

City of Alexandria, Virginia

MEMORANDUM

DATE: OCTOBER 1, 2018

TO: VICE-CHAIRMAN MACEK AND MEMBERS OF PLANNING COMMISSION

FROM: KARL MORITZ, DIRECTOR OF PLANNING AND ZONING

SUBJECT: OCTOBER 2, 2018 PLANNING COMMISSION HEARING,
DOCKET ITEM #6: TEXT AMENDMENT #2018-0007

This memorandum is provided in response to requests received from Mr. Macek for additional context and clarifications regarding athletic fields with lighting on public lands owned and/or managed by Alexandria City Public Schools (ACPS) or the Department of Recreation, Parks, and Cultural Activities (RPCA).

Contextual Review of Lighted Athletic Fields

An inventory of the requested sites and additional information is found in *Table 1* that follows. In addition to 21 lighted athletic fields, there are 20 tennis courts, 7 basketball courts, and 3 dog parks that are lighted. The addresses are hyperlinked and will open a Google map for the location.

- Except as noted below, all facilities are operated by RPCA.
- Facilities located on ACPS property but managed by RPCA include those at Minnie Howard, Ramsey, Hammond, and Patrick Henry schools.
- All RPCA programs are scheduled to end by 10 p.m. consistent with Title 6-1-1.
- Special Event Activities may request lights past 10 p.m. and would be subject to the special events permit process adopted by City Council.
- Fields with built-in public address systems include Boothe, Simpson (2), and Frank Mann.
 - Permits are not required for these built-in public address systems.
 - RPCA obtains a seasonal noise permit for City-sponsored concert series consistent with Title 9-6-2 requiring permits for concerts.
 - Special event activities may request noise permits concurrent with the special events permit process.
- Lighted courts are controlled by timers which turn off all lights by 10 p.m.

All City-wide parks and neighborhood parks have plans. If the plan does not state lighting then it is not intended for the future. Lighting such an area would need to come through the Park Commission first and then eventually make its way into the CIP. Other than replacement lights at Hensley, there are no new lighting projects in the CIP.

RPCA Use of Parker-Gray Stadium

- RPCA does not manage or program Parker-Gray Stadium or the T.C. Williams tennis courts.
- Proposed stadium improvements were initiated by ACPS and RPCA is not a partner in the modernization project.
- RPCA submits a Facility Use Request form to ACPS to receive a permit for use. ACPS receives, approves and schedules all activities, rentals or non-school events, including RPCA activities, pursuant to ACPS Policy KG and associated regulations pertaining to community use of school facilities. The policy states eligible groups and use priority.

Current scheduled uses by RPCA of Parker-Gray Stadium are shown in *Table 2* that follows.

Table 2
RPCA Events at Parker-Gray Stadium

Event	Season	Date	Time Used
Citywide Track Meet (Annual)		3rd Saturday in May	9:00 AM-1:00 PM
Titan Track Club Practice	June 1 - August 15	Tuesdays & Thursdays	6:00 PM-8:00 PM
Adult Soccer League	April 1 - June 30	Sundays	8:00 AM-1:00 PM

Existing and Potential Uses of Parker-Gray Stadium

Table 3 summarizes current and potential future uses at Parker-Gray Stadium as provided by ACPS. ACPS has stated that the addition of lights will allow additional use opportunities and flexibility of scheduling for T.C. Williams athletics in order to reduce the use of other sites in the city. However, it is not anticipated at this time that all sports practices or sports games will be able to be relocated to T.C. Williams. Due to growing enrollment and anticipated scheduling needs, some use of Minnie Howard, George Washington, Francis C. Hammond, and/or Witter Park will continue but to a lesser extent than currently used. ACPS states that in addition to providing flexibility in athletic scheduling and allowing more students to play on the field located on the grounds of their school, lights will enable T.C. Williams students (and opponents traveling to Alexandria) to remain in classes longer without having to leave class early on game days.

Staff notes that there may not be events held every day during the proposed days and times in *Table 3*. The hours of use in *Table 3* are consistent with the proposed time of use conditions for Parker-Gray Stadium found in *Table 4* on page 20 of the DSUP#2017-0016 Staff Report, reprinted below. The conditions allow for the proposed lighting to be on for a limited time after the conclusion of the event so that the fields can be safely vacated. The conditions also limit use of the public address systems during games or events. The public address system may not be used for practices or daily uses associated with ACPS academic or athletic programs.

Table 4**Time of Use Conditions Summary**

			Parker-Gray Stadium			
Day	Hours for Facility Rentals ¹	Tennis Courts	ACPS Academic & Athletic Programs		ACPS Athletic Events and Community Use	
		Lights Off ²	Lights Off ³	Sound Off	Lights Off ⁴	Sound Off ⁵
Monday	8AM-10:30 PM	10:00 PM	8:30 PM	--	8:30 PM	8:00 PM
Tuesday	8AM-10:30 PM	10:00 PM	8:30 PM	--	8:30 PM	8:00 PM
Wednesday	8AM-10:30 PM	10:00 PM	8:30 PM	--	8:30 PM	8:00 PM
Thursday	8AM-10:30 PM	10:00 PM	8:30 PM	--	8:30 PM	8:00 PM
Friday	8AM-10:30 PM	10:00 PM	8:30 PM	--	10:15 PM	10:00 PM
Saturday	8AM-10:30 PM	10:00 PM	8:30 PM	--	10:15 PM	10:00 PM
Sunday	8AM-10:30 PM	10:00 PM	8:30 PM	--	8:30 PM	8:00 PM

¹Per ACPS Policy KG "Community Use of School Facilities" for all school facilities

²By timer, per DSUP2013-0014 Condition #1G

³Proposed Condition #126

⁴Proposed Condition #127

Public High Schools and Built Surroundings

Staff performed a visual survey of 30 public high schools in neighboring jurisdictions in order to understand the surrounding context around those schools, which all include on-site athletic fields including football fields with bleachers and lighting.

The list is found in *Table 5* and clicking the hyperlinked school name will open a Google map for each site. There is variation, and the analysis is subjective and visual, but approximately 2/3 of the schools have nearby residential development. The conditions could include residential properties that directly abut athletic fields, or the school grounds, or many portions thereof. While each school site is unique, of the public high schools surveyed, it is a more common condition for the schools and athletic fields to be surrounded by residential uses than to be in isolated locations.

City Staff looks forward to discussing these items with the Planning Commission at the October 2nd hearing.

Table 1
RPCA & ACPS Athletic Fields & Courts with Lights

Park/School Name ¹	Org ²	Address ³	Zone ⁴	Acreage ⁵	Lighted Recreational Facilities ⁶	Setback (ft) ⁷	Setback Point ⁸
Fields							
Minnie Howard	RPCA	3701 West Braddock Rd	POS	5.38	Synthetic Soccer Field, Tennis Courts (2), Baseball Field	27.41	Synthetic Soccer Field (edge of field)
TCW Football Field (Existing)	ACPS	3300 King St	R-20		Football Field	55.00	Track/Field (inside of track)
TCW Football Field (Proposed)	ACPS	3300 King St	R-20		Football Field	55.00	Track/Field (inside of track)
Eugene Simpson Stadium	RPCA	426 E. Monroe Ave	POS	9.94	60' Baseball Field, 90'Baseball Field, Basketball, Dog Park ⁹	69.36	60' Baseball Field (edge of field)
Limerick Field	RPCA	340 Hooffs Run Dr	CDD11	2.37	Synthetic Soccer Field	72.59	Synthetic Soccer Field (edge of field)
Four Mile Run	RPCA	4131 Mount Vernon Ave	POS	46.75	Regulation Soccer Field, Adult Softball Field, 90' Baseball Field	79.93	Regulation Soccer Field (Light pole base)
Armistead Boothe	RPCA	520 Cameron Station Blvd	CDD9	10.81	Adult Softball Field, Basketball Courts, Tennis Courts (2)	104.14	Adult Softball Field (edge of field)
Nannie J. Lee Center	RPCA	1108 Jefferson St	POS	14.60	Youth Softball Field, Basketball Courts, Tennis Courts (2)	100.54	Youth Softball Field (edge of field)
Ben Brenman	RPCA	4800 Brenman Park Dr	CDD9	59.30	Synthetic Soccer Field, 60' Baseball Field, Dog Park ⁹	165.67	60' Baseball Field (edge of field)
Fort Ward Park & Historic Site	RPCA	4421 West Braddock Rd	POS	5.00	Synthetic Soccer Field	172.17	Synthetic Soccer Field (edge of field)
Luckett Field	RPCA	3540 Wheeler Ave	POS	3.31	Adult Softball Field	214.14	Adult Softball Field (edge of field)
Joseph Hensley Park	RPCA	1800 Limerick St	POS	21.66	Adult Softball Fields #1, #2, #3, Regulation Soccer Field	293.36	Central Adult Softball Field (edge of field)
Witter Field	RPCA	2700 Witter Dr	POS	13.70	Adult Softball Field, Synthetic Soccer Fields #1 & #2	314.18	Adult Softball Field (edge of field)

(Continued)

Table 1 (Continued)

RPCA & ACPS Athletic Fields & Courts with Lights

Park/School Name ¹	Org ²	Address ³	Zone ⁴	Acreage ⁵	Lighted Recreational Facilities ⁶	Setback (ft) ⁷	Setback Point ⁸
Courts & Rinks							
Carlyle	RPCA	450 Andrews Lane	CDD1	2.96	Tennis Courts (2), Dog Park ⁹	0.00	Tennis Courts (edge of court)
Hunter Miller Park	RPCA	224 North Fayette St	CRMU/M	0.32	Basketball Court	3.90	Basketball Court (edge of court)
Ramsey Elementary	RPCA	5700 Sanger Ave	RA	10.94	Tennis Courts (2), Basketball	84.46	Tennis Courts (edge of court)
Hammond	RPCA	4646 Seminary Rd	R-20, R-8	18.97	Hockey/Skating Rink	86.50	Hockey/Skating Rink (edge of rink)
Patrick Henry Elementary	RPCA	4643 Taney Ave	R12	11.56	Tennis Courts, Basketball Courts, Playground	98.37	Tennis Courts (edge of court)
Potomac Yard	RPCA	2501 Potomac Ave	CDD10	23.40	Tennis Courts	118.85	Tennis Courts (edge of court)
TCW Tennis Courts	ACPS	3300 King St	R-20	19.88	Tennis Courts	132.38	Tennis Court (light pole base)
Ewald Park	RPCA	4452 Duke St	POS	3.88	Basketball Courts	147.52	Basketball Courts (edge of court)
Montgomery Park	RPCA	901 North Royal St	POS	2.01	Tennis Courts	172.70	Tennis Courts (edge of court)
Chinquapin	RPCA	3210 King St	POS	52.89	Tennis Courts	210.01	Tennis Courts (edge of court)

¹ The name of the park, or the school if the subject lighted recreational facility is located at a school.

² The organization that operates the lighted recreational facility, which is either Recreation, Parks & Cultural Activities (RPCA) or Alexandria City Public Schools (ACPS).

³ The address of the park or school. The addresses are linked to open up the property in Google Maps.

⁴ The zoning of the park or school.

⁵ The acreage of the park or school. The column does not list the acreage of individual recreational facilities. Acreages numbers were pulled from the RPCA website as well as the City's online GIS mapping software.

⁶ The recreational facility at the park or school that has lights.

⁷ The setback from the the "Setback Point" to the closest residential property line. Setback measurements taken using the measuring tools available on the City's interactive ParkLink GIS mapping software. The mapping software has a measuring accuracy of +/- 3 feet according to City GIS Staff. Residential property can be any type (single-family, multi-family, etc.).

⁸ The lighted facility from which the setback was measured. Setbacks for closest lighted facilities may be measured from the edge of a recreational field, or a light pole or structure associated with the lighted facility, whichever is closer.

⁹ Only lighted dog parks are included in this spreadsheet.

Table 3**Parker-Gray Stadium Uses by ACPS**

Use	Season	Current Use		Potential Future Use	
		Field	Date/Time	Field	Date/Time
Physical Education	All	T.C. Williams	M-F 8:30 AM- 3:30 PM	T.C. Williams	M-F 8:30 AM- 3:30 PM
JV & Varsity Football	Fall	T.C. Williams	M-F 3:30 PM- 7:00 PM Sat 8:00 AM- 5:00 PM	T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
Track&Field/ Cross Country	All	T.C. Williams	M-F 3:30 PM- 6:30 PM Sat 8:00 AM- 12:00 PM	T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
Freshman Football	Fall	Francis C. Hammond	M-F 3:30 PM- 6:30 PM	Francis C. Hammond/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
Varsity Boys Lacrosse	Spring	Francis C. Hammond	M-F 3:30 PM- 6:30 PM (Later if Games)	Francis C. Hammond/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
Field Hockey	Fall	Minnie Howard	M-F 3:30 PM- 6:30 PM	Minnie Howard/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
JV & Varsity Girls Lacrosse	Spring	Minnie Howard	M-F 3:30 PM- 6:30 PM (Later if Games)	Minnie Howard/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
JV Boys Lacrosse	Spring	George Washington	M-F 3:30 PM- 6:30 PM	George Washington/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM
Baseball	Spring	Simpson Field	N/A	Simpson Field	N/A
Softball	Spring	Witter	N/A	Witter	N/A
Soccer	Spring	Witter Park	M-F 3:30 PM- 6:30 PM (Later if Games)	Witter Park/ T.C. Williams	M-Th 8:30 AM- 8:00 PM F 3:30 PM- 10:00 PM Sat 8:00 AM- 10:00 PM

NOTE: It is anticipated at this time that the addition of lights will open up a lot more opportunities and flexibility of scheduling for T.C. athletics to reduce some of the use of other sites; however, it is not anticipated at this time that all sports practices or sports games will be able to be relocated to T.C. Williams. Due to growing enrollment and anticipated scheduling needs, some use of Minnie Howard, George Washington, Francis C. Hammond, and/or Witter Park will still be necessary; however, not to the extent currently used. In addition to providing flexibility in athletic scheduling and allowing more students to play on their home field, lights also provide an educational benefit, by enabling T.C. students (and our opponents traveling to Alexandria) to remain in their classes longer and not having to leave class early for games.

Table 5

Peer Public High Schools in the Region

School	System	VHSL District	Lights	Proximity of Residential Uses to Athletic Facility
Centreville	FCPS	Concorde	Y	Distant.
Chantilly	FCPS	Concorde	Y	Subdivisions abutting.
Oakton	FCPS	Concorde	Y	Subdivisions abutting very close.
Westfield	FCPS	Concorde	Y	Distant.
Madison (Vienna)	FCPS	Concorde	Y	Subdivisions abutting very close.
Annandale	FCPS	Gunston	Y	Distant.
Hayfield	FCPS	Gunston	Y	Distant.
Mount Vernon	FCPS	Gunston	Y	Subdivisions across ROW.
West Potomac	FCPS	Gunston	Y	Subdivisions abutting and across ROW.
T.C. Williams	ACPS	Gunston	N	--
Herndon	FCPS	Liberty	Y	Subdivisions abutting.
Langley	FCPS	Liberty	Y	Subdivisions abutting.
McLean	FCPS	Liberty	Y	Subdivisions across ROW.
South Lakes	FCPS	Liberty	Y	Distant.
Washington-Lee	APS	Liberty	Y	Urban context. Front yards face fields across ROW.
Yorktown	APS	Liberty	Y	Urban context. Front yards face fields across ROW.
Edison	FCPS	National	Y	Distant.
Falls Church	FCPS	National	Y	Subdivisions abutting.
Jefferson	FCPS	National	Y	Subdivisions abutting.
Lee- Springfield	FCPS	National	Y	Subdivisions nearby.
Marshall - George C.	FCPS	National	Y	Distant.
Justice	FCPS	National	Y	Parts of subdivisions abutting field.
Wakefield	APS	National	Y	Closest public H.S. to TC. Parts of subdivisions abutting field.
Fairfax	FCPS	Patriot	Y	Subdivision abutting but distant.
Lake Braddock	FCPS	Patriot	Y	Subdivisions abutting.
Robinson	FCPS	Patriot	Y	Distant.
South County	FCPS	Patriot	Y	Distant.
West Springfield	FCPS	Patriot	Y	Subdivisions across ROW.
WT Woodson	FCPS	Patriot	Y	Distant.
George Mason H.S.	FCCPS	Bull Run	Y	Distant.

#

Resolution of the Board of Directors of Seminary Hill Association, Inc.

Re: Text Amendment #2018-0007 Lighting for Congregate Recreational Facilities

Whereas, the Alexandria Planning Commission is to consider on October 2 a text amendment to the Zoning Code entitled “Lighting for Congregate Recreational Facilities” that potentially could have adverse effects on virtually every neighborhood in the City of Alexandria; and

Whereas, this text amendment would permit 80-foot lighting structures on every playing field, public or private, over the entire City; and

Whereas, a sweeping change of this magnitude to the Zoning Ordinances normally requires considerable community outreach by the City and ample input by homeowners and others potentially affected before any formal action by the Planning Commission and City Council; and

Whereas, on this text amendment there appears to be a lack of transparency and a rush to judgment,

Now therefore: the Board of Directors of Seminary Hill Association, Inc., respectfully requests that the item be withdrawn from the Planning Commission docket of October 2, 2018 and be subject first to public scrutiny and a vetting process by City officials.

Adopted by the Board of Directors on September 23, 2018

#

Text Amendment #2018-0007 Lighting for Congregate Recreational Facilities

September 28, 2018

Dear Mr. Kearns,

My wife and I live adjacent to Fort Ward Park in Alexandria, VA. and we learned of this proposed text amendment that will be heard at your meeting on October 2, 2018. Please add these comments to the public record.

This proposed change in the way we handle decisions in Alexandria's parklands concerns us for the following reasons.

First, as an adjacent property owner to Fort Ward Park we think it would have been appropriate for the City of Alexandria to notify us of an action that may impact our home and property.

Second, the Special Use Permit (SUP) process for new actions in Alexandria parks has proven to be successful and unsuccessful. The Fort Ward Park Soccer Field went through the existing process and it gave residents an opportunity to participate in the city's decision-making process.

Years ago an SUP was also done for the parking lot, building and warming hut behind the Fort Ward Park Museum. More complicated than the soccer field this SUP forms an understanding between city leaders and residents about the uses of this part of the park. Unfortunately after this review and approval process city leaders took numerous development actions within the park adjacent to Marlboro Estates and the Oakland Baptist Church Cemetery. These actions included creation of a nursery, maintenance yard, vehicle storage area, solid waste transfer station and storage area. The actions were taken without any public notice, input or Special Use Permit. The actions disregarded African American family graves in the maintenance yard and the proximity of these uses to residential homes and the church cemetery. As a result of circumventing the Special Use Permit process these illegal actions there was a public outcry against the activities and the city's unilateral activities.

Unfortunately this clash between community and city leaders resulted in a loss of trust, time and money. Fortunately city leaders, against the wishes of city department heads and advisory commission members agreed to cooperatively develop a management plan for the park. Third, given that a management plan has been agreed to, and sets forth guidance for future development within Fort Ward Park, it makes sense to exempt Fort Ward Park from your proposal.

In the decade that I have been involved with city leaders working to improve the management use and development of Fort Ward I have regularly seen a reluctance on the part of city managers and staff to inform and work with the community they serve. Communicating early with residents, especially neighbors, can rebuild trust as well as save the city time and money.

Thank you.

