR SESSION

ASSEMBLY BILL No. 38

Introduced by Assembly Member Lee
(Coauthor: Senator Becker)

December 5, 2022

An act to add Chapter 12 (commencing with Section 11900) to Part 1 of Division 3 of Title 2 of the Government Code, relating to state government.

LEGISLATIVE COUNSEL'S DIGEST

AB 38, as amended, Lee. Light pollution control.

Existing law, the California Building Standards Law, establishes the California Building Standards Commission within the Department of General Services and sets forth its powers and duties, including approval and adoption of building standards and codification of those standards into the California Building Standards Code.

Existing law, the Warren-Alquist State Energy Resources Conservation and Development Act, requires the State Energy Resources Conservation and Development Commission to adopt, among other regulations, lighting and other building design and construction standards that increase efficiency in the use of energy for new residential and nonresidential buildings to reduce the wasteful, uneconomic, inefficient, or unnecessary consumption of energy, including energy associated with the use of water, and to manage energy loads to help maintain electrical grid reliability. Existing law also requires the commission to adopt standards for minimum levels of operating

efficiency and other cost-effective measures to promote the use of certain energy- and water-efficient appliances.

This bill would require, with certain exceptions, a state agency, as defined, to ensure that an outdoor lighting fixture that is installed or replaced on or after January 1, 2024, on a structure or land that is owned, leased, or managed by the state agency ~~is shielded, as defined, and meets additional specified criteria.~~ *meets prescribed criteria, including using a lamp with a correlated color temperature that does not exceed 2,700 Kelvin.*

Vote: majority. Appropriation: no. Fiscal committee: yes. State-mandated local program: no.

The people of the State of California do enact as follows:

SECTION 1. Chapter 12 (commencing with Section 11900) is added to Part 1 of Division 3 of Title 2 of the Government Code, to read:

Chapter 12. Light Pollution Control

Article 1. General Provisions and Definitions

11900. The Legislature finds and declares all of the following:

(a) Energy costs in California are substantially higher than in many other states in the United States.

(b) Properly directed and managed lighting fixtures can reduce operational costs resulting in more efficient use of state tax dollars.

(c) Properly directed and managed light fixtures can reduce light trespass, light pollution, and glare, and preserve the view of California's dark sky, one of the state's natural resources.

(d) Unnecessary light pollution can have adverse effects on people and disrupt natural circadian rhythms and sleep patterns.

(e) Unnecessary light pollution has deleterious effects on wildlife and can alter migratory, breeding, and foraging behavior in ways that adversely affect wildlife species.

(f) It is the policy of the State of California to regulate outdoor night lighting and encourage the use of outdoor lighting fixtures to conserve energy, reduce our carbon footprint, minimize light trespass, and preserve the aesthetic qualities of the night sky and

pollution while promoting safety for people, birds, and other wildlife.

11901. For purposes of this chapter, all of the following definitions apply:

(a) "Correlated color temperature" means the temperature, measured in Kelvin, of a radiating black body that presents the same apparent color to the human eye as the light source.

(b) "Light trespass" means light emitted by an outdoor lighting fixture that shines beyond the boundary of the property on which the fixture is located.

(c) "Outdoor lighting fixture" means an outdoor artificial illuminating device or luminaire, whether permanent or portable, including, but not limited to, artificial illuminating devices installed on a building or structure and used for illumination or advertisement, including, but not limited to, searchlights, spotlights, and floodlights, used for architectural lighting, parking lot lighting, landscape lighting, billboards, or street lighting. "Outdoor lighting fixture" does not include artificial illuminating devices that are worn or held in the hand, including flashlights, lanterns, and headlamps.

(d) "Shielded" means all of the light rays emitted by an outdoor lighting fixture in its installed position, either directly from the lamp or indirectly from the fixture, are projected below a horizontal plane running through the lowest point on the fixture where the light is emitted and effectively obscures visibility of the lamp.

(e) "State agency" means a state agency as defined in Section 11000.

Article 2. Lighting Fixtures

11902. (a) Except as specified in Section 11903, a state agency shall ensure that an outdoor lighting fixture that is installed or replaced on or after January 1, 2024, on a structure or land that is owned, leased, or managed by the state agency ~~is shielded and~~ meets all of the following criteria:

(1) Uses a lamp with a correlated color temperature that does not exceed 2,700 Kelvin.

(2) Uses the minimal illuminance required for the intended purpose of the outdoor lighting fixture, with consideration to recognized building and safety standards, including, but not limited

to, recommended practices adopted by the Illuminating Engineering Society.

(3) Is one or more of the following:

(A) Dimmable to no more than 50 percent of its maximum possible brightness and dimmed between the hours of 11 p.m. and sunrise, unless a compelling safety or other state interest requires the fixture to be at full illumination.

(B) Extinguishable by an automatic or manual shutoff device.

(C) Motion-activated with an activated duration of fewer than 15 minutes and equipped with an automatic shutoff device.

(D) Shielded.

(b) In complying with this section, a state agency shall consider cost efficiency, energy conservation, minimization of light trespass and glare, and preservation of the natural night environment.

11903. (a) Section 11902 does not apply in any of the following circumstances:

(1) A federal law or regulation that preempts state law.

(2) A local municipal or county ordinance that establishes requirements that more stringently control light trespass or glare or conserve the natural night sky.

(3) The outdoor lighting fixtures are advertisement signs or other fixtures on interstate highways or federal primary highways.

(4) A compelling safety interest or existing legal requirement requires such lighting, including any of the following:

(A) Navigational lighting for aircraft safety.

(B) Outdoor lighting needed for the safe navigation of watercraft, including, but not limited to, lighthouses and outdoor lighting in marinas.

(C) Outdoor lighting fixtures necessary for worker health and safety or public health and safety, pursuant to Title 8 of the California Code of Regulations.

(D) Lighting that is used by law enforcement officers, firefighters, medical personnel, or correctional personnel, including, but not limited to, lighting used at Department of Corrections and Rehabilitation facilities and State Department of State Hospitals facilities.

(E) Lighting intended for tunnels and roadway underpasses.

(F) Outdoor lighting used for programs, projects, or improvements of a state agency relating to construction,

reconstruction, improvement, or maintenance of a street, highway, or state building, structure, or facility.

(G) Outdoor lighting on historic sites or structures, to the extent necessary to preserve the historic appearance.

(H) Lighting sources of less than 1,000 lumens, including, but not limited to, seasonal and decorative lighting.

