

## Lighting Level Review Instructions:

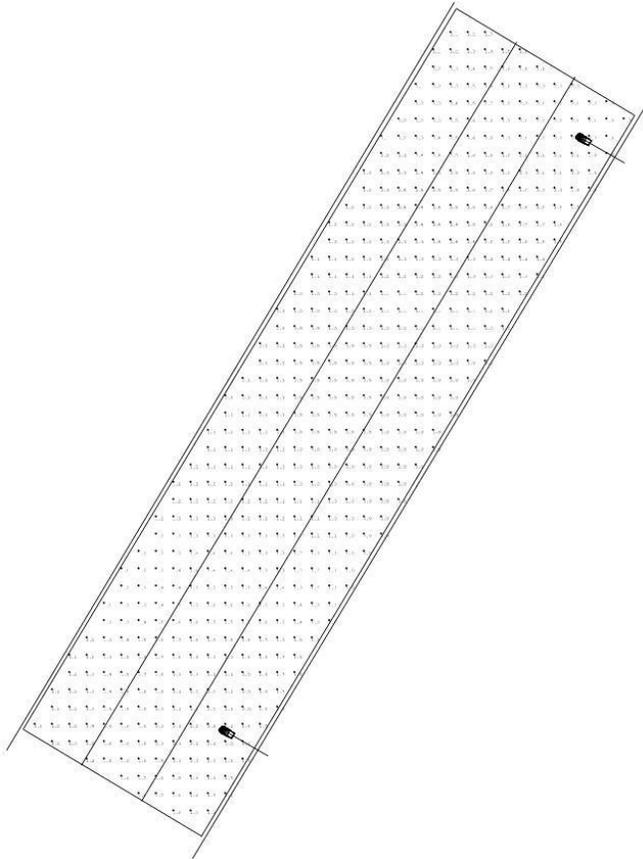
### General Guidelines

- Lighting Level review form should only be completed after pre-app or land use referral from Fairview, Troutdale or Multnomah County - please enter these project/permit numbers on your [Lighting Level Review application](#) in the [Permit Portal](#)
- In the [Lighting Level Review application](#), enter the calculated lighting levels from your analysis into the Photometric Calculations table, not the District's lighting level standards
- Using a Lux meter to assess current lighting levels is not preferred, and needs prior approval by the District Administrator

### Photometric Analysis Guidelines

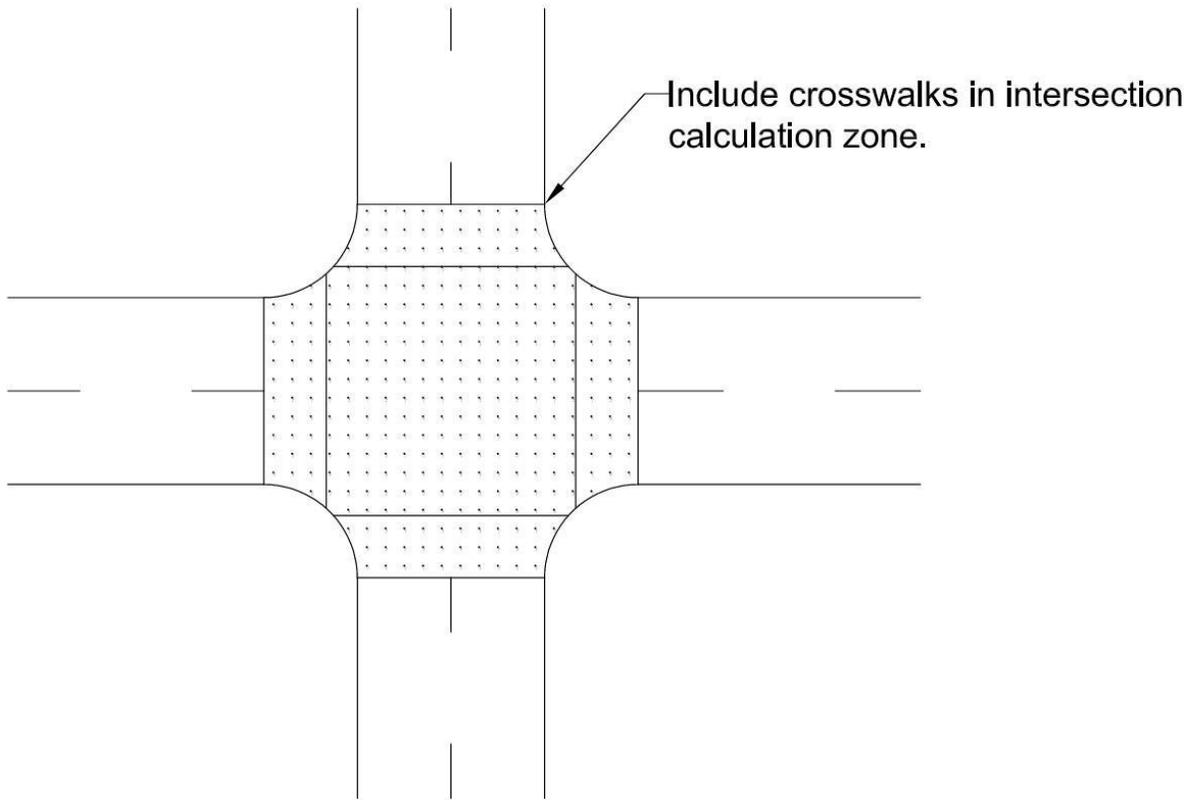
- Only include public streets and intersections along the property frontage
- Separate out intersection lighting grids from the frontage streets
- Calculation points should be spaced on 3' x 3' grid to the street centerline(s)
- Only existing street lights within the public right of way shall be included in the analysis (no private or parking lot lighting)
- Existing street lights within 150 feet of the project frontage should be included in the analysis

