SPR DESIGN STANDARD 26 56 00

DESIGN OF OUTDOOR LIGHTING

1.01 GENERAL

A. Intent of Standard: This Design Standard provides criteria for selection, design, and placement of lighting fixtures in parks and other facilities owned or operated by the Seattle Department of Parks and Recreation (SPR). It also delineates the responsibilities of the Designer in developing the lighting design plan.

B. Design Mission: SPR's goal is to achieve attractive, accessible park facilities, with efficient, sustainable lighting that provides appropriate illumination of park features during evening hours, minimizes light pollution, discourages illicit activities and promotes secure, hazard-free traverse paths for night-time use.

C. Design Product: The design product shall include the following elements:

1. **Illumination Concept Plan:** A complete description of proposed illumination, including a schematic to show approximate locations/types of lighting fixtures and resultant lighting levels, developed in accordance with the scope of work established by the Designer's contract or agreement with SPR. In preparing the Illumination Concept Plan, the Designer shall proceed with the objective of minimizing the amount of lighting fixtures and infrastructure required, while addressing relevant aspects such as security, safety, perception of safety, and the intended use of the park features/facilities in question. Supporting data shall be appended to the plan, and shall include but not be limited to the following information/reports:
   - Crime Prevention Through Environmental Design (CPTED) Analysis;
   - Area police crime statistic reports;
   - Before and after illumination level mappings.
2. **Maintenance & Utility Impact Report:** Shall be submitted in conjunction with the Illumination Concept Plan, a detailed analysis to determine the anticipated operation and maintenance costs associated with implementation of the proposed Illumination Concept Plan. This analysis shall be presented in a format and level of detail such that the analysis can be easily reviewed by an SPR analyst to verify that all assumptions are reasonable, calculations are complete and correct, and that all elements of the lighting plan have been incorporated.
3. **Drawing Set:** A complete set of drawings showing all locations, site preparation, components, assembly, and instructions necessary for successful installation of the approved Illumination Plan. SPR standard lighting fixtures as listed in Section 1.02 shall be utilized to the extent possible.
4. **Final Technical Specifications:** The Designer shall complete all relevant template technical specifications to the extent required to properly coordinate with the

approved Illumination Concept Plan and the design drawings, as needed for their inclusion as part of the final Construction Contract Documents.

Text within the template specifications that is intended to be edited by the Designer is identified by use of highlighted red bold font. Such items usually entail making choices about what type of signage is needed for the conditions and requirements particular to the subject facility. Other than appropriate finalization of these specially-identified areas in the template specifications, the Designer shall not make any changes (add, delete, or alter) to technical specifications unless specifically approved by the Park Engineer, through the project's technical review process.

5. **Illumination System Commissioning:** The Designer shall be responsible for working directly with the Lighting Contractor/Installer as needed to coordinate all commissioning activities and ensure that they are successfully carried out prior to substantial completion of the illumination system construction. The commissioning activities shall confirm that the system is operating at the optimum level anticipated by the design, illumination levels (foot-candle values) are consistent with design expectations, spill light and glare are not problematic, and that any controlling timers, sensors, or software has been correctly and completely programmed.

6. **Record Documents:** The Designer shall submit a complete set of record documents and drawings, including contractor-provided as-built information, within ten working days of substantial completion, developed in accordance with the process outlined below.

   a. The Contractor shall keep a current working set of drawings with all as-built changes or actual conditions as work proceeds, to be submitted to Designer at substantial completion of the project.

   b. The Designer shall interpret and incorporate field information into a scaled AutoCAD drawing (utilizing same scale as contract documents) and provide to the Park Engineer prior to close-out of project.

   c. The Designer shall prepare Mylar record drawings ("as-builts") with contractor's information included, and CD(s) containing electronic AutoCAD drawings and Adobe .pdf versions with that same information, to be submitted to the Owner along with all other required information, manuals, etc.

1.02 GOVERNING DESIGN STANDARDS

A. Federal, State, County, and Municipal Standards: Outdoor lighting shall be in complete compliance with all applicable federal, state, county, and municipal standards, including but not limited to the Consumer Product Safety Commission (CPSC), Americans with Disabilities Act (ADA), Architectural Barriers Act (ABA), Illuminating Engineering Society (IES), and the Seattle Municipal Code (SMC).

B. Athletic Field Lighting: Refer to SPR Design Standard 26 56 68

C. Accepted Standards: All materials, components, hardware, fixtures, and any other items associated with the design shall be in accordance with approved standards, details, and technical specifications provided in the SPR documents referenced below. The

Designer shall demonstrate to the Engineer that all specifications relevant to the project have been included into the Construction Contract Documents.

1. **SPR's Technical Specifications:** The Designer is responsible to verify that all technical specifications are consistent with Parks design standards and that there are no contradicting requirements contained in other sections of the Construction Contract Documents. These include, but are not limited to:
   - Section 26 00 00 - Electrical
   - Section 26 56 00 - Exterior Lighting
2. **SPR's Division 26 Standard Detail Drawings:** All standard Details that are part of the project Scope of Work shall be used as provided by SPR (without alterations) and shall be included in the Contract Documents, listed as follows:
   - 26 05 33.13 Electrical Hand Hole
   - 26 05 43.13 Power Supply Conduit
   - 26 56 33.13 Historic Pedestrian Light Fixture
   - 26 56 33.16 Historic Pedestrian Light Fixture

D. Historical Light Fixture Replicas: The following parks and boulevards are City landmarks that are considered to have cultural significance. In order to retain their historic character, all new or replacement lights must closely match the appearance of the existing fixtures. Typical "Olmsted" fixtures are described in SPR Standard Details listed above; however, lighting fixtures do vary considerably from park to park as well as within individual parks, and the designer will need to specify light fixtures appropriate for the particular park and application.