(I) Other circumstances where a significant interest exists to protect safety or state property that cannot be feasibly addressed by another method, including, but not limited to, lighting needed to discourage vandalism of state agency buildings, structures, and facilities.

(b) If an exemption from Section 11902 pursuant to subdivision (a) applies, a state agency shall make reasonable efforts to install fixtures and employ light management practices that conserve energy, minimize light trespass, and preserve the dark sky while still fully meeting the purposes and requirements of the light fixtures.

O

Community Environmental Advisory Commission

ACTION CALENDAR
November 12, 2019

To: Honorable Mayor and Members of the City Council

From: Community Environmental Advisory Commission (CEAC)

Submitted by: Ben Gould, Chairperson, CEAC

Subject: Bird Safe Berkeley Requirements

RECOMMENDATION:
Refer to the Planning Commission and the City Attorney the attached ordinance amending Berkeley Municipal Code Title 23C, adding a new Chapter 23C.27 establishing bird safety requirements for new construction and significant renovations and a new Chapter 23C.28 establishing a dark skies ordinance, for review and approval.

FISCAL IMPACTS OF RECOMMENDATION:
Potential for small additional ongoing costs associated with slightly increased requirements for staff review of new construction proposals to ensure compliance.

CURRENT SITUATION AND ITS EFFECTS
Bird safety is aligned with the City of Berkeley's Strategic Plan, advancing our goal to be a global leader in addressing climate change, advancing environmental justice, and protecting the environment.

According to the Audubon Society, bird collisions with windows is a leading cause of human-induced bird deaths (second only to outdoor house cats). Berkeley is located in the midst of the Pacific Flyway, a major migratory route for birds including hummingbirds, robins, blackbirds, numerous shorebirds, raptors, and more. When these birds encounter unfamiliar urban areas along the migratory path, they are at particular risk for collisions and death.

At present, there are no bird safety measures required for new construction or renovations. As a result, it is possible that new and existing buildings may incorporate features which pose preventable hazards to local and migratory birds.

Unfettered outdoor lighting also poses known risks to birds, as well as generating unwanted light pollution. The City of Berkeley's Downtown Area Plan[1], as well as

[1] Lighting, City of Berkeley Downtown Area Plan. Accessed August 2019: https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_DAP/Chapter%2012%20Lighting.pdf

Southside zoning regulations (BMC 23E.52.070.F.7), provide guidance or limitations on outdoor lighting, but no general policy exists citywide to prevent excessive light pollution from outdoor lighting.

At its September 12, 2019 meeting, the Community Environmental Advisory Commission voted to recommend the adoption of Bird Safe Berkeley requirements. Moved by Goldhaber, second by Hetzel, carried 6-0-0-2 (Ayes: Simmons, Ticconi, Hetzel, De Leon, Goldhaber, Gould. Noes: None. Abstained: None. Absent: Varnhagen, De Leon).

BACKGROUND

Berkeley is in the midst of the Pacific Flyway, a major migratory route for birds. The city is also adjacent to San Francisco Bay, one of North America's most ecologically important estuaries and a site of Western Hemispheric importance for shorebirds and waterfowl. Alameda County has recorded 407 species of resident and migratory bird species, including least terns, Ridgway's rails, and a variety of other uniquely local and/or threatened species.

New buildings can be designed to reduce bird deaths from collisions without compromising cost or aesthetics – in fact, many of the compliance methods in the attached ordinance can be incorporated into design or construction with virtually no additional cost or difficulty for architects or engineers, and in some cases facilitate achieving other environmental goals (like improved building energy efficiency).

Several other Bay Area cities have adopted bird safety ordinances, including San Francisco, Oakland, Alameda, and Richmond. The attached proposed ordinance is developed from the City of Alameda's adopted ordinance.

In addition, birds are drawn to light, whether from the moon or artificial lights, and lights affixed to buildings or structures pose a risk that birds may crash into them. A special danger comes from very bright lights, as well as lights aimed upward.

ENVIRONMENTAL SUSTAINABILITY

Implementing the Bird Safe Berkeley ordinance will ensure new construction does not pose undue hazards to local and migratory birds, thereby reducing human impact and benefiting the environment.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The proposed amendment to BMC Title 23C is categorically exempt from CEQA under CEQA Guidelines Sections 15061(b)(3), 15307, and 15308.

RATIONALE FOR RECOMMENDATION

Berkeley's strategic plan calls for being a global leader in protecting the environment. The bird-safe glazing design standards contained within have been found to be effective at reducing or eliminating bird deaths, and can be implemented with little or no additional costs. The window size threshold for requiring implementation is the most stringent in the nation, and as a result adopting this policy strongly aligns with Berkeley's strategic plan. The dark skies ordinance is straightforward and simple, yet effective at reducing excessive and unwanted light pollution while conserving energy.

ALTERNATIVE ACTIONS CONSIDERED

CEAC considered taking no action on bird safety standards, but concluded that the environmental benefits substantially outweighed the burden imposed. CEAC also considered a less stringent window size requirement (of twenty-four (24) square feet instead of eight (8) square feet), but determined that window size was not a significant factor in either bird safety or cost or ease of compliance.

CEAC considered taking no action on dark skies, but concluded that the environmental benefits outweighed the burden imposed. CEAC also considered a more stringent dark skies ordinance, but concluded it would be unnecessarily difficult to enforce with minimal additional benefits.

CITY MANAGER

The City Manager takes no position on the content and recommendations of the Commission's Report.

CONTACT PERSON

Ben Gould, Chairperson, CEAC, 510-725-9176

ORDINANCE NO. -N.S.

AMENDING BERKELEY MUNICIPAL CODE TITLE 23C TO ESTABLISH GENERAL REQUIREMENTS FOR BIRD SAFETY IN BUILDINGS AND EXTERIOR LIGHTING FIXTURES; ADDING CHAPTER 23C.27 AND CHAPTER 23C.28

BE IT ORDAINED by the Council of the City of Berkeley as follows:

Section 1. That the Berkeley Municipal Code Chapter 23C.27 is added to read as follows:

Chapter 23C.27
BIRD SAFETY

Sections:

23C.27.010 Purpose

The purposes of the Bird Safety related regulations contained in this Chapter is to reduce bird mortality from windows or other specific building features known to increase the risk of bird collisions.

