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Keeping Ocean Shores Clean

Coastal Town Relies on Vacuum Sewers

This is an excerpt taken from the article “Keeping Ocean Shores Clean: Coastal Town Relies on Vacuum Sewers” published in *Informed Infrastructure*, September/October 2016. The entire article can be downloaded from [this page](#). The city of Ocean Shores, Washington, offers a valuable test case for vacuum sewer reliability and endurance.

The Challenge

The city’s vacuum system is one of the largest in the world, and it’s also mature; most of its components are more than 20 years old and must function in a challenging operational environment. What makes Ocean Shores even more valuable as a sewer system comparison study is that it also has gravity sewer and grinder pump systems to maintain. Like many seaside communities, Ocean Shores began as a collection of mostly vacation homes and campsites. Located about 50 miles west of Olympia, Wash., the small community incorporated in 1970 with a population of about 900. At the time, lot sizes averaged about 7,600 square feet and nearly all had septic sewer systems to handle wastewater.

Its location on the Pacific Ocean encouraged growth and tourism. Up to 8,000 people were in Ocean Shores on summer weekends by the mid 1970’s. Predictably, the high concentration of septic tanks and limited wastewater treatment led to a eutrophication problem that showed up as algae bloomed in the area’s many canals and ponds.

In 1980, a consultant recommended gravity sewers be installed throughout the town, but residents were cool to the idea due to the staggering cost estimate: \$80–\$90 million.

“That was quite a chunk of change,” notes Miles Beach, who recently retired as the city’s waterworks superintendent. “A lot of that cost was to excavate and then repave the streets for collection lines, and install more than 50 lift and pump stations.”



Marshall Read and Miles Beach have been instrumental in Ocean Shores’ vacuum-sewer operation for the last two decades. Here they conduct a daily vacuum station check in a clean working environment.

The Solution

That solution proved too expensive for Ocean Shores. The septic tank problem sat on the back burner until the 1990s, when the state of Washington implemented a new environmental policy stating that house lots had to be a minimum of 15,000 square feet to accommodate a septic sewer system. This resulted in a construction moratorium in Ocean Shores and stagnant economic development.

“That led us to look at alternative sewer systems,” adds Beach. “It turned out that vacuum sewers were the lowest cost. Our public works director at that time got in touch with Airvac. After some research, we decided to do a test project. We worked with their engineers and came up with a design estimated to cost \$4.5 million for about 2,400 connections. It actually cost less—about \$3.8 million.”

That initial test project was completed in 1995 with minimal disruption to the community. The city imposed a tight timeline of two years to complete its new vacuum sewer system, but the project took only 18 months with five different contractors collaborating on the effort.



Airvac vacuum stations are unobtrusive, odor free and have a relatively small footprint.

Marshall Read has operated the city’s vacuum sewer for more than 20 years—he and a crew of three inspect the system daily. They’re intimately familiar with every detail of the Airvac system and have two decades of data to back them up.

“In flatland conditions like we have, with a high groundwater table, vacuum sewers are by far the best alternative of all sewer systems,” says Read. “Maintenance on vacuum sewers is very easy, even after 20 years.”

“Compared to grinder pumps and STEP (septic tank effluent pumping) systems, I’d choose vacuum sewers every time,” confirms Read. “In my mind, it’s the way to go with regard to operational integrity. It’s the least prone to trouble, and, if you do have trouble, you are not wading in sewage.”

“I would invite people to look at Ocean Shores’ sewers today after nearly 25 years and see how low the O&M costs are,” adds Beach, who spent 36 years in public works before retiring in 2013. “I’ve never been more pleased with a system in all my life.”



Many vacuum station operations can be monitored and adjusted from a control desk.

Additional Information



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