

“Boosting” Water Pressure Flow Rate for “Booming” Home Region Demand:



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Projected growth leads to the development of an advanced water flow booster lift station technology system from Gorman-Rupp.

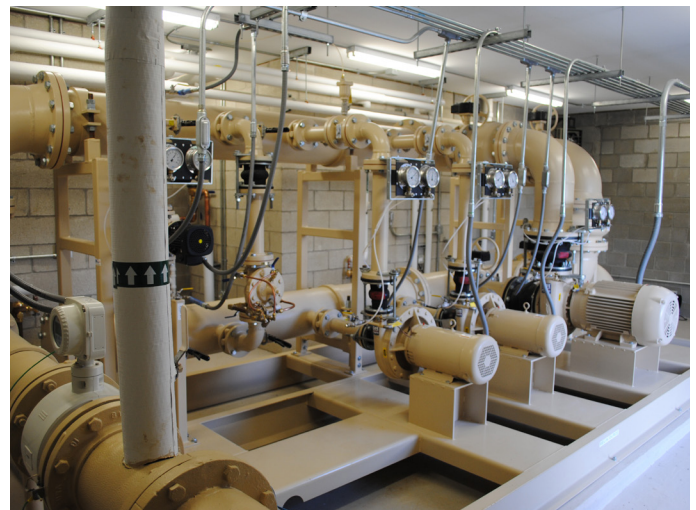
The Problem:

With a population of approximately 35,394 based on the 2010 census (98% urban, 2% rural), Orion Township is a fast-growing northern suburb of Detroit, Michigan. Commonly referred to as “Lake Orion,” the township promotes a motto of “Where living is a vacation.”

Orion Township receives treated water from the Great Lakes Water Authority water system and is a growing community with projections of significant new development. There is a portion of the Township that was experiencing low pressure conditions at high flow conditions as the water supply could not provide sustained pressure at these high flow conditions. This low water pressure issue was expected to get more severe in the future in this area of the Township with booming home builds projected. The Township needed to boost the water pressure to this area of the Township during periods of high flows to meet current and long term customer demands.

The Solution:

The new Baldwin Road water booster station was installed to boost water pressure to this area of the Township during periods of high flow demands. During periods of low flow and acceptable water supply pressure, the water booster station pumps would sit idle with supply water flowing through a piped bypass within the booster station – saving energy costs. The sustainable goal was to supply quality water at



Pressure booster station pump configuration included: (1) Jockey Pump, (2) Duty Pumps, and (1) High Flow Pump to accommodate long-term water usage over 60 PSI.

acceptable pressures to accommodate the anticipated growth in this area of the Township.

DuBois-Cooper, Gorman-Rupp’s Michigan representative, and Gorman-Rupp worked closely with the design engineer (OHM Advisors of Livonia, Michigan) during the planning and design of the water booster station equipment to develop a progressive solution. As part of the team, Gorman-Rupp was able to offer their vast experience with pumping systems toward the solution. The end result was a base-



Customized control panel included variable frequency drives (VFD's), PLC with operator interface and operation off suction/discharge pressure transducers.

mounted water booster station with (4) pumps and full automated controls that operated off the water system pressure.

The water booster station was successfully approved and comprised of the following key elements:

With the water booster station targeted to be built in a park near community recreation fields, the township constructed a mixed-use building which accommodated the station equipment and control panel on one side and public bathrooms for the park on the other side.

The Gorman-Rupp water booster station equipment consists of a base-mounted system with (4) pumps, pressure relief valve pipe loop, bypass pipe loop with check valve, flow meter and a control panel. The station includes the following pumps:

- (1) jockey pump with ½ HP motor – 20 GPM
- (2) duty pumps with 10 HP motors – 200 GPM each
- (1) high service pump with 50 HP motor – 1,850 GPM

Additionally, a customized control panel was provided by Gorman-Rupp that included variable frequency drives (VFD's) and a PLC with operator interface. The booster station operates off the pressure in the stations suction and discharge headers. The control panel also included features for communicating with the owner's centralized SCADA system to monitor and control the site.

Conclusion:

The collective effort put forth by Dubois-Cooper Associates, and Gorman-Rupp's sales, engineering and production teams was able to provide an effective pressure booster system. The new station will provide many years of service to sustain the region's water supply needs over 60 PSI.

According to Bill Ireland, Public Works Director for the Charter Township of Orion, "Our municipality represents the highest point north in Detroit's water system, so the water flow rates weren't sufficient enough even at our current levels. Given the region's proximity to the General Motors' plant, and ensuing new bedroom community population growth, the new water pressure booster station system will allow us to expand into the future seamlessly."



Mixed-use building near community recreation fields accommodates the water booster station equipment and control panel on one side and public bathrooms for the park on the other side.



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Ireland also noted that delivery, training and installation service on the project was delivered on schedule, as the system is expected to be in full operation by the end of 2015.

About the Product:

Gorman-Rupp Pressure Booster Stations are available in a myriad of sizes and configurations to meet just about any municipal water supply need. Pump flows range from 50-to-7,000 GPM on single pump operation, and are engineered to give you trouble-free operation backed by a five-year warranty on equipment.

In addition to our many standard designs for new installations, Gorman-Rupp also custom designs for existing installations with minimum hook-up time. Base-mounted pump stations are available with a variety of pumps to match system requirements. For consistently heavy flows, additional pumps may be added. For high head/low flow, we offer multi-staged designs.

About The Gorman-Rupp Company

The Gorman-Rupp Company is a leading manufacturer of pumps and pumping systems for the municipal, water, wastewater, sewage, industrial, construction, petroleum and OEM markets. The company's Engineered Systems operation also manufactures a full line of water pressure booster stations including pumps, motors, valves and controls—all housed in weather-proof fiberglass enclosures—meeting about any municipal water supply need.

Ultimately, Gorman-Rupp prides itself on manufacturing and delivering the right pump for the job.



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