

Carsie Bonner

From: Mark Baker <mbaker@softlights.org>
Sent: Saturday, June 21, 2025 5:30 AM
To: Carsie Bonner
Cc: Jason Weinstein; david.eng@dot.ca.gov; El-Tawansy, Dina@DOT; neumanengineering@gmail.com; krista.pfefferkorn@sen.ca.gov; sshahmirzai@zoon-eng.com; anna.esparza@sen.ca.gov; Maung, Aung@DOT; rajesh.oberoi@dot.ca.gov; amjad.naseer@dot.ca.gov; balasubramanian@dot.ca.gov; Kathleen Kane; Andrew Fremier; Alix Bockelman; Higuera, Amy R.; fhwa-ADaprogram@dot.gov; elissa.konove@dot.gov; Ask Investigations@DOT
Subject: BATA Oversight Committee - SF Bay LED Lights Safety Study
Attachments: 2024-07-08 - The Bay Lights 360 Issue Memo 06252024.docx; TBL360 Traffic Safety Letter.docx - signed.pdf; Exhibit_A_-_Encroachment_Permit.pdf; Bay Lights 360 - BATA Oversight.pdf

External Email

Dear Carsie Bonner, Clerk, Bay Area Toll Authority Oversight Committee,

Please find attached public comment and a request for an investigation by the BATA Oversight Committee for the SF Bay LED Lights Safety Study. We request that this item be added to the agenda for the next BATA Oversight Committee meeting.

Sincerely,

Mark Baker
President
Soft Lights Foundation
www.softlights.org
mbaker@softlights.org
X: @softlights_org
Bluesky: @softlights-org.bsky.social



ISSUE MEMORANDUM

TO TONY TAVARES, Director
California Department of Transportation

FROM DINA EL-TAWANSY, District Director
District 4
(510) 715-7446; dina.el-tawansy@dot.ca.gov

PREPARED BY S. SEAN NOZZARI, Deputy District Director
District 4, Operations
(510) 715-9558; sean.nozzari@dot.ca.gov

DATE July 8, 2024

SUBJECT **Proposed 360-Degree Decorative Lighting to Replace Existing Bay Lights on San Francisco-Oakland Bay Bridge (Bay Bridge)**

☒ Request for Approval

☐ For Information

☐ Request for Discussion

☐ For Signature

TRACKING NUMBER - 2022009884

TIME FACTOR

The existing decorative lights (The Bay Lights) on the San Francisco-Oakland Bay Bridge (Bay Bridge) are at their end-of-life. As part of a replacement project referred to as "The Bay Lights 360", *Illuminate the Arts (Illuminate)*, a California nonprofit, which, in cooperation with the Bay Area Toll Authority (BATA), originally installed the Bay Lights, proposes to promote equity by adding additional lights for visibility of the art installation from the underserved East Bay communities. *Illuminate* has requested Caltrans approval of their proposal, as the project is fully funded now, contracts have been executed, and fabrication of the lights has already begun. *Illuminate* desires for installation to begin in August 2024, and open to public for display in September 2025.

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Lighting on San Francisco-Oakland Bay Bridge (Bay Bridge)**

BACKGROUND

The decorative lights on West Span of the Bay Bridge epitomizes Caltrans Transportation Art policy in the form of a globally admired civic treasure, known as The Bay Lights, comprised of 25,000 Light-Emitting Diodes (LED) attached to the outside of the suspender cables of the north side of the Bay Bridge. The Bay Lights face north and are visible only from the western Bay Area communities, featuring a dynamic yet subtle movement of lights along the bridge that represent natural wind, fog, and water flow patterns present in the vicinity. The Bay Lights project was completed on March 5, 2013, for an exhibition period of two years. In March 2015, a Memorandum of Understanding (MOU) was executed based on the February 24, 2015, Issue Memorandum (Attachments 1 and 2) to remain as a permanent civic art, gifted to the State of California (State). Accordingly, the ownership, operation, and maintenance responsibilities of the installation were transferred to the California Department of Transportation (Caltrans) with the associated costs to be reimbursements by the Bay Area Toll Authority (BATA). Upon execution of the MOU in March 2015, the existing lighting was replaced with more robust lighting, as required by the MOU before the transfer, ahead of the February 7, 2016, Super Bowl 50 for public display.

Illuminate has requested Caltrans approval of "The Bay Lights 360" project to replace the existing Bay Lights (Attachment 3) that are at their end-of-life with new 48,000 LED lights to be visible 360 degrees to the Bay Area East Bay underserved communities as well as the westbound motorists on the Bay Bridge's upper-deck (Attachment 4). *Illuminate's* proposal was reviewed by the District and Headquarters for impacts on traffic safety and operations. Caltrans concerns, including potential motorists' distraction, were conveyed in a comment letter dated May 20, 2022, to *Illuminate* for addressing those concerns as part of their encroachment permit application (Attachment 5). *Illuminate* addressed Caltrans concerns in a response letter dated July 25, 2022 (see Attachment 6).

There is a precedent for a dynamic lighting display visible to the motorists as authorized under a 2015 transportation art encroachment permit to the City of San Jose on State Route 87 in the County of Santa Clara (Attachment 8). Other somewhat similar decorative lighting features on State highways include the newer East Span of the Bay Bridge, and the Historic Laurel Street (Cabrillo) Bridge on State Route 163 and Walter F. Maxwell Memorial Bridge on Interstate 15 in District 11 (Attachment 9).

Illuminate's current schedule for the proposed project is as follows:

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- Obtain Caltrans Conceptual Approval as soon as possible.
- All contracts with the Designer, Construction Manager, and material suppliers have been executed except for the installing contractor, which will be signed by June 28, 2024.
- Stamped electrical design drawings are completed and submitted with the application.
- Secure Caltrans Encroachment Permit to Begin Fabrication of New Lights.
- Remove existing Lights and install Test Section – October 2024.
- Complete Testing and Programming of Test Section – October 2024.
- Complete Testing and Programming of Full Installation – January/February 2025.
- Grand Lighting Display – March 5, 2025.