23C.27.020 Applicability

The bird-safe building standards apply to the following types of projects when such projects require a building permit:

A. New Construction. New buildings with two (2) or more stories, and one or more façades in which glass constitutes fifty percent (50%) or more of the area of the individual façade. The bird-safe glazing requirement must be met on any window with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more, located on such façade.

B. Window Replacement. On buildings with two (2) or more stories, and one or more facades in which glass constitutes fifty percent (50%) or more of the area of the individual façade, replacement of any window or other rigid transparent material with dimensions of at least two (2) feet by four (4) feet, or an area of eight (8) square feet or more. The requirement does not apply on existing windows that are not proposed to be replaced.

C. New or Replaced Glass Structures. Any structure that has transparent glass walls twenty-four (24) square feet or more in size, including but not limited to freestanding glass walls, wind barriers, skywalks, balconies, greenhouses, and rooftop appurtenances.

23C.27.030 Exemptions

The bird-safe building standards shall not apply to the following:

A. The replacement of existing glass on historic structures. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

B. Glazing on the ground floor of commercial storefronts directly fronting a public street, alley, or sidewalk.

23C.27.040 Standards

A. Bird-Safe Glazing Requirement. At least ninety percent (90%) of the glazing on any building façade or freestanding glass structure shall include features that enable birds to perceive the glass as a solid object. The requirement can be satisfied by using one or more of the following treatments to be determined by the Planning Director as part of an application for a building permit:

1. External screens installed permanently over glass windows such that the windows do not appear reflective.
2. Light-colored blinds or curtains.
3. Opaque glass, translucent glass, or opaque or translucent window film.
4. Paned glass with mullions on the exterior of the glass.
5. Glass covered with patterns (e.g., dots, stripes, images, abstract patterns, lettering). Such patterns may be etched, fritted, stenciled, silk- screened, applied to the glass on films or decals, or another method of permanently incorporating the patterns into or onto the glass. Elements of the patterns must be at least one-eighth (1/8) inch tall and separated no more than two (2) inches vertically, at least one-quarter (1/4) inch wide and separated by no more than four (4) inches horizontally, or both (the "two-by-four rule").
6. Ultraviolet (UV)-pattern reflective glass, laminated glass with a patterned UV-reflective coating, or UV-absorbing and UV-reflecting film that is permanently applied to the glass. Where patterns are used, they shall meet the two-by-four rule.
7. Other glazing treatments providing an equivalent level of bird safety and approved by the Planning Director as part of building plan review.

B. Alternative Glazing Compliance. As an alternative to meeting subsection 4(a), Bird-Safe Glazing Requirement, an applicant may propose building and fenestration designs and/or operational measures that will minimize bird collisions and achieve an equivalent level of bird safety. The applicant shall submit a bird collision reduction plan along with the application for design review or other discretionary permit required for the project. The bird collision reduction plan shall be prepared by a qualified biologist. Design and operational solutions may include but need not be limited to the following techniques, singularly or in combination:

1. Layering and recessing glazed surfaces.
2. Angled or faceted glazing that minimizes reflectivity and transparency.
3. Louvres.
4. Overhangs and awnings.
5. Glass block.
6. Bird netting with openings one (1) square centimeter or smaller.
7. Decorative grilles that allow birds to perceive the grilles, together with the glass behind them, as solid.
8. Glass embedded with photovoltaic cells.
9. Placement of landscaping in such a way as to minimize bird collisions.

Section 2. That the Berkeley Municipal Code Chapter 23C.28 is added to read as follows:

Chapter 23C.28
DARK SKIES

Sections:

23C.28.010 Purpose

The purpose of the Dark Skies ordinance is to ensure exterior light fixtures are pointed downwards and turn off whenever possible, minimizing light pollution, sky glow, and hazardous risks to birds, while ensuring adequate illumination for safety, security, and the enjoyment of outdoor areas, including travel on public roads.

23C.28.020 Applicability

The dark skies ordinance applies to any project that requires a building permit or electrical permit for:

A. New exterior lighting, including lighting fixtures attached to buildings, structures, poles, or self-supporting structures; or

B. Additions or replacements of existing exterior light fixtures, including upgrades and replacements of damaged or destroyed fixtures.

23C.28.030 Exemptions

The following types of lighting are exempt from the requirements of this subsection:

A. Emergency lighting. Temporary emergency lighting used by law enforcement or emergency services personnel, a public utility, or in conjunction with any other emergency service.

B. Construction lighting. Temporary lighting used for construction or repair of roadways, utilities, and other public infrastructure.

C. Lighting Required by Building Code or Other Regulations. Lighting for exit signs, stairs, ramps, points of ingress/egress to buildings, and all other illumination required for building codes, OSHA standards, and other permitting requirements imposed by state, or federal agencies.

D. Signs. Signs and sign lighting.

E. Athletic Field Lights. Athletic field lights used within a school campus or public or private park.

F. Neon, Argon, and Krypton. All fixtures illuminated solely by neon, argon, or krypton.

G. Water Features. Lighting used in or for purposes of lighting swimming pools, hot tubs, decorative fountains, and other water features.

H. Flag Lighting. Lighting used to illuminate a properly displayed United States flag and/or State of California flag.

I. Holiday Displays. Seasonal and holiday lighting.

J. Temporary Lighting. Temporary lighting allowed under a permit.

K. Historic Fixtures. Historic lighting fixtures or fixtures that exhibit a historical period appearance, as determined by the Planning Director.

L. Architecture, Historic Structures, and Public Art. Lighting on historic structures, special architectural features, public art, monuments, and other similar objects of

interest shall be exempt if the lamps emit less than one thousand six hundred (1600) lumens per fixture and together draw less than one hundred (100) watts. However, the standards shall apply to new exterior additions to historic structures, and new construction on the site of historic structures, that are differentiated from the historic structures, if determined by the Planning Director to be consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

M. Low-Voltage Landscape Lighting. Low-voltage landscape lighting such as that used to illuminate fountains, shrubbery, trees, and walkways, provided that it uses no more than sixty (60) watts and no more than seven hundred and fifty (750) lumens per fixture.

23C.28.040 Standards

To minimize the harmful effects of light pollution, new construction and major renovation projects shall meet the following standards:

A. Outdoor lighting shall be no brighter than 3000 Kelvin.

B. Outdoor lighting shall be shielded and directed, with a full cut off fixture of no more than 2.5% of lamp lumens at or above 90°, and no more than 10% of lamp lumens at or above 80°.