Sincerely,

J. Glenn Eugster and Deborah Weatherly

4022 Ellicott Street

Alexandria, VA. 22304

Opposition to proposed text amendment to allow athletic lights by administrative process

don.brady06 <don.brady06@comcast.net>

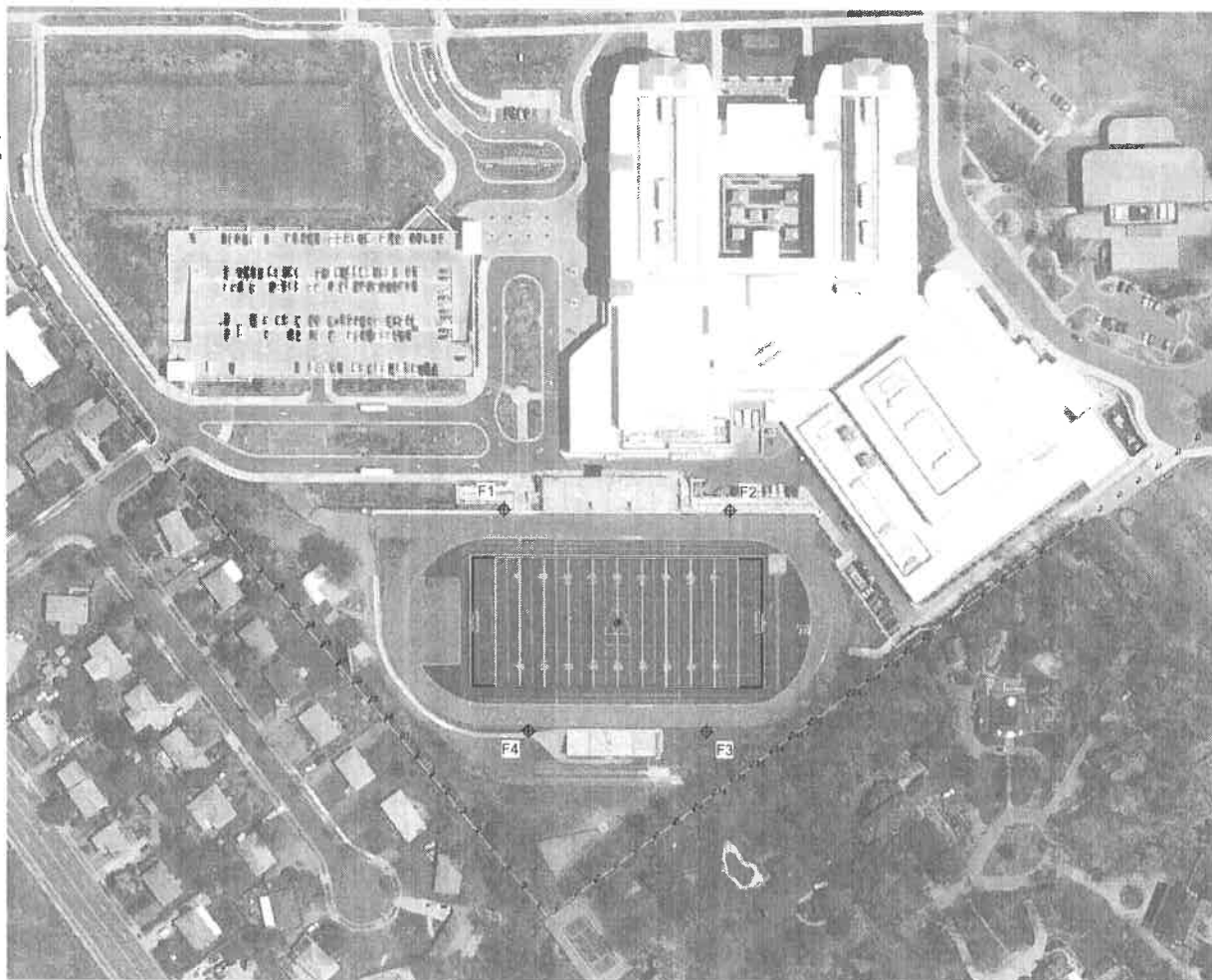
Thu 9/20/2018 2:17 PM

To: PlanComm <PlanComm@alexandriava.gov>;

Please record my opposition to the proposed amendment. Changes like this have a significant impact on citizen's quality of life and property values. Taller lights should be allowed only after citizens have the opportunity to express their views to elected officials who should make decisions each time after considering citizen input. These decisions should not be delegated to non-elected city staff.

Sent from my Sprint Samsung Galaxy S® 6.

EQUIPMENT LIST FOR AREAS SHOWN									
Pole			Luminaires						
QTY	LOCATION	SIZE	GRAND ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY	POLE	TW	OTHER
2	F1-F2	80'		25'	TLC-LED-1150	11	1	1	0
2	F3-F4	70'		25'	TLC-LED-1150	11	1	1	0
4				20'	TLC-LED-1150	11	11	0	0
						48	48	0	0



ENGINEERED DESIGN By: Jared Brown • File #169318R6 • 16-Feb-17

Pole location(s) + dimensions are relative to 0,0 reference point(s)

TC Williams High School Football Alexandria, VA

GRID SUMMARY

Name: Spill @ PL
Spacing: 30.0'
Height: 3.0' above grade

ILLUMINATION SUMMARY

MAIN LUMINAIRE: A (1 x 1 x 1 x 1)

Entire Grid

Scan Average: 52.847
Maximum: 644.181
Minimum: 0.000
No. of Points: 81

ILLUMINANCE INFORMATION

Color / CRI: 5700K - 75 CRI
Luminaire Output: 121,000 lumens
No. of Luminaires: 48
Total Load: 55.2 kW

Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000

Guaranteed Performance: The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

Field Measurements: Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

Electrical System Requirements: Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

Installation Requirements: Results assume $\pm 3\%$ nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



We Make It Happen.

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ILLUMINATION SUMMARY

ILLUMINATION SUMMARY

Assumptions:

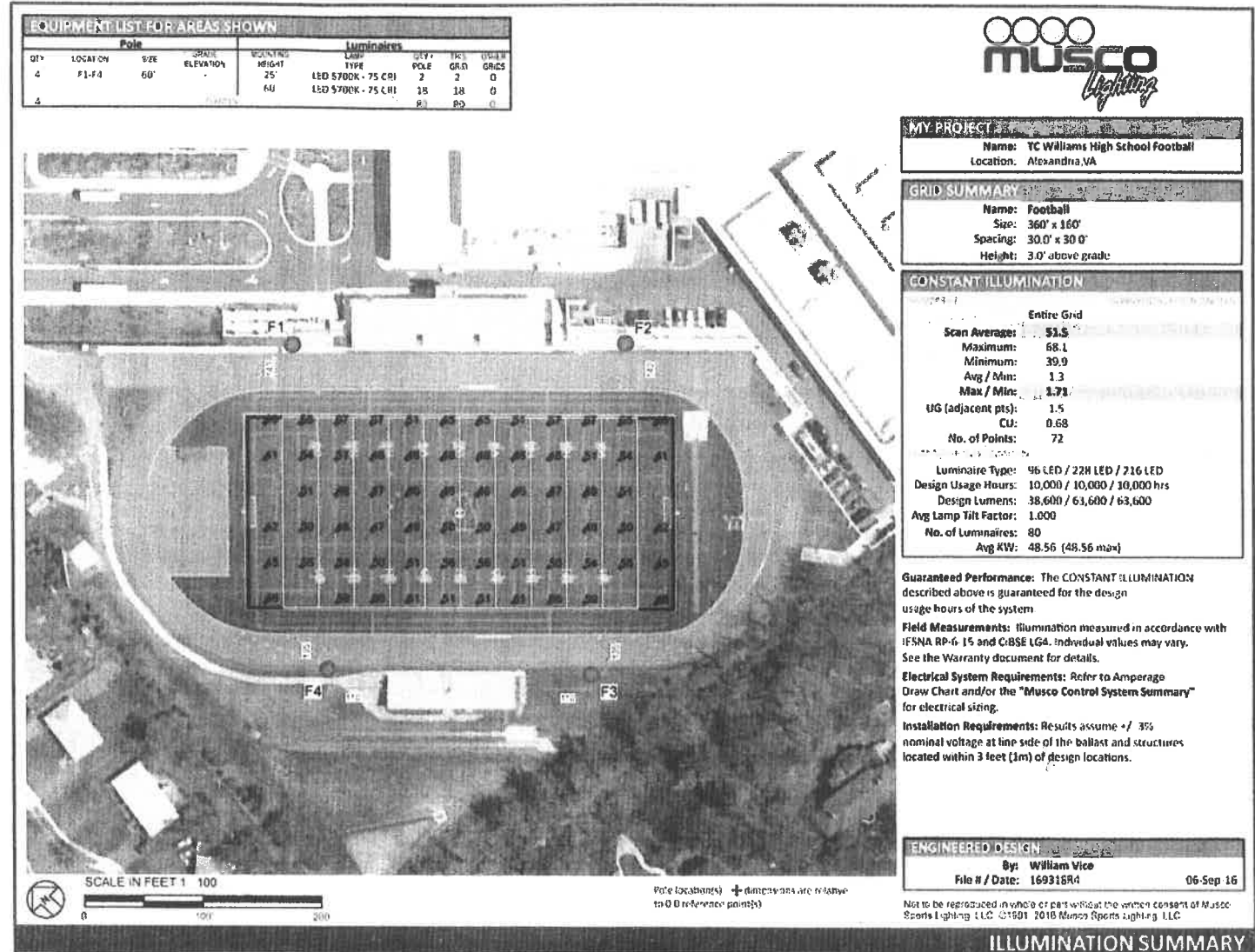
- 60ft maximum pole height
- 0fc along the property line

Pros:

1. We meet 50fc with less than a 2.0:1.0 uniformity
2. We meet 0fc along the property line.
3. We can make four poles work instead of six as was shown on the initial design Musco did back in 2014

Cons:

1. The light levels are higher right in front of the poles; resulting in noticeable hot spots on the field.
2. The glare coming off of these fixtures will be roughly 6200cd on the property line. While that is not a huge amount it is a lot when using LED. Our typical designs when using LEDs are under 1000cd. As a point of reference the glare from low beam headlights when looking straight into the beam is around 12000cd.
3. The 60' mounting height requires having the poles right next to the field, which could cause playability issues for the players. Sports lighting fixtures in general are very intense, so the shorter the poles and the closer they are to the field of play definitely will make it harder to track a ball in flight, especially if the ball is moving right to left.



Lights - 60 feet - Intense glare - Players cannot see the ball - or they could run into poles

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LED: Why 3000K or Less

3000 Kelvin Shielded LED Lights Have Quickly Become the Standard for Outdoor Lighting

Why Stay Below 3000K?



Save Energy &
Lower Cost



Protect Health &
Human Safety



Conserve
Nocturnal Wildlife



Protect Natural
Nightscapes

Save Energy & Lower Costs

3000K LED lighting is both economically viable and energy efficient.

Protect Health & Human Safety

High Kelvin lighting (greater than 3000K) create a harsh glare, making it difficult to see clearly at night. It can also suppress melatonin production, leading to disrupted sleep and other health risks. 3000K and less LED lights are the safest LED currently available.

Conserve Nocturnal Wildlife

Excessive outdoor lighting disturbs nocturnal wildlife and their habitat, negatively affecting birds, insects, turtles, fish and other species.

Shielded 3000K or less LED lighting helps to reduce skyglow and improve nightscapes.

The Accelerated Transition to LED Environmentally Responsible Lighting has Brought a New Standard to Outdoor Fixtures

[See the list of municipalities and organizations that are taking steps to provide responsible 3000K LED lighting.](#)

The rapid advancement of LED technology is unparalleled in the lighting industry, which has caused cities and utilities to reevaluate the specifications used for their street and area lighting applications. Early generation LEDs were typically 5000K or higher, which at the time was the upper end of the technology's capacity for products that remained both economically viable and energy efficient.

A central deficiency of the early generation LEDs was the excessive amount of blue light they emitted, leading to complaints that they were too "cold," glaring, and created an uncomfortable environment. Nonetheless, the only option available at the time that provided adequate lumens per watt and that were still energy efficient were 5000K+ LEDs.

Within just a few short years, the industry has dramatically improved the efficiency of LEDs, ushering in a new generation of 3000K "warmer color" products that emit less blue light. The lower kelvin lights are cost and energy efficient, safer, better for human health and wildlife conservation, and contribute less to skyglow.

Today, 3000K LEDs are the standard choice for outdoor lighting and are in use by dozens of municipalities – representing millions of consumers – both in the United States and around the world. IDA anticipates that as LED technology advances it is only a matter of time before 2700K or lower becomes the new norm.

The following municipalities and organizations understand the importance of responsible lighting and have taken action to provide their constituents safe, cost effective, environmentally friendly street lighting:

USA

AUSTRALIA

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AMA Report Affirms Human Health Impacts from LEDs

on JUNE 21, 2016

A groundbreaking report recently released by the American Medical Association (AMA) Council on Science and Public Health affirms known and suspected impacts to human health and the environment caused by light emitting diodes (LEDs) that emit



This photo shows the divide between East and West Berlin that is still visible at night from space. On the left are the gas lamps of the West and on the right, the orange high-pressure sodium lamps of the East, with a stark contrast between them. The image is a powerful reminder that lighting choices made by city planners are long lasting.

excessive amounts of blue light.

