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Regional Wastewater Management Plan **Glossary**

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Glossary

Aerobic	A condition where free oxygen is present.
Anaerobic	A condition where free oxygen is not present or is unavailable.
Aquifer	Geologic formations (rock, sand, or gravel) that are saturated and sufficiently permeable to yield significant quantities of water.
Area of Critical Environmental Concern (ACEC)	An area that receives special recognition by the state of Massachusetts because of the quality, uniqueness, and significance of the area's natural and cultural resources. Designation creates a framework for local and regional stewardship of critical resources and ecosystems.
Attenuate	To reduce the force, amount, or magnitude.
Benthic Regeneration	The regrowth of organisms on lake or sea floors.
Best Management Practices (BMPs)	Conservation practices to reduce non-point and point pollution from sources such as construction, agriculture, timber harvesting, marinas, and stormwater.
Build-Out	The total of new development and redevelopment that is projected to occur over a planning horizon, typically 20 years.
Checkerboard Sewer System	A wastewater collection system configured to serve only selected properties in a neighborhood. Such a system allows a town to restrict sewer service to only those lots in greatest need, and/or to preserve limited capacity for wastewater treatment or disposal.



Cluster Wastewater Treatment System

As used in this document, a wastewater collection and treatment system that serves more than one property and has a wastewater flow less than 10,000 gallons per day.

Comprehensive Wastewater Management Plan (CWMP)

A plan that identifies all the community's wastewater needs and problems, evaluates alternative means of meeting those needs, selects the most cost-effective and environmentally appropriate remedy, and proposes an implementation plan and schedule.

Constructed Wetlands

A type of wastewater treatment that mimics a natural wetland ecosystem in which water-loving plants filter wastewater and debris through their roots.

Denitrification

A process of transforming nitrate to nitrite to nitrogen gas, often mediated by microbial processes.

Design Flow

The amount of sanitary sewage, in gallons per day, for which a system must be designed in accordance with CMR 15.203. Design-flow criteria are the amounts of sanitary sewage that are assumed to be generated by a specific land use. For example, under Title 5, one bedroom is assigned a design flow of 110 gallons per day.

Effluent

Sewage discharged into the environment, whether treated or not.

Embayment

A bay or a physical conformation resembling a bay.

Estuary

A partially enclosed body of water where fresh and salt water meet.

Eutrophication

A suite of changes in the condition of a water body that begins with excessive stimulation of growth of algae from nutrient inputs and leads to reduction in dissolved oxygen concentrations and sometimes to the death of organisms.

Floor Area Ratio (FAR)

A measure of building density calculated by dividing building square feet by lot area.

Flow Neutral Regulation

A sewer connection regulation that limits the amount of wastewater flow from a parcel to a pre-existing allowed flow.

Flushing Rate

The time it takes for an entire volume of water to be exchanged, usually expressed in days or years.



Ground Water

Water below the land surface in a saturated zone.

**Ground Water
Discharge Permit
Program**

A Massachusetts regulation (314 CMR 5.00) that requires a permit for discharges of 10,000 gallons per day or more of pollutants to ground water.

**Innovative/
Alternative (I/A)
Septic System**

Any septic system or part of one that is not designed or constructed in a way consistent with a conventional Title 5 system. A conventional system has a septic tank, a distribution box or dosing mechanism, a soil-absorption system, and a reserve area. Some examples of alternative systems are recirculating sand filters, aerobic treatment units, peat filters, humus/composting toilets, and intermittent sand filters. Some I/A technologies are used to reduce nitrogen in nitrogen sensitive areas.

**Interim Wellhead
Protection Area
(IWPA)**

A public water system using wells or well fields that lack Massachusetts Department of Environmental Protection (DEP)-approved Zone IIs. The IWPA is a half-mile radius measured from the well or wellfield for sources with an approved pumping rate of 100,000 gallons per day or greater.

**Local Residence
Time**

The average time for water to migrate from a point in a sub-embayment to a point outside the sub-embayment.

**Low Impact
Development
(LID)**

An approach to land development (or redevelopment) that works with nature to manage stormwater as close to its source as possible. Includes principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treats stormwater as a resource rather than a waste product.

**Massachusetts
Estuaries Project
(MEP)**

A project of the Massachusetts Department of Environmental Protection (DEP) and the School for Marine Science and Technology at the University of Massachusetts, Dartmouth, that provides water quality, nutrient loading, and hydrodynamic information for 89 estuaries in southeastern Massachusetts. This information is combined in a linked watershed/estuary model that predicts the water quality changes that result from land use management decisions.

**Massachusetts
Groundwater
Discharge Program**

A state permit program to regulate effluent flows in excess of 10,000 gallons per day.



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National Pollutant Discharge Elimination System (NPDES)

A federal permit program under the Clean Water Act that regulates the discharge of pollutants into water bodies.

Natural Attenuation of Nitrogen

The naturally occurring retention or attenuation of nitrogen in wetlands or ponds.

Natural Resource Protection Zoning

A relatively new form of zoning that is a variation of a clustered subdivision, but with several enhancements. The number of allowed dwelling units is determined by a calculation that first eliminates the amount of important natural resource lands from the determination of the number of allowed units. The net acreage is then divided by the base density to determine the number of buildable units.

Nitrate

The nitrogen species in marine ecosystems that is most responsible for eutrophication, considered a broad indicator of contamination of ground water.

Nitrite

An intermediate oxidation state of nitrogen, between nitrate and ammonia.

