



# NEW EARLY LEARNING CENTER AND SUMNER MIDDLE SCHOOL TRACK AND FIELD UPGRADES SUMNER SCHOOL DISTRICT

**REVISED LIGHTING DESIGN REPORT**

**June 22, 2017**

## **INTRODUCTION**

The Lighting Design Report has been updated to reflect changes to the Lighting Plan arising from comments from neighbors to the District's SEPA Checklist, dated January 9, 2017, and an agreement reached between the Sumner School District and the Neighborhood Group. All lighting of the new track and synthetic turf field has been deleted and is no longer part of the Project. Therefore, this Revised Lighting Design Report addresses only the New Early Learning Center. Lighting associated with the ELC parking lot (adjacent to Sumner Avenue) has been reduced and the pole height has been shortened, the positioning of the fixtures and the pole locations have been adjusted in ELC parking lots to further ensure minimization of measurable light at the property line, and the School District has agreed to Operating Procedures to control distinct zones of lighting.

## **SCOPE AND BASIS OF DESIGN**

Electrical lighting for this project will include new exterior lighting for the new Early Learning Center building. The findings described in this report and the proposed electrical are in accordance with the applicable standards and requirements of the following:

- Washington State Energy Code -- Latest Approved Edition
- International Building Code -- Latest Approved Edition
- National Electric Code (NEC) NFPA 70 -- Latest Approved Edition
- State and County Department of Health
- Local Fire Marshal
- National Fire Protection Association (NFPA)
- Washington Administrative Code (WAC) – latest approved edition
- The Americans with Disabilities Act (ADA)
- Illuminating Engineering Society (IES) – Latest Edition
- Sumner School District - Resource Conservation Program

## **Early Learning Center Exterior Lighting and Controls**

All parking area and exterior lighting will utilize LED fixtures, which compared to other sources of light are more energy efficient and more precisely control the distribution of light in order to illuminate only the areas necessary. All pole and exterior wall mounted light fixtures will be selected to ensure that no light will be directed above the 90-degree plane of the fixture; therefore, the lighting is classified as full cut-off and complies with the International Dark Sky Association (IDA).

Exterior lighting will be used to illuminate four (4) distinct areas around the new Early Learning Center: the new expanded parking lot that adjoins with the existing Sumner Middle School parking lot, the new parking lot adjacent to Sumner Avenue, the new bus loop on the south side of the new Early Learning Center and building mounted exterior lighting on the new building.

The new expanded parking area adjacent to Sumner Middle School Parking lot will utilize lights mounted on approximately 30' aluminum poles to as closely as possible match the existing parking lot lighting at Sumner Middle School. The new western parking lot adjacent to Sumner Avenue and the Early Learning Center bus loop will utilize a smaller scale fixture and be mounted on shorter 12' poles in order to minimize measurable light from being seen at the adjacent property line. In addition, adjustments have been made to the positioning of some of the fixtures and location of some of the light poles to further ensure minimization of measurable light at the property line. The building perimeter lighting will be wall and soffit mounted LED fixtures.

The Site Illumination Analysis (computer aided photometric calculation plan) attached hereto as Exhibit 1, dated June 22, 2017, for the new Early Learning Center was prepared by BCE Engineers in accordance with IES Guidelines. The calculation shows that the extension of the parking lot adjacent to Sumner Middle School will be illuminated to match the adjacent existing parking lot to approximately 1.4 average horizontal footcandles. The calculation includes light contribution from both new and existing light fixtures.

The Photometric Plan also shows that no single point along the property line exceeds .01 footcandles on a vertical plane at 5' above the ground and .06 horizontal footcandles on the ground. Therefore, both new parking lot lighting will have no measurable impact to the surrounding properties. To further mitigate the amount of light from the fixture, the lighting will be provided with integral motion sensors which will allow the fixture to operate at approximately half light output unless motion is detected.

A footcandle is defined as the illuminance on a one-square foot surface of which there is a uniformly distributed flux of one lumen or alternatively the illuminance on a one square foot surface from a uniform source of light. The term is derived from the equivalent illumination produced by a source of one candle at a distance of one foot and equal to one lumen incident per square foot.

All exterior lighting will be controlled by a new lighting control system with a manual bypass switch in the Early Learning Center and interfaced with the District's Light Scheduling System. At a minimum, the following exterior zones of light will be electrically separated to allow for independent control of each zone: Exterior Building Mounted, both Parking Lot areas, and any path of access needed to the Kitchen and Service Yard. The District's Light Scheduling Plan for the new Early Learning Center as agreed upon with the Neighborhood Group is attached hereto as Exhibit 2.

