

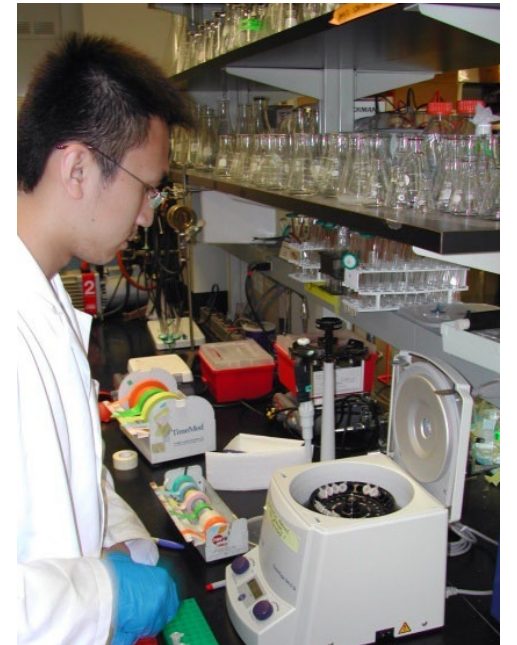
October 13, 2023

www.water.rutgers.edu



Rutgers Cooperative Extension

Rutgers Cooperative Extension (RCE) helps the diverse population of New Jersey adapt to a rapidly changing society and improves their lives through an educational process that uses science-based knowledge.





Water Resources Program

Our mission is to identify and address water resources issues by engaging and empowering communities to employ practical science-based solutions to help create a more equitable and sustainable New Jersey.



New Jersey's Problems – Highly Urbanized and Lots of Impervious Cover

A little over one-third (33.5 percent) of the state's land is urbanized and a little less than another third (32.5 percent) is forest, with another 11.6 percent in agricultural use and 21.2 percent in wetlands. New Jersey is the most densely populated state in the nation and has over 15% impervious cover.

- New Jersey Future





New Jersey's Problems – Water Pollution

95% of our waterways are impaired (not meeting water quality standards). In 2022, 65 waterbodies had Harmful Algal Blooms (HABS).

*- New Jersey Department of
Environmental Protection*

New Jersey's Problems – Flooding

New Jersey is susceptible to severe flooding. The remnants of Hurricane Ida caused \$2.02 billion in damages in New Jersey and 30 people died in the storm.

- *mycentraljersey.com*



New Jersey's Problems – Affordable Housing

Across New Jersey, there is a shortage of rental homes affordable and available to extremely low-income households, whose incomes are at or below the poverty guideline or 30% of their area median income. Many of these households are severely cost burdened, spending more than half of their income on housing. Severely cost burdened poor households are more likely than other renters to sacrifice other necessities like healthy food and healthcare to pay the rent, and to experience unstable housing situations like evictions.

– *National Low Income Housing Coalition*



Can we adopt local ordinances that can help solve these problems?



Required Ordinances – MS4 Permit (Municipal Separate Storm Sewer System)

- Pet Waste
- Wildlife Feeding
- Litter Control
- Improper Disposal of Waste
- Yard Waste
- Private Storm Drain Inlet Retrofitting
- Illicit Connections
- Tree Removal-Replacement (Must be Adopted by December 31, 2023)
- Privately-Owned Salt Storage (Must be Adopted by December 31, 2023)



Tree Removal - Replacement Ordinance

Trees are increasingly recognized for their importance in managing runoff. Their leaf canopies help reduce erosion caused by falling rain. They also provide surface area where rainwater lands and evaporates. Roots take up water and help create conditions in the soil that promote infiltration.



Goal: An ordinance to establish requirements for tree removal and replacement to reduce soil erosion and pollutant runoff, promote infiltration of rainwater into the soil, and protect the environment, public health, safety, and welfare.

Basic Requirements

1. Need municipal permission to remove a tree
2. Must replace the tree
3. Or plant replacement trees in a separate area approved by the municipality
4. Or pay a fee per tree removed. This fee shall be placed into a fund dedicated to tree planting and continued maintenance of the trees.



Privately-Owned Salt Storage Ordinance

- The purpose of this ordinance is to prevent stored salt and other solid de-icing materials from being exposed to stormwater.
- This ordinance establishes requirements for the storage of salt and other solid de-icing materials on properties not owned or operated by the municipality (privately-owned), including residences, to protect the environment, public health, safety and welfare, and to prescribe penalties for failure to comply.