C. Wherever feasible, require motion sensors or timers to prevent unnecessary energy use and light pollution.

D. Light shows and beams of light are not permitted during spring or fall migration seasons, roughly February 15 to May 31, and August 15 to November 30, respectively.

Effect of Color Temperature of Light Sources on Slow-wave Sleep

Article *in* Journal of PHYSIOLOGICAL ANTHROPOLOGY and Applied Human Science · March 2005

DOI: 10.2114/jpa.24.183 · Source: PubMed

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Effect of Color Temperature of Light Sources on Slow-wave Sleep

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Abstract In order to examine whether the spectral compositions of light source may affect sleep quality, sleep architecture under different color temperatures of light sources was evaluated. Seven healthy males were exposed to the light sources of different color temperatures (3000 K, 5000 K and 6700 K) for 6.5 h before sleep. The horizontal illuminance level was kept at 1000 lux. Subjects slept on a bed in near darkness (<10 lux) after extinguishing the light, and polysomnograms recorded the sleep parameters. In the early phase of the sleep period, the amount of stage-4 sleep (S4-sleep) was significantly attenuated under the higher color temperature of 6700 K compared with the lower color temperature of 3000 K. Present findings suggest that light sources with higher color temperatures may affect sleep quality in a view that S4-sleep period is important for sleep quality.
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Keyword: color temperature, slow-wave sleep, polysomnogram, fluorescent light

Introduction

In contemporary society, Japanese people tend to suffer from inadequate sleep; the prevalence rates of sleep problems have been estimated as 20.9–44.3% in the general Japanese adult population (Doi et al., 2001). Thus, environments that add comfort to favorably promote sleep are required.

It has been found that light suppresses nocturnal secretion of melatonin (Lewy et al., 1980; Hasihimoto et al., 1996). According to Morita and Tokura (1996), light sources with higher color temperatures suppress the nocturnal secretion of melatonin compared with those of lower color temperatures. Melatonin has been thought to have a sleep-promoting function (Zhdanova et al., 1996) and plays an important role in the regulation of sleep quality (for review see Dawson and Encel, 1993).

However, Deguchi and Sato (1992) have observed that greater amplitudes of contingent negative variation (CNV) are generated under conditions with a higher color temperature. This finding suggests that a light source with higher color temperatures would more likely activate the reticular activating system (RAS) compared with that of lower color temperatures. In comparisons of the autonomic nervous functions (ANF), Mukae and Sato (1992) evaluated heart rate variability (HRV) under conditions of different color temperatures, and found that enhancements of parasympathetic and sympathetic nerve functions were established with light sources of higher color temperatures, concluding that light illumination of higher color temperatures activates ANF more than that of lower color temperatures. Furthermore, our previous study has demonstrated the activation of sympathetic nerve function during night-time exposure to a light source of higher color temperatures (Tsutshumi et al., 2002).

In addition to the reduction of nocturnal melatonin secretion and activation of the ANF and RAS, light sources of higher color temperatures would affect sleep quality. In this study, we compared sleep architectures after exposures to light source of different color temperatures, and evaluated the effects of spectral compositions of light sources on sleep quality.

Methods

Subjects

Seven young male adults (mean±S.D.=21±2.1 years) gave informed consent and participated in this experiment. All subjects were physically normal and healthy. They were asked to wear thin sleeveless shirts and shorts during the experiment, and not to take a nap before the experiment.

Experimental design

This study was carried out from July to November. Subjects participated for 4 nights in the study according to the experimental regimen (Fig. 1). The first night was defined as the “adaptation night”, and exposures to the 3 color

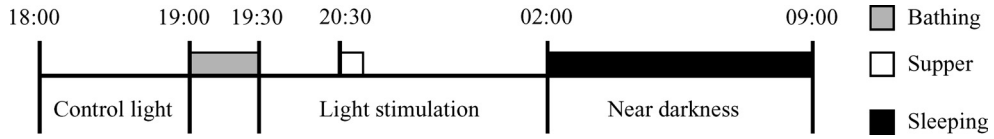

Fig. 1 Experimental design. Subjects were exposed to the respective light stimuli (3000 K, 5000 K, 6700 K) at one color temperature per night from 19 : 00–2 : 00 h before sleep, bathed at 19 : 00 h and took supper at 20 : 30 h.

Table 1 Physical characteristics of light sources

Lighting source	Type	Model number	Ra	x-axis^{+}	y-axis^{+}	Actual color temperature*
Control	incandescent lamp	LDS100V38W WK	100	0.463	0.415	2700 K
3000 K	fluorescent lamp	FHF32EX-L-H	84	0.438	0.392	2900 K
5000 K	fluorescent lamp	FHF33EX-N-H	84	0.349	0.349	4900 K
6700 K	fluorescent lamp	FHF34EX-D-H	84	0.316	0.319	6500 K

$^{+}$ Chromaticity coordinate (CIE: Commission Internationale de L'Eclairage, 1931)
* Actual expression was correlated with the color temperature
All light sources were manufactured by Matsushita Electric Industrial Co. Ltd. Japan

temperatures (3000 K, 5000 K and 6700 K) were conducted on 3 different nights at a rate of 1 color temperature per night. Three experimental conditions with different color temperatures were performed in a random order. Data from the adaptation period were excluded from the analysis because subjects indicated longer awake periods and less rapid eye movement (REM) sleep (Agnew et al., 1966). The physical characteristics of light sources are listed in Table 1.

Subjects entered an experimental chamber at 18 : 00 h. They were exposed to control lighting for 1 h, and allowed to bathe at 19 : 00 h. The horizontal illuminance level of control lighting of 10 lux was designated at a reference level (height from the center of the chamber floor: 90 cm). After bathing, subjects were exposed to a light stimulus (3000 K, 5000 K or 6700 K) from 19 : 30 h to 2 : 00 h, and had supper at 20 : 30 h. The supper consisted of a routine meal. The subjects were instructed to rest on a sofa and to remain awake during the light exposure. They were allowed to listen to music and given access to reading materials. Light for each color temperature at a horizontal illuminance level of 1000 lux was adjusted at the reference level. The subjects slept on a bed in near darkness (10 lux) from 2 : 00 h to 9 : 00 h. The ambient temperature in the experimental chamber was kept at 25°C with 50% relative humidity.

Recording and scoring of sleep records

Electroencephalography (EEG), submental electromyography (EMG) and electrooculography (EOG) were recorded at 10 mm/sec by electroencephalography (EEG-5214, NIHON KOHDEN Co. Ltd., Japan). For EEG recording, the Ag/AgCl electrodes were attached to two scalp sites (C3 and C4) and both earlobes (A1 and A2) according to the International 10/20 system. Polysomnograms were scored in 30-s epochs according to international criteria (Rechtschaffen and Kales, 1968).

