## LID Checklist

<table>
<thead>
<tr>
<th>Water Quality</th>
<th>Green Goal</th>
<th>Project Phase</th>
<th>Land Use</th>
<th>Condition</th>
</tr>
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<tbody>
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<td>On-site Benefit to Stormwater</td>
<td>Off-site Benefit to Stormwater</td>
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### Conveying Stormwater

Get rid of your curbs and gutters and let runoff flow into a rain garden or any old vegetated area (aka vegetated filter strip).

- Install a green wall/trellis.
- Harvest rainwater in a large cistern.
- Infiltrate runoff underneath a building with an LID foundation.
- Disconnect a downspout.
- and plan the rest of the project around those locations.

### Stormwater Quantity & Quality/Non-Infiltration

- Infiltrate stormwater with a vegetated swale.
- Install pervious pavement.
- Use berms to hold water back.
- Perform infiltration testing in different locations and depths throughout the site, locate the stormwater facility in the areas and depths that have the highest rates, and plan the rest of the project around those locations.
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Don't impede subsurface flows.

Don't use a basement or pour slabs.

Reduce impervious infrastructure in cut soils.

Design a means of large storm flows to bypass stormwater management facilities.

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Don't use a basement or pour slabs.

Reduce impervious infrastructure in cut soils.

Design a means of large storm flows to bypass stormwater management facilities.

Use the harvest rainwater for fire needs.

Use the harvested rainwater for irrigation.

Use underground storage product in areas of fill in parking lot and building.

Use the harvested rainwater for irrigation.

Use the harvested rainwater for inside potable uses, at a minimum, toilet flushing.

Use the harvested rainwater for fire needs.

Install a green wall/trellis.

Save a tree.

Reduce Disturbance:

Preserve soil:

Design things over previously disturbed areas.
- M = maybe, it depends
- Y = yes
- N = no

 Reduce excavation.

Don't cement treat soil.

Limit compaction.

Reduce trenching with overland flow and surface conveyance.

Design a site with good pedestrian/cyclist circulation.

Stocker soil and reuse.

Preserve soil animals, which are responsible for long-term soil permeability.

Avoid sensitive areas:

Avoid impacts to areas that provide habitat for threatened and endangered species.

Avoid impacts to the floodplain, in wetlands, too close to waterways, or too close to coastal shorelines.
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<td>Y Y Y</td>
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**Use compost erosion control to prevent sediment from entering wetlands during construction.**

**Can a buffer be established during construction?**

**Can a buffer be maintained after construction?**

**Build on gray or brownfields.**

**Io cross a stream with a utility, align it across a bridge or in casing above the stream instead of boring underneath the stream to bury it.**

**Align utilities together in the same trench.**

**Reduce Impervious Areas:**

- Depave existing unused paved areas.
- Convert a portion (10%) of the parking spaces to compact in all parking lots.
- Share parking spaces with someone else.
- Share a driveway with someone else.
- Minimize road widths.
- Minimize the parking space dimensions.
- Reduce the parking ratio.
- Don't pave over parking areas that are likely to be vacant.
- Reduce setbacks.
- Reduce cul-de-sac dimensions.
- Create a cluster development.
- Create a conservation development.
- Minimize building footprints.

**Restore soil:**

- Amend the soil with compost.
- Amend the soil with mycorrhizal treatment.
- Amend the soil with compost tea.

**Stormwater Quality/Non-Infiltration**

- Treat stormwater with a sand filter.
- Treat stormwater with underground detention.
- Treat stormwater with a constructed wetland.
- Treat stormwater with an extended detention/dry pond.
- Treat stormwater with proprietary water quality devices.
- Harvest rainwater in a small barrel.
- Treat stormwater with wet ponds/retention basins.

**Restoration**

- Restore forested areas.
- Restore riparian buffers.
- Daylight piped streams.
- Restore lost wetlands.
- Restore coastal habitats.
- Restore instream habitat.
- Restore floodplains.

**Transportation**

- Put parking underneath a roof.
- Provide cycling facilities.
- Provide alternative fuels.
- Design a woonerf (aka universal street, home zone).
- Provide facilities for public transportation.
- Provide car sharing facilities.
- Reduce demand for travel by providing virtual communications tools.
- Set appropriate speed limits.

**Design sites to support air quality goals:**

- Avoid creating street canyons.
- Don't place air intake where idling might occur.
- Use hand tools.
- Use electric tools.
- Avoid using 2-stroke engines on-site.
- Use biodiesel equipment.

**Minimize wildlife road crossings impacts:**

- Provide amphibians with a way to access riparian & upland habitats.

**Landscape Design**

- Plant a tree.
- Plant vegetation considering wind.

**Reduce the incidence of disease:**

- Don't specify vegetation that is known to be susceptible to disease.
- Provide adequate air flow through branches of vegetation.
- Don't specify vegetation that needs a lot of fertilizers or chemicals.
- Reduce mowing.
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### Landscape Maintenance

**Use integrated pest management:**
- Control and manage invasive species.  
  - Y Y Y Y N Y Y Y Y Y Y Y Y Y
- Prune appropriately.  
  - Y Y Y Y N Y Y Y Y Y Y Y Y Y
- Create a landscape management plan to indicate how vegetation should be maintained and replaced by the owner.  
  - Y Y Y N N Y Y Y Y Y Y Y Y

### Water Use

- Don’t draw from the aquifer.  
  - N Y Y Y Y Y Y Y
- Don’t install an irrigation system for non-food landscape areas.  
  - Y Y M Y Y Y Y Y Y Y Y Y Y
  - If you can’t plant native plants and/or must use irrigation, then create zones of low and lower demand.  
    - Y Y M Y Y Y N Y Y Y Y Y Y Y
- Don’t use potable water for irrigation or water features.  
  - M Y N Y N Y N Y Y Y Y Y M
- Design a water saving irrigation system.  
  - M Y N Y N Y N Y Y Y Y Y Y
- Specify mulch or compost to finish planting areas at ground surface.  
  - Y Y M Y Y Y Y Y Y Y Y Y Y
- Design a graywater recycling system.  
  - Y Y Y Y Y Y Y Y Y Y Y Y Y

### Create healthy establishment conditions for the landscape:

- Amend disturbed soils, see restore soils above.  
  - Y Y Y Y N Y Y Y Y Y Y Y Y
- Don’t exceed fill slopes of 3:1.  
  - N Y Y Y Y Y Y Y Y Y Y Y Y
- Amend the soils with nitrogen if using wood chip mulch (unless the area is a vegetated stormwater facility like a rain garden or stormwater planter).  
  - Y Y Y Y Y Y Y Y Y Y Y Y Y

### Source Control

- Cover trash receptacles.  
  - Y N Y Y Y Y Y Y Y Y Y Y Y
- Control trash.  
  - Y N Y Y N Y Y Y Y Y Y Y Y
- Identify locations where pollutants are located on the site, & prevent their exposure to stormwater runoff.  
  - Y N Y Y Y Y Y Y Y Y Y Y
- Control pet waste.  
  - Y N Y Y Y Y Y Y Y Y Y Y Y

### Erosion Prevention-Source Control

- Use native seed mixes to stabilize bare soil.  
  - Y Y Y Y Y N Y Y Y Y Y Y Y
- Use something other than a sediment fence in fine-grained soils to reduce turbidity from sheet flow.  
  - Y N Y Y N Y Y Y Y Y Y Y
- Grind vegetation to be cleared into mulch and reuse it on-site.  
  - Y N Y Y M Y Y Y Y Y Y Y
- Water tight trucks to be used when trucking saturated soils from the site.  
  - Y N Y Y N N Y Y Y Y Y Y
- Phase the development to minimize disturbance and that soils are exposed.  
  - Y M Y Y N Y Y Y Y Y Y Y Y
- BMPs to remain in place until disturbed areas are stabilized with permanent vegetation and properly disposed when no longer needed.  
  - Y N Y Y N Y Y Y Y Y Y
- Emphasize erosion prevention over sediment control.  
  - Y N Y Y N Y Y Y Y Y Y

### Tracking Controls:

- Stabilized gravel construction entrances  
  - Y N Y Y N Y Y Y Y Y Y
- Entrances with shaker plates  
  - Y N Y Y N Y Y Y Y Y Y
- Wheel wash facilities  
  - Y N Y Y N Y Y Y Y Y Y
- Street sweeping or vacuuming  
  - Y N Y Y N Y Y Y Y Y Y

