

UPGRADES AND ADVANCEMENTS FOR LONG-LASTING SOLUTIONS

Metropolitan makes use of improved technologies to enhance user experiences and extend the life of systems.

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FRP LIFT STATION EASES PROBLEMATIC ROADBLOCK, TO PROVIDE DECADES OF DURABILITY

By: Martin Hawrysko



New underpass located at 45th St and Calumet Ave. Lift Station Generator and Control Building can be seen upper right.

Efficient and reliable transportation infrastructure is more than about moving people, goods, and services from one point to another. Well-maintained roads and highways that are accessible and keep traffic moving create a healthy economy and help enhance the quality of life for citizens.

In the case of Calumet Ave., a prominent Northwest Indiana highway that intersects with a major interstate, heavy stop-and-go traffic was considered normal. In the Town of Munster, railroad crossings and frequent freight trains made the problem far worse, resulting in nightmare gridlock for vehicles each day.

Addressing the Problem from Beneath

As a long source of frustration for residents and commuters, the Indiana Department of Transportation (INDOT)

came up with a solution to circumvent the railroad delays. The enhancement plan included an underpass at nearby 45th St. which would allow vehicles to travel beneath the railroad tracks, therefore relieving some of the reliance on Calumet Ave.

Ensuring that the new underpass would not flood during each rainfall was paramount. Metropolitan Industries was brought in to provide a complete system solution that would ensure flooding would not become a problem. The project called for a lift station built with highly durable materials capable of transporting collected stormwater to the adjacent retention pond. Metropolitan provided calculations, pump selection, electrical and controls design, standby power generator sizing, equipment specifications, and drