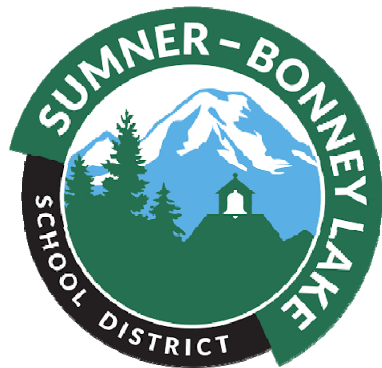


**Bonney Lake High School
Multi-Purpose Field
Baseball/Softball Fields
and Site Lighting**



Light and Glare Report

April 10, 2026

Prepared for:

Sumner-Bonney Lake School District

Consultant:



Proposal

Athletic field lighting at the baseball field, softball field, multi-purpose field and additional drive aisle and parking lot lighting at the site are proposed. The existing electronic reader board is being replaced. The new reader board will be located at the southwest corner of the intersection at 199th Avenue Court East adjacent to the baseball field.

Lighting design levels for the baseball field, softball field, and the multi-purpose field are proposed at a Class III level of play per IES RP-8 (Recommended Practice for Sports Lighting). Class III lighting levels are standard low lighting levels implemented for competitive K-12 school fields. Pole heights are 70' and 80' above grade at the baseball field and 60' and 80' above grade at the softball field and the multi-purpose field consistent with standard lighting pole heights designed for school fields. The fields will be lit to 50 fc average at the baseball \softball infields and 30 fc average at the outfields\soccer field. The lighting systems are designed using a .95 design factor to achieve the initial average lighting levels. Dark Sky International (DSI) Association recommendation for the lighting of athletic fields is 5700 CCT; the Bonney Lake High School fields will be lit with 4500 CCT consistent with the District best practices lighting standards for K-12 school athletic fields.

Lighting design levels for the parking lot and drive aisles match existing lighting levels and are designed to provide suitable levels for visibility and safety. Pole heights are 27' above grade.

Existing Codes and Policies

SEPA Policies

The State Environmental Policy Act (SEPA) policies concerning light and glare provide that “light and glare” are part of the “Built Environment” to be evaluated under the State Environmental Policy Act (WAC 197-11-444(2)(b)(iii)) unless categorically exempt under WAC 197-11-800. SEPA focuses on whether a proposal creates a probable, significant adverse impact (WAC 197-11-340).

Bonney Lake Municipal Code

§ 15.28.080 Signs in public facility districts.

Signs are allowed as follows in the public facilities district identified in BLMC § 18.02.090(C):

- A. Temporary signs in accordance with this chapter;
- B. Schools and government buildings may have one monument or one wall sign for each street frontage. A monument or wall sign shall not exceed 32 square feet per face in area and shall not exceed 10 feet in height. Monument signs may feature an electronic message center consistent with the requirements of BLMC § 15.28.090(J).

(Ord. 1582 § 2, 2017)

Existing Conditions

A survey of the existing site was conducted on February 26, 2026. The school site is located between 104th Street East and 199th Avenue Court East. Residential homes abut portions of the site and is largely bounded by the District Maintenance Facility abutting north of the project site.

The site has a gradual slope down from north to south. The adjacent residential properties immediately east of the multi-purpose field are at a higher elevation. Residential properties north, west and south of the site are at a lower elevation. There is tree and vegetative screening on site and substantial tree screening located on the south and west areas of the site.



Looking west across multi-purpose field



Looking south from multi-purpose field



Looking north from multi-purpose field



Existing homes east of multi-purpose field



Looking south from baseball field



Looking east from baseball field



Existing site lighting



Looking north into site

Existing Light and Glare

A survey of the existing lighting in the area was conducted on February 26th, 2026. Light readings were taken on site and on several surrounding residential streets.