A. Temporary outdoor storage of de-icing materials in accordance with the requirements below is allowed between October 15th and April 15th:

1. Loose materials shall be placed on a flat, impervious surface in a manner that prevents stormwater run-through;
2. Loose materials shall be placed at least 50 feet from surface water bodies, storm drain inlets, ditches and/or other stormwater conveyance channels;
3. Loose materials shall be maintained in a cone-shaped storage pile. If loading or unloading activities alter the cone-shape during daily activities, tracked materials shall be swept back into the storage pile, and the storage pile shall be reshaped into a cone after use;



4. Loose materials shall be covered as follows:
 - a. The cover shall be waterproof, impermeable, and flexible;
 - b. The cover shall extend to the base of the pile(s);
 - c. The cover shall be free from holes or tears;
 - d. The cover shall be secured and weighed down around the perimeter to prevent removal by wind; and
 - e. Weight shall be placed on the cover(s) in such a way that minimizes the potential of exposure as materials shift and runoff flows down to the base of the pile.
5. Containers must be sealed when not in use; and
6. The site shall be free of all de-icing materials between April 16th and October 14th.

B. De-icing materials should be stored in a permanent structure if a suitable storage structure is available. For storage of loose de-icing materials in a permanent structure, such storage may be permanent, and thus not restricted to October 15 -April 15.

MODEL STORMWATER CONTROL ORDINANCE

Flood control, groundwater recharge, and pollutant reduction shall be achieved through the use of stormwater management measures, including green infrastructure Best Management Practices (GI BMPs) and nonstructural stormwater management strategies. GI BMPs and low impact development (LID) should be utilized to meet the goal of maintaining natural hydrology to reduce stormwater runoff volume, reduce erosion, encourage infiltration and groundwater recharge, and reduce pollution. GI BMPs and LID should be developed based upon physical site conditions and the origin, nature and the anticipated quantity, or amount, of potential pollutants. Multiple stormwater management BMPs may be necessary to achieve the established performance standards for water quality, quantity, and groundwater recharge.

The purpose of this ordinance is to establish minimum stormwater management requirements and controls for “major development.”

“Major development” means an individual “development,” as well as multiple developments that individually or collectively result in:

1. The disturbance of one or more acres of land since February 2, 2004;
2. The creation of one-quarter acre or more of “regulated impervious surface” since February 2, 2004;
3. The creation of one-quarter acre or more of “regulated motor vehicle surface” since March 2, 2021 *{or the effective date of this ordinance, whichever is earlier}*; or
4. A combination of 2 and 3 above that totals an area of one-quarter acre or more. The same surface shall not be counted twice when determining if the combination area equals one-quarter acre or more.