### Non-Stormwater Requirements for the 1200C Permit:

- Dewatering and Ponded Water Management  
  - Y N Y Y N Y Y Y Y Y Y
- Paving Operation Controls  
  - Y N Y Y N Y Y Y Y Y Y
- Temporary Equipment Bridge  
  - Y N Y Y N Y Y Y Y Y Y
- Illicit Connection / Illega Discharge  
  - Y N Y Y N Y Y Y Y Y Y
- Vehicle and Equipment Cleaning  
  - Y N Y Y N Y Y Y Y Y Y
- Vehicle and Equipment Fueling, Maintenance and Storage  
  - Y N Y Y N Y Y Y Y Y Y
- Material Delivery and Storage Controls  
  - Y N Y Y N Y Y Y Y Y Y
- Material Use  
  - Y N Y Y N Y Y Y Y Y Y
- Stockpile Management  
  - Y N Y Y N Y Y Y Y Y Y
- Spill Prevention and Control Procedures  
  - Y N Y Y N Y Y Y Y Y Y
- Solid Waste Management  
  - Y N Y Y N Y Y Y Y Y Y
- Hazardous Materials and Waste Management  
  - Y N Y Y N Y Y Y Y Y Y
- Contaminated Soil Management  
  - Y N Y Y N Y Y Y Y Y Y
- Concrete Management  
  - Y N Y Y N Y Y Y Y Y Y
- Sanitary Waste Management  
  - Y N Y Y N Y Y Y Y Y Y
- Liquid Waste Management  
  - Y N Y Y N Y Y Y Y Y Y
- Training and Signage  
  - Y N Y Y N Y Y Y Y Y Y

### Erosion Prevention & Sediment Control - Runoff Control

- Slope Drain  
  - Y N Y Y N Y N Y Y Y Y Y Y

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**Slope Drain**

- Training and Signage  
  - Y N Y Y N Y Y Y Y Y Y

---

**Wheel wash facilities**

- Entrances with shaker plates  
  - Y N Y Y N Y Y Y Y Y Y
- Stabilized gravel construction entrances  
  - Y N Y Y N Y Y Y Y Y Y

---

**Sanitary Waste Management**

- Control pet waste.  
  - Y N Y Y N Y Y Y Y Y Y

---

**Grind vegetation to be cleared into mulch and reuse it on-site.**

- Y N Y Y M Y Y Y Y Y Y

---

**Waste tight trucks to be used when trucking saturated soils from the site.**

- Y N Y Y N N Y Y Y Y Y Y

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**Design a graywater recycling system.**

- Y Y Y Y Y Y Y Y Y Y Y Y

---

**Don’t use potable water for irrigation or water features.**

- M Y N Y N Y N Y Y Y Y Y M

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**Specify mulch or compost to finish planting areas at ground surface.**

- Y Y Y Y Y Y Y Y Y Y Y Y

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**Don’t draw from the aquifer.**

- N Y Y Y Y Y Y Y

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**BMPs to remain in place until disturbed areas are stabilized with permanent vegetation and properly disposed when no longer needed.**

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**Emphasize erosion prevention over sediment control.**

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**Cover trash receptacles.**

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**Energy Dissipater**
- Diversion of Run-on
- Temporary Diversion Dike
- Grass-lined Channel (Turf Reinforcement Mat)
- Trench Drain
- Drop Inlet
- Minimizing TSS During In-Stream Construction
- In-Stream Diversion Techniques
- In-Stream Isolation Techniques
- Check Dams

**Erosion Prevention**
- Structural Erosion Prevention During Grading & Earthwork
- Surface Roughening
- Preventing Erosion on Graded Surfaces
- Topsoiling
- Temporary Seeding and Planting
- Permanent Seeding and Planting
- Mycorrhizae / Biofertilizers
- Mulches
- Compost Blankets
- Erosion Control Blankets and Mats
- Soil Binders
- Sodding
- Wind Erosion / Dust Control Measures
- Wind Erosion / Dust Control
- Biotechnical Erosion Control Measures
- Live Staking
- Live Fascines and Brush Wattles
- Stabilization Mats
- Pole Planting
- Brush Box
- Fascines with Subdrains
- Live Pole Drains
- Brush Packing or Live Gully Fill Repair

**Sediment Control**
- Sediment Fence
- Sand Bag Barrier
- Gravel Bag Berm
- Straw Bale Dike
- Rock and Brush Filters
- Compost Berm/Compost Sock
- Fiber Rolls / Wattles
- Storm Drain Inlet Protection
- Temporary Sediment Basin
- Undercut Lots