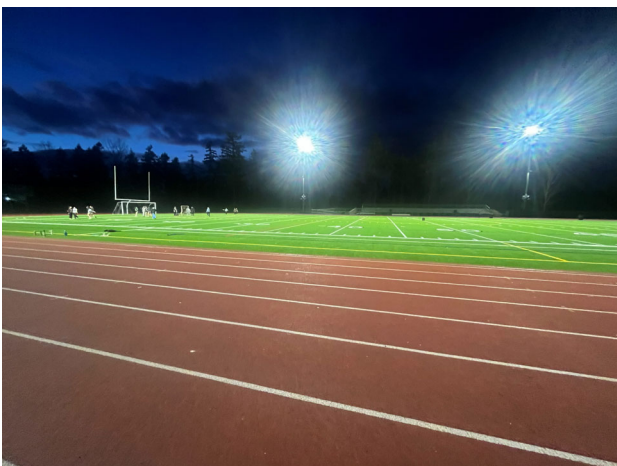
The existing light sources on the school site consist of a mixture of shielded lights. The lighting includes pathway lights, parking lot lights, building perimeter lights and the lighted football field.



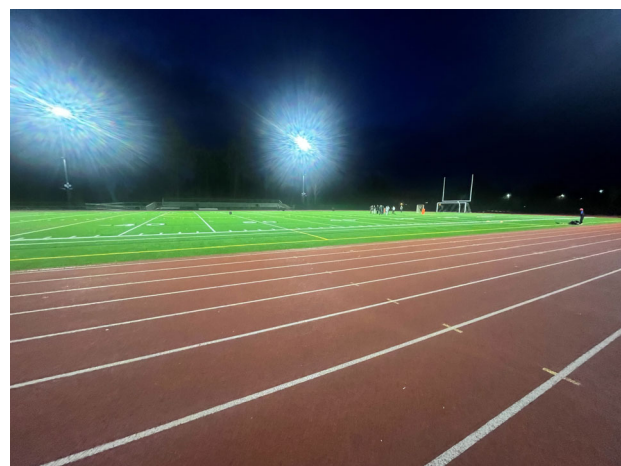
Existing lighting at main school entrance



Existing parking lot lighting



Existing football field lights



Existing football field lights

The existing light sources surrounding the site are typical for commercial and residential areas. The primary component of the lighting is associated with the site lighting at the Sumner School District Maintenance Facility, Mountain View Middle School and streetlights surrounding the site. The existing lighting at the Mountain View Middle School football field is consistent with the proposed lighting for the baseball field and the multi-purpose field.

The adjacent District maintenance facility and Mountain View Middle School parking\drive aisle lighting consists of cutoff and full cutoff LED lights mounted to 20' to 25' tall poles. The streetlights along Canyon View Boulevard East are full cutoff LED mounted to poles at an approximate height of 20' – 25' above grade. Residential streetlights are full cutoff LED decorative style mounted to poles at an approximate height of 15' above grade. The balance of the lighting surrounding the site is associated with residential properties with building mounted lights and interior lighting visible through windows.



Existing lighting School District Maintenance Facility



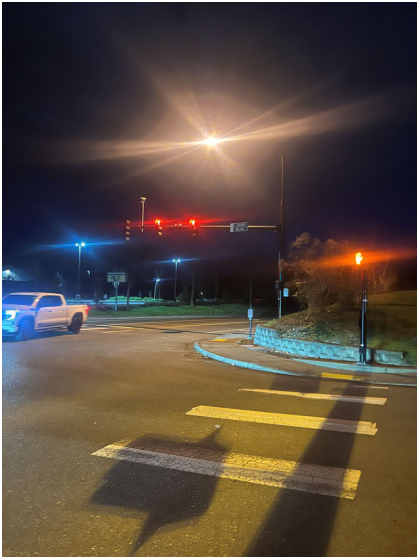
Existing lighting Mountain View Middle School



Existing lighting Mountain View Middle School



Existing football field lights Mountain View Middle School



Existing intersection lighting



Existing streetlight

Various measured lighting levels on and surrounding the site are as follows (Foot-Candles, ft-c).

