**Impervious Area and Directly Connected Impervious Area**

Impervious area (IA) includes any impervious surface in a drainage area or watershed. Impervious area with a direct hydraulic connection to a storm drainage system or a waterbody via continuous paved surfaces, gutters, drainpipes, or other conventional conveyance and detention structures that do not reduce runoff volume is referred to as “Effective Impervious Area” or, for this manual, “Directly Connected Impervious Area (DCIA)”. DCIA is considered a better predictor of watershed/ecosystem health than IA because it only includes impervious surfaces that contribute stormwater runoff to a stream, other waterbody, or wetland.

Impervious areas that are not directly connected to a storm drainage system, receiving waterbody, or wetland are considered “disconnected” and therefore not considered DCIA. The following types of impervious areas are considered disconnected:

- Impervious areas that drain as sheet flow onto and over an adjacent pervious area that, due to its size, slope, vegetation, and underlying soil characteristics, can retain the appropriate portion of the Water Quality Volume, as defined in Chapter 4. This non-structural LID site planning and design technique is called “simple disconnection,” which is described further in Chapter 5 – Low Impact Development Site Planning and Design Strategies.

- Impervious areas that discharge runoff through structural stormwater BMPs designed to retain the appropriate portion of the Water Quality Volume.

- Isolated impervious areas that are not hydraulically connected to a storm drainage system, receiving waterbody, or wetland.

- Swimming pools or man-made impoundments, unless hydraulically connected to a storm drainage system, receiving waterbody, or wetland.

- The surface area of natural waterbodies (e.g., wetlands, ponds, lakes, streams, rivers).

The CT DEEP MS4 General Permit requires regulated municipalities to track and disconnect DCIA using simple disconnection and structural stormwater BMPs for redevelopment projects and retrofits, or by converting impervious surfaces to pervious surfaces. The existing DCIA of a site is also an important factor in determining the portion of the Water Quality Volume that must be retained, also referred to as the “Required Retention Volume” (see Chapter 4).

**Stormwater Management and Climate Change Impacts**

Water resources in Connecticut are affected by climate stressors, including increasing temperatures, changing precipitation patterns, extreme events (storms, floods, and drought), and rising sea levels. These changing conditions have implications for stormwater management as local and state decision makers look to implement appropriate maintenance plans, improve existing infrastructure, and build new stormwater systems that are more resilient to changes in...
the quantity and quality of stormwater runoff.41 See Appendix G for additional details regarding climate change and stormwater impacts in Connecticut, including the basis for the approach selected to incorporate climate change considerations into this Manual.

This Manual incorporates climate change and resilience considerations for stormwater management design and implementation, including:

- Preserving pre-development site hydrology using LID site planning and design strategies (Chapter 5 – Low Impact Development Site Planning and Design Strategies) and structural stormwater BMPs (Chapters 7-13)
- Discussion of updated design storm precipitation for stormwater quantity and quality control (Chapter 4)
- Sea level rise and other considerations for stormwater BMP siting and design in coastal areas (Chapter 4, Chapter 8, and Chapter 10)
- Design considerations for mitigating the potential negative impacts of climate change on stream temperatures and nutrient loads (Chapter 4 and Chapter 8).

It is important to consider future conditions when designing and implementing stormwater BMPs (including long-term maintenance) to ensure the longevity of the investment. Appendix G contains additional resources that may be of use when evaluating climate change considerations for resilient stormwater management design and implementation, including long-term maintenance.

---