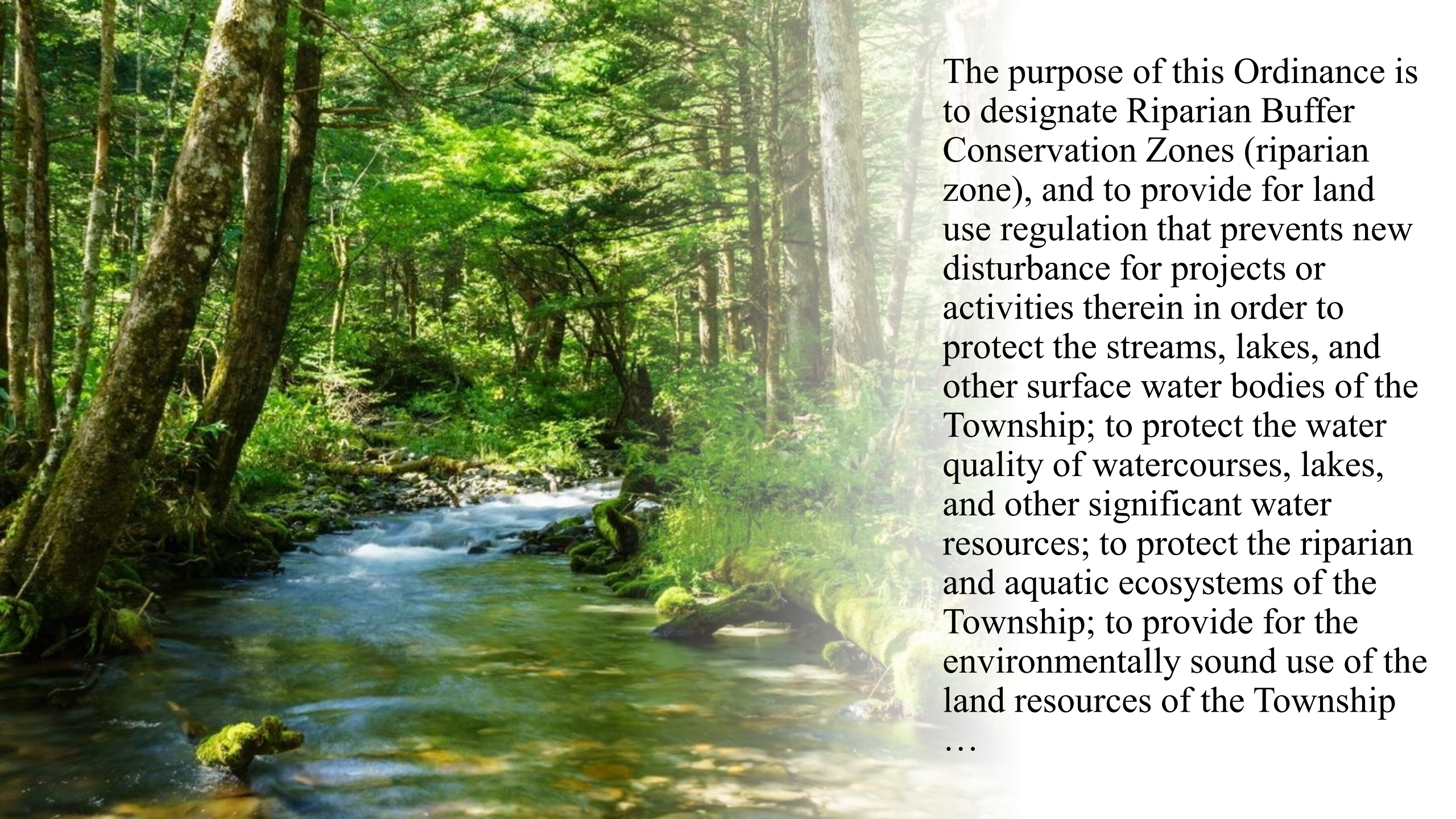
What's new?

1. Must use green infrastructure
2. Must design for current and future storm events
3. Developer's reaction: **Ut oh!**

County	2-YR	10-YR	100-YR
Atlantic	4.04	6.40	12.37
Bergen	4.01	6.24	11.60
Burlington	3.93	6.11	11.63
Camden	3.91	6.17	11.84
Cape May	3.93	6.29	11.52
Cumberland	3.92	6.16	12.18
Essex	4.09	6.37	11.52
Gloucester	3.92	6.21	12.06
Hudson	3.94	5.97	10.22
Hunterdon	4.02	6.15	11.40
Mercer	3.84	5.86	11.33
Middlesex	3.99	6.20	11.48
Monmouth	4.02	6.22	11.26
Morris	4.35	6.71	12.19
Ocean	4.04	6.34	11.41
Passaic	4.20	6.64	12.93
Salem	3.91	6.15	11.15
Somerset	3.97	6.21	12.15
Sussex	3.99	6.06	11.37
Union	4.07	6.36	11.73
Warren	4.01	6.11	10.71

RIPARIAN ZONE ORDINANCE

The governing body finds that riparian lands adjacent to streams, lakes, or other surface water bodies that are adequately vegetated provide an important environmental protection and water resource management benefit. It is necessary to protect and maintain the beneficial character of riparian areas by implementing specifications for the establishment, protection, and maintenance of vegetation along the surface water bodies, consistent with the interest of landowners in making reasonable economic use of parcels of land that include such designated areas.

A photograph of a small, clear stream flowing through a dense forest. The water is a vibrant blue-green color, and the surrounding trees and foliage are a rich green. Sunlight filters through the canopy, creating a dappled light effect on the water and the forest floor. The stream is bordered by mossy logs and rocks, and the overall scene is one of a healthy, natural ecosystem.

The purpose of this Ordinance is to designate Riparian Buffer Conservation Zones (riparian zone), and to provide for land use regulation that prevents new disturbance for projects or activities therein in order to protect the streams, lakes, and other surface water bodies of the Township; to protect the water quality of watercourses, lakes, and other significant water resources; to protect the riparian and aquatic ecosystems of the Township; to provide for the environmentally sound use of the land resources of the Township

...

