

# PBOT

PORTLAND BUREAU OF TRANSPORTATION

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Chloe Eudaly Commissioner Chris Warner Director

## SSL Design Review Checklist

Project/Permit Number	Project/Improvement Name	Submittal
Engineer of Record	Phone	Email

I acknowledge that all items below have been addressed:

\_\_\_\_\_  
*Engineer Signature*

\_\_\_\_\_  
*Date*

\_\_\_\_\_  
*Engineer Printed Name*

City of Portland Use Only	
<b>Reviewed By:</b>	<b>Date:</b>
<b>Accepted</b>	<b>Rejected</b>
	<b>Reason for Rejection:</b>



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**Instructions:** Design items required at each design phase are indicated by a check mark for that item. If that item has been completed, mark it as “Done”. If that item is not applicable to the project, mark it as “N/A”.

General Items						
30%	60%	90%	100%	Done	N/A	
						1. Show existing and proposed driveways, hydrants, street trees, vaults, and other physical features that impact the placement of signals and street lighting components
						2. Identify all existing and proposed vaulted sidewalk areas
						3. Identify street tree type for all trees located closer than 25’ from street lights or signal equipment (this can be on a civil or landscape plan)
						4. Identify any overhead obstructions (such as canopies) that may impact signal or street light pole placement
						5. Identify if utilities will be overhead or underground
						6. Identify power source <ul style="list-style-type: none"> <li>• Show and identify how service panel will be fed from power source</li> <li>• Provide utility junction box adjacent to service panel</li> <li>• Identify PGE/PP&amp;L work request number</li> </ul>
						7. Ensure that striping layout complements signal equipment installation and operation
						8. Ensure that items shown on civil sheets do not conflict with signal equipment installation and operation
						9. Use standard engineering scale
						10. Use PBOT SSL standard symbols and legend
						11. Title block plan sheet information: <ul style="list-style-type: none"> <li>• Date Approved</li> <li>• PBOT Reviewer</li> <li>• Intersection Number (for signals and beacons)</li> </ul>
						12. Title block approval signatures
						13. List standard drawings required
						14. Provide special provisions and signature sheet



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### Signals & Beacons (see Traffic Signal Design Guide: <https://www.portlandoregon.gov/transportation/article/643224>)

30%	60%	90%	100%	Done	N/A	
						<b>1. Provide Legend</b>
						<b>2. Provide Signal/Beacon Plan</b>
						2.1. Show and identify all signal equipment (cabinet/controller, service panel, poles, signals, signs, lighting)
						2.2. Phase diagram and phase rotation diagram
						2.3. Show and identify the underground circuitry for the signal (pull boxes, conduit/wiring)
						2.4. Verify pole foundation types and locations
						<ul style="list-style-type: none"> <li>• Standard foundations (check for utility conflicts and vaulted sidewalks)</li> <li>• Provide proposed special design details, if applicable</li> <li>• Provide supporting calculations stamped and signed by an Engineer, if applicable</li> </ul>
						2.5. Pole schedule
						2.6. Mast arm clearance calculations
						2.7. Construction notes/general notes
						<b>3. Provide Wiring Diagram</b>
						3.1. Include intersection wiring and terminal cabinet wiring schematics
						<b>4. Provide Detection Plan</b>
						4.1. Show and identify all detection equipment (detection devices, poles)
						4.2. Phase diagram (matching Signal Plan)
						4.3. Show and identify the underground circuitry for the detection (pull boxes, conduit/wiring)
						4.4. Loop wiring diagram, if any wiring changes
						4.5. Input file diagram
						4.6. Construction notes/general notes
						<b>5. Provide Interconnect Plan</b>
						5.1. Show and identify all interconnect equipment (wireless radio, PTZ camera, utility poles, signal poles)
						5.2. Show and identify the underground circuitry for the interconnect (pull boxes, conduit/wiring)
						5.3. Communications components schedule
						<b>6. Provide Removal Plan</b>
						6.1. Show and identify all signal equipment to be removed
						6.2. Show and identify all signal equipment to be salvaged



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### Street Lighting (see Street Lighting Guidelines: <https://www.portlandoregon.gov/transportation/article/714407>)

30%	60%	90%	100%	Done	N/A	
						<b>1. Provide Photometric Analysis</b> <ul style="list-style-type: none"> <li>Lighting layout on photometric analysis and plans match</li> <li>Provide electronic and printed versions of all inputs and outputs using analysis software                             <ul style="list-style-type: none"> <li>Provide average horizontal illuminance level (footcandles)</li> <li>Provide uniformity ratios (avg/min and max/min)</li> <li>Provide output drawing showing illuminance levels point-by-point.</li> </ul> </li> </ul>
						<b>2. Provide Voltage Drop Calculations</b> <ul style="list-style-type: none"> <li>Use City-approved method and one-phase system                             <ul style="list-style-type: none"> <li>Size wires such that a maximum voltage drop of 3% is not exceeded</li> <li>Minimum allowable wire size is #10 AWG and maximum is #2 AWG</li> <li>Verify load on each circuit breaker is less than 80% of its rated size</li> </ul> </li> </ul>
						<b>3. Provide Legend</b>
						<b>4. Provide Lighting Plan</b>
						4.1. Show and identify all lighting equipment (service panels, poles, luminaire arms, luminaires, photocell) on and across from project frontages
						4.2. Verify pole foundation types and locations <ul style="list-style-type: none"> <li>Standard foundations (check for utility conflicts and vaulted sidewalks)</li> <li>Provide proposed special design details, if applicable</li> <li>Provide supporting calculations stamped and signed by an Engineer, if applicable</li> </ul>
						4.3. Pole schedule
						4.4. Show and identify the underground circuitry (pull boxes, conduit/wiring) <ul style="list-style-type: none"> <li>Provide a pull box in the furnishing zone, adjacent to every light, unless directed otherwise</li> <li>Route conduit runs under the sidewalk, outside of tree wells, typically 2' from back of sidewalk unless directed otherwise</li> <li>Identify photocell location with proper callout</li> <li>Provide power to photocell using 3 #10 AWG conductors</li> </ul>



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### Street Lighting Cont. (see Street Lighting Standards: <https://www.portlandoregon.gov/transportation/article/714407>)

30%	60%	90%	100%	Done	N/A	
						4.5. Panel schematic diagram <ul style="list-style-type: none"> <li>• Size panel appropriately               <ul style="list-style-type: none"> <li>○ 100 A panel is connected with 3 - #2 AWG</li> <li>○ 60 A panel is connected with 3 - #6 AWG</li> <li>○ 20 A panel is connected with 3 - #8 AWG</li> </ul> </li> </ul>
						4.6. Circuit schematic diagram
						4.7. Show and identify all lighting equipment to be removed (even temporarily during building construction, if known)
						4.8. Show and identify all lighting equipment to be salvaged
						4.9. Construction notes/general notes
						5. <b>Temporary Street Lighting Plan</b> <ul style="list-style-type: none"> <li>• If it is known that temporary street light removals will be required to accommodate construction, provide a temporary street lighting plan that contains:               <ul style="list-style-type: none"> <li>○ Street lights to be removed, identified with City pole numbers</li> <li>○ Temporary street lighting details (pole, luminaire, etc.)</li> <li>○ Estimated date and duration of removal</li> </ul> </li> </ul>



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### Additional Comments

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