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[Community Lighting](#),” unanimously approved by representatives of the Association’s entire membership, supports concerns raised by the International Dark-Sky Association for more than five years. The report presents significant implications for the ongoing, worldwide transition to LEDs as the outdoor lighting technology of choice.

“The AMA’s study not only provides additional rigorous scientific evidence to buttress IDA’s longstanding efforts to raise awareness of the potential hazards of blue-rich light, but also speaks to the bold leadership that the medical community has consistently demonstrated on this critical human health and environmental issue,” IDA Executive Director J. Scott Feierabend noted.

IDA’s 2010 white paper, “[Visibility, Environmental, and Astronomical Issues Associated with Blue-Rich White Outdoor Lighting](#),” detailed the threats associated with exposure to blue-rich white light sources.

While the AMA report supports the use of LED lighting in order to reduce energy consumption and the use of fossil fuels, it recognizes that some LED lights are harmful. The report details findings from an increasing body of scientific evidence that

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diabetes and cardiovascular disease.

Not only is blue-rich white LED street lighting five times more disruptive to our sleep cycle than conventional street lighting, according to the report, but recent large surveys have documented that brighter residential nighttime lighting is associated with reduced sleep, impaired daytime functioning and a greater incidence of obesity.

As a result of a potential risk to public health from excess blue light exposure, the AMA report encourages attention to optimal design and engineering features when converting from existing lighting technologies to LED. These include requiring properly shielded outdoor lighting, considering adaptive controls that can dim or extinguish light at night, and limiting the correlated color temperature (CCT) of outdoor lighting to 3000 Kelvin (K) or lower. Color temperature is a measure of the spectral content of light, and higher CCT values indicate a greater amount of blue light that a fixture emits.

In 2014, IDA revised its Fixture Seal of Approval (FSA) guidelines to limit blue light emission by outdoor lighting by lowering the acceptable color temperature for approved lighting products to 3000K or below. The IDA FSA program provides third-

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trespass.

The AMA findings also underscore the fact that detrimental effects of blue-rich LED lighting are not limited to humans. “Other species are just as vulnerable to disruption of their circadian rhythms as are humans, and often more so,” explained Travis Longcore, Ph.D., Assistant Professor of Architecture, Spatial Sciences, and Biological Sciences at the University of Southern California. “Those impacts and others can be reduced by limiting blue-light emissions. Policy makers, government officials, and the American public now have the science and the imprimatur of the AMA to insist that LED installations be designed to reduce impacts on wildlife and human health.”

In 2009 the AMA unanimously adopted a resolution endorsing the use of fully shielded street lighting to minimize nighttime glare, and in 2012 it released a comprehensive report expanding its position on glare and addressing the impact of light at night on human health. The 2016 report represents the first time the organization has focused specifically on LED technology.

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policy on lighting and human health, and adoption of these guidelines builds on that tradition,” explained Dr. Mario Motta, report coauthor and former IDA board member, and past president of the Massachusetts Medical Society. “Our hope is that municipalities will use the report’s guidelines when considering the adoption of LED street lighting, making their communities safer for both humans and wildlife.”

The AMA announcement comes on the heels of the recent publication of the “[World Atlas of Artificial Night Sky Brightness](#),” a groundbreaking study cautioning that street lighting and outdoor lighting retrofits using 4000K lamps could result in a 2.5-fold increase in lighting pollution. The finding is significant both for lighting retrofits in industrialized economies, as well as first-time lighting installations in economies beginning the transition to industrialization.

“This is a timely and important policy statement by the AMA,” said Richard Stevens, Ph.D., a cancer epidemiologist at the University of Connecticut School of Medicine and coauthor of the report. “As with most new technology, everyone is enamored at first because it’s so great and does so much for us, but the downsides eventually

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used and abused, there are also many problems.”

You Can Make a Difference

The publication of the AMA report and the “World Atlas” provide a great opportunity to contact your public officials about combating light pollution. [Learn how.](#)

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American Medical Association warns of health and safety problems from 'white' LED streetlights

June 17, 2016 3:48pm EDT



Author



Richard G. "Bugs" Stevens

Professor, School of Medicine, University of Connecticut

New LED-based streetlights are whiter than traditional ones and contain more blue light, which can disrupt people's circadian rhythms. meltedplastic/flickr, CC BY-NC-ND

The American Medical Association (AMA) has just adopted an **official policy statement** about street lighting: cool it and dim it.

The statement, adopted unanimously at the AMA's annual meeting in Chicago on June 14, comes in response to the rise of new LED street lighting sweeping the country. An AMA committee issued guidelines on how communities can choose LED streetlights to "minimize potential harmful human health and environmental effects."

Municipalities are replacing existing streetlights with efficient and long-lasting LEDs to save money on energy and maintenance. Although the streetlights are delivering these benefits, the AMA's stance reflects how important proper design of new technologies is and the close connection between light and human health.

The AMA's statement recommends that outdoor lighting at night, particularly street lighting, should have a color temperature of no greater than 3000 Kelvin (K). Color temperature (CT) is a measure of the spectral content of light from a source; how much blue, green, yellow and red there is in it. A higher CT rating generally means greater blue content, and the whiter the light appears.

A white LED at CT 4000K or 5000K contains a high level of short-wavelength blue light; this has been the choice for a number of cities that have recently retrofitted their street lighting such as Seattle and New York.

But in the wake of these installations have been complaints about the harshness of these lights. An extreme example is the city of Davis, California, where the residents demanded a complete replacement of these high color temperature LED street lights.

Can communities have more efficient lighting without causing health and safety problems?

Two problems with LED street lighting

An incandescent bulb has a color temperature of 2400K, which means it contains far less blue and far more yellow and red wavelengths. Before electric light, we burned wood and candles at night; this artificial light has a CT of about 1800K, quite yellow/red and almost no blue. What we have now is very different.

The new “white” LED street lighting which is rapidly being retrofitted in cities throughout the country has two problems, according to the AMA. The first is discomfort and glare. Because LED light is so concentrated and has high blue content, it can cause severe glare, resulting in pupillary constriction in the eyes. Blue light scatters more in the human eye than the longer wavelengths of yellow and red, and sufficient levels can damage the retina. This can cause problems seeing clearly for safe driving or walking at night.

You can sense this easily if you look directly into one of the control lights on your new washing machine or other appliance: it is very difficult to do because it hurts. Street lighting can have this same effect, especially if its blue content is high and there is not appropriate shielding.

The other issue addressed by the AMA statement is the impact on human circadian rhythmicity.

Color temperature reliably predicts spectral content of light – that is, how much of each wavelength is present. It's designed specifically for light that comes off the tungsten filament of an incandescent bulb.

However, the CT rating does not reliably measure color from fluorescent and LED lights.