**Illuminance Grid Examples** - Examples are provided on the following page for streets, intersections and Midblock crossings.



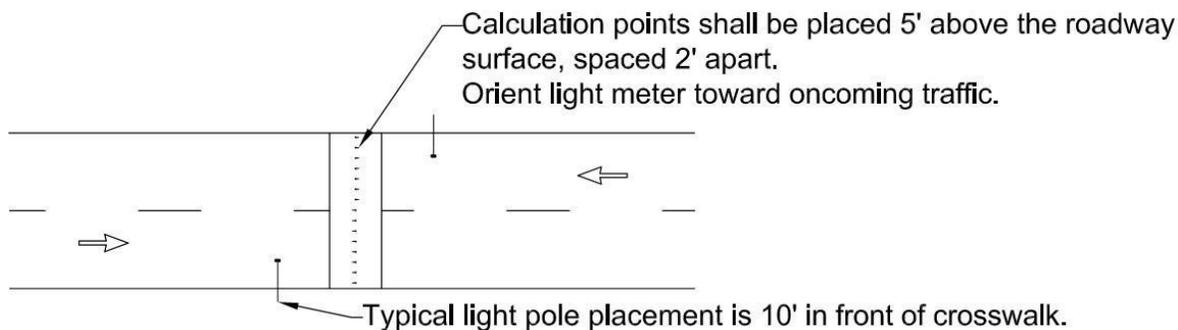
**Figure 1 - Typical Illuminance Calculation Zones**

Illuminance calculation points should be placed horizontal on the roadway surface, unless specifically noted otherwise. The calculation grids for roadways should be made with orthogonal grids filling a polygon that covers all lanes of travel in a particular direction, as shown in Figure 1. Calculation points should be placed in a three-foot by three-foot grid and extend over all vehicle and bicycle travel lanes in each direction. Each direction of travel shall be considered separately. If there is more than one lane in a direction of travel, the lanes may be aggregated into one calculation zone. Median two-way-left-turn lanes can be combined with either direction of travel. Parking lanes and shoulders need not be considered in the calculation.



**Figure 2 - Intersection Calculation Zone**

For intersections, the calculation zone shall include the entire area within stop lines, including crosswalks, as shown in Figure 2. See the Mid-Multnomah County Street Lighting Service District No 14 Design Standards for average illuminance and average/minimum uniformity ratio design standards.



**Figure 3 – Un-signalized Crosswalk Calculation Zone**

**Crosswalks** shall be illuminated as follows:

- Crosswalks at signalized intersections: illuminate consistent with the corresponding intersection.
- Signalized mid-block crosswalks (including midblock crossings with flashing beacons): illuminate to the roadway segment level. The maintained average vertical illuminance shall be at least 1.0 foot-candles (Fc). For areas with high pedestrian conflict the maintained average vertical illuminance shall be 1.5 Fc. Areas of high pedestrian conflict would include facilities with significant numbers of pedestrians expected to be on the sidewalks or crossing the streets during darkness. Examples are school zones, downtown retail areas, near theaters, concert halls, stadiums, and transit terminals.
- Crosswalks at un-signalized intersections or un-signalized midblock crossings: the maintained average vertical illuminance shall be at least 1.5 Fc. For areas with high pedestrian conflict the maintained average vertical illuminance shall be 2.0 Fc. Areas of high pedestrian conflict would include facilities with significant numbers of pedestrians expected to be on the sidewalks or crossing the streets during darkness. Examples are school zones, downtown retail areas, near theaters, concert halls, stadiums, and transit terminals.
- Maintained average vertical illuminance shall be measured in a line at the center of the crosswalk, parallel to the direction of pedestrian travel, five feet above the roadway surface, with calculation points oriented toward oncoming traffic. Spacing of grid points shall be 2 ft.