



SUMNER HIGH SCHOOL MODERNIZATION SUMNER SCHOOL DISTRICT

LIGHTING DESIGN REPORT

February 23, 2018

SCOPE AND BASIS OF DESIGN

Electrical lighting for this Project will include new exterior lighting for:

- (1) the modernized Sumner High School building (wall-mounted lighting);
- (2) the new Elhi Hill Alternative Educational Program Parking lot [across the street from the existing High School];
- (3) the new Tennis Court Plaza Area, and the Mason Street Bus Loading and Unloading Area [on School District property]; and
- (4) the High School Front Entry Plaza and entry parking area, and the new Wood Avenue Parking Lot and Walkway.

The West & North Parking Lots have existing lighting on 30 foot poles which will remain; however, all of the lighting fixtures have been previously retrofitted with LED full-cut off fixtures. In addition, the new Tennis Court Plaza Area lighting will include circulation illumination for pathways from the West and North Parking lots to the High School 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

Exterior Lighting and Controls

All new exterior lighting will utilize LED lighting with full cut-off fixtures. LED lighting 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 intended to be lit. All new 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 and therefore are classified as full cut-off and complies with the International Dark Sky Association (IDA).

New exterior lighting will be used to illuminate the following four (4) new distinct areas of the Project:

- 1.) Elhi Hill Alternative Educational Program New Parking Lot
- 2.) Tennis Court Plaza Area and Mason Street Bus Loading and Unloading Area [lighting on School District property].
- 3.) High School Front Entry Plaza and Entry Parking
- 4.) New Wood Avenue Parking Lot and new Walkway connecting easterly to the High School

The new Elhi Hill Parking Lot will utilize lights mounted at 25' with a 22' pole and 3' tall concrete base.

New lighting at the Tennis Court Plaza area will incorporate smaller pedestrian scale fixtures on 12' poles. New surface mounted lights on the north side of the chiller enclosure and canopy lighting at the Performing Arts Center entry will be aimed down to illuminate the circulation path only. In addition, there will be two (2) poles with lights mounted at 25', installed on the School District property, to illuminate the bus loading and unloading area along the District's frontage on Mason Street. These lights are a safety and security feature to provide for student visibility in the winter months when school arrival times are before sunrise.

The Front Entry Plaza fixtures will be mounted on 12' high poles for pedestrian circulation and the new Entry Parking will be illuminated with lights at 25' for the new Front Entry Parking, There will be surface mounted canopy lighting at the main high school and gymnasium entrances and step lights mounted in the plaza area concrete seat walls located in a plaza area adjacent to the student Commons Area.

The new Wood Avenue Parking Lot will utilize lights mounted at 25' on 22 foot poles. The new walkway connecting the new Wood Avenue Parking Lot to the High School will use pedestrian scale (12') poles along the walkway to provide an illuminated pathway for safety and security.

The attached computer aided Photometric Plans have been produced within IES Guidelines for the site.

The attached Photometric Plans show that will be no adverse impact to adjacent property or streets. A foot-candle 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.

To further minimize the amount of light from a fixture, all pole mounted and wall mounted fixtures will be equipped with integral motion sensors which will decrease the illumination approximately 50% unless motion is detected.

All exterior lighting will be controlled by a new lighting control system and interfaced with the School District's Light Scheduling System and will include the following programming protocol:

- 1.) All exterior lights are to be off during daylight hours.
- 2.) The lights along Mason Street will be controlled by photocell and only be on in the morning hours from 7:00 – 7:45 a.m. in the Winter months when sunrise is after these times.
- 3.) In the morning, exterior lights shall turn on no earlier than 15 minutes before the first employee arrives (typically 6:00 a.m.).
- 4.) In the evening, exterior lights shall turn off no later than 15 minutes after the building is secured for the evening (typically 11:15).
- 5.) On weekends, exterior lighting shall be allowed for School District authorized facility events. Otherwise exterior lights shall remain off.
- 6.) All pole and wall mounted exterior lights shall be equipped with motion sensors in order to dim to approximately 50% intensity when no motion is detected.