

# School Ready for Expansion: Overcoming Growing Needs with Constant Water Pressure

CADILLAC, MICHIGAN SCHOOL DISTRICT



## DUPLEX CONSTANT PRESSURE WATER SYSTEM CASE STUDY



Franklin Electric worked with a school district in Cadillac, Michigan and installer Thomas Flint & Son Water Well Drilling to provide a comprehensive drive, pump and motor solution to upgrade a middle school's outdated water pumping system.

### CUSTOMER CHALLENGE

The city of Cadillac is located in central Michigan, about 50 miles southeast of Traverse City. The city's school system serves 3,000 students – with about 500 of them at the district's one middle school. In May 2018, the district passed a bond proposal to improve buildings throughout the district, including \$65.5 million in renovations, additions and upgrades over 25 years. In 2021, that meant a new wing would be added to the middle school. Before that could happen, other updates needed to take place – including renewing the school's aging water pumping system that had been installed decades ago.

The district brought in well water specialist Thomas Flint & Son Water Well Drilling to assess the current submersible pumps. What they discovered was not only an aging system, but an inefficient one: two 6-inch, 100 GPM pumps were running in the wells on a basic in-parallel setup supported by a bulky (yet undersized) 86-gallon tank tank. The design of the current installation was causing rapid cycling of the pumps and created accelerated wear on the overall system and its components due in part to the frequency of starts and motor overheating. Ultimately, this led to increased maintenance of the pumps and motors. If the new system employed a similar design it could lead to additional issues: premature motor failures, motor spline and

bearing damage, and decreased usage life of control components such as pressure switches and relays.

### THE SOLUTION

Cadillac middle school needed a solution that would help regulate the motors, allowing them to operate more efficiently. The engineering firm recommended a new design based on a variable frequency drive (VFD). The installers went with a proven solution they had worked with and installed before: SubDrive Connect Plus with STS Series pump assembled to a 15-horsepower Franklin Electric submersible motor.

***“I have installed Franklin Electric products, including the SubDrive family of drives, for years. Not only are they easy-to-install solutions for water systems, but we rely on their service to back up our jobs and make sure we get it right the first time.”***

- Travis Flint (Thomas Flint & Son Water Well Drilling)

This easy-to-install duplex constant pressure water system consisted of a VFD paired with two new submersible turbines, one for each well. Combined, this would optimize operation to meet water supply demands and the school's irrigation system during

**50%** LESS PUMP WEAR DUE TO ALTERNATION

**14+** BUILT-IN PUMP PROTECTIONS ON DRIVE

**SYSTEM SCALABILITY UP TO 4 TIMES THE CURRENT SIZE**

### SYSTEM FEATURES

- Constant pressure water system powered by a drive solution engineered for pumping systems
- Easy-to-install platform facilitates setup and servicing via FE Connect for smartphones
- Premium ductile iron casting turbines for longer life and higher pressures

### PERFORMANCE DETAILS

- Flows: up to 200 GPM
- Heads: up to 600 ft
- Pump Size: 6", 10 Stages
- Power: 15 horsepower

### RESULTS

- Reduced service/maintenance
- Increased reliability and life expectancy
- Reduced energy consumption

critical in-class hours or idle time. Over the long-run it would also mitigate rapid cycling on the system, preventing heat exposure and helping to alleviate future expenses related to service costs and downtime. This Franklin solution would be programmed to alternate and distribute operating hours equally between the school's two pumps, optimizing the pumping system for extended life cycles. As an added bonus: since the complete solution was available from a single source, it was engineered to work together.

## THE RESULTS

In addition to offering a solution to the district's immediate challenges, the SubDrive Connect Plus and STS Series duplex pumping system delivered long-term performance and scalability features that were important to the district.

With more construction and renovation anticipated over the next several years, the system's scalability provides room for expansion since the SubDrive Connect Plus includes built-in lead/lag and alternation capacity for up to eight drives. In contrast with over-complicated drives, the SubDrive Connect Plus platform will continue to save time during installation and servicing thanks to an array of setup and monitoring solutions. By running the motor to meet the demands of the application, the VFD is expected to reduce energy costs associated with water supply and irrigation by up to 50% for long-term savings. Built-in diagnostics and protection – including surge, short circuit, underload, and overheating controllers – ensure that maintenance is reduced for years to come.



*Product cutaway for illustrative purposes only.*



## FE CONNECT FOR SUBDRIVE CONNECT PLUS

Modify the advanced features of the SubDrive Connect Plus with the FE Connect mobile app.



Available now and compatible with Apple and Android devices. Search "FE Connect Plus" or "FE Connect SDCP."