RIPARIAN ZONE ORDINANCE GOALS

- A. Restore and maintain the chemical, physical, and biological integrity of the water resources of the Township;
- B. Prevent excessive nutrients, sediment, and organic matter, as well as biocides and other pollutants, from reaching surface waters by optimizing opportunities for filtration, deposition, absorption, adsorption, plant uptake, biodegradation, and denitrification, which occur when stormwater runoff is conveyed through vegetated buffers as stable, distributed sheet flow prior to reaching receiving waters;
- C. Provide for shading of the aquatic environment so as to moderate temperatures, retain more dissolved oxygen, and support a healthy assemblage of aquatic flora and fauna

- D. Provide for the availability of natural organic matter (fallen leaves and twigs) and large woody debris (fallen trees and limbs) that provide food and habitat for small bottom dwelling organisms (insects, amphibians, crustaceans, and small fish), which are essential to maintain the food chain; habitats.
- E. Increase stream bank stability and maintain natural fluvial geomorphology of the stream system, thereby reducing stream bank erosion and sedimentation and protecting habitat for aquatic organisms;
- F. Maintain base flows in streams and moisture in wetlands;
- G. Control downstream flooding; to protect public health safety and welfare as well as to protect property from erosion and flood-related damage; and
- H. Conserve the natural features important to land and water resources, e.g., headwater areas, groundwater recharge zones, floodways, floodplains, springs, streams, wetlands, woodlands, and prime wildlife habitats.

A. Riparian zones adjacent to all surface water bodies shall be protected from avoidable disturbance and shall be delineated as follows:

1. The riparian zone shall be 300 feet wide along both sides of any Category One water (C1 water), and all upstream tributaries situated within the same HUC 14 watershed.
2. The riparian zone shall be 150 feet wide along the entire length of the Cohansey River within the boundaries of the township;
 - a. The riparian zone shall be 150 feet wide along both sides of the following waters not designated as C1 waters:
 - b. Any segment of a water flowing through an area that contains documented habitat for a threatened or endangered species of plant or animal, which is critically dependent on the surface water body for survival, and all upstream waters (including tributaries) within one linear mile as measured along the length of the regulated water;
 - c. Any segment of a water flowing through an area that contains acid producing soils.
1. For all other surface water bodies, a riparian zone of 50 feet wide shall be maintained along both sides of the water.

Stream Corridor Protection Ordinance

The purposes of this subsection are as follows:

- a) Maintain the quality streams and improve the currently impaired streams within the Township.
- b) Protect significant ecological components of stream corridors such as wetlands, floodplains, woodlands, steep slopes and wildlife and plant life habitats within the stream corridors and to prevent flood-related damage to the Township.
- c) Complement the existing state, regional and County stream corridor protection and management regulations and initiatives.
- d) Ensure that only appropriately placed development on a property will not increase the danger to human, plant or animal life and that it represents an acceptable use of the land in relation to the hazards involved.
- e) This is not intended to conflict with any applicable regulations from the New Jersey Department of Environmental Protection, which shall govern.

Definition of Stream Corridor

All areas as measured 150 feet in both directions from the top of the channel banks of a stream. If slopes greater than 10% or wetlands or wetland transition areas abut the outer boundary of the stream corridor, then the slope, wetland or wetland transition area should be included within the boundaries of the stream corridor area.



Prohibited Activities in the Stream Corridor

1. Any solid or hazardous waste facilities, including but not limited to sanitary landfills, transfer stations and wastewater lagoons.
2. Junkyards, commercial and industrial storage facilities and open storage of vehicles and materials.
3. Septic systems.
4. Driveways and parking areas (pervious or impervious).
5. Buildings or structures, except as permitted herein.

STEEP SLOPE ORDINANCE

The purpose of this ordinance is to regulate the intensity of use in areas of steeply sloping terrain to limit soil loss, erosion, excessive stormwater runoff, the degradation of surface water and to maintain the natural topography and drainage patterns of land.



DESIGNATION OF AREAS

The percent of slope (rise in feet per horizontal distance) shall be established by measurement of distance perpendicular to the contour of the slope. The percent of slope shall be calculated for each two-foot contour interval. For example, any location on the site where there is a one-foot rise over a 10-foot horizontal run constitutes a 10 percent slope; a 1.5 foot rise over a 10-foot horizontal run constitutes a 15 percent slope; a two-foot rise over a 10-foot horizontal run constitutes a 20 percent slope.

