



CHECKLIST OF WATER-SUSTAINING PRACTICES FOR COMMUNITY REBUILDING

BENEFITS

- Potentially save money in construction
- Save money long-term on water, sewer, power bills
- Improve water quality & reduce flooding impacts within community & downstream
- Reduce erosion & property damage from stormwater runoff
- Increase water available in streams and groundwater during dry weather/drought for drinking water, recreation, fishing, waste assimilation

PRACTICES FOR SITES & NEIGHBORHOODS

- Green Infrastructure / Environmental Site Design** – Retain or recreate natural waterways, wetlands, forests to absorb and manage rainwater. Multi-use for greenways, parks, recreation. Increases property values, can reduce development costs.
 - **Fit project to the site topography** - Minimize grading and tree removal required outside of built/paved footprint. Can save money on grading.
 - **Minimize hard surface footprints** – Keep size of parking lots, streets, & other developed areas that shed rain to a minimum. Can save money on paving.
 - **Increase net density** – Promote multi-story buildings, compact lots (cluster development) with more open space/green infrastructure. Can save money on infrastructure costs (shorter distances to serve same development yield).
 - **Conserve or recreate waterway buffers** – forested setbacks filter runoff naturally, protect wildlife, stream ecology & habitats. Must combine with improved stormwater practices to manage concentrated runoff from built areas.
- Low Impact Development stormwater practices** – Treat rain as a resource instead of turning it into a problem. Use engineering and landscape practices to mimic the natural (pre-development) hydrology of the site to the extent practical, for minimal change to the volume of runoff from the site as well as rate of runoff and pollutants. Eliminate or minimize curb, gutter, underground piping. Infiltrate rain to groundwater, filter rain, and/or capture/reuse rain using practices such as:
 - Bioswales, raingardens
 - Porous or permeable paving, woodland parking
 - Constructed wetlands
 - Bottomless culverts
 - Vegetated swales along streets
- Reuse rainwater** – Capture, store and reuse stormwater runoff for landscape irrigation. See also below - reuse of water produced from buildings.
- Water-efficient landscaping** – use native, drought tolerant plants. Reduce turf and managed landscape areas. Use drip irrigation systems, which can be fed by stored stormwater. Install sensors on automatic watering systems that gauge soil moisture and anticipate rain.

PRACTICES FOR HOUSING, COMMERCIAL, INDUSTRIAL, INSTITUTIONAL BUILDINGS

- ❑ **Water-efficient fixtures & systems** - Reducing water use also reduces wastewater and energy use, potentially saving money on water, sewer and power bills.
 - Install / retrofit with EPA-designated “Water Sense” water efficient fixtures and appliances, which perform at higher levels than basic federal standards.
 - Convert to industrial production systems that require less water.
 - Fix leaks.
- ❑ **Efficient plumbing design to minimize water heating** – Maximizing efficiency to heat and use water reduces both water and power use and costs.
 - Design efficient room & appliance layout for shortest distances hot water must travel.
 - Install fixture to pump cold water back into water lines when drawing up hot water to faucet.
 - Consider tankless water heaters (more expensive initial investment, recouped by utility savings over time).
- ❑ **Water-efficient cooling systems** – retrofit or build new with technology that eliminates de-scaling chemicals and reduces or eliminates blowdown water, such as Bon Aqua system or reverse osmosis filtration.
- ❑ **Low Impact Development stormwater practices** – for buildings (also see concepts above under SITES).
 - **Downspout disconnect** – disconnect downspouts from paved areas and stormdrains, instead direct to bioswales, stormwater capture/reuse, etc.
 - **Minimal roof gutters** – sheet flow to swales, bioswales
 - **Green roofs** – capture and absorb rainwater to reduce volume of runoff, also save energy and increase effective life of roof
- ❑ **Water reuse** – often saves money if used for functions that do not require drinkable quality water. May require more flexible building codes. Examples:
 - **Stormwater reuse** – Rain barrels and other storage to capture rain, store and reuse it for many functions – landscape irrigation, cooling systems, flushing toilets, industrial production, vehicle washing, landscape water features
 - **Graywater reuse** – reuse water from showers or laundry for flushing toilets, landscape irrigation
 - **Cooling system condensate or blowdown water reuse** – if alternate technology is in use that eliminates de-scaling chemicals, cooling system water can be reused for landscape irrigation, etc.
 - **Basement groundwater infiltration** – instead of pump and dump, reuse it.
 - **Treated wastewater reuse** – from small scale onsite systems - treat and infiltrate in constructed wetlands, reuse for landscape irrigation.