- Arboretum Bridge
- Cal Anderson Park
- Denny Blaine Park
- Green Lake Park
- Hiawatha Playfield
- Jefferson Park
- Lake Washington Boulevard
- Mount Baker Park
- Occidental Square
- Pioneer Square
- Queen Anne Boulevard
- Tillicum Place
- Volunteer Park

- Japanese Garden (Arboretum)

1.03 DESIGN GUIDELINES

In general, the illumination plan shall be developed in a manner that illuminates park features attractively in accordance with the anticipated night-time operational schedule, and provides safe and secure traverse paths between park features, facilities, entrances, and parking areas during all anticipated operating hours. Illumination levels shall be provided in accordance with the standards provided by the Illumination Engineering Society of North America (IESNA). In addition, the following guidelines apply:

A. General: Lighting shall only be provided when and as specified for inclusion by SPR, or if safety/security issues indicate a pressing need, in which case the Designer shall make appropriate recommendations as part of the Illumination Concept Plan. The following areas shall be candidates for lighting if specified by SPR or recommended by the Designer:

- Trails and Paths
- Gathering Areas
- Security Lighting: Lighting fixtures shall be no higher than 20' above grade and shall be vandal resistant, including recessed, impact-resistant fixtures.
- Parking Lots: Lighting fixtures shall be no higher than 20' above grade and shall be vandal resistant, including recessed, impact-resistant fixtures.
- Dog Off-Leash Areas
- Stairways
- Corridors
- Picnic Shelters
- Play Areas
- Basketball/Tennis Courts
- Internal Park Roads
- Comfort Stations – not covered in this standard. Refer to Design Standard 02880-01.
- Community Centers and Swimming Pools – not covered in this standard. New standards are under development and will be referenced here when available.

B. National and Industrial Guidelines: The following resources are considered by SPR to be suitable for use in design of park lighting applications:

1. **G-1-03 IESNA Guideline on Security Lighting for People, Property, and Public Spaces**
2. **RP-33-99 IESNA/ANSI Standards: Lighting for Exterior Environments**

C. Feature Lighting: In general, feature lighting is only allowed when specifically identified for inclusion by SPR.

1. **Up-lighting:** When specified, Designer shall incorporate measures to minimize "Skyglow".
2. **Spotlighting:** When specified, Designer shall incorporate measures to reduce or eliminate spill light and glare.
3. **Display and Holiday Lighting (Lighting Strands):** All lighting strands must be LED. Use of extension cords is not allowed. Locations identified for such lighting must be provided with appropriate commercial-grade electrical infrastructure, such that extension cords are not necessary.
4. **Tree Lighting:** Any lighting mounted on trees must be reviewed and approved by the SPR Urban Forester prior to construction/installation.

D. Natural Areas: Natural areas are park sites established for the protection and stewardship of outstanding natural attributes of local, regional, and/or statewide significance, and/or remnant natural areas within the City that (can) provide habitat or other natural systems support functions. Natural areas shall not be provided with lighting except for limited security purposes, and then only when specified in the scope of work.

E. Light Pollution: Light pollution is generally defined as unintended intrusion of light, and includes concepts such as light trespass, skyglow, and glare. These are more fully described in national and industrial guidelines such as those cited in Section 1.03.B. SPR's goal is to minimize light pollution to the extent possible for the technology, while still providing the desired illumination levels for the design.

F. Illumination Levels: When security lighting is included in the scope of work, illumination levels shall be at the lowest level to effectively allow surveillance, in accordance with the table below. Uniformity ratios should not exceed 6:1 maximum to minimum for the target area. Note that higher levels of illumination may be required for lighting applications other than security:

Lighting Application	Average Horizontal Illumination Level on Ground
Pedestrian Pathways & Access Routes	0.6 average foot-candles; 1.0 average foot-candles in "likely loitering areas"
Entries	3 – 5 average foot-candles
Parking Lots	3 average foot-candles
Perimeter Fence	0.5 average foot-candles
Large Open Areas	0.6 average foot-candles; 1.0 average foot-candles in "likely loitering areas"

1.04 Materials/Mounting/Installation:

A. Controls: Lighting shall be controlled by photocells, timers, and/or motion sensors as appropriate to the specific application and in accordance with related electrical standards and codes. Outside receptacles for picnic shelters shall be equipped with 12-hour timers. Photocell controls, when utilized, shall be provided with photocell bypass switches.

B. Vandalism Resistance: Lighting fixtures shall be constructed of shatter-proof materials to the extent practicable, and shall be mounted in a manner to minimize accessibility for vandalism, either by direct contact or thrown objects.

C. Positioning and Light Trespass: Design exterior lighting so that all site and building mounted luminaries produce a maximum initial luminance value of 0.20 horizontal and vertical foot-candles at the site boundary and must drop off to 0.01 foot-candles within 15 feet beyond the site. Shield and aim light so that illumination is directed to the designated areas. Document that no more than 5% of the total designed site lumens are emitted at an angle of 90° or higher. For site boundaries that abut public right-of-ways, light trespass requirements may be met at the curb line.

D. Light Fixture Maintenance Label: Permanent Light Fixture Maintenance Labels in accordance with Figure 1 below shall be applied in the interior hand hole or electrical panel for each light fixture, with initial information provided as stated by the label. Labels shall be made of durable, waterproof material that can be subsequently written on with pencil or ink for subsequent maintenance information.

Voltage _____

Lamp Type/Size _____

Install Date _____

Service/Repair Description & Date(s):

Date	Description	Initials

Figure 1: ***3" x 5" Light Fixture Maintenance Label***