

ASSET TYPE/ COMPONENT		DESIGN CATEGORY	KEY CLIMATE-SENSITIVE DESIGN CRITERIA
Roadways	Critical	Design Elevation <sup>1</sup>	3 feet above 2% Annual Exceedance Probability (AEP) flood elevation or Equal to 0.2% AEP flood elevation
	Non-Critical	Design Elevation <sup>2</sup>	2% AEP flood elevation
Bridges	Critical	Design Elevation <sup>1,3</sup> Flow Capacity <sup>1,3</sup>	Flood elevation from 2% AEP flood plus 3 feet freeboard The projected 1% AEP <sup>4</sup> flow must pass below the lowest chord without going into pressure flow Flows may be projected by increasing current flows by 20%
	Non-Critical	Design Elevation <sup>1,3</sup> Flow Capacity <sup>1,3</sup>	Flood elevation from 2% AEP flood PLUS 2 feet freeboard The projected 1% AEP <sup>4</sup> flow must pass below the lowest chord without going into pressure flow Flows may be projected by increasing current flows by 20%
Culverts	Critical	Design Elevation <sup>1</sup>	Flood elevation from projected 1% AEP flood PLUS 3 feet freeboard or Flood elevation and corresponding flows from the 0.2% AEP flood
	Non-Critical	Design Elevation <sup>1</sup>	Flood elevation from projected 1% AEP flood PLUS 2 feet freeboard
Building (Highway Garages, Salt Storage Facilities, Operations Centers)		Design Elevation <sup>5</sup>	Base Flood Elevation (1% AEP) plus 2 feet freeboard
Stormwater Infrastructure		Flow Capacity <sup>6</sup>	10% AEP flood recommended minimum for closed conveyance systems 50% AEP flood for roadside swales, overflow channels, pond pilot channels, berms

Notes:

1. New York State Flood Risk Management Guidance for Implementation for the Community Risk and Resilience Act (2020)  
[https://www.dec.ny.gov/docs/administration\\_pdf/crrafloodriskmgmtgdnc.pdf](https://www.dec.ny.gov/docs/administration_pdf/crrafloodriskmgmtgdnc.pdf)
2. FHWA HEC 17, 2<sup>nd</sup> Edition. Highways in the River Environment- Floodplains, Extreme Events, Risk, and Resilience (2016)  
<https://www.fhwa.dot.gov/engineering/hydraulics/pubs/hif16018.pdf>
3. NYSDOT Bridge Manual, Section 3.2.3.1 Hydraulic Design Criteria. (2021)  
[https://www.dot.ny.gov/divisions/engineering/structures/repository/manuals/brman-usc/NYSDOT\\_Bridge\\_Manual\\_2021\\_08-2022.pdf](https://www.dot.ny.gov/divisions/engineering/structures/repository/manuals/brman-usc/NYSDOT_Bridge_Manual_2021_08-2022.pdf)
4. Recommended design flow multiplier: 1.2. (Reference 1) or 'nationally accepted design practices for defining future flows that account for projected future conditions may be substituted'. This applied to structures with the end of design life between 2025-2100.
5. 2020 Building Code of New York State. Section 1612.3.1.1 (2020)  
<https://dos.ny.gov/system/files/documents/2020/09/2020-ebcnys-november-2019.pdf>
6. New York State Stormwater Management Design Manual. Chapter 4. (2015).  
[https://www.dec.ny.gov/docs/water\\_pdf/swdm2015chptr04.pdf](https://www.dec.ny.gov/docs/water_pdf/swdm2015chptr04.pdf)
7. New York City Climate Resiliency Design Guidelines Version 4.0 (2020)  
[NYC Climate Resiliency Design Guidelines v4-0.pdf](https://www.nyc.gov/assets/dep/downloads/pdf/climate/nyccr40.pdf)