DISCUSSION/PRO-CON ARGUMENTS

The Bay Lights has inspired tourism in the City of San Francisco for nearly a decade now and has influenced installation of similar architectural lighting on bridges and landmarks worldwide. The Bay Lights 360 is expected to equitably flourish economic prosperity in the entire Bay Area communities and all businesses around the Bay Bridge.

Caltrans' primary concerns are potential motorists' distraction and traffic delays from the proposed dynamic lighting visible to the westbound bridge traffic towards the end of the evening commute and later in the evening. The California Highway Patrol (CHP) has also expressed concerns, citing distracted driving as one of the leading causes of traffic crashes and fatalities (Attachment 7). Further, the CHP has expressed concerns for the proposal becoming an attractive nuisance leading to increased sideshow activities, potential risk of harm to the public, and reduced traffic safety, as well as a draw on limited law enforcement resources.

Such potential impacts are expected to first be evaluated and quantified through a test installation over a one-half- to one-mile-long segment of the West Span of the Bay Bridge, including weekends and possibly during poor weather conditions. The test section will help identify necessary adjustments and the appropriate intensity and frequency of the lighting transitions necessary for alleviating any adverse impacts (Attachment 10). As part of the test, an appropriate height above the roadway surface and/or above drivers eye level can be determined for the lights to alleviate potential distraction and annoyance. Furthermore, the Bay Lights 360 are designed to entail two separate installations (one facing the Bay and the West Bay communities and the other facing the motorists and the East Bay communities), each with a

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completely independent electrical control system so that if CHP or Caltrans decides that the lights visible to the motorists need to be turned off, it could easily be done without any impact to the Bay side lights. Lastly, Caltrans and the CHP shall maintain the authority to terminate the proposed lighting at any time during the test period or upon full installation to protect public safety, when necessary.

Before approval of an encroachment permit for installation, *Illuminate* is required to revalidate CEQA Categorical Exemption (CE), and to obtain approvals from various entities, including the CHP, Federal Highway Administration (FHWA), affected cities, counties, and the San Francisco Bay Conservation and Development Commission (BCDC).

Any final approval (Attachment 11) will be formalized by updating the MOU after the issuance of an encroachment Permit to BATA with appropriate provisions, including Caltrans reserving the right to remove or disable the artwork at any time in case of a bona fide necessity to protect public safety, convenience, and interests, including access to the bridge's suspender cables for construction, rehabilitation, painting, or necessary maintenance activities for the transportation facility itself, all as determined necessary by Caltrans, without any obligation, compensation to, or approval from the permittee.

Pros/Cons:

The following pros and cons have been identified for allowing the Bay Lights 360 project:

Pros:

- The Bay Lights 360 will provide visibility to underserved communities located on the east side of the Bay Bridge and will promote economic prosperity in both the East and West Bay communities.
- The proposal will perpetuate and expand an existing transportation art feature on the older West Span of the Bay Bridge while also complementing the existing lights on the newer East Span of the Bay Bridge, resulting in an enhanced driver experience along the entire length of the bridge.
- The proposed system is more ecofriendly and energy-efficient than the current installation.
- Unlike the existing system, the proposed system is designed to continue operating by keeping the strand lit and visual impact unnoticeable if a

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node fails, thereby reducing maintenance cost and traffic delays from lane closures for maintenance.

- While the 360 lighting of the north side of the bridge would be blocked by the south side cable and other infrastructure, the installation on north side of the bridge with lights facing south would achieve 360-degree effect as desired and would result in a cost decrease and shorter construction duration for extending the infrastructure (electrical system, fiber optic, and controllers) to the south side.
- The proposed lighting circuit design comprises of two control systems, one for the lights facing away from the motorist and the other for lights facing the motorist, which allows turning those lights facing the motorist' off if it poses distraction to the motorists. The design also includes shielding the lights for up to 15 feet above the roadway for added safety to prevent visibility to approaching motorists. Additionally, design can be modified to include controls for dimming the lights located up to 15 feet above the roadway and facing the motorists.
- Caltrans Headquarters Division of Safety Program's concerns have been addressed with development of a structured framework for traffic safety evaluation of the test installation (Attachment 10).
- The State will be protected under the design immunity with the following requirements when met by the sponsor, in addition to the required liability insurance in place:

For any lighting program:

1. The sponsor will prepare a complete plan of the computerized light timing program.
2. The sponsor will procure services of a California Registered Traffic Engineer with the skills and knowledge in transportation safety to evaluate and approve the plan.
3. The sponsor will provide the Traffic Engineer with a documented delegated authority to approve the proposed design feature.
4. The sponsor will submit a signed memo from the Traffic Engineer documenting:
 - a. A determination that the light timing program was reasonable exercise of their engineering judgment, and

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- b. A commitment that the light timing program cannot change without going through Items 1-4a above.
5. Caltrans will maintain records of the plan, approval documentation, and delegation of authority archived in Document Retrieval System (DRS) for every light timing plan.
6. Caltrans will perform an independent engineering analysis of the light timing program to ensure safety of the motorists before issuing an encroachment permit.
7. In accordance with the attached Caltrans memo dated August 30, 1991 (Attachment 12), the title sheet of the design plans will carry the Oversight Engineer's Block in compliance with the Caltrans Plan Preparation Manual, Chapter 2, Section 2-1.06 to further protect the State for providing oversight only of a design which is different from Caltrans standards.

Cons:

- The proposal may result in creating an attractive nuisance (such as increased sideshows or unauthorized stops for taking photos or making videos), resulting in increased law enforcement action to protect safety of the traveling public, or cause motorists' distraction leading to traffic safety risks and traffic delays.
- The proposal may increase future tort liability claims against Caltrans.
- Upon installation, there may be public complaints related to lighting distraction and nuisance, which may result in the termination of the south side lights.
- Caltrans termination of the installation in case of adverse impacts may result in poor publicity associated with inadequate review or improper decision making.

