groundwater elevations will rise in areas that are directly influenced by coastal and tidal waters. Stormwater infiltration systems in these areas are vulnerable to future reductions in separation distances between the bottom of the system and the groundwater table, submerged outfalls, and storm surge inundation of infiltration systems.

The following siting and design measures can be considered to improve the long-term effectiveness of stormwater infiltration systems in coastal and tidally influenced areas that are subject to substantial future sea level rise:

- Site and design stormwater infiltration practices not only for existing site conditions (depth to seasonal high groundwater table and flood inundation areas) but also for the conditions expected over a 50-year planning horizon, which is consistent with a 50-year design life typical of structural stormwater BMPs.

- The location of the proposed infiltration system should be evaluated in conjunction with flood projection maps to understand the implications of climate change over the design life of the BMP.

- Use several smaller infiltration BMPs located throughout the site combined with non-structural practices (e.g., LID site planning and design strategies) rather than the use of a larger, single infiltration system sited close to the shoreline.

- If infiltration systems must be sited close to the shoreline due to other constraints, site infiltration systems in areas where the required depth to groundwater can be sustained in light of expected sea level rise and associated groundwater rise. The projected separation distance to future seasonal high groundwater levels should also be accounted for in the system design and groundwater mounding analysis, if required, as well as the design of other system components such as underdrains and overflow structures.

- Avoid installing infiltration BMPs in areas where they will be exposed to significant storm impacts or sand sources that could prematurely clog the infiltration system.

Connecticut Institute for Resilience and Climate Adaptation (CIRCA) maintains information on projected sea level rise, associated groundwater rise, and flood inundation areas. Further information on the decision to include this guidance and the most relevant sea level rise information at the time of the update of this manual is available in Appendix G.

**Design Infiltration Volume**

The design infiltration volume is the volume of post-development stormwater runoff required to be retained on-site through the use of stormwater infiltration systems to meet the stormwater management standards and performance criteria described in **Chapter 4 - Stormwater Management Standards and Performance Criteria** of this Manual.

- For off-line infiltration systems designed to meet Standard 1 (Runoff Volume and Pollutant Reduction) only, the design infiltration volume is equal to the Required Retention Volume
For on-line infiltration systems designed to meet Standard 1 and provide peak runoff attenuation for larger storm events (Standard 2), the design infiltration volume is equal to the Required Retention Volume plus additional runoff volume to attenuate peak runoff rates associated with the 2-year, 10-year, and potentially 100-year storms.

As required by Standard 1, the use of non-structural LID site planning and design strategies should be considered, to the Maximum Extent Practicable, prior to the consideration of other practices, including stormwater infiltration systems. Refer to Chapter 5 - Low Impact Development Site Planning and Design Strategies for impervious surface disconnection and other non-structural LID Site Planning and Design techniques that can reduce the required design infiltration volume for stormwater infiltration systems.

**Sizing Methods**

Infiltration systems should be sized to store the design infiltration volume. Infiltration systems can be sized by one of two methods – the “Static Method” or the “Dynamic Method” – which are described below.

**Static Method**

In the Static Method, infiltration systems are sized to hold the design infiltration volume and fully infiltrate this volume into the underlying soil within 48 hours after the end of the storm. This method is more conservative and generally results in larger infiltration systems since it does not account for exfiltration from the system (infiltration into underlying soils) during the storm.

- Size the infiltration system to hold the design infiltration volume. Assume the entire design infiltration volume is discharged to the infiltration system before infiltration begins. Exfiltration during the storm event is not considered in sizing or modeling infiltration systems using the Static Method.

- The static storage volume – the volume of stormwater a structural stormwater BMP can physically hold – should be equal to or greater than the design infiltration volume.

  - The static storage volume includes the volume of ponded water below the elevation associated with the maximum ponding depth (for surface infiltration systems), the volume associated with void spaces in the subsurface engineered porous media (e.g., bioretention soil, pea gravel layer, gravel/stone reservoir), and the volume within subsurface structures (chambers, pipes, tanks, etc.). It doesn’t include the additional treatment volume as a result of the water that infiltrates into the underlying soil while the system is filling or stormwater that bypasses the system through inlet or outlet controls. **Table 10- 5** provides equations for calculating the static storage volume for stormwater infiltration systems. **Table 10- 5** also includes the corresponding equations for calculating the minimum...