Table 2 Sleep latencies (SL) under different color temperatures are expressed as the mean±standard deviations (min). No significant differences between any 2 of the 3 color temperatures at any one time were derived

	3000 K	5000 K	6700 K
SL	6.9±3.1	4.9±4.1	6.5±12.4

Data analysis

Stage-4 sleep (S4-sleep) is known to occur predominantly during the early part whereas REM sleep increases during the later part of the sleep period (Williams et al., 1964). Thus, the sleep period (excluding sleep latency) were divided into the early (P1; 02 : 00–05 : 30 h) and the late (P2; 05 : 30–09 : 00 h) phases in the present study. Using P1 and P2 of the sleep period, color temperature and subject as the variables of sleep architectures, correlations of these variables were analyzed by the three-way analysis of variance (ANOVA). Sleep latency (SL) was analyzed using the two-way ANOVA with subject and color temperature as the variables. The multiple comparison test (Turkey's HSD) was used for subsequent analysis. Differences where $p<0.05$ were considered statistically significant.

Results

Based on the mean±standard deviations of SL (Table 2), significant differences of SL were not established under conditions of different color temperatures [$F(2,12)=0.14$, $p>0.1$].

There were significant effects on the phase of sleep periods for REM [$F(1,6)=63.03$, $p<0.01$], S2- [$F(1,6)=10.65$, $p<0.05$], S3- [$F(1,6)=10.09$, $p<0.05$] and S4- [$F(1,6)=26.9$, $p<0.01$] sleep (Table 3). Most of REM sleep was obtained in

Table 3 Sleep architectures of the early (P1) and late (P2) phases of sleep period. Values (min) are represented as the mean±standard deviations. Differences where $p<0.05$ or <0.01 were considered significant on comparisons

	Early phase	Late phase
WASO	2.5±5.7	1.4±3.2
REM	26.2±12.9	55.7±19.4**
S1	18.6±13.1	24.7±12.8
S2	100.7±21.6	113.7±21.8*
S3	30.1±14.2	11.1±8.6*
S4	27.8±14.7	4.2±4.8**

WASO, wake after sleep onset
** $p<0.01$; * $p<0.05$

Table 4 Sleep architectures for different color temperatures in the early phase (P1) of sleep period. Values (min) are expressed on the mean ±standard deviations. Differences where $p<0.05$ were considered significant on comparisons

	3000 K	5000 K	6700K
WASO	1.3±1.6	1.4±3.4	4.8±9.2
REM	31.1±10.4	23.0±13.5	24.5±15.1
S1	15.0±6.7	17.9±7.4	22.9±20.9
S2	92.7±26.3	107.0±21.1	102.3±17.0
S3	29.4±15.1	30.6±16.9	30.1±12.5
S4	34.9±17.6	25.9±8.9	22.4±15.2*

WASO, wake after sleep onset
* $p<0.05$, 3000 K vs. 6700 K

Table 5 Sleep architectures with different color temperatures in the late phase (P2) of sleep period. Values (min) are expressed on the mean ±standard deviation. No significant differences in all parameters were indicated on comparison of any 2 of the 3 color temperatures at any one time

	3000 K	5000 K	6700 K
WASO	0.6±0.5	2.2±5.4	1.4±1.4
REM	56.1±20.7	60.6±19.5	50.3±19.4
S1	26.2±14.4	21.9±11.9	25.9±13.7
S2	117.5±25.3	111.8±25.4	111.7±16.5
S3	9.0±6.8	11.4±9.7	12.9±10.0
S4	3.4±3.5	2.6±3.5	6.6±6.6

WASO, wake after sleep onset

P2 of the sleep period, as well as S2-sleep. However, the amount of S3- and S4-sleep increased in P1 of the sleep period.

Result analysis by ANOVA for S4-sleep indicated the tendency of color temperature effects [$F(2,12)==3.79$, $p=0.052$] and an interactive effect between P1 or P2 of sleep period and the color temperature [$F(2,12)=3.32$, $p=0.071$]. From the sleep variables for each color-temperature condition in P1 of the sleep period (Table 4), the amount of S4-sleep was reduced under conditions with 6700 K compared with 3000 K lighting ($p<0.05$). In P2 of the sleep period (Table 5), however, there were no significant differences correlating the sleep variables with the different color temperatures.

Discussion

Based on the characteristic changes in sleep patterns (Williams et al., 1964), our data showed higher amounts of S3- and S4-sleep in P1 than in P2 of the sleep period (Table 3). In P1 of the sleep period (Table 4), significantly less amount of S4-sleep was obtained under 6700 K than under 3000 K lighting. It is considered that slow wave sleep (SWS; S3- and S4-sleep) may be important for the enhancement of sleep quality. Webb and Agnew (1970) have compared the sleep architectures in subjects having different lengths of the sleep period. They found no significant differences in S4-sleep between the short and long sleepers, although the former manifested less REM sleep than the latter. These findings were interpreted to indicate that the short sleepers spent less time in light-sleep and awakenings. Kecklund and Åkerstedt (2004) have demonstrated that mental stress may have a negative effect on SWS. Subjects who have high apprehensions towards the next working day show abbreviated SWS periods and lower scores in subjective sleep quality. Furthermore, SWS in depressed patients has been documented to have a positive correlation with the subjective estimation of sleep duration (Rotenberg et al., 2000). Given that the S4-sleep period is important for sleep quality, our findings suggest that light sources of higher color temperatures may reduce sleep quality compared with those of lower color temperatures.

Previous studies have demonstrated the effects of light sources with different color temperatures on HRV (Mukae and Sato, 1992; Tsutsumi et al., 2002), blood pressure (Kobayashi and Sato, 1992), EEG (Küller and Wetterberg, 1993) and CNV (Deguchi and Sato, 1992) in humans. These findings imply that the effects of pre-sleep exposures to certain light sources may affect sleep quality. However, changes in the nocturnal secretion of melatonin manifested in our results were likely caused by the different conditions with lighting of different color temperatures. Van Den Heuvel et al. (1997) have reported that the administration of atenolol, a β-blocker, decreases the amount of SWS period compared with placebo administration; β-blockers have been known to alter normal melatonin production. In addition, decreases in SWS are reversed with melatonin treatment after atenolol administration in their investigation. The spectral region between 446 and 477 nm has been regarded as lighting with the most potent wavelength for regulating melatonin secretion in humans (Brainard et al., 2001). The light source of 6700 K includes the action spectrum for suppression melatonin release compared to that of 3000 K, and might decrease the amount of S4-sleep in tandem with the changes in melatonin secretion.