EFFECT ON EXISTING LAW

None.

PUBLIC COMMENTS RECEIVED

Caltrans has received two public concerns/comments regarding the Bay Lights 360 project on the Bay Bridge:

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1. Letter from the Yerba Buena Chapter of the California Native Plant Society (Attachment 13), that was sent to the Bay Area Toll Authority Oversight Committee. The Society has expressed their concern about the proposed LED artificial lighting project on the Bay Bridge. It is their belief that this project could have harmful effects on wildlife and the environment.
2. Complaint from Soft Lights Foundation regarding the installation of LED lights which will deny full and equal access for individuals who are neurologically intolerant of intense, unregulated LED light (Attachment 14).

ESTIMATED COST

The Bay Lights 360 is a privately funded project with donations and gifts-in-kind as funding sources. The estimated capital cost to replace the existing lighting is \$7.2 million. Annual maintenance cost is estimated at \$300,000 and are to continue to be funded by BATA under the existing MOU.

No State funds will be used for the project, except for general oversight and processing of proposal through the Transportation Art Program, and encroachment permit. State is generally not reimbursed for such costs when project is sponsored by a public agency (in this case, BATA). Using an estimate of 300 Caltrans staff-hours for the initial installation, and the current standard hourly rate of \$162 per hour for encroachment permit, the cost to the State would be approximately \$48,600.

RECOMMENDATION

It is recommended the Director provide general support for staff to continue working with the sponsor to evaluate the Bay Lights 360 project through Caltrans Transportation Arts Program and encroachment permit processes.

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APPROVED

Tony Tavares, Director

Date

Attachments:

1. Issue Memo Dated February 24, 2015
2. Memorandum of Understanding Executed March 2015
3. The Bay Lights (Existing)
4. The Bay Lights 360 (Proposed)
5. Caltrans Comment Letter Dated May 20, 2022
6. *Illuminate* Response Letter Dated July 25, 2022 to Caltrans Comments
7. CHP Secondary Comment Letter Dated August 19, 2022
8. State Highway 87 Transportation Art "Sensing You" and "Sensing Water"
9. State Highway 163 and Interstate 15 Bridge Lighting
10. Location of Test Installation and Traffic Safety Evaluation Plan
11. Approval of Documents Required to Authorize Installation
12. Caltrans Memo Dated August 30, 1991
13. Letter from Yerba Buena Chapter of California Native Plant Society
14. Communications from Soft Lights Foundation

June 21, 2025

BY EMAIL

Bay Area Toll Authority Oversight Committee
cbonner@bayareametro.gov

Re: Bay Lights LED Safety Study – Unethical Sham Project

Dear Bay Area Toll Authority Oversight Committee,

The Bay Area Toll Authority (“BATA”) is moving forward with an extraordinarily dangerous, highly unethical, sham project which we are calling the Bay Lights LED Safety Study. BATA’s plan is to install 48,000 animated, blue-rich LED lights onto the San Francisco Bay Bridge, turn them on, and then count the number of vehicle crashes, injured people, seizures, migraines, and deaths, and then, make a determination as to whether this already-built project should continue operating.

Included with this letter is the plan which was developed in coordination with the California Department of Transportation (“Caltrans”), along with the Caltrans encroachment permit, and approval of the plan by Laurence Neuman of Neuman Engineering. These plans were developed without public input, without environmental review, and without any assessment of the ethics of shining intense LED lights into the eyes of drivers without their consent.

This proposed project calls for installing 48,000 animated, blue-rich LED lights which will create significant levels of light pollution across the entire San Francisco Bay. Despite this, the plan by Dina El-Tawansy of Caltrans advocates that the non-profit, Illuminate, procure a Categorical Exemption from the California Environmental Quality Act. This is an unethical and unlawful request. A project of this scale requires full compliance with CEQA.

Laurence Neuman is a civil engineer who makes a living studying vehicle crashes and testifying at trials. Mr. Neuman may be qualified to evaluate the crashes that occur after the 48,000 LED lights are turned on, but Mr. Neuman appears to have no qualifications for studying the impacts of LED light on driver vision or neurology. Mr. Neuman has not indicated any experience with modeling software for LED lights or that he meets any of the requirements for optical engineer. Rather than modeling the LED lights and their impacts on drivers with software, BATA’s plan is to fully install the LED lights onto the Bay Bridge, turn them on, and then have Mr. Neuman evaluate the resulting carnage. This is a violation of public trust and duty of care by public officials.

The Soft Lights Foundation requests a thorough investigation by the BATA Oversight Committee and that the BATA Oversight Committee demand that BATA develop a full and complete Environmental Impact Report in compliance with the California Environmental Quality Act which addresses the impacts of light pollution, disability rights, and the public's right to informed consent for this project.

/s/ Mark Baker
President
Soft Lights Foundation
www.softlights.org
mbaker@softlights.org

Permit No. 04-24-N-AP-1811	
In compliance with your application of <u>September 17, 2024</u>	Dist/Co/Rte/PM 04/SF/80/PM 6.2L-Var
Reference Documents:	Permit Approval Date October 29, 2024
<input type="checkbox"/> Utility Notice No. _____ of _____	Performance Bond Amount (1) \$0
<input type="checkbox"/> Agreement No. _____ of _____	Payment Bond Amount (2) \$0
<input type="checkbox"/> R/W Contract No. _____ of _____	Bond Company \$ N/A
<input checked="" type="checkbox"/> Project code (ID): <u>0000001157</u> CFC #: _____	Bond Number (1) \$ N/A
<input type="checkbox"/> Applicant's Reference/ Utility Work Order No. _____	Bond Number (2) \$ N/A

TO: Bay Area Toll Authority
C/O: Illuminate the Arts
228 Laidley Street
San Francisco CA 94131

, PERMITEE

and subject to the following, PERMISSION IS HEREBY GRANTED to:
Encroach within State's right-of-way to remove the existing 24,000 LED fixtures and install 48,000 small (approximately 2"x3") LED light fixtures to the suspender cables of the west span of the San Francisco-Oakland Bay Bridge. The lights are in a string with height of 2 feet to 250 feet to match the height of the bridge suspender cables. The LED fixtures on each string are at one-foot intervals with each fixture to be securely attached to the cable with three (3) UV rated plastic ties. The main power and fiber line from previous installation will remain in place and used for new installation, on State Highways 04-SF-80, Post Mile 6.2/7.6, in the City of San Francisco.

