STORMWATER MANAGEMENT: DEVELOPMENT REQUIREMENTS

LOCATIONS:

- Coastal Communities
- Freshwater
- Shorelands
- Storm Surge Impacted Areas
- Tidal Waters
- Surface Waters
- Flood Zones
- Inland Communities
- Groundwater Resources
- Projected Sea-Level Rise Impacted Areas
- Entire Community
- Coastal Zone Designated Communities
- Coastal Watershed Communities
- Locally Designated Areas and Districts

COMMUNITY GOAL REGULATIONS:

- Open Space Protection
- Flood Protection
- Drinking Water Protection
- Environmental Protection
- Tidal Waters
- Surface Waters
- Stormwater Management
- Water Quality Protection
- Infrastructure Protection
- Economic Development
- Recreation Options
- Transportation Enhancement
- Historic and Cultural Preservation
- Community Design & Aesthetics
- Community Equity

REGULATION OPTIONS:

1. Development Requirements*
2. Impervious Surface Reduction

* Denotes current section

WHY ADOPT THESE REGULATIONS?

- Increase protection of water resources and prevent water pollution.
- Ensure infrastructure will function into the future.
- Protect people and property against flood damage.
- Provide enhancements to existing regulations with minor amendments.

BACKGROUND & PURPOSE

The management of stormwater runoff – rain and snowmelt flowing off impervious surfaces such as rooftops, roads, and parking lots - is increasingly an issue for municipalities in New Hampshire. Stormwater is the cause of most surface water pollution, can exacerbate flooding, impact drinking water sources, and poses significant cost to manage and treat. In southern New Hampshire many communities are also subject to the federal MS4 Stormwater Permit, which amongst other things, requires municipalities to enact regulations to reduce stormwater runoff from development within municipal boundaries Ensuring that development standards will require effective stormwater management over time is essential to protect water resources and infrastructure investments.

Increased flooding and storm surge from stronger storm events, groundwater level changes, saltwater intrusion, and shifting vegetation hardiness along the coast means that the conditions in which stormwater controls must function will change over time due to climate change and increased development. The design life of most stormwater treatment infrastructure and controls is typically 20 to 50 years, but is often in place for decades longer. The regulation language offered can aid with the design and

location requirements for stormwater controls, but to also to help reduce and prevent stormwater runoff. The treatment, reduction and prevention of stormwater poses multiple near and long-term benefits to property owners, municipalities, and the region.

REGULATION LANGUAGE

The following regulation language is recommended to be modified or added to the model regulation language found in the Southeast Watershed Alliance Post Construction Stormwater Management Standards, 2017 Update. The Southeast Watershed Alliance model regulation language has been adopted by many communities subject to the federal MS4 Stormwater Permit to requirements about stormwater management on sites after construction. The regulation language below is typically found within site plan and subdivision regulations, but may also be located within zoning ordinances.

Element A – Purposes and Goals

1f. Ensure that stormwater management controls are designed to minimize climate change and sea level rise impacts to ensure long-term effectiveness and enhance protection of coastal water quality.

Element B – Minimum Thresholds for Applicability

Site Plan Review Regulations Only

1. The post-construction stormwater management standards apply to any development or redevelopment project which are subject to Site Plan Review and:[1]
   a. disturbs more than 5,000 square feet,
   b. disturbs more than 2,500 square feet within 100 feet of a surface water body, or
   c. disturbs more than 2,500 square feet within 100 feet of areas projected to be impacted by sea-level rise or groundwater intrusion {as identified in the 2019-2020 New Hampshire Coastal Flood Risk Summary/ the {Municipality Name} Natural Hazard Mitigation Plan/ {Municipality Name} Master Plan}.[2]

2d. All new stormwater management controls are located as far from shoreland areas to the maximum extent practicable.

2e. Determination of compliance with standards (a.-d. above) will be made by the Planning Board on a case by case basis as site conditions and constraints will differ greatly between various development proposals.

MODEL LANGUAGE

NOTES AND EXPLANATIONS

1. Criteria 1.a. and 1.b. are existing language with the model regulation. The suggested addition of 1.c results is a slight format change to the model language.