**Materials**
- Choose rapidly renewable materials.
- Specify local products.
- Choose high performance, durable materials.
- Avoid materials that have a toxic lifecycle:
  - Avoid PVC and other chlorinated products.
  - Avoid copper drainage components.
  - Avoid lead (metal roofs), mercury, iron (i.e. rust) and zinc (anything galvanized) in your drainage components.
  - Avoid wood treated with creosote, arsenic, or pentachlorophenol.
  - Crushed salvaged concrete source for fill and haul roads?
  - Chip trees and other vegetation on-site to use for erosion control and post-construction soil restoration.
  - Salvage logs.
  - Salvage materials for use off-site.
  - Deconstruct a structure.
  - Avoid timbers from threatened tree species.
  - Support sustainable practices in plant production:
    - Use plants grown from seed from your ecoregion.
    - Nurseries can be a big source of nitrogen and phosphorus and can be water hogs. Ask your nursery about their practices.
    - Use FSC Certified wood.
    - Choose products that can be recycled.
    - Choose products that can be deconstructed and salvaged.
### Siting Considerations

| Design a project that’s compatible with surrounding land uses. | N | N | N | Y | N | N | Y | Y | Y | Y | Y | Y |
| Design a project that complements the existing infrastructure. | M | M | M | M | Y | Y | N | Y | Y | Y | Y | Y |
| Locate the development within walking distance of services and amenities. | Y | N | Y | Y | N | N | N | Y | Y | Y | Y | Y |
| Locate the development near existing public transportation. | Y | N | N | Y | N | N | N | Y | Y | Y | Y | Y |
| Locate the development within a fire service response area. | N | N | N | Y | N | N | N | Y | Y | Y | Y | Y |
| Orient your building to take advantage of other climactic considerations such as wind, water, and microclimates. | Y | N | N | Y | Y | N | N | Y | Y | Y | Y | Y |

### Social Goals

| Consult stakeholders and respond to their concerns. | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |
| Maintain existing recreation opportunities. | M | M | M | M | Y | Y | N | N | Y | Y | Y | Y |
| Create public recreation opportunities. | M | M | M | M | M | Y | Y | N | N | Y | Y | Y |
| Create a variety of housing options. | M | M | M | M | M | M | Y | N | N | Y | Y | Y |
| Don’t negatively impact historic sites. | N | N | N | N | Y | Y | N | N | Y | Y | Y | Y |
| Don’t negatively impact archeological sites. | N | N | N | N | Y | Y | N | N | Y | Y | Y | Y |
| Incorporate educational opportunities. | Y | Y | N | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Hire local folks. | M | M | M | M | M | M | N | N | Y | Y | Y | Y |
| Pay workers a living wage. | M | M | M | M | N | Y | N | Y | Y | Y | Y | Y |
| Provide views of nature. | M | M | M | M | M | M | Y | N | Y | Y | Y | Y |
| Screen ugly stuff. | M | N | M | M | N | N | N | Y | Y | Y | Y | Y |
| Provide a way to exercise outdoors. | M | M | M | M | M | Y | Y | N | N | Y | Y | Y |
| Provide a way to relax outdoors. | M | M | M | M | M | M | Y | N | N | Y | Y | Y |
| Create gathering spaces. | M | M | M | M | M | M | Y | N | N | Y | Y | Y |
| Reduce site users’ exposure to stressors. | M | M | M | M | M | M | Y | Y | N | N | Y | Y |

### Biodiversity

| Avoid invasives and non-natives. | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y | Y |
| Plant natives in stormwater facilities. | Y | Y | N | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Plant natives and drought-resistant vegetation outside the stormwater facility. | Y | N | Y | N | Y | Y | Y | Y | Y | Y | Y | Y |
| Plant low grow plant mixes instead of lawn. | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |

### Design for amphibians (recommendations for Oregon):

#### Leave debris and downed material on-site.
| Design new ponds where possible. | M | Y | M | Y | Y | Y | Y | Y | Y | Y | Y | Y |

#### Make ponds a depth that dries in summer after July.
| Plant plants in the pond. | Y | Y | M | Y | Y | Y | Y | Y | Y | Y | Y | Y |

#### Put a refuge in the pond (sticks, branches, etc)
| Plant plants around the pond | Y | Y | M | Y | Y | N | Y | Y | Y | Y | Y | Y |

#### Physically remove and destroy invasive bullfrogs.
| Provide wildlife passage/crossings between ponds. | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y | Y |