BLHS Football Field	25 – 40 ft-c (Max Horizontal)
School Pathway	5.0 ft-c (Max Horizontal)
School Entrance Canopy	12.0 ft-c (Max Horizontal)
School Parking Lot\Drive Aisles	1.0 – 2.0 ft-c (Max Horizontal)
Parking Lot Mountain View Middle School	4.0 ft-c (Max Horizontal)
Intersection Light 199 th Avenue Court East	5.4 ft-c (Max Horizontal)
Streetlight 104 th Street East	2.1 ft-c (Max Horizontal)

Proposed Equipment

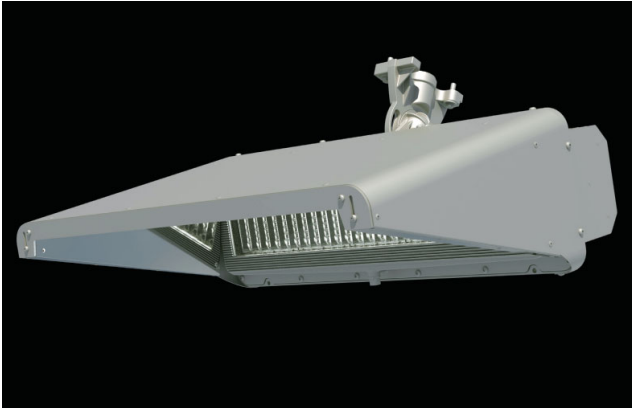
The proposed lighting at the multi-purpose field consists of four poles 60' above grade and four poles 80' above grade surrounding the field. The proposed lighting at the baseball field consists of four poles 70' above grade and two poles 80' above grade surrounding the field. Each pole will have 900\1200 watt shielded LED floodlights mounted at the top. Each pole will also have one or two 575 watt shielded LED ball tracking light mounted at a height of 15' above grade that will be aimed above the field.

Documents included for reference in this report:

- Appendix 1 - Baseball Field and Multi-Purpose Field Manufacturer Lighting Calculations
- Appendix 2 - Cut Sheets Baseball Field and Multi-Purpose Field LED Floodlights
- Appendix 3 - Parking Lot and Drive Aisle Lighting Plans and Calculations
- Appendix 4 - Parking Lot and Drive Aisle Lighting Cut Sheets
- Appendix 5 - Electronic Sign Rendering

Sumner – Bonney Lake School District has proposed to use an athletic field lighting system designed to significantly mitigate the impacts of light and glare. The proposed system consists of the latest technology available on the market for shielded LED floodlights designed for the lighting of athletic fields. Lighting levels selected are minimal amounts needed for safe competitive play (4500 CCT) which are below the DSI's recommendation of 5700 CCT for sports fields and are consistent with lighted fields within the District, including the recent improvements to Mountain View Middle School (See Appendix 1).

The use of high efficiency LED arrays provide more precise control of light to be delivered to the field. The reflector and shielding design further reduce the amount of light transmitted off site and into the atmosphere. The floodlights utilize an additional external visor mounted to the floodlight that extends in front of the floodlight. The floodlight design is similar to “full cutoff” style lights as they dramatically limit the amount of light that is emitted above the plane of the floodlight.



Proposed Shielded LED Floodlight with Extended Visor

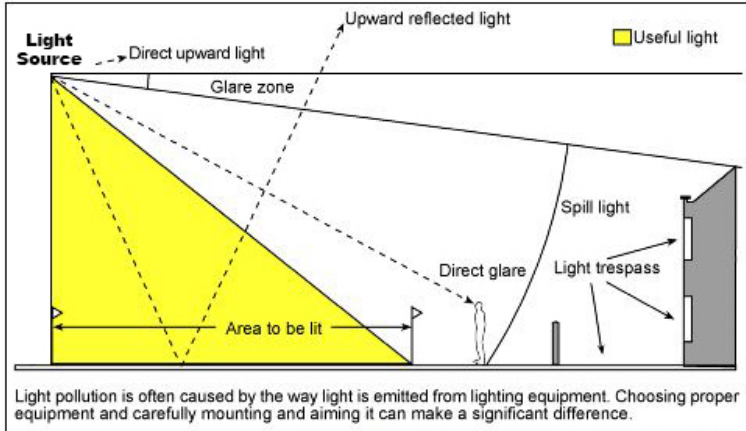


Alternative Unshielded LED Floodlight Example

The proposed equipment for the parking lot and drive aisles consist of low wattage lights using full cutoff technology.

