

### 13. OUTDOOR LIGHTING ILLUMINATION STUDY

In general, existing water treatment plant property site lighting will be removed and replaced with new due to the extent of modifications occurring at the site. There is no existing street lighting at this time.

Overall Site Lighting Plan:

See Figure 5.05 to Figure 5.12 for overall site lighting plan and calculated foot-candle levels. Note that small enhancements may be required during final design.

The site lighting was modeled as follows:

- pole lights for roadway / at grade areas –
  - 14' metal halide (100W lamp) on secure side of plant fence
  - 14' high pressure sodium (100W lamp) on public side of plant fence
  - modeled with Litonia type KSF1\*
- pole lights for main entrance parking-
  - 20' high pressure sodium (150W lamp) on public side of plant fence
  - modeled with Litonia type KSF1\*
- pole lights on above ground filters/ballasted floc/wash water tanks –
  - 10' compact fluorescent lights (2-32W lamps)
  - modeled with Litonia type Aeris AS1\*
- wall mounted building lights by doors –
  - compact fluorescent lights (2-26W lamps) at 8' on secure side of plant fence
  - building mounted lighting on public side of plant fence will be coordinated during final design
  - modeled with Litonia type MRW\*

\*Make and model is subject to change.

#### Applicable Codes

Wattages for exterior lighting will be selected in order to comply with Oregon Energy Efficiency Specialty Code. However, in areas with security/safety/crime concerns dictated by the City of West Linn Community Development Code lighting levels may differ. We assume this to be an “approved” exception per Section 505.6 of the Oregon Energy Efficiency Specialty Code.

Due to the sensitive nature and security required for a water treatment plant, lighting control will in general follow the below the outline. However, in areas of security/safety/crime concern lighting will either be left on (based fully on photocell and/or timer operation) or equipped with an operator override to turn it on/off.

#### Street Lighting Illumination

There is no existing street lighting along the water treatment plant property frontages on Mapleton Drive or Kethorpe Way. The neighboring public have expressed that they would like to keep it that way. The majority of the remainder of Mapleton Drive and Kethorpe Way are also unlit. Forgoing the addition of street lighting may also benefit in seeing less unwanted attention directed towards the water treatment plant during night hours.

### **Exterior on New Buildings – Accessible to the Public**

Areas readily accessible to the public must meet the City of West Linn Community Development Code. We will be using full cutoff lighting switched by photocell and/or timer. We will utilize high pressure sodium fixtures. Exterior building lighting will be limited to above or beside doors only unless the Owner directs otherwise. Where exterior doors are considered emergency egress paths additional emergency lighting with battery backup will be provided. This specific piece of exterior lighting will be developed further during final design stages.

### **Exterior on New Buildings – Not Accessible to the Public (secure side of plant fence)**

We will be using full cutoff lighting switched by motion detector above the exterior doors to save on energy usage while lighting is not actively needed. Since motion detectors will be utilized (as opposed to photocells) we need to use instant on lighting. This leaves us to use fluorescent lights or LED's with cold weather rated ballasts. Exterior building lighting will be limited to above or beside doors only unless the Owner directs otherwise. Where exterior doors are considered emergency egress paths the lighting will need to have battery backup.

### **Outdoor Site Lighting – Accessible to the Public**

Specific areas readily accessible to the public must meet the City of West Linn Community Development Code. We will be using full cutoff lighting switched by photocell and/or timer. We will utilize high pressure sodium fixtures. Exterior site lighting will be provided for; driveway and parking areas readily accessible to the public from Kenthorpe Way, at the storm water area off Kenthorpe Way at the northwest portion of the site, and along the pedestrian path connecting Mapleton to Kenthorpe Way.

Parking and driveway areas will be designed for 0.5-1.0 foot-candles average measured at 2.5' above the ground.

### **Outdoor Site Lighting – Not Accessible to the Public (secure side of plant fence)**

Roadway lighting is required for navigating the site at night time. Compact fluorescent lights are not good candidates for this type of lighting. Outdoor site lighting will be metal halide HID type. It will be full cutoff style to minimize light pollution and glare. This lighting will likely be placed on a timer that will be set to turn off when the plant is vacated in the evening except where lighting would be required for security purposes or where the electric utility may require (to be determined).

Roadway areas will be designed for 0.5-1.0 foot-candles average measured at 2.5' above the ground.

### **Outdoor Process Area – Not Accessible to the Public (secure side of plant fence)**

Much of this lighting will be on elevated tanks that might be visible to neighbors. We will have full cutoff fluorescent fixtures for "instant-on" light switched by building mounted light switches. Lighting is designed for low-level general area lighting when needed and should not be considered task lighting for maintenance. We will decide for pole mounted vs. stanchion mounted during the final design phase. These are switched only. If part of the outdoor process area is determined to be part of the path of egress we will add the required emergency lighting.

Outdoor above ground areas (filters, ballasted flood...) will be designed for 5.0 foot-candles average measured at 2.5' above the walking deck.

We will add some additional switched “instant-on” task lighting (probably floodlights) at certain open-tank outdoor process areas for service requirements. This is not modeled as it is for emergency maintenance/service requirements only.