In this study, relatively high light illuminance at 1000-lux was used. A previous study has demonstrated suppression of melatonin secretion when the human retina is exposed to100-

lux white light illuminance (Glickman et al., 2003). This finding suggests that a light source with different color temperatures may affect sleep quality in the home. In other words, the use of an appropriate light source may improve the quality of our living environment.

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ATT-09

Friends of Five Creeks

Volunteers preserving and restoring watersheds of
North Berkeley, Albany, Kensington, south El Cerrito and Richmond since 1996
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510 848 9358 *f5creeks@gmail.com* *www.fivecreeks.org*

June 20, 2023

City of Berkeley Manager, Mayor, and Council
Parks, Recreation, and Waterfront; Transportation and Infrastructure; and Community Health Commissions
San Francisco Bay Regional Water Quality Control Board

Re: Pollution and public health risks from lack of toileting facilities for unhoused

Berkeley Mayor, Council, staff, commission members; staff and members of the Regional Water Quality Control Board:

Friends of Five Creeks, a 27-year-old, all-volunteer group working for creeks and watershed from Berkeley to Richmond, applauds planned capital projects that will green and beautify Aquatic Park. We look forward eagerly to Berkeley's finding a way to help those living in RVs and camper vans east of the park's lagoons empty their sewage safely and without causing pollution. This effort should include providing portable toilets for those living in RVs and packed tent encampments like those on Eighth and Harrison, just south of Codornices Creek, in conditions that would disgrace many of the world's poorest nations.

We appreciate the city's focus on providing stable, long-term housing, including a new $4.9 million state grant to convert another motel in the near future. Berkeley also is paying the Downtown Streets Team $1.6 million to engage the unhoused in picking up litter. It can afford a few thousand dollars for portable toilets and a pumping service to provide basic dignity and sanitation.

Through the worst of the pandemic Friends of Five Creeks paid for a portable toilet at 8th and Codornices Creek, the north end of the tent encampment. We were grateful that the city eventually took it over, and sorry that it has now been removed – and that the two toilets formerly at 8th and Harrison are down to one. Campers have included the old, the incontinent, people with walkers and wheelchairs, and people who are seriously delusional and addicted. Do you think they will all walk hundreds of feet to wait at a toilet in the middle of the night? From experience, we know that they will have accidents that cause them to discard their clothing, or refuse to leave the toilet when the cleaner comes.

It goes without saying that under these conditions, human waste goes into storm drains and flows from there to creeks, Aquatic Park, and the Bay. This is supported by the attached record of city tests, showing near-continuous advisories due to exceedance of enterococcus standards in Aquatic Park after the Grayson Street RV site and pump station closed in fall 2022. Anti-pollution agencies such as the Water Quality Control Board should not tolerate this.

We hope to see basic sanitation a priority in policies and spending to end the epidemic of addiction, mental illness, and homelessness that shames and weakens our community and society.

Sincerely,

Susan Schwartz, President, Friends of Five Creeks

Attachment: Aquatic Park Lagoon Enterococcus Sampling Results.Yellow = Emterococcus exceedance