2. The specific mapped area that can be used should be evaluated using the Coastal Flood Risk Summary: Part 2 Guidance for Using Scientific Projections. Most stormwater infrastructure is designed for a 50 year life cycle. Depending on the level of risk that is acceptable to the municipality, stormwater infrastructure should be designed to accommodate between 2.0 and 3.7 feet of sea-level rise.

   MAPPING SEA-LEVEL RISE There are many publicly available datasets and visualization tools that can help visualize possible sea-level rise and other coastal

Element C – Stormwater Management for New Development

o. The design of stormwater management systems located in areas vulnerable to sea-level rise and groundwater intrusion shall:

i. Avoid locating stormwater controls within shoreland areas to the maximum extent practicable.

ii. Avoid siting stormwater controls near high groundwater if the controls cannot adapt to function with higher groundwater or will be impacted by groundwater intrusion into the system.[3]

iii. Shall be designed to accommodate current and future site conditions such as utilizing native salt-tolerant plants or materials that do not corrode with salt exposure.

iv. Shall be designed to allow for flexibility to allow for future adaptability in the stormwater control design.[4]

v. The use of green infrastructure, such as rain gardens and swales, shall be preferable.

flood impacts. The New Hampshire Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper (Sea-Level Rise Mapper) is intended to provide easy access to future coastal inundation scenarios. Data on the Mapper are provided by New Hampshire GRANIT.

ACCESS THE MAPPER: www.tinyurl.com/slrmapper

3. For example, a rain garden may be adaptable to rising groundwater by turning into a wetland, while a catch basin may simply become filled with rising groundwater and become non-functioning.

4. Examples of adaptable design include: 1) increase sizing of sediment forebays in areas potentially subject to areas of sand accumulation from storm surge, or 2) increasing areas around controls to allow for future expansion for treatment capacity.

WHERE DO THESE REGULATIONS GO?

The regulation language offered in this model is intended to be in addition to the Southeast Watershed Alliance (SWA) Post Construction Stormwater Management Standards . Most municipalities that have adopted the SWA model language have included them within site plan and subdivision regulations, however, the model language can also be located within zoning ordinances. The additional language offered in this model can be inserted into either site plan/subdivision regulations or zoning ordinances.

HOW TO ADOPT THESE REGULATIONS:

As stated above, the regulation language offered in this model can be located within site plan regulations or within zoning ordinances. Depending on the location of existing stormwater regulation language, amendments to those regulations will need to follow the adoption procedures for either site plan/subdivision regulation changes or zoning ordinance amendments. Amendments to site plan/subdivision regulations require a public hearing and approval from the Planning Board. Amendments to zoning ordinances require a majority vote at town meeting or by city/town council depending on the municipal form of government. Additional information about the process of adopting regulations is available in the Process for Adopting Regulations section of this Guide.

SUGGESTED SUPPLEMENTARY INFORMATION AND RESOURCES TO COMPLEMENT THESE REGULATIONS:

Recommendation	Type	Details
Zoning Map with base zoning districts	Maps/GIS Data	Find in local Zoning Ordinance.
Sea Level Rise Scenarios	Maps/GIS Data	Reference NH Sea-Level Rise, Storm Surge, and Groundwater Rise Mapper.
Stormwater Infrastructure Locations (municipal and/or private)	Maps/GIS Data	Locate via Municipal Stormwater Management Plan (part of MS4 Stormwater Permit requirements), Highway Department, or site plan/subdivision plan approvals.
Local or regional groundwater studies	Studies	Variable: seek out local groundwater rise information. NOTE: To date most NH communities do not yet have this data.
Zoning Administrator	Personnel	Interprets and administers the regulation.
Code Enforcement Officer	Personnel	Enforces any construction, operation and maintenance, and reporting criteria not meeting regulations.
Town Engineer	Personnel	Assists with design standards (for communities that do not have a Town Engineer, an outside consultant could be required to review site plan applications on an as needed basis)
Public Works/Highway Department	Personnel	Advises the Planning Board with the design and maintenance of stormwater controls that are owned by the municipality. Coordination with MS4 Permit requirements may also be required if applicable.
Conservation Commission	Volunteers	Advises the Planning Board on the design and function of stormwater controls that involve green infrastructure, specifically compatibility with surrounding water or wetland resources.
Planning Board	Volunteers	Approves/denies applications and ensures that design, operation and maintenance, and reporting criteria meets municipal regulations.
NH Stormwater Coalitions	Personnel/Volunteers	The coalitions collectively work to provide information and resources to help municipalities comply with the MS4 stormwater permit and address stormwater management issues.