A minimum of 7 days prior to the start of work under this encroachment permit, notice must be given to State Representative Chris Nesmith, at chris.nesmith@dot.ca.gov or (510) 715-8749, weekdays between 7:00 a.m. and 3:30 p.m., excluding holidays.

Notwithstanding General Provision 35, lane closures and other activities that may cause a traffic impact requires the permittee to apply for and obtain a closure ID prior to the start of work. Requests must be submitted electronically through the Lane Closure System (LCS).

THIS PERMIT IS NOT A PROPERTY RIGHT AND DOES NOT TRANSFER WITH THE PROPERTY TO A NEW OWNER.

The following attachments are also included as part of this permit (check applicable):	In addition to fee, the permittee will be billed actual costs for:
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO General Provisions	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Review
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Utility Maintenance Provisions	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Inspection
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Storm Water Special Provisions	<input checked="" type="checkbox"/> YES Field Work (if any Caltrans effort expended)
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO Special Provisions	As-built Plans are Required
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO A Cal-OSHA Permit, if required: Permit No. _____	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO As-Built Plans Submittal Route Slip for Locally Advertised Projects	
<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO Storm Water Pollution Protection Plan	
<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO The information in the environmental documentation has been reviewed and considered prior to approval of this permit.	

This permit is void unless the work is completed before October 31, 2025
This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.
No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

CC: #1: RICHARD K FONG #2: CHRIS D NESMITH #3: RAYGON PITTMAN #4: EARL R SHERMAN III	APPROVED: Dina El-Tawansy, District Director
	BY <u>Surya Mantravadi</u> Surya Mantravadi (Oct 29, 2024 20:23 PDT)
	SURYA N MANTRAVADI, District Permit Engineer

Illuminate is hereby recognized as a nonprofit organization responsible for the creation of the Artwork.

All work must comply with the attached "Encroachment Permit General Provisions" (TR-0045) available at [Encroachment Permit General Provisions \(TR-0045\) \(ca.gov\)](#), Art Program Special Provisions" (also available at [Encroachment Permits Manual Appendix F TOC \(ca.gov\)](#)), and the following permit special provisions:

1.0 CONTRACTOR'S AUTHORIZATION

Permittee must include the names of all contractors working pursuant to this permit, on the Contractor's Authorization form TR-0429 and have all the contractors sign and submit to Caltrans prior to beginning of construction.

2.0 TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE

Use attached lane closure charts for traffic control.

2.01 GENERAL

The permittee must be responsible for all traffic control operations and safety measures when installing the Artwork.

Traffic control must be provided by a licensed contractor.

When approved, traffic control under this permit must comply with Caltrans' Standard Plans T9 through T14 [dot.ca.gov/-/media/dot-media/programs/design/documents/locked-2023-std-plans-dor-a11y.pdf](#) or Caltrans approved site specific traffic control plans and the permit's lane closure provisions. The permittee must submit a written closure schedule request of planned closures on Monday by noon before the next week period that is defined as Sunday noon through the following Sunday noon. The State Representative must be notified of cancelled closures two (2) business days prior to the date of planned closure. The closures that are cancelled due to unanticipated events not caused by either party or other extenuating circumstances (such as unsuitable weather conditions, flood, fire, earthquake, epidemic, act of a public enemy, Governor-declared state of emergency, and/or landslide) may be rescheduled at the discretion of the State Representative.

2.02 LANE CLOSURE

The lane closure(s) under this permit must comply with the approved "Freeway Lane Requirement" and "Lane Closure Restriction for Designated Legal Holidays and Special Days" Charts, respectively, included with this permit and the following provisions:

The full width of the traveled way must be open for use by public traffic as shown in the "Lane Closure Restriction for Designated Legal Holidays and Special Days" Chart.

Designated legal holidays are: January 1st, the third Monday in February, the last Monday in May, July 4th, the first Monday in September, November 11th, Thanksgiving and Day after Thanksgiving, and December 25th. When a designated legal holiday falls on a Sunday, the following Monday must be a designated legal holiday. When November 11th falls on a

Saturday, the preceding Friday must be a designated legal holiday. The third Monday in January must also be considered a designated legal holiday.

Special Days are any days on which a major event is scheduled at AT&T Park, in downtown San Francisco, on Yerba Buena Island and/or Treasure Island, or elsewhere during which a closure of a freeway lane will cause major impact to public traffic. Major events are defined as concerts, San Francisco Giants games, and any other scheduled event such as the Bay-to-Breakers race, San Francisco Pride parade, Nike Women's Half Marathon, and Komen Race for the Cure. The contractor must expect up to 10 Special Days during any calendar month. The determination of a Special Day will be made by the State Representative. The contractor will be informed of a Special Day at least one (1) week prior to the designated Special Day.

2.03 LATE REOPENING OF CLOSURES AND LIQUIDATED DAMAGES

If a closure is not reopened to traffic by the specified time, work must be suspended. No further closures must be allowed until the State Representative has reviewed and authorized a work plan submitted by the permittee that ensures that the future closures will be reopened to traffic as scheduled. The State Representative must accept (or reject) the permittee's proposed work plan within two (2) business days of the plan submittal. The permittee must not be entitled to compensation for the suspension of work resulting from the late reopening of closures. For each 10-minute interval, or fraction thereof past the time specified to reopen the closure, a road user delay cost in the amount of \$8,900.00 per 10-minute interval must incur to the permittee.

