

**Fact Sheet**  
**Structural Measures**  
(Local Protection)

**Option: Backflow Prevention Structures**

**Description:** Backflow prevention structures such as gates or flaps are placed on drainage structures and stream outlets to prevent backwater from a main river from flowing upstream in the drainage system or tributary, as well as on storm drains to prevent surcharging. The structures are typically used in combination with some form of levee or floodwall (which may also be a raised roadway or path), or natural topographic feature; otherwise, they are placed on storm drains and do not require a line of protection.

**Example(s):** Flap gates or “duck bill” flexible gates on stormwater drainage pipes. (Tideflex TF-1 Check Valve shown below.)

**Benefits:** Prevents surcharging the drainage system with river backwater. While gates on tributaries can be expensive depending on size required, backflow prevention devices for storm drains may be relatively low cost.

**Challenges:** While outlets are blocked, stormwater cannot drain. The level of protection is generally low and may only be limited to prevention of roadway flooding. Adding backflow gates to tributaries is more complex and tributary interior drainage must also be analyzed.



*Tideflex TF-1 Check Valve as part of a river outfall system*