Aquatic Park Lagoon Enterococcus Sampling Results				
Sample Collection Date	North	Middle	South	Comments/Observatons
05/30/23	ND	ND	10	
05/23/23	20	ND	230	Lagoon is under Yellow Advisory due to Enterococcus exceedances in South sample point; no measurable amounts of preciptation were recorded on 5/23/23; no reported sewage release on/around 5/23/23;
05/16/23	ND	ND	ND	Advisory lifted as of 5/16/22 based on water sample results received for 2nd consecutiv week w/no exceedances
05/09/23	ND	ND	ND	
05/02/23	860	30	20	Lagoon is under Yellow Advisory due to Enterococcus exceedances in North sample point; no measurable amounts of preciptation were recorded on 5/2/23; no reported sewage release on/around 5/2/23;
04/25/23	10/13 g/kg	ND/12 g/kg	ND/12 g/kg	Salinity samples were measured at 10, 12, & 12 g/kg
04/18/23	ND/10 g/kg	ND/11 g/kg	20/10 g/kg	Salinity samples were measured at 10, 11, & 10 g/kg
04/11/23	ND/8.9 g/kg	10/9.5 g/kg	20/9.4 g/kg	Salinity samples were measured at 8.9, 9.5 & 9.4 g/kg
04/04/23	ND/9 g/kg	20/9.1 g/kg	20/9.1 g/kg	Salinity samples were measured at 9, 9.1 & 9.1 g/kg
03/28/23	20/10 g/kg	630/8.9 g/kg	96/9 g/kg	Only one exceedance (middle) resulting in a continued Yellow advisory. Measurable amounts of rain were recorded during the early morning hours on 3/28/23, which could account for the spike in the middle sample. Salinity samples were measured at 10, 8.9 & 9 g/kg
03/21/23	31/12 g/kg	31/12 g/kg	400/11 g/kg	Only one exceedance (south) resulting in a continued Yellow advisory. Measurable amounts of rain were recorded during the early morning hours on 3/21/23 and continued into the week. Salinity samples were measured at 12, 12 & 11 g/kg
03/14/23	5500/11 g/kg	1300/10 g/kg	1600/10 g/kg	Exceedances in all 3 samples (north, middle and south) resulting in a continued Yellow advisory. Measurable amounts of precipitation were recorded on/around 3/14/23, which is a likely cause for the exceedances. Initiated salinity sampling at each of the sampling sites with results reflected as # grams of salt/kg of bay water (in the lagoon)
03/10/23	1000	860	800	Exceedances in all 3 samples (north, middle and south) resulting in a Yellow advisory. Measurable amounts of precipitation were recorded on/around 2/28/23, which is a likely cause for the exceedances.
02/21/23	20	100	30	
02/16/23	20	ND	ND	
02/07/23	20	10	10	Rec'd community concerns over the presence/observations of several dead leopard sharks and bat rays; staff conducted cursory assessment, and met with EBMUD staff who were investigating complaints of "rotten egg" odor, but unable to identify source/cause; notifed Fish and Wildlife by completing Mortality Report on F/W website;
01/31/23	100	100	ND	Yellow Advisory lifted as of 2/9/23 based on two consective sample sets with no Enterococcus exceedances; reports of 3 dead sting rays observed on 2/7/23, however no other dead fish or other wildlife were observed/reported; State Fish and Wildlife were notified by the reporting party via email on 2/7/23
01/26/23	20	31	ND	
01/17/23	200	97	230	Lagoon to remain under yellow advisory; slight, but measurable amounts of rainfall was detected on 1/15/23; 2 of the 3 sample sites exceeded the Enterococcus thresholds;
01/10/23	4900	4100	1800	Lagoon to remain under yellow advisory; significant amounts of rainfall on 1/10/23 resulting in significant Enterococcus exceedances in each of the 3 sample points;
01/03/23	670	170	150	Lagoon to remain under yellow advisory; measurable amounts of rainfall on/around 1/2 - 1/3/23 resulting in Enterococcus exceedances in each of the 3 sample points;
12/29/22	380	2000	1700	Lagoon to remain under yellow advisory; measurable amounts of rainfall on/around 12/29/22 resulting in Enterococcus exceedances in each of the 3 sample points;
12/20/22	ND	30	1100	Lagoon to remain under yellow advisory; no measureable amounts of rain was detected on/around 12/20/22; unknown cause for Enterococcus spike from the South sample point as there was no 'unusual' activity observed at the lagoon during sampling
12/14/22	10	ND	100	Lagoon to remain under yellow advisory; no measureable amounts of rain on/around 12/14/22; staff observed "floating slime and foam" in the North and Middle sample points; abundance of ducks and other water fowl were observed in the South sample point at time of collection
12/06/22	ND	30	ND	
11/29/22	10	200	ND	Lagoon to remain under Yellow Advisory until 2 successive sample sets are all below the threshold of 110 cfu/100 ml; no detectable rainfall on/around 11/29/22; no observations/notes recorded re: the presence of water fowl and/or other unusual activiy observed at the lagoon
11/22/22	ND	ND	150	Lagoon to remain under Yellow Advisory until 2 successive sample sets are all below the threshold of 110 cfu/100 ml; no detectable rainfall on/around 11/22/22, however staff observed ducks and other water fowl present in moderate numbers between the middle and southern sampling points
11/15/22	ND	ND	10	
11/08/22	500	660	590	Lagoon is under Yellow Advisory due to Enterococcus exceedances in each of the collected samples; Measurable amounts of preciptation were recorded on 11/7/22 and 11/8/22, which likely accounts for the eleveated Enterococcus levels in each sample;
11/03/22	ND	31	ND	
10/25/22	ND	31	ND	
10/18/22	10	ND	ND	
10/17/22				No Enterococcus samples collected this day, however, EH staff investigated a report of a what appeared to be a small quantity of paint dumped into the lagoon; City Parks Division dispatched Clean Harbors to boom and vacuum up remaining paint residual that same day, 10/17/22. There were no sightings or reports of other dead fish or other animals as a result.
10/13/22	ND	ND	ND	
09/22/22	ND	31	ND	
09/13/22	ND	ND	10	

City of Berkeley Aquatic Park Enterococcus Sampling Results, newest to oldest. Yellow = advisory posted due to exceedance. Grayson St. RV lot and pump-out station closed October 2023. Three-page attachment to Friends of Five Creeks June 20 letter re toileting facilities for unhoused.

09/06/22	ND	ND	ND	
08/23/22	ND	ND	ND	
08/16/22	ND	ND	ND	
08/09/22	ND	ND	ND	
08/04/22	ND	ND	ND	
07/26/22	ND	ND	ND	
07/19/22	20	10	ND	
07/12/22	ND	10	20	
07/05/22	20	10	10	
06/28/22	31	41	10	
06/23/22	ND	10	ND	
06/14/22	ND	100	30	
06/06/22	41	20	10	
05/31/22	0	10	10	
05/26/22	10	ND	ND	
05/17/22	ND	ND	ND	
05/10/22	ND	ND	ND	
05/03/22	10	100	ND	Advisory lifted as of 5/16/22 based on water sample results received for 2nd consecutiv week w/no exceedances
04/26/22	0	10	10	
04/19/22	200	110	10	Exceedances in 2 of 3 samples (north, middle lagoon sample) resulting in the continuance of a Yellow advisory. Measurable amounts of precipitation were recorded on 4/19/22, which is a likely cause for the exceedance.
04/12/22	100	200	ND	Exceedances in of 3 samples (middle lagoon sample) resulting in the continuance of a Yellow advisory. Measurable amounts of precipitation were recorded on 4/11/22, which is a likely cause for the exceedance.
04/05/22	ND	ND	10	
03/29/22	10	200	100	Exceedance in 1 of 3 samples (middle sample) resulting in a Yellow advisory. Mesurable amounts of precipitation were recorded on 3/27 and on 3/28/2022, which is a likely cause for the exceedance.
03/22/22	10	ND	100	
03/15/22	10	75	20	
03/08/22	ND	10	20	
03/01/22	10	ND	ND	
02/22/22	ND	10	ND	Advisory lifted as of 2/22/22 based on water sample results received for 2nd consecutiv week w/no exceedances
02/15/22	ND	20	20	
02/08/22	ND	410	41	Yellow Advisory reinstated due to an exceedances in 1 of the 3 samples collected on 2/8/2022; there was no measureable amount of rainfall, and there were no reports of sewage releases on/or around 2/8/2022
02/03/22	ND	ND	ND	Advisory lifed as of 2/10/22 based on satisfactory results of each of the 3 sample points testing below the 110 cfu/100ml threshold for 2 consecutive weeks after the exceedance on the 1/13/22 sample
01/25/22	ND	41	20	
01/18/22	ND	20	20	
01/13/22	ND	620	30	Advisory to remain in-effect for 2 additional sampling events due to a spike in the Enterococcus levels collected from the mid-lagoon sampling point. No reports of sewage release, however there was a report of possible illegal dumping which was recevied on 1/5/22; EH staff investigated but were unable to determine whether illegal dumping occurred;