2.04 CONTINGENCY PLAN

A detailed contingency plan must be prepared for reopening closures to traffic. The contingency plan must be submitted to the State Representative before the start of work. Otherwise, the contingency plan must be submitted to the State Representative within one business day of the State Representative's request.

The contingency plan must identify the activities, equipment, processes, and materials that may cause a delay in the opening of a closure to traffic. The contingency plan must include:

1. List of additional or alternate equipment, materials, or workers necessary to ensure continuing activities and on-time opening of closures if a problem occurs. If the additional or alternate equipment, materials, or workers are not on site, specify their location, the method of mobilizing these items, and the required time to complete the mobilization.
2. General time-scaled logic diagram displaying the major activities and sequence of planned operations. For each activity, the permittee must identify the critical event when the contingency plan will be activated.

Based on a review by the State Representative, additional materials, equipment, workers, or time to complete activities from that specified in the contingency plan may be required.

Any revision(s) to a contingency plan must be submitted to the State Representative at least three (3) business days before starting the activity requiring a contingency plan. The State Representative must complete a review of the revised contingency plan within two (2) business

days of the plan submittal.

3.0 PERSONNEL SAFETY

All the permittee's personnel must wear appropriate and approved personal protective equipment per Chapter 12 of Caltrans "Safety Manual" including hard hats and bright-colored safety vests, and shirts or jackets with retro-reflective material, while within the State right-of-way.

4.0 LIABILITY

Permittee must provide evidence of liability insurance in the amount of \$25 million, for the life of the Bay Lights 360 artwork to ensure public safety, convenience and interests, naming the State of California, the California Department of Transportation, the directors, officers, employees, and/or agents of the State of California and/or of the California Department of Transportation as additional named insureds. The applicant also must furnish a certificate of insurance and the endorsement showing those additional named insureds prior to beginning of construction.

The amount for the Certificate of Insurance may be increased. It will be determined after the testing and evaluation of interior lights.

5.0 TRANSPORTATION ART DESIGN AND DISPLAY

Lighting must be installed without damaging any portion of the Bridge; and they must be positioned along the outside and inside of the vertical suspender cables on the upper deck such that the kinetic display is angled away from the direct view of motorists and towards the City of San Francisco or the East Bay, in order to not visually impact the motorists transiting the Bridge.

Only the LED lights facing outward away from the direct view of oncoming traffic will be allowed to be turned on until such time as the conditions described in this encroachment permit have occurred. If the conditional study and evaluation determines that the lights facing traffic will not adversely effect motorists on the bridge span, and is approved by the Department and FHWA, then a separate transportation art exception and permit rider will be required before the inward facing lights can be activated.

Interior lights visible from the roadway and exterior lights visible from the Bayside must be placed on two separate circuits, both of which must be always under Caltrans control.

The interior lights proposed to be visible from the roadway must not be activated until the development and completion of a comprehensive test fully evaluating the traffic safety and operational impacts of said lights.

1. The Permittee shall prepare a complete plan of the computerized light timing program.
2. The Permittee shall procure services of a California Registered Traffic Engineer with the skills and knowledge in transportation safety to devise a plan to evaluate and approve the timing plan for lights visible from the roadway,
3. The Permittee's Traffic Engineer shall submit a test plan for concurrence and approval by Caltrans, CHP, and FHWA while acknowledging the risk that there may not be a viable comprehensive test resulting in the interior lights not being activated.
4. The Permittee shall provide the Traffic Engineer with a documented delegated

authority to approve the proposed design feature.

5. The Permittee shall submit a signed report from the Traffic Engineer documenting:
 - a. A determination that the light timing program was a reasonable exercise of their engineering judgment, and
 - b. A commitment that the light timing program cannot change without going through.
Items 1-4a above.
6. Activation (turning on interior lights) for public display is not allowed unless a separate permit rider is issued upon approval by Caltrans, CHP, and FHWA.
7. Caltrans shall be provided with and maintain records of the plan, approval documentation, and delegation of authority archived in Document Retrieval System (DRS) for every light timing plan.

In accordance with the attached Caltrans memo dated August 30, 1991, the title sheet of the design plans will carry the Oversight Engineer's Block in compliance with the Caltrans Plan Preparation Manual, Chapter 2, Section 2-1.06 (available at <https://dot.ca.gov/-/media/dot-media/programs/design/documents/cadd/ppm-text-ch2-sect1-a11y.pdf>) to further protect the State for providing oversight only of a design which is different from Caltrans standards.

Permittee proceeds with understanding that installing interior lights is at their own risk, recognizing the associated sunk costs and the potential that the interior Bay Lights may not be allowed to be activated or turned on.

Activation (turning on) interior lights for testing or public display is not allowed under this permit. Interior Bay Lights shall not be activated for testing or public display unless approved via a rider to this permit.

Applicant shall request a separate permit rider to test the interior lights if and when a comprehensive testing plan has been developed by the permittee and approved by FHWA, CHP and Caltrans. The decision to activate the interior lights will be taken after evaluating the potential impacts of interior lights on traffic safety and efficient traffic flow and receiving approval by Caltrans, and concurrence by FHWA, CHP, BATA.

The permittee must obtain Caltrans' approval for the actual display and intensity of the exterior LEDs used on the project.

The exterior Bay Lights 360 must be programmed to be turned on from dusk to dawn, plus or minus 30 minutes.

The permittee must comply with Part 118 of Title 33 of the Code of Federal Regulations (CFR), commonly referred to as 33 CFR 118, for Bridge Lighting and Navigational Safety on the waterways.

The permittee must adhere to and remain in compliance with Caltrans' rules, regulations, and any additional restrictions Caltrans may apply to the transportation art project when working within the State highway right-of-way.

