

12.7 Philosophy

Typical pump station design procedures seen in the literature do not represent most highway stormwater pump station situations. Many stormwater management plans limit the post development discharge to that which existed prior to the development. In order to meet this requirement, it is often necessary to provide storage in the system. Traditional pump design procedures have not considered this storage volume and are thus oriented toward only wet well volumes. These designs are required to pump higher rates with limited storage volumes and thus start-stop and cycling relationships are very critical and can consume considerable design effort.

The mass inflow curve procedure discussed in this document is commonly used when significant storage is provided outside of the wet well. The plotting of the performance curve on the mass inflow diagram gives the designer a good graphical tool for determining storage requirements. The procedure also makes it easy to visualize pump start/stop and run times. In the event that a pump failure should occur, the designer can also evaluate the storage requirement and thus the flooding or inundation that could occur.