01/04/22	180	180	41	Advisory reinstated due to exceedances in 2 of the 3 samples collected on 1/4/2022; minor amounts of rainfall ranging from 0.1 - 0.3" fell from 1/1 - 1/4/2022, which may have contributed to the higher bacterial counts; there were no reports of sewage releases in/around the Aquatic Park Lagoon; there was a report of possible illegal dumping into the lagoon on/around 1/5/2022, however, EH staff investigated but were unable to confirm
01/13/22	ND	620	30	Advisory to remain in-effect for 2 additional sampling events due to a spike in the Enterococcus levels collected from the mid-lagoon sampling point. No reports of sewage release, however there was a report of possible illegal dumping which was recevied on 1/5/22; EH staff investigated but were unable to determine whether illegal dumping occurred;
01/18/22	ND	20	20	
12/28/21	10	100	41	Advisory lifed as of 1/10/22 based on satisfactory results of each of the 3 sample points testing below the 110 cfu/100ml threshold for 2 consecutive weeks after the exceedances on the 12/14/21 samples
12/21/21	41	10	100	
12/14/21	1800	3,300	2700	Yellow Advistory to remain in-effect due to exceedances in each of the 3 sample locations; over 3" of rainfall were recorded on 12/13/21, which likely caused the bacteria levels to spike
12/07/21	360	10	100	Yellow Advisory posted on Friday, 12/17/21 due to elevated Enterococcus level in the North sample point on 12/7/21; no measureable amounts of were rain recorded on 12/6/21, and no reports of surfacing sewage overflows on/around 12/7/21
11/30/21	ND	ND	20	
11/23/21	10	ND	50	Advisory lifed as of 12/7/21 based on satisfactory results of each of the 3 sample points testing below the 110 cfu/100ml threshold for 2 consecutive weeks after the initial exceedance on the 11/9/21 sample
11/16/21	31	10	100	
11/09/21	400	1,200	100	Mesurable amounts of precipitation were recorded on 11/8/21 and 11/9/21, which is the likely cause for elevated Enterococcus levels; Yellow Advisory to remain in-effect for at least 2 consective sampling cycles
11/02/21	10	100	10	
10/26/21	8200	10,400	6488	Yellow Advisory posted on Friday, 10/29/21 due to preliminary results provided by lab; spike caused by significant rain events during previous several days prior to sample collection
10/19/21	10	ND	ND	
10/12/21	10	ND	ND	
10/05/21	ND	10	ND	
09/30/21	20	ND	ND	Sample collected on Thursday instead of Tuesday
09/21/21	20	ND	ND	
09/14/21	ND	ND	ND	
09/07/21	ND	10	ND	
08/31/21	ND	30	ND	
08/24/21	ND	ND	10	
08/17/21	ND	10	ND	
08/10/21				
08/03/21	ND	ND	ND	
07/27/21	ND	ND	ND	

City of Berkeley Aquatic Park Enterococcus Sampling Results, newest to oldest. Yellow = advisory posted due to exceedance. Grayson St. RV lot and pump-out station closed October 2023. Three-page attachment to Friends of Five Creeks June 20 letter re toileting facilities for unhoused.

07/20/21	ND	10	ND	Advisory lifed as of 7/28/21 based on satisfactory results of each of the 3 sample points testing below the 110 cfu/100ml threshold for 2 consecutive weeks after the initial exceedance on the 7/6/21 sample
07/13/21	ND	10	10	
07/06/21	ND	230	ND	Yellow Advisory to be posted; no reports of sewage release in/around the AP lagoon; no rain recorded since April; according to our staff sampler, there was a large presence of Canadian geese in middle segment of the lagoon at the time of sampling
06/29/21	ND	41	ND	
06/22/21	ND	ND	10	
06/15/21	ND	10	ND	
06/08/21	ND	10	ND	
06/01/21	ND	ND	ND	
05/25/21	ND	31	ND	
05/18/21	ND	41	ND	
05/11/21	ND	ND	10	
05/04/21	ND	20	ND	
04/27/21	10	100	20	
04/20/21	10	ND	ND	
04/13/21	Nd	ND	10	
04/06/21	20	10	10	
03/30/21	20	20	ND	
03/23/21	10	ND	20	
03/16/21	ND	ND	ND	
03/09/21	41	31	ND	
03/02/21	ND	10	ND	
02/23/21	31	ND	10	
02/16/21	ND	20	10	Advisory lifted as of 2/25/21 based on water sample results received for 2nd consecutiv week w/no exceedances
02/09/21	ND	ND	41	Advisory posted on 2/11/21 due to notification of Enterococcus exceedances in water samples collected on 2/2/21
02/02/21	590	360	120	Fairly significant rainfall between 1/31/21 - 2/2/21; no reported sewage releases reported in Berkeley on/around that date range
01/26/21	ND	10	ND	
01/19/21	31	100	200	No rain reported, however unusually strong wind gusts recorded earlier that morining and during the day, which could have blown additional debris into the lagoon
01/12/21	10	ND	100	
01/05/21	160	63	31	Some rainfall recorded on 1/4 and 1/6/21
12/29/20	31	10	63	
12/22/20	10	10	ND	
12/15/20	1300	20	120	Fairly significant rainfall recorded on 12/13/20; no reported sewage releases reported in Berkeley on/around that date
12/08/20	100	10	100	
12/01/20	10	ND	ND	
11/24/20	10	10	10	
11/17/20	10	200	200	Minor rain showers
11/10/20	10	ND	ND	
11/03/20	ND	10	10	
10/27/20	ND	ND	10	
10/20/20	200	ND	10	No reported sewage releases reported in/around Berkeley
10/13/20	20	ND	* N/A	* Sample not collected due to time constraint with sample 'hold-time' and courier service
10/06/20	ND	ND	10	
09/29/20	ND	20	100	
09/22/20	84	ND	ND	
09/17/20	10	97	31	

NOTE: The State standard for monitoring water quality and determining posting status for the Aquatic Park lagoon is based on the "Enterococcus" numbers only. Enterococcus figures in **RED** exceed the State Standard

http://www.balancehydrologics.com/raingage/index.php

https://www.waterboards.ca.gov/water_issues/programs/sso/sso_map/sso_pub.shtml

Indicates Advisory Posted due to Enterococcus exceedance

CALIFORNIA STATE STANDARDS	CURRENT STATE STANDARDS FOR SINGLE SAMPLE (#cfu/100 ml)
BACTERIAL CONSTITUENT	≤ 110
Enterococcus:	

City of Berkeley Aquatic Park Enterococcus Sampling Results, newest to oldest. Yellow = advisory posted due to exceedance. Grayson St. RV lot and pump-out station closed October 2023. Three-page attachment to Friends of Five Creeks June 20 letter re toileting facilities for unhoused. 3