6.0 OWNERSHIP, OPERATION, AND MAINTENANCE

Once installed, the “Physical Artwork” as described below, must be owned by Caltrans as a gift from BATA to the people of California. Provided, however, that such ownership must not extend or operate to include liability for any accrued but unpaid obligations or any other pre-existing liabilities or obligations associated with the installation of The Bay Lights 360, none of which Caltrans must assume, whether by assignment, expressed or implied contract, under any common law doctrine of successor liability, or otherwise by operation of law, and which must be the responsibility of Illuminate and/or BATA, or other responsible party, as applicable. The gift of the Physical Artwork is made in an “as-is” condition and with all faults, without any representations.

Physical Artwork

This work consists of removing the existing 24000 LED fixtures and installing 48,000 small (Approximately 2"x3") LED light fixtures to the suspender cables of the west span of the SFO Bay Bridge.

The lights are in a string with height of 2 feet to 250 feet to match the height of the Bridge suspender cables.

The LED fixtures on each string are at one-foot intervals.

Each fixture will be securely attached to the cable with three (3) UV rated plastic ties.

The main power and fiber line from previous installation will remain in place and used for new installation.

Permittee must be responsible for all costs relative to maintenance and on-going operations of the Bay Lights, including reimbursement of Caltrans costs.

Permittee must comply with the requirements of Chapters H and K of Caltrans Maintenance Manual (available at <https://dot.ca.gov/programs/maintenance/maintenance-manual>).

Caltrans reserves the right to remove the installation at any time before or after the initial 10-years term in case of a bona fide necessity to protect public safety, convenience, and/or interests, including allowing access to suspender cables for construction, rehabilitation, painting, or necessary maintenance activities for the transportation facility itself, all as determined by Caltrans, without any obligation, compensation to, or approval from the permittee. Caltrans must use best efforts to notify the permittee of the need to remove the transportation art in order to allow for timely removal and salvage by the permittee.

Caltrans reserves the right to deactivate (turn off) the Bay Lights 360 during emergency situations or periods when the lights are deemed a risk to public safety. Deactivation will be done without advance notification to BATA, Illuminate or the artist.

As background, the original Bay Lights on the west span of the Bay Bridge were installed in accordance with Caltrans Transportation Art policy in 2013. The operation and maintenance of Bay Lights was documented in a three-party memorandum of understanding (agreement) between Caltrans, the Bay Area Toll Authority (BATA), and Illuminate the Arts (Illuminate). The agreement contemplated the parties to collaborate as follows:

- Illuminate, a California based non-profit organization, secured 100 percent of the funds

associated with the installation of the Bay Lights.

- The Bay Lights were gifted by Illuminate to Caltrans.
- Caltrans and BATA accepted the stewardship of the Bay Lights from Illuminate, including operations, repair and maintenance.
- Caltrans assumed ownership and ongoing operations and maintenance responsibilities for the Bay Lights.
- BATA was responsible for all costs relative to on-going display of the Bay Lights, including reimbursement of Caltrans costs.

To be responsive to Caltrans, FHWA, and CHP concerns relative to safety and operations, Illuminate and BATA have acknowledged the following:

- The risk with the commissioning of the interior lights potentially being disallowed resulting in the associated sunk costs of the installation of interior lights.
- The proposed Bay Lights 360 will be placed on two separate circuits, one for the exterior lights visible from the Bay side and another for interior lights visible from the roadway. Caltrans shall always have full control of both the circuits.
- The interior lights proposed to be visible from the roadway shall not be activated until completion of a comprehensive test fully evaluating their traffic safety and operational impacts.
- There is a risk that there may not be a viable comprehensive test. This would result in the interior lights not being activated.
- To protect against future liability, Illuminate will procure services of a California Registered Traffic Engineer with the skills and knowledge in transportation safety to devise the test and approve the lights timing plan, upon concurrence by Caltrans, CHP, and FHWA.
- After the testing, if the interior lights are approved with unanimous agreement by FHWA, CHP, BATA and Caltrans that motorists' safety will not be impacted, the interior lights can be activated.

7.0 ENVIRONMENTAL

Permittee must implement the required measures from the approved environmental document submitted with this project.

Permittee must comply with Bay Conservation and Development Commission's permit requirements.

Permittee must implement appropriate measures to prevent dropping any object(s) in the San Francisco Bay.

8.0 EXISTING FACILITIES

The existing Bay Lights installation must be completely removed without damage to the existing bridge structure nor disruption to the normal operation of the SFOBB.

The existing facilities within the State right-of-way that are to remain in place must be protected, preserved, and maintained. Any damaged existing facilities within the State right-of-way that are to remain in place must be repaired or replaced by the permittee at the permittee's expense. After the repair, replacement or removal of the artwork, the condition of the facilities must be equal or better in quality than they were before beginning the work. The permittee must remove materials that are not repaired.

9.0 AS-BUILT PLANS

Upon completion of the work provided herein, the Permittee must submit As-Built plans to the State Representative.

All changes in the work will be shown on the plans, as issued with the permit, including changes approved by Encroachment Permit Rider.

The plans are to be prominently stamped or otherwise noted "AS-BUILT" by the Permittee's representative who was responsible for overseeing the work. Any original plan that was approved with a Department stamp must be used for producing the As-Built plans.

As-Built plans must contain the Encroachment Permit Number, County, Route, and Post Mile on each sheet.

The As-Built Plans must not include a disclaimer statement of any kind that differs from the obligations and protections provided by sections 6735 through 6735.6 of the California Business and Professions Code. Such statements constitute non-compliance with Encroachment Permit requirements and may result in the Department retaining Performance Bonds or deposits until proper plans are submitted.

Failure to comply may also result in denial of future encroachment permits or a provision requiring a public agency to supply additional bonding.