# **EXHIBIT 1**

**EXHIBIT 1**

GENERAL NOTES

- UNLESS NOTED OTHERWISE, ALL FIXTURES ON THIS SHEET ARE EXISTING.

LIGHTING FIXTURE SCHEDULE		
SYMBOL	FIXTURE DESCRIPTION	MOUNTING HEIGHT
AL1	CREE BETA TYPE II	30 FEET
PA1	LSI PT TYPE III	12 FEET
PA2	LSI TYPE III	12 FEET

CALCULATION SUMMARY - PROPERTY LINE VERTICAL AT S							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Property Line S' Vertical	Property Line / H/H	5.00	0.00	0.01	0.00	N/A	N/A

CALCULATION SUMMARY - MAIN PARKING							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Parking	New Grid / H/H	5.00	1.44	3.20	0.11	29.07	13.04

CALCULATION SUMMARY - WEST PARKING							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Off-Site	Property Line / H/H	5.00	1.20	10.69	0.00	N/A	N/A

CALCULATION SUMMARY - OFF SITE							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Off-Site	Property Line / H/H	5.00	0.00	0.06	0.00	N/A	N/A

CALCULATION SUMMARY - BUS LOOP							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Property Line S' Vertical	Property Line / H/H	5.00	1.44	9.65	0.01	40+	40+

CALCULATION SUMMARY - PROPERTY LINE VERTICAL AT S							
AREA NAME	GRID / TYPE	SPAC	AVE	MAX	MIN	MAXMIN	AVEMIN
Property Line S' Vertical	Property Line / H/H	5.00	0.00	0.01	0.00	N/A	N/A

1 ELECTRICAL SITE PLAN  
1" = 50' @ FULL SIZE

**Design Development**  
**New Early Learning Center and Summer Middle School Track and Field Upgrades**  
 Summer School District No. 320

**BLRB architects**

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Drawing Title:  
**SITE LIGHTING ANALYSIS**

Date: 06/22/2017	Drawn By: AS
Revised:	Project No. 201711
Stamp	Sheet No.

**E1.02**  
 of

BLRB ARCHITECTS, P.S.

# **EXHIBIT 2**

**EXHIBIT 2**

**EXHIBIT A TO  
SUMNER SCHOOL DISTRICT – NEIGHBORHOOD GROUP  
EARLY LEARNING CENTER  
CONDITIONAL USE PERMIT SETTLEMENT**

**ELC EXTERIOR LIGHTING PROCEDURES**

1. Early Learning Center Main Parking Lot and adjoining Sumner Middle School Parking Lot, ELC Exterior Pathway Lighting and ELC Exterior Building Lighting (except Southerly Exterior Mounted Lighting).
  - 1.1 All exterior lights are expected to be off during daylight hours.
  - 1.2 In the morning, exterior lights shall turn on no earlier than 15 minutes before the first employee arrives.
  - 1.3 In the evening, exterior lights shall turn off no later than 15 minutes after the building is secured for the evening (typically 11:15 pm -11:30 pm).
  - 1.4 On weekends, exterior lighting shall be allowed for School District authorized facility events. Otherwise exterior lights shall remain off.
  - 1.5 All exterior lights shall be equipped with motion sensors in order to dim to approximately 50% intensity when no motion is detected.
  
2. ELC Parking Lot Located on Sumner Avenue.
  - 2.1 All parking lot lights are expected to be off during daylight hours.
  - 2.2 In the morning, all parking lot lights shall turn on no earlier than 15 minutes before the first employee arrives.
  - 2.3 In the evening, parking lot lights shall be off by 6:00 p.m. except parking lot lighting shall be allowed for evening School District authorized facility events until 30 minutes after the event is concluded.
  - 2.4 On weekends, parking lot lights shall remain off except for evening School District authorized facility events which shall remain on until 30 minutes after the event is concluded. Otherwise, exterior parking lot lights shall remain off.
  - 2.5 All exterior lights shall be equipped with motion sensors in order to dim to approximately 50% intensity when no motion is detected.

3. Bus Loop and Southerly Exterior Building Mounted Lighting.

- 3.1 All exterior lights are expected to be off during daylight hours.
- 3.2 In the morning, exterior lighting shall turn on no earlier than 15 minutes before the first employee arrives.
- 3.3 In the evening, exterior lighting shall remain off except exterior lighting shall be allowed in the evening for School District authorized events.
- 3.4 On weekends, exterior lighting shall remain off except exterior lighting shall be allowed for School District authorized events.
- 3.5 All exterior lights shall be equipped with motion sensors in order to dim to approximately 50% intensity when no motion is detected.