STEEP SLOPE LIMITS

For steep slopes any disturbance shall be prohibited except as provided below:

1. Redevelopment within the limits of existing impervious surfaces; and
2. New disturbance necessary to protect public health, safety or welfare, such as necessary linear development with no feasible alternative; to provide an environmental benefit, such as remediation of a contaminated site; to prevent extraordinary hardship on the property owner peculiar to the property; or to prevent extraordinary hardship, provided the hardship was not created by the property owner, that would not permit a minimum economically viable use of the property based upon reasonable investment. For example, redevelopment, within the footprint of existing impervious cover should be allowed to support efforts to revitalize development that has fallen into disrepair.

The applicant shall demonstrate through site plans depicting proposed development and topography that new disturbance is not located in areas with a 20 percent or greater slope.

WAREHOUSE ORDINANCE

Goal: Encourage commercial and industrial development in areas with access to major regional highways and in established areas.

- Locate major employment and traffic-drawing uses in areas where they will least impact residential neighborhoods.
- Maintain size of industrial districts to ensure adequate space for light industry and warehousing



NO WAREHOUSE
STOP WAREHOUSES AND TRUCKS

Make warehouses a conditionally permitted use in the B-I (Business and Industry) zone. The ordinance would prohibit warehouses on lands located within 500 feet of a residential zone. This requirement is consistent with a recommendation in the State Planning report in its “Municipal Mitigation Best Practices” and is consistent with the Goal and Objectives of the Township Master Plan.

- Section VI – amends Schedule I, Permitted Uses, to make “warehouse and distribution uses” a conditional use in the Business and Industry (B-I) zone
- Section XII – provides the conditional use standards for “warehouse and distribution uses” in the B-I zone. In addition to the 500-foot separation requirement, warehouses would be specifically required to be served by public water and sewer.

SEPTIC OPERATION AND MAINTENANCE ORDINANCE

The purpose of this ordinance is to help protect public health and safety, water quality and general welfare by requiring the proper operation and maintenance of individual subsurface sewage disposal systems (ISSDSs).

- a. To establish a management program for individual and nonindividual subsurface sewage disposal systems to ensure the proper operation and maintenance of such systems. This section requires existing, new and proposed individual and nonindividual subsurface sewage disposal systems to be pumped out every three years in order to minimize future malfunctions of such systems.
- b. To regulate individual and nonindividual subsurface sewage disposal systems in such a way as to protect public health and welfare and the environment and to provide for a means of educating owners/operators, as defined herein, in the characteristics of such systems and the proper procedures for altering, operating and maintaining them.
- c. To maintain records and manage systems.

Green Building Ordinance

Green Building Design. The following green design standards shall be included, as applicable, in redevelopment plans:

- a) Lighting:
 - 1) Indoor spaces and external spaces shall use LED lighting
 - 2) Indoor common areas shall have occupancy sensors
 - 3) Outdoor lighting shall incorporate solar power sourcing to the greatest extent possible.

b) Energy:

- 1) All appliances including stovetops, refrigerators, washers, dryers, and dishwashers shall be Energy Star (or similar) rated and electric powered or have the required wiring and components installed to allow for future conversion to electric power.
- 2) Buildings must comply with HVAC and service water heating requirements applicable to each building, including equipment efficiency, economizers, ventilation, and ducts and dampers, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone
- 3) Projects shall include sufficient solar electric power capacity to power common areas when weather conditions permit.
- 4) Incorporate heat recovery ventilation or energy recovery ventilation systems
- 5) Incorporate passive designs such as deep overhangs, the use of thermal mass building materials, and natural cross ventilation
- 6) Incorporating in-floor radiant heating systems is encouraged when possible
- 7) Heat pump heating and cooling shall be used to the greatest extent possible
- 8) The use of heat pump water heaters is encouraged when possible

c) Heat Island Reduction

1. Maximize the use of shade trees over paved areas
2. Including vegetated planters is encouraged when possible

d) Air Quality:

1. All paints, coatings, adhesives, and sealants used shall have low to no volatile organic compound emission

e) Sustainability:

1. Recycled materials are encouraged to be used when possible

f) Building Envelope:

1. Windows shall, at a minimum, be Energy Star Rated.
2. Walls, floors, ceilings, attics and roofs shall comply with the then current Energy Code required by the Uniform Construction Code.
3. Roofs may include reflective roofs designs and shall, at a minimum, be Energy Star rated.

g) Landscaping:

1. Native plants shall be used
2. Outdoor irrigation shall be minimized
3. Lawn areas shall be minimized
4. Permeable paving is encouraged to be used when possible
5. Rainwater collection and reuse is encouraged to be used when possible

h) Building Automation:

1. Building automation shall be used to control HVAC, security, fire & safety, lighting, and humidity

i) Transportation:

1. A minimum of 15% of the parking spaces shall be EV charging stations, level 2, with an additional 15% of the parking spaces to be at least Make-Ready EV charging stations with sufficient electrical panel size for future additions
2. For every one (1) apartment, there shall be a minimum of one (1) bicycle storage space that is covered and secured

DIVERSITY, EQUITY AND INCLUSION ORDINANCE

The goal of the Environmental Justice and Cumulative Impacts Ordinance, is to advance environmental justice (as defined herein), good stewardship, and sustainable economic development in furtherance of the priorities outlined in the City's Sustainability Action Plan and Master Plan. Through this Chapter, the City seeks to:

1. Protect the health of all residents, regardless of race, culture or income, from exposure to pollution linked to adverse health effects, including the cumulative impacts that may be worsened as an unintended by-product of new development or redevelopment, and to ensure the enforcement of laws, regulations, and policies in a manner consistent with the principles of environmental justice.
2. Take appropriate action to avoid, minimize and mitigate pollution from all sources within the City's jurisdiction through partnerships, innovation, and enforcement.

3. Encourage proposals for development or redevelopment that contribute positively to the City's environmental, economic, and social health or, at minimum, that do not contribute net new pollution to the environment or adversely impact public health.
4. To the extent permitted by law, discourage and advocate against development or redevelopment proposals that contribute net additional pollution; particularly, types of pollution linked to human health problems, and avoid taking actions or decisions that add to the total amount of pollution impacting an area deemed disproportionately impacted by pre-existing pollution.
5. To create a better basis of information for decision-making with regard to public health and the environment with regard to new project proposals, and to require development and redevelopment applicants seeking approval for projects that have the potential to generate additional pollution to provide information in the form of an Environmental Review Checklist as provided herein, which shall be added to the checklist requirements and provided to development and redevelopment applicants.

6. To create a better basis of information for decision-making with regard to public health, the environment and pre-existing pollution by developing a Natural Resources Index that identifies areas that can be considered disproportionately burdened with existing pollution pursuant to standards of environmental justice and that, upon approval, will become a required reference document for the Environmental Review Checklist.
7. Promote meaningful public participation and transparent decision-making by identifying risks to public health and the environment, and by providing an opportunity to select alternatives and/or mitigation measures that remedy, avoid or minimize such risks.



AN ORDINANCE TO PROHIBIT THE USE OF GAS-POWERED LEAF BLOWERS

The use of gas powered leaf blowers, except a turbo blower, is prohibited within the Township. This prohibition includes the use of gas-powered leaf blowers in the application of chemicals or products to treat for bug or insect infestation.



Noxious Weeds and Maintenance of Vegetation Ordinance

It is the purpose of this section to prohibit the uncontrolled growth of vegetation and to control noxious weeds, while permitting the planting and maintenance of planned natural landscaping that add diversity and richness to the quality of life. There are reasonable expectations regarding the proper maintenance of vegetation on any lot or parcel of land. It is in the public's interests to provide standards regarding the maintenance of vegetation because vegetation which is not managed can decrease the value of nearby properties and threaten the public health and safety. It is also in the public's interests to encourage diverse landscaping treatments, particularly those that encourage the preservation, restoration, and management of native plant communities which can be economical, low-maintenance and effective in soil and water conservation. The city enacts this section to balance these competing interests.



Other Potential Ordinances

- Climate Resilience Ordinance – reduce emissions, increase EV charging stations, promote energy conservation
- Stormwater Utilities Ordinance – conduct studies on forming a utility and create a utility
- Invasive Species Ordinance – no more bamboo
- Water Conservation Ordinance – reducing outdoor water use





Here are some more potential ordinances

- Artificial Turf Ban Ordinance
- Neonicotinoids (Bee killing chemicals) Ban Ordinance
- Waste Reduction Ordinance – (Tax break for repairing broken items)
- Food Waste Ordinance (Requiring supermarkets to distribute unused food to people who need it)





Rutgers Cooperative Extension Water Resources Program

Christopher C. Obropta, Ph.D., P.E.

Phone: 848-932-5711

Email: obropta@envsci.rutgers.edu