Large AIRVAC Projects

- Ocean Shores, Washington
- Albuquerque, New Mexico
- Englewood, Florida
- York County, Virginia
- Sarasota County, Florida
Ocean Shores, Washington

- 5,399 valves
- 11,753 connections
- 7 vacuum stations
- Constructed: 1994 to 1999
Ocean Shores, Washington

- 5,399 valves
- 11,753 connections
- 7 vacuum stations
- Constructed: 1994 to 1999
Albuquerque, New Mexico

- 3,083 valves
- 6,811 connections
- 12 vacuum stations
- Constructed: 1995 to 2006
Albuquerque, New Mexico

- 3,083 valves
- 6,811 connections
- 12 vacuum stations
- Constructed: 1995 to 2006
Englewood, Florida

- 2,644 valves
- 7,547 connections
- 7 vacuum stations
- Constructed: 1996 to 2004
Englewood, Florida

- 2,644 valves
- 7,547 connections
- 7 vacuum stations
- Constructed: 1996 to 2004
York County, Virginia

- 1,196 valves
- 2,568 connections
- 6 vacuum stations
- Constructed: 1995 to 2006
York County, Virginia

- 1,196 valves
- 2,568 connections

- 6 vacuum stations
- Constructed: 1995 to 2006
Sarasota, Florida

- 1,060 valves
- 2,865 connections
- 3 vacuum stations
- Constructed: 2003 / 2005
Sarasota, Florida

- 1,060 valves
- 2,865 connections

- 3 vacuum stations
- Constructed: 2003 / 05
Sanford, Florida

- 4,000 valves
- 2,000 connections
- 1 vacuum stations
- Constructed: 1990
Port O’Connor, Texas

- 560 valves
- 1,191 connections
- 2 vacuum stations
- Constructed: 2001 / 2002
Port O’Connor, Texas

- 560 valves
- 1,191 connections
- 2 vacuum stations
- Constructed: 2001 / 2002
Palm Springs, Florida

- 396 valves
- 791 connections
- 3 vacuum stations
- Constructed: 1999 to 2005
Palm Springs, Florida

- 396 valves
- 791 connections
- 3 vacuum stations
- Constructed: 1999 to 2005
New Bern, North Carolina

- 811 valves
- 1,299 connections
- 6 vacuum stations
New Bern, North Carolina

- 811 valves
- 1,299 connections
- 6 vacuum stations
Vacuum Technology Solves Sewer Problem in Show-Me State

Problem: State regulations forbade septic tanks, but the flat Midwestern landscape made a gravity-based sewer system problematic.

Solution: A vacuum sewer system.

On the cusp of the Mark Twain National Forest and the Mississippi River delta, east Butler County, Mo. is flat and waterlogged. The 16km² area (6mi² area) has an elevation difference of only 2 m (6 ft), a high water table, and a lot of seasonal groundwater. It is a challenging place to install a sewer system — just ask Stan Schultz, president of Schultz Engineering Services (Poplar Bluff, Mo.).

In 1987, the newly formed East Butler County Sewer District (Poplar Bluff, Mo.) hired Schultz to design a central sewer system for 465 homes in the area because new state regulations forbade septic tanks. Without sewers, the homes could not be financed by banks and so would be nearly impossible to buy or sell.

“We had two options initially: either pump effluent to the Poplar Bluff treatment plant or build a treatment facility in the eastern part of the county,” Schultz said. “There were some environmental issues that prevented us from pumping to the Poplar Bluff plant, so we had to design and build a system in east Butler County, and the geography there is pretty challenging for building a gravity-flow sewer system. … A gravity system would have required some very deep trenches and a lot of dewatering [to keep the trenches dry during construction].”

The District wanted three collection and treatment alternatives, so although Schultz had virtually no experience with vacuum sewers, he began researching them for his engineering report. “I really didn’t want to use a vacuum system initially, but I had to come up with three alternatives,” he noted. However, “the more we looked at a vacuum system, the more we liked it.”

Intrigued by some product literature left months earlier by AIRVAC Inc. (Rochester, Ind.) representatives, Schultz contacted the company for more information and training about their product and its application in Butler County. In a vacuum sewer system, wastewater flows by gravity from each house to a valve pit that is equipped with a vacuum interface valve that prevents system vacuum from entering the house plumbing. When 38 L (10 gal) of wastewater accumulate in the pit, the interface valve opens and the contents of the pit are evacuated to the vacuum station where it is collected and pumped to the treatment plant. Schultz and the District quickly realized that a vacuum-based system would be the most affordable and effective option.

“It was much easier to install than we expected,” said David Stinson, a Schultz engineer who oversaw most of the installation. The AIRVAC system adapts more easily to unforeseen circumstances than a gravity system, he noted, explaining that “with a vacuum system, if you have to work around a buried utility, a tree, or whatever, you just move over a bit or go under it or around it. It’s no big deal.”

Most of the 34,400- 0 m (113,000 ft) of sewer lines are buried only 1 to 1.5 m (3 to 5 ft) deep, allowing construction and dewatering was necessary, Stinson said. Some of the lines are up to 4 km (2.5 mi) from a vacuum station, but overall fewer pumps were needed than a similar gravity system would have required.

“We estimated that the vacuum system saved about $400,000 in construction costs,” Schultz said. “One thing we learned from this project: in the future we’ll try to use a vacuum system whenever possible. We like it.”

For more information contact AIRVAC at (815) 855-9927 or http://www.airvac.com.
Multi-Lakes, Michigan

- 220 valves
- 551 connections
- 2 vacuum stations
- Constructed: 2002
Multi-Lakes Michigan

- 220 valves
- 551 connections

- 2 vacuum stations
- Constructed: 2002
Forest, Ohio

- 144 valves
- 352 connections
- 1 vacuum station
Ponte Vedra, Florida

- 368 valves
- 811 connections
- 1 vacuum station
- Constructed: 2005
Ponte Vedra, Florida

- 368 valves
- 811 connections
- 1 vacuum station
- Constructed: 2005
Bay Creek, Virginia

- 280 valves
- 502 connections
- 3 vacuum stations
- Constructed: 2001 to 2003
Bay Creek, Virginia

- 280 valves
- 502 connections

- 3 vacuum stations
- Constructed: 2001 to 2003
Virginia Beach, Virginia

- 933 valves
- 1,755 connections
- 2 vacuum stations
- Constructed: 1995 to 2003
Virginia Beach, Virginia

- 933 valves
- 1,755 connections
- 2 vacuum stations
- Constructed: 1995 to 2003
Storm Survival - Hurricane Areas

- Various Florida Projects
Provincetown, Massachusetts

- 259 valves
- 2,265 connections
- 1 vacuum station
- Constructed: 2003
Provincetown, Massachusetts

- 259 valves
- 2,265 connections
- 1 vacuum station
- Constructed: 2003
Crystal Lake - Groveland, Florida

- 131 valves
- 288 connections
- 1 vacuum station
- Constructed: UC 2007
Crystal Lake - Groveland, Florida

- 131 valves
- 288 connections
- 1 vacuum station
- Constructed: UC 2007