

North Port Utilities Lift Station Design Guidelines

- A technical memorandum along with supporting calculations, signed and sealed by a professional engineer registered in the State of Florida, shall accompany the submission of a new lift station design. At a minimum, the following items will be addressed in the technical memorandum.
- Level of Service – as outlined in City Code Section 78-30. (d) (2), currently 155 gallons per day (gpd) per equivalent residential connection (ERC)
- Flow
 - Single family units shall be one (1) ERC
 - Multi-family units shall be equivalent to 0.9 ERCs
 - Commercial shall be based on 0.2 gallons per day per square foot unless a specific use is identified by the developer and/or Engineer of Record (EOR) and approved by North Port Utilities (NPU).
- Design
 - Average annual daily flow (AADF) shall be computed based on the build-out ERCs to be connected to the station.
 - The AADF shall be computed over a 16-hour day unless documentation is provided to the NPU and NPU provides approval in writing.
 - Maximum hourly flow shall be computed based on the following formula:

Q peak hourly: Maximum Rate of Wastewater Flow (Peak Hourly Flow)
Q design aadf: Design Average Daily Wastewater Flow
P: Population in thousands, using the City's Comprehensive Plan regarding persons per household

$$Q \text{ peak hourly}/Q \text{ aadf} = (18+\sqrt{P}) / (4+ \sqrt{P})$$
 - System head curves shall be developed based on the Maximum hourly flow and static, friction and minor head losses. For those areas where a hydraulic model of the system exists, the Engineer of Record (EOR) shall use the model for station design including how modeling affects other stations. The modeling will include an 'all pumps running' scenario where the flows shall be a minimum of 70% of their design flow. In the absence of a hydraulic model, the EOR shall obtain pressure recordings of the force mains in the area and utilize the maximum operating pressure obtained during the pressure recordings. Recordings shall be a minimum of seven days.
 - Pump starts shall not exceed five per hour

- Diesel bypass pumps shall meet the same operating conditions of the lift station, or as close thereto as possible. The EOR will populate NPU Specification 336022 Stationary By-pass Pump – Lift Stations, regarding the design of the diesel by-pass pump.
- Lift station design shall be in accordance with the NPU Standard Details and Specifications, latest revisions.