Nitrogen

An element abundant in the atmosphere as dinitrogen gas. When combined with oxygen to form nitrate (NO₃), it can cause excessive algal growth in marine waters, which can lead to eutrophication.

Nitrogen Loading

The input of nitrogen to estuaries and embayments from natural and human sources.

Nitrogen Removal Credit

Under Title 5, an innovative alternative septic systems that achieves an effluent nitrogen concentration of 19 milligrams per liter for a residential property and 25 milligrams per liter for a commercial property may qualify for a Nitrogen Removal Credit. The credit allows for an increase in design flow per acre in designated Nitrogen Sensitive Areas such as Zone IIs to public water supply wells, in other areas that have formally been designated as Nitrogen Sensitive Areas, and for new construction in areas that have both private wells and on-site septic systems.



Nitrogen Sensitive Area	A Massachusetts regulatory designation of an area as particularly sensitive to pollution from on-site wastewater systems and therefore requiring nitrogen-loading restrictions; includes Interim Wellhead Protection Areas and Zone IIs of public water supplies, areas with private wells, and Nitrogen Sensitive embayments or other areas that are designated as nitrogen sensitive under Title 5, based on appropriate scientific evidence.
Non-conforming Use or Structure	A use or structure that no longer conforms to current zoning, but did conform when first built or established.
Non-point Source of Pollution	Pollution from many diffuse sources that is carried to surface waters by runoff or ground water. Non-point source pollution is typically caused by sediment, nutrients, and organic and toxic substances originating from land use activities and/or the atmosphere. Any source of water pollution that does not meet the legal definition of a point source.
Nutrient Loading	The introduction of excessive amounts of nutrients, such as nitrogen or phosphorus, from wastewater or fertilizers, which ultimately reach ponds or estuaries.
Nutrient Management Regulations	Regulations that establish limits on the amount of flow from on-site septic systems serving new development and redevelopment or use changes.
Nutrients	Any substance required by plants and animals for normal growth and maintenance; for example, nitrogen and phosphorus.
On-Site Treatment and Disposal System	A natural system or mechanical device used to collect, treat, and discharge or reclaim wastewater from an individual dwelling without the use of community-wide sewers or a centralized treatment facility. It includes a septic tank and a leach field.
Outstanding Resource Waters	A Massachusetts Department of Environmental Protection (DEP) designation assigned to certain water bodies based on their outstanding socio-economic, recreational, ecological, and/or aesthetic values.
Pathogen	An agent such as a virus, bacterium, or fungus capable of causing disease.
Permeable Reactive Barrier	A carbon-containing reactive substance that promotes denitrification.



Phytoremediation	The use of plants to take up nutrients, contaminants, or other substances from soils, ground water, and surface water in order to restore ecosystem health.
Point Source of Pollution	As defined by the US Environmental Protection Agency (EPA), any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.
Recharge	The return of water to an underground aquifer by natural or artificial means.
Residence Time	The average time required for a particle of water or a pollutant to migrate through an estuary.
Salinity	The measure of the salt content of water.
Septage	Material physically removed from any part of an on-site system, including, but not limited to, the solids, semi-solids, scum, sludge, and liquid contents of a septic tank, privy, chemical toilet, cesspool, holding tank, or other sewage waste receptacle. It does not include any material that is hazardous waste.
Septic Tank	A buried tank designed to receive and pre-treat wastewater from individual homes or facilities by separating settleable and floatable solids from wastewater. It is one component of an on-site wastewater treatment and disposal system.
Setbacks	A zoning term used to refer to the distance between a building and property lines.
Sewage	The water-carried human or animal wastes from residences, buildings, industrial establishments, or other places, together with such ground water infiltration and surface water as may be present. The liquid and solid waste carried off in sewers or drains.
Sewer	An artificial, usually underground, conduit for carrying off sewage or rainwater.
Sewerage	The removal of wastewater and refuse by means of sewers.
Sewershed	The properties within the area of service of a sewer system.



State Revolving Fund (SRF)	A Massachusetts program that helps with the financing of water pollution abatement projects. Two types of funding are provided through this program: the Clean Water and Drinking Water State Revolving Fund grants.
Stormwater Runoff	Rainfall and snow melt from diffuse (non-point) sources such as roofs, roadways, driveways, and other impervious surfaces.
Sub-embayment	A cove within an embayment.
System Residence Time	The average time for water to migrate through an entire estuarine system.
Tidal Flushing	The exchange of water from an estuarine system to the water body into which it empties.
Title 5	A Massachusetts state regulation (310 CMR 15.00) governing the siting, construction, inspection, upgrade, and expansion of on-site sewage treatment and disposal systems and the transport and disposal of septage.
Total Maximum Daily Load (TMDL)	The greatest amount of a pollutant that a water body can accept and still meet water quality standards for protecting public health and maintaining the designated beneficial uses of those waters for drinking, swimming, recreation, and fishing.
Transfer of Development Rights (TDR)	A land use regulation that allows development rights to be transferred from an area where additional development is not desired, to an area where additional development is desired.
Wastewater Flow	The wastewater from septic systems that leaches into groundwater and flows through ground water into receiving waters such as a pond or estuary.
Watershed	An area of land that drains to a common receiving body of water.
Zone I	The protective radius required around a public water supply well or wellfield.
Zone II or Zone of Contribution	The area of an aquifer that contributes water to a well under the most severe pumping and recharge conditions that can be realistically anticipated (180 days of pumping at approved yield, with no recharge from precipitation).



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