Another system for measuring light color for these sources is called correlated color temperature (CCT). It adjusts the spectral content of the light source to the color sensitivity of human vision. Using this rating, two different 3000K light sources could have fairly large differences in blue light content.

Therefore, the AMA's recommendation for CCT below 3000K is not quite enough to be sure that blue light is minimized. The actual spectral irradiance of the LED – the relative amounts of each of the



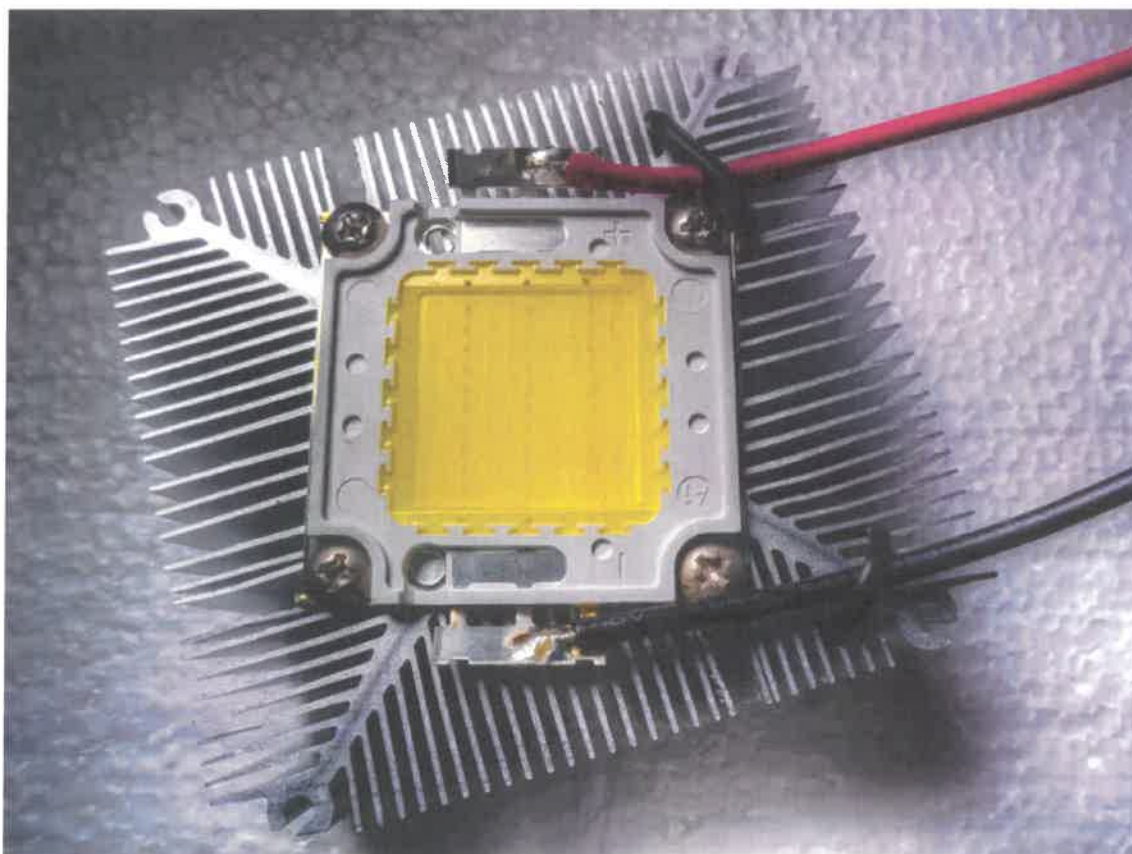
Light is composed of light of different colors (red, blue a green) and some LED streetlights have a relatively high portion of blue light, which can disrupt people's circadian rhythms. flakepardigm/flickr, CC BY-SA

colors produced – should be considered, as well.

The reason lighting matters

The AMA policy statement is particularly timely because the new World Atlas of Artificial Night Sky Brightness just appeared last week, and street lighting is an important component of light pollution. According to the AMA statement, one of the considerations of lighting the night is its impact on human health.

In previous articles for The Conversation, I have described how lighting affects our normal circadian physiology, how this could lead to some serious health consequences and most recently how lighting the night affects sleep.



LEDs (the yellow device) produce a highly concentrated light, which makes glare a problem for LED streetlights since it can hamper vision at night. razor512/flickr, CC BY

In the case of white LED light, it is estimated to be five times more effective at suppressing melatonin at night than the high pressure sodium lamps (given the same light output) which have been the mainstay of street lighting for decades. Melatonin suppression is a marker of circadian disruption, which includes disrupted sleep.

Bright electric lighting can also adversely affect wildlife by, for example, disturbing migratory patterns of birds and some aquatic animals which nest on shore.

Street lighting and human health

The AMA has made three recommendations in its new policy statement:

First, the AMA supports a “proper conversion to community based Light Emitting Diode (LED) lighting, which reduces energy consumption and decreases the use of fossil fuels.”

Second, the AMA “encourage[s] minimizing and controlling blue-rich environmental lighting by using the lowest emission of blue light possible to reduce glare.”

Third, the AMA “encourage[s] the use of 3000K or lower lighting for outdoor installations such as roadways. All LED lighting should be properly shielded to minimize glare and detrimental human and environmental effects, and consideration should be given to utilize the ability of LED lighting to be dimmed for off-peak time periods.”

There is almost never a completely satisfactory solution to a complex problem. We must have lighting at night, not only in our homes and businesses, but also outdoors on our streets. The need for energy efficiency is serious, but so too is minimizing human risk from bad lighting, both due to glare and to circadian disruption. LED technology can optimize both when properly designed.