HOW DOES THIS RELATE TO OTHER TOPICS?

Stormwater can be treated, reduced, or prevented altogether in several ways. These regulations focus on treatment and reduction of stormwater. Additional approaches for treating and reducing stormwater include:

- Reducing impervious surfaces by requiring pervious materials be used in development.
- Increasing natural vegetative buffers to wetlands and surface water to help treat stormwater prior to it entering waterways. See the Drinking Water Protection: Surface Buffer Model and Shoreland Protection Model for suggested language.
- Preventing development near waterways and wetlands through conservation easements or deed restrictions.
- Reduce impervious surfaces through changes to requirements to roadways and parking lot design requirements. See Transportation Improvements: Design Requirements

WHO HAS ADOPTED THESE REGULATIONS?

All New Hampshire municipalities subject to the federal MS4 Stormwater Permit were require to adopt post-construction stormwater regulations by June 30, 2021. (The Southeast Watershed Alliance Post Construction Stormwater Management Standards used for the suggested model language below are specifically references within the MS4 Permit as meeting permit requirements.) Additionally, many communities within New Hampshire have also adopted the regulations even if not subject to the MS4 Permit. The main reasons for proactively adopting upgraded stormwater regulation are to protect water quality – often the highest priority in a municipal master plan – and to prevent the municipality from being liable for water pollution.

As of 2020, 25 of the 52 municipalities (including 10 municipalities in Maine) within the Piscataqua Region Watershed have adopted the Southeast Watershed Alliance model regulations or the equivalent (Piscataqua Region Estuaries Partnership, 2020).

ADDITIONAL RESOURCES AND REFERENCES

- Southeast Watershed Alliance Post Construction Stormwater Management Standards (November 2017) University of New Hampshire Stormwater Center and Rockingham Planning Commission for Southeast Watershed Alliance

- NH Stormwater Coalitions – Website for New Hampshire Lower Merrimack Valley Stormwater Coalition and Seacoast Stormwater Coalition permittees and is supported by the New Hampshire Department of Environmental Services' Watershed Assistance Section. The site contains meeting information, resources and updates related to New Hampshire MS4 (Municipal Separate Storm Sewer Systems) permittees.

- New Hampshire Coastal Flood Risk Summary Part 1: Science (2019). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

- New Hampshire Coastal Flood Risk Summary Part 2: Guidance for Using Scientific Projections (2020). University of New Hampshire in partnership with the NH Coastal Flood Risk Science and Technical Advisory Panel and the NH Department of Environmental Services.

- Stormwater Management in Response to Climate Change Impacts: Lessons from the Chesapeake Bay and Great Lakes (March 2016). US Environmental Protection Agency

- Assessment of Climate Change Impacts on Stormwater BMPs and Recommended BMP Design Considerations in Coastal Communities (December 2015). Horsley Witten Group, Inc. for Massachusetts Office of Coastal Zone Management
  - Recommendations for Coastal Communities to Address Climate Change Impacts to Stormwater Best Management Practices (BMPs) Massachusetts Office of Coastal Zone Management

FUTURE INFORMATION NEEDS:

The impacts of climate change with respect to stormwater in New Hampshire have not been extensively researched beyond studies accessing vulnerable areas from increases in flooding due to increased precipitation, storm surge and sea-level rise. Better understand of the impacts of groundwater rise and salt-water intrusion are needed at the local and regional level to provide detailed recommendations for site specific design parameters. Additionally, further analysis is needed to understand how future development patterns may alter stormwater impacts when coupled with climate change.