Analysis

The proposed project will increase the amount of light in the area during evening hours. The primary impacts of the lighting system are direct glare, reflected glare, spill light (light trespass), and “sky glow”.



Source: Adapted from The Institution of Lighting Professionals

Diagram illustrating Direct-Glare, Spill Light and Light Trespass

GLARE

Direct Glare

The existing lighting at the high school generates low to moderate amounts of visible glare. The majority of the glare is at the north end of the site where the main parking lot, school entry and football field are located. The primary sources of the glare consist of direct glare from the shielded football field lights and pole mounted site lights. Reflected glare (luminance) off the poles, lights, football field, pavement and structures is a lesser contributor.

The proposed lighting at the multi-purpose field and baseball field will generate direct glare. The new proposed shielded LED floodlights are designed to reduce the impacts of direct glare. Additional reduction in direct glare is also achieved by the internal shielding of the LED diodes. The additional shielding dramatically reduces direct view of the LEDs from off-site viewing locations.



Example of direct glare reduction from proposed shielded floodlights

There will be low levels of direct glare exposure affecting three existing homes located east of the multi-purpose field. These homes sit at a slightly higher elevation than the multi-purpose and will have exposure to several of the light poles at the field. There is some existing tree and vegetative screening that will reduce exposure to the poles depending on specific view locations from these properties.

There will be minimal levels of direct glare exposure into the ROW along 199th Avenue Court East immediately adjacent to the left field fence of the lighted baseball field. The glare will not impact traffic but will be visible by pedestrians and vehicles in that section of the ROW.

There will be minimal to no direct glare for the residential area west of the baseball field.

Visible direct glare from the additional parking lot/drive aisle lighting will be minimal and less than what the current site lighting generates.

Reflected Glare

Low to moderate amounts of reflected glare is currently visible from off-site locations. Impacts from the glare is dependent on direct views into the site, elevation\exposure in relation to the school, football field turf surface, parking lot surfaces, exposure to poles, distribution of intervening buildings, terrain or vegetation that blocks the glare. Of the surfaces that are visible from off-site locations the existing football field is the main contributor to reflected glare which is minimal. Views of the football field from off-site locations is very limited due to the field elevation above the adjacent ROW and the existing tree screening along the ROW and adjacent residential properties. Low to minimal amounts of visible reflected glare associated with the building surfaces and pavement surfaces exist surrounding the entire school site.

The proposed lighting at the multi-purpose field will generate reflected glare. The primary component of this glare will be the light reflecting from the synthetic field and infield surfaces. The reflected glare visible from the multi-purpose field will primarily be limited to the three homes located east of the field. Visible reflected glare from these locations will also be further blocked by the existing vegetative and tree screening located on the east side of the field. There will be low amounts of reflected glare visible from the light reflected from the poles, brackets and floodlight housings.

The proposed lighting at the baseball field will generate reflected glare. The visible reflected light from the field and pavement surfaces will be mostly limited to the school site adjacent to the baseball field. The minor amounts of reflected light from the floodlight housings, floodlight visors and poles are a lesser contributor and will be visible off site.

Reflected glare from the additional parking lot/drive aisle lighting will be minimal and less than what the current site lighting generates.

SPILL LIGHT

The existing site lighting generates minimal amounts of spill light off site. The existing spill light is associated with the existing drive aisle lights and football field lights.