10.0 PERMIT RENEWAL

The permittee must apply for a fee-exempt encroachment permit upon reaching the Artwork end of life cycle, by submitting an encroachment permit application at least thirty (30) days in advance of the permit expiration date.

11.0 COMPLETION NOTICE

Immediately following completion of the work permitted herein, the permittee must fill out and mail the attached Notice of Completion to the State Representative.

Conditional Requirements:

In addition to the requirements stated above in this permit BATA/Illuminate/Artist must also fulfill the following conditional requirements prior to securing an encroachment permit for activating the interior lights on west span of SFOBB.:

1. Permittee must enter and execute a new maintenance agreement with Caltrans prior to securing an encroachment permit for activating the interior lights on the west span of SFOBB.
2. The artist must enter and execute Copyright License and Waiver of Moral Rights in Artwork (CLAW) with Caltrans, prior to securing an encroachment permit for activating the interior lights on the west span of SFOBB.



Ben Davis
Illuminate
228 Laidley Street
San Francisco, CA 94131

October 25, 2024

Re: Testing Plan and Protocol for Bay Bridge Decorative Lights

Dear Mr. Davis:

As requested, I have reviewed the proposed interior or roadway-facing lights for The Bay Lights art installation on the western span of the Bay Bridge. These lights are proposed to be nominally eastern-facing, and concerns have been raised about the potential distraction they may pose to westbound drivers. A plan to safely test The Bay Lights impacts on traffic safety and operations has been developed, consisting of three successive phases: 1) A proof-of-concept phase involving lighting on one-quarter of the bridge's span for one to two weeks in December; 2) Lighting of the full span for two to four weeks testing in January; and 3) General monitoring and reporting of criteria on a quarterly basis until obtaining FHWA approval for permanent implementation.

This letter addresses the proposed testing plan and related safety protocols.

Background

I am a California-licensed Civil and Traffic Engineer (CE 46024 and TE 1766). For the past 35 years, my practice has been focused on how traffic accidents occur and how roadway features relate to or don't relate to the causation of traffic accidents. (Curriculum Vitae attached.) You contacted me to help address the potential concerns for driver distraction relative to new interior-facing decorative lights placed on the Bay Bridge's western span. Historically, The Bay Lights installation consisted of 24,000 low-intensity LED lights (87 lumens) on this span, facing primarily west, so westbound drivers could only see them in their rear-facing mirrors. Now that the art installation is being replaced with more durable hardware, an additional set of 24,000 lights facing in a nominal east direction has been proposed. This would make the art installation visible nightly to people around the bay. It would also mean that westbound traffic would have a more direct view of the artwork.

Safety determination

I have reviewed the installation plan and protocol outlined below and deem that adequate forethought, safeguards, and processes are in place to safely test the lights and reach a consensus determination on the issue of driver distraction based on a measured and gradual approach, real-world adjustments, and real-time assessments.

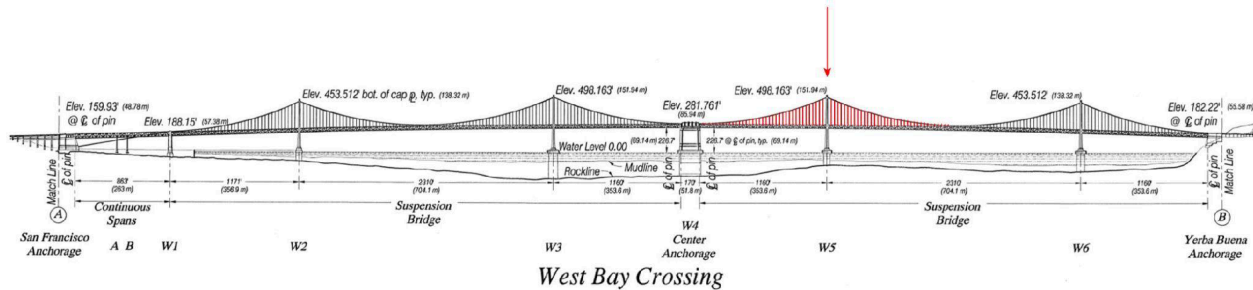
Appropriate criteria will be used to evaluate the potential traffic safety and operational impacts, including changes attributable to The Bay Lights installation in collision rates, traffic flow interruptions (or slow-downs), motorist distraction, potential instances of The Bay Lights attracting nuisances such as sideshows or prohibited parking to take pictures, and public complaints.

Testing Phases and Related Safety Protocols

For the next several months, a planned cable investigation study by Caltrans/American Bridge will require nightly closures of lanes four and five of the Bay Bridge western span's five lanes. The installation of Bay Lights, by a separate crew, will be coordinated with this work in a manner that would take advantage of the planned closures yet avoid conflicts. Significant construction activity, including various construction vehicles, workers on cables, and construction lighting, will help bring drivers into a state of situational alertness and awareness. The three phases of testing and their related safety protocols are listed below.

1: Proof-of-Concept test on $\frac{1}{4}$ of the bridge

Mid December: Test of 1/4th of the Bridge, roughly 6,000 LED nodes

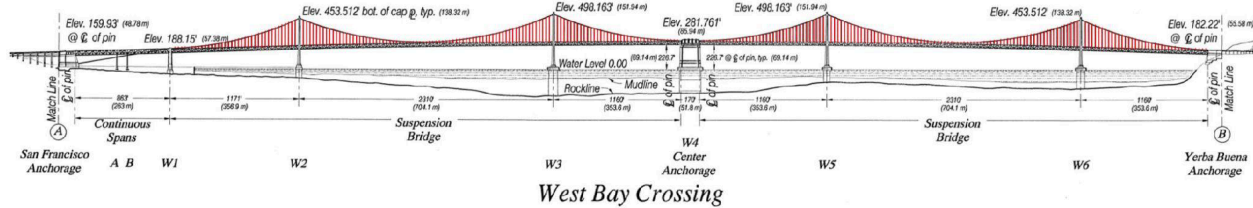


Based on the weather and the installation team's progress, a proof of concept and functionality test of one-quarter of the bridge just east of Center Anchorage at the location shown in the graphic above as follows:

- A proof-of-concept test on $\frac{1}{4}$ of the bridge will occur on one night in mid-December. The Bay Lights Traffic Engineer and available representatives from Caltrans, CHP, and FHWA will be on hand to observe and assist in assessing The Bay Lights' potential traffic safety and operational impacts.
- During the proof-of-concept testing, an onsite operator with a laptop, accompanied by a Caltrans representative, can turn off The Bay Lights immediately if needed.
- During proof-of-concept testing, a granular level of control of the interior lights will be used to determine the appropriate brightness level and minimize traffic impacts. This will enable LEDs to be set to 1% brightness and slowly increase to 100% brightness, including gradations from brighter at the top to dimmer closer to the road deck.
- Live testing will occur only during scheduled lane closures between 11 pm and 5 am.
- After the initial observation on the first night, if deemed safe and appropriate, a continuous live test for one to two weeks will be conducted to assess driver reactions over the period, starting 30 minutes before sunset and concluding 30 minutes before sunrise. Observations will be made with and without a lane closure in effect and during various weather conditions such as fog, rain, etc.
- Illuminate will be prepared to conduct a media campaign and set up a hotline throughout the testing phase to provide information and/or obtain public input.
- Video cameras will record traffic flow during the continuous test periods, and an analysis of findings will be shared with Caltrans, CHP, and FHWA.
- Video recordings will be supplemented by field observations to visually identify potential safety and operational impacts.
- Collision records will be requested from CHP daily to help identify potential safety impacts.
- During the $\frac{1}{4}$ bridge test, Illuminate will conduct a field illuminance test on the bridge deck to assess lighting uniformity.
- During continuous testing, Caltrans will be provided a means to turn off the lights immediately.
- The continuous live testing will be suspended immediately at any time deemed appropriate by Caltrans and/or CHP and in case of any collisions directly attributed to The Bay Lights.

2: Full Bridge Assessment

Early January: Full bridge assessment



A full bridge assessment will occur in early January, with traffic engineers and representatives from Caltrans, CHP, and FHWA on hand to assess safety and operational impacts.

- All steps enumerated above for the proof-of-concept test will be taken and in place on the first night when testing begins on the entire length of the bridge's west span.
- If deemed safe and appropriate based on field observations during the first night, including Caltrans, CHP, and FHWA input, a continuous live test of two to four weeks will be conducted to assess traffic safety and operational impacts over the longer period with and without lane closures in place and during various weather conditions.
- Illuminate will conduct a media campaign and set up a hotline throughout the testing phase.
- Video camera recordings, field observations, collision records, input from Caltrans, CHP, and FHWA, and public responses will be used to decide whether to continue the test.
- If there is no clear consensus on the safety of the interior lights, the system has been designed so that all the interior lights can be disabled while the exterior-facing lights remain on.

3. General Monitoring and Reporting

Caltrans and CHP will continue to monitor test criteria and make field observations to decide whether to continue the test and report back to FHWA quarterly until FHWA approval for permanent implementation is obtained.

Summary

The Bay Lights are unique in the world. There is no way to replicate or simulate a meaningful test of 24,000 low-wattage, monochromatic LEDs across 1.8 miles, with each node set one foot apart on cables ranging from 2 feet to 240 feet in height, with cables set 30 feet apart. Any meaningful lighting test must occur on the Bay Bridge and be experienced in the real world. The critical question is: *Can the interior lights safely be tested?* The answer is yes. There are appropriate safety measures, a seasoned team committed to safety, and a measured and gradual lighting process with multiple moments to observe and check in that allows for the safe testing of the interior lights.

Sincerely,

Laurence Neuman

Laurence Neuman, P.E.

Laurence Neuman, P.E.
Curriculum Vitae

Experience

Engineering Consultant – 1989 to present

Engineering analysis and reconstruction of accidents involving passenger vehicles, trucks, motorcycles, bicycles, and pedestrians. Issues addressed include speed, collision dynamics, forces, time and distance, visibility, signal analysis (red light/green light analysis), construction zones, and engineering analysis of roadway environments as they relate to the causation of accidents.

Testimony includes more than 500 expert witness depositions and expert witness testimony given in more than 200 trials. Trial testimony given in the Superior Courts of Alameda, Butte, Calaveras, Colusa, Contra Costa, Del Norte, El Dorado, Fresno, Glenn, Humboldt, Kern, Lassen, Los Angeles, Marin, Mendocino, Merced, Monterey, Napa, Nevada, Placer, Sacramento, San Francisco, San Joaquin, San Mateo, Santa Clara, Shasta, Sonoma, Stanislaus, Siskiyou, Sutter, Tehama, Tuolumne, Yolo, and Yuba Counties. Testimony also given in the superior courts of various counties in New Mexico, Nevada, and Oregon, along with the United State District Court (eastern District of California).

Instructor, California State University, Sacramento – 1993-1994

Part-time instructor in the Civil Engineering Department at California State University Sacramento.

Borcalli and Associates/Borcalli Ensign and Buckley, Consulting Engineers – 1986-1989

Civil Engineer dealing with all phases of construction of dam and powerhouse facilities. Work included overseeing daily inspection of construction, design change review, and preparation of construction-related claims and defense of claims.

Education, Registration, and Memberships

Education

B.S in Civil Engineering, California State University, Sacramento – 1986

M.S. in Civil Engineering, California State University, Sacramento – 1992

J.D., University of Pacific, McGeorge School of Law – 1998

Registration

California Professional Engineer – Civil #46024 (1990)

California Professional Engineer – Traffic #1766 (1993)

Memberships

Society of Automotive Engineers

Society of Forensic Engineers and Scientists

Certifications

Certified as a Diplomat of the International Board of Forensic Engineering Sciences