### Protect bird habitat during maintenance activities (dates specific to Willamette Valley):

| Plan site disturbance activities to occur from Aug 1 to Jan 31, outside of the entire nesting season. | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y |

#### Plan site disturbance activities to occur from Jun 1 to Apr 14, outside of the primary nesting season.
| Plan some building maintenance activities outside of the entire nesting season, Apr 15 to Jul 31. | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y | Y |

#### Instead of removing invasive trees, use a technique such as girdling to kill it and maintain the dead tree as snag.
| Inventory the site for evidence of nesting birds and if there are none, proceed with disturbance activities at any time of the year. If an active nest (eggs or young present) is found, avoid that area until the young have fledged. | Y | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y |

#### Remove blackberry carefully.
| Remove clematis carefully. | Y | Y | Y | Y | N | Y | Y | Y | Y | Y | Y | Y |

#### Remove garlic mustard carefully.
<p>| Remove hawthorne carefully. | Y | Y | Y | Y | N | N | N | Y | Y | Y | Y | Y |</p>
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<th>Design</th>
<th>Construction</th>
<th>Ops &amp; Maintenance</th>
<th>Residential</th>
<th>Commercial</th>
<th>Industrial</th>
<th>Abi Infiltration</th>
<th>Clay soils</th>
<th>Non-structural</th>
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<tr>
<td>Y</td>
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Remove holly and laurel with care.

Remove ivy on the ground with care.

Remove ivy in a tree or shrub with care.

Remove knapweed, tansy, and thistle with care.

Remove knotweed with care.

Remove purple loosestrife with care.

Remove canary reed grass with care.

Remove yellow flag iris with care.

Remove live trees with care.

Prioritize the retention of some snages over live trees.

Remove snags with care.

Remove shrubs with care.

Mow and remove groundcover with care.

Perform a controlled burn with care.

Remove and maintain structures with care.

Manipulate water levels in wetlands with care.

Manage grasslands with diversity in species and grass height.

Minimize conflicts with people and wildlife.

Exclude fish and wildlife with appropriate measures when doing work near waterways.

Manage small woodlands for cavity nesting birds:

Manage woodlots for cavity dependent species.

Manage clear cuts larger than 10 acres.

Provide habitat for large species (like the pleated woodpecker & wood duck.)

Provide high value cavity habitat.

Manage small woodlands for beaver, muskrat, & nutria:

Leave beaver ponds in place.

Modify beaver ponds to prevent flooding but still provide ecosystem services.

Construction Management

Select transport methods with increased fuel efficiency

Choose contractors that use biofuels.

Order construction waste pickups when bins are full instead of on a weekly basis.

Plan materials purchases and packaging considerations to ensure only 10% (by weight arriving on the site) of total materials delivered to the site are discarded.

Recycle construction waste.

Limit transportation mileage (i.e. buy local).

Limit compaction with appropriate construction equipment approaches.

Energy & Greenhouse Gas Emissions

Orient the long side of your building on the east-west axis

Use vegetation to shade air conditioned spaces (temperature climates only):

Plant tall spreading deciduous trees close to house on south side to shade roof.

Plant short deciduous trees close to the house on the west wall to block afternoon sun.

A hedge, large shrub, fence, green wall, trellis, or a cool roof may be used to shade driveways, sidewalks, & patios.

Shade walls with trellis or shrubs close to house.

Use vegetation to block wind:

Plant evergreen trees and shrubs on the windy side of the house from the ground to the crown to push wind over the house.

Use cool pavements:

Shade pavements with vegetation or light-colored infrastructure.

Apply microsurfacing to an existing pavement.

Apply a chip-seal to an existing pavement.

Design asphalt and other pavements with a light-colored aggregate.

Use a concrete mix that incorporates slag (and not fly ash).

Use resin pavements for low-traffic areas.

Shade an air conditioning unit.

Use motion detectors on outdoor lighting.

Apply passive solar techniques:

Minimum of half the windows as solar windows (south side with SHGC not less than 0.60

Area-weighted average window heat loss rate not greater than 0.35

Provide adequate thermal storage to prevent overheating.

Window overhangs shade most of the summer but allow 100% solar gain in late fall.
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<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Skylights less than 1% of floor area with SHGC of 0.30 or less</td>
<td>Y</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>West facing windows have a SHGC of 0.35 or less to limit summertime overheating.</td>
<td>Y</td>
<td>N</td>
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Operable windows or skylights at high points and northern/eastern walls of buildings. | Y       | N      | N                     |