The proposed lighting at the multi-purpose field will generate minor amounts of spill light. There will be minor levels of spill light affecting the two homes located east of the multi-purpose field. The maximum amount of calculated spill light generated is 0.64 foot-candles at the property line (See Appendix 1, Page 9) and decreases at the residence given the location of the homes. The existing tree and vegetative screening will reduce the amount of spill light along the property line boundary.

The proposed lighting at the baseball field will generate minimal spill light. It is localized to the adjacent ROW along 199th Avenue Court East immediately adjacent to the left field fence (See Appendix 1, Page 11). The amount of spill light calculated is much less than the light generated by the existing street lighting.

SKY GLOW

The existing site lighting and existing lighting surrounding the site generates minor amounts of “sky glow”. The “sky glow” impacts are associated primarily with the existing football field lighting at both Bonney Lake HS, and Mountain View Middle school, both of which are minimal. Secondary impacts are associated with the site lighting within and surrounding the site.

The proposed lighting at the multi-purpose field will generate “sky glow”.

The amount of “sky glow” that is visible from a lighting system is difficult to quantify. There is no current method to calculate “sky glow” but it is recognized that there is a direct correlation to the amount of direct and reflected light that is emitted into the atmosphere. The amount of visible “sky glow” is dependent on a multitude of factors. Several factors include the amount of ambient light that exists, darkness of the night sky, amount of moonlight, atmospheric conditions, level of cloud ceiling, amount particulate matter, location of the observer and age of the observer.

Based on the existing condition of “sky-glow” currently evident in the area, the impact of the project on additional “sky-glow” evident in the surrounding area will be minor. The result is minimal “sky glow” will be visible only in areas immediately adjacent to the baseball and multi-purpose fields during conditions of low cloud ceiling. “Sky-glow” with me most prevalent during conditions of dense fog.

Due to the dramatic reductions in the amount of up-light and “sky-glow” generated by both the baseball field and multi-purpose field lighting system there will be a zone of darkness above the baseball and multi-purpose fields. This creates a safety hazard for softball and baseball play to adequately track balls projected high into the air. This will require the use of ball tracking lights for baseball and softball use. Each the poles will have one or two lower wattage shielded floodlights mounted at a height of 15’ above the field. The lights will be aimed above the field to provide the minimal amount of light necessary for safe play.

CONTROLS

The field lighting systems will be controlled by the District's lighting control system to ensure consistent with the District's standard operation procedures, as follows.

Athletic events will be scheduled to conclude by 10:00 p.m., and the athletic lighting systems will be controlled by the District's lighting control system to schedule lighting to turn on 60 minutes before an event and to be turned off no later than approximately 30 minutes after an event to allow safe exiting of players and spectators and maintenance of the facilities by District staff; provided, however, the lighting systems shall be dimmed to 50% to allow for safe egress and cleanup after completion of scheduled use.

ELECTRONIC SIGN

The proposed electronic messaging sign located adjacent to the south school entrance along 199th Avenue Court East is designed to minimize lighting impacts. The video display will incorporate an external photocell and programming that will restrict the light output of the sign to produce no more than 5,000 nits (daylight) and 500 nits (night) at its maximum brightness. The display design focuses the diodes to limit overall brightness and restrict the primary viewing angles in front of the display to limit off-site glare and spill light. The sign is programmed to turn off if malfunction is detected with the light output of the display. The proposed sign will meet all provisions of Bonney Lake Municipal Code 15.28.090(B) and 15.28.090(J).

EXECUTIVE SUMMARY

The proposed lighting does not create a significant adverse impact to the surrounding area. The lighting produced will be similar to the light that is currently generated at the site. The proposed lighting will be contained to the site with minor contribution to the three homes located east of the multi-purpose field and into the adjacent ROW at the baseball/softball fields. The lighting design and equipment utilized for the baseball/softball field and multi-purpose field are in accordance with the Dark Sky International recommendations for "neighborhood friendly" lighting. The proposed lighting is also consistent with the lighting approved by the City of Bonney Lake for the athletic field at Mountain View Middle School and the District's other recently lighted athletic fields.