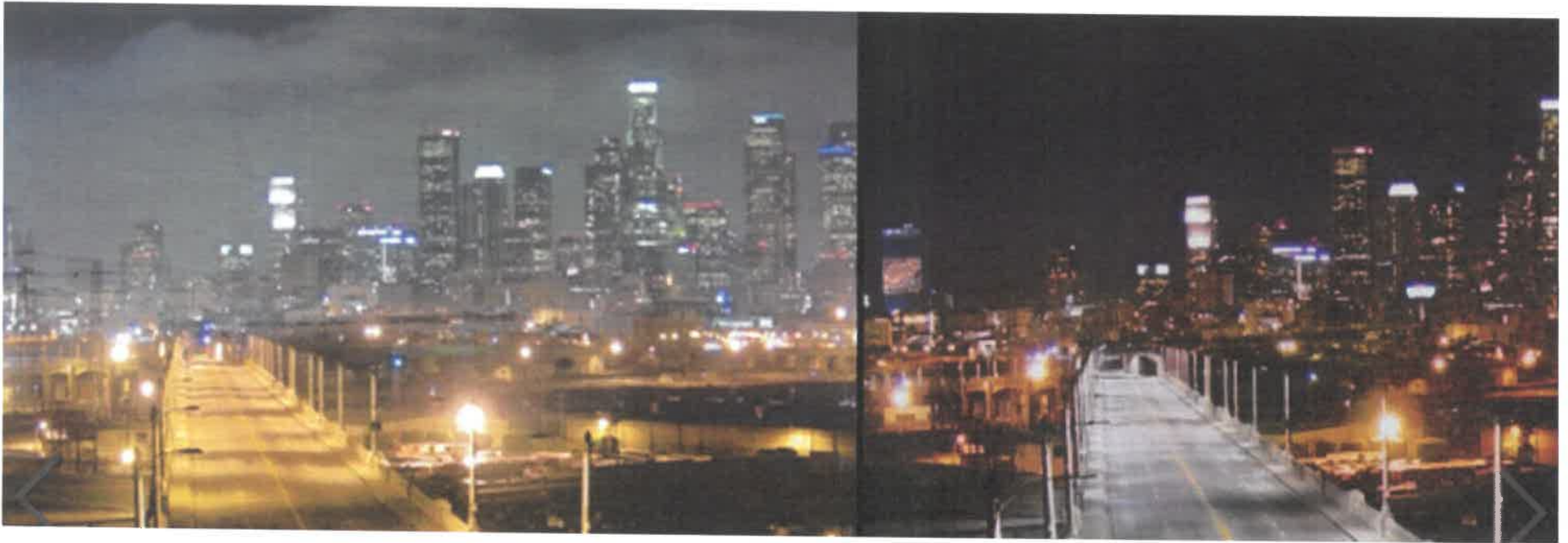
Environmental health LEDs Lighting

Doctors issue warning about LED streetlights

THE CONVERSATION

By Richard G. "Bugs" Stevens, The Conversation

🕒 Updated 2:00 PM ET, Tue June 21, 2016



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Photos: Los Angeles LED streetlights

The Sixth Street bridge over the Los Angeles River looks a bit different with old, left, and new streetl

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Story highlights

The American Medical Association urges communities to minimize health and environmental risks

White LEDs are thought to be five times more effective at suppressing melatonin than sodium lamps

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New atlas shows extent of light pollution; what does it mean for our health?

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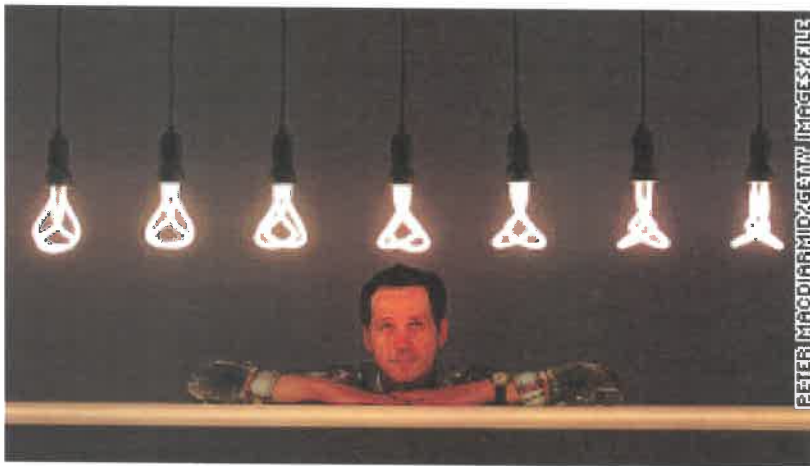
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A dark night is good for your health

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Richard G. "Bugs" Stevens is a professor in the School of Medicine at the University of Connecticut.

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U.S. CITIES REVISITING OUTDATED LED LIGHTING AFTER AMA WARNING

The Washington Post reports that people across the U.S. are reporting sleepless nights caused by the blue light emitted from outdated LED lighting.

Similar to the light cast by televisions and computer screens, the American Medical Association issued a warning this past June that high-intensity streetlights – found across the United States – emit unseen blue light that is widely known to disturb sleeping patterns. The AMA also reports that the risky

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blue light may cause a plethora of other serious health conditions and even impairs nighttime driving vision due to outdated LED lighting.

HOW DID THIS HAPPEN?

The U.S. government as an economical way to light city streets and highways quickly adopted first generation LED technology. LEDs are up to 50 percent more energy-efficient than yellow-orange high-pressure sodium lights typically used to light streets. LEDs can also last for 15 to 20 years, much longer than the old sodium lights.

LED light is measured by colour temperature, commonly expressed in “kelvin” or “K”. First generation LEDs had colour temperatures of a minimum 4000K, known to produce an invasive bright white light with a high level on unseen blue light.

When speaking about the AMA findings regarding colour temperature, VISO’s LED expert **Brooks Munroe** said:

“This is why colour temperature is so important. Higher colour temperature equates to colder and less attractive light output. Being closer to the blue spectrum of light is what is causing these issues.”

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WHAT WERE THE FINDINGS OF THE AMERICAN MEDICAL ASSOCIATIONS REPORT?

The AMA's report finds these bright, harsh LEDs decrease our melatonin levels, which in turn reduces sleep time, sleep quality and impair our daytime functioning. It is reported that exposure to high-intensity light at night might also increase the risk of cancer, diabetes, obesity and cardiovascular disease. Not only are these lights bad for humans, but also effect wildlife such as nocturnal animals, birds and insects.

WHAT CAN I DO TO ENSURE I AM USING THE RIGHT LED LIGHTING?

When shopping for LED lighting for your home, workplace or commercial project, be sure to do your research. Ask a lot of questions. Shop for LED fixtures or bulbs with colour temperature ratings below 3,000K. Ask your lighting sales representative what colour the specific fixture/bulb casts. If it's cold and blue, skip it. Look for fixtures/bulbs that emit warm amber hues. Steer clear of 1st generation, outdated LED lighting.

VISO'S LED COMMITMENT

VISO is committed to the long-term health of our customers. VISO has replaced the line Xicato LEDs in our decorative light fixtures. Xicato LE

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even, inviting amber colour temperature with kelvin ratings 3,000K or lower.

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Streetlight Photo by haru___q.

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What are Human Health Risks?

- AMA experts warn of health risks above 3000K, including disability & discomfort glare, melatonin suppression and are "associated with reduced sleep time, nighttime awakenings, impaired daytime functioning."
- Dr. George Brainard & Dr. Mario Motta, AMA's two leading experts on health risks associated with blue LED lights, agree with Clanton that LED sports lights above 3000K are not appropriate for neighborhood athletic fields. [Motta, "You want 3000K (LED) or below, other wise you have very harsh glarey lighting, hard on the eyes"]