

Capacity Study FAQ

1. Why did Penngrove Sanitation Zone create this Capacity Study?

The Penngrove Sanitation Zone completed the Capacity Study to better understand how the sewer collection system performs during dry weather, major storm events, and in response to a general order from the Regional Water Quality Control Board. The study identifies current capacity constraints, evaluates future needs, and recommends projects to improve reliability while meeting State requirements for sewer system management and capacity assurance. Completion and release of the study was delayed. To collect larger storm event data to improve model calibration and accuracy, Sonoma Water asked the consultant to monitor flows in the winter of 2025-2026.

2. How was the Capacity Study conducted?

The study combined several sources of information, including:

- A hydraulic computer model of the sewer system.
- Three months of flow monitoring
- Four temporary flow meters and one rainfall gauge.
- Existing GIS mapping and infrastructure records.
- Survey information and parcel-level land use data.
- Calibration using both dry-weather and wet-weather conditions to ensure the model reflects actual system performance.
- Development of a design storm and evaluation of system capacity and performance under that event.

The model evaluates how wastewater moves through the system during a range of storm conditions and identifies where capacity limitations occur.

3. What is Inflow and Infiltration (I&I)?

Inflow and Infiltration (I&I) refers to stormwater and groundwater entering the sanitary sewer system where it does not belong.

- **Dry-weather flow** is the normal wastewater generated by homes and businesses.

- **Groundwater infiltration** is groundwater that seeps into cracked pipes or leaking manholes.
- **Rainfall-dependent inflow and infiltration** occur during storms when rainwater rapidly enters the sewer system through defects or direct connections.

Continued investments in collection system maintenance and rehabilitation will be necessary to maintain system integrity and reduce further increases to system I&I.

4. What is the difference between dry-weather and wet-weather flows?

During dry weather, the Penngrove system generates approximately **93,000 gallons of wastewater per day (0.093 MGD)** from normal residential and commercial use. The existing pump station and force main are capable of conveying approximately 0.42 MGD. Temporary supplemental pumping implemented during the 2025-26 winter increased this pumping capacity to approximately 0.55 MGD.

During major storm events, rainfall and groundwater entering the system through I&I can increase flows to more than **1 million gallons per day**—more than **10 times normal dry-weather flow**. These storm-driven flows, far more so than wastewater from homes and businesses, are what create the system's current capacity constraints. The Phase I Force Main Project is being designed to accommodate the increased peak wet-weather flows anticipated from the existing system's high volume of I&I susceptibility during a 10-yr design storm event.

5. What are the priority capacity issues today?

The study found that the highest-priority capacity issues to address are:

- Conduct field investigations to locate sources of excess wet-weather flows caused by I&I
- Replace the existing force main to Petaluma
- Perform pump study and install larger pumps at lift station, if needed.

Addressing these issues will improve system reliability during major storms.

6. What is Phase I of the Force Main Project?

Phase I would replace up to approximately 9,000 feet of the existing force main between the Penngrove Lift Station and Petaluma. Several alignment alternatives are being evaluated and coordinated with the City of Petaluma.

Project objectives include:

- Replacing the aging 6-inch force main. The size of the new force main will be determined during the study.
- Increasing capacity to accommodate wet-weather flows.
- Working with the City of Petaluma to identify the preferred connection point.
- Potentially avoiding a future Phase II project through an improved connection strategy.

Sonoma Water is actively coordinating with the City of Petaluma as these alternatives are evaluated.

7. Why has truck hauling been used?

During particularly severe storm events, temporary truck hauling has been used to move excess wastewater to Petaluma when flows exceeded the capacity of the lift station, 0.42 MGD.

Truck hauling is an interim operational measure—not a permanent solution—and was not needed during the 2025-26 winter, although temporary supplemental pumping was used. An additional mobile pump was connected to the lift station in 2025 to increase the volume of water pushed through the force main. Long-term capital improvements are intended to reduce or eliminate the need for these interim measures.

8. How are new development projects evaluated?

Under Sonoma Water's sanitation code, new projects may be required to construct improvements or provide mitigation, so they do not worsen existing system performance during wet weather events. Potential mitigation measures may include:

- Sewer upsizing
- On-site storage
- Manhole rehabilitation
- Other infrastructure improvements

Applicants are responsible for funding project-specific improvements associated with their development.

9. How is the Penngrove Sanitation Zone funded?

The Penngrove Sanitation Zone is funded primarily through user rates, supplemented by transfers from Sonoma Water's General Fund.

- Total zone revenues from user rates have averaged appx \$1.1M for the last several years.
- Of this amount, approximately half goes to Petaluma as part of an agreement to treat the wastewater collected by the system.
- The remaining revenue funds baseline services, routine maintenance, permit compliance, but revenue from user rates have been insufficient and required subsidy from Sonoma Water's General Fund.
- Over the past five years, General Fund support has averaged approximately **16%** of total Zone revenues.
- FY 25-26 General Fund budgeted support was approximately **\$390,000 (26% of revenues)**.

More information about the 2026/2027 budget and project costs can be found in the newsletter at the PSZ Website:

https://www.sonomawater.org/media/PDF/Water%20Resources/Sanitation/newsletters/2026/Penngrove%20Sanitation%20Zone_ADA_kh.pdf

10. How will future projects like the Force Main Project be funded?

Initial funding of the Force Main Project Phase 1 design phase is being covered by existing Zone finances. Potential future funding sources for construction may include:

- Sewer service rates
- Sonoma Water General Fund contributions
- State and federal infrastructure grants or low-interest financing, where available

The specific funding strategy will be developed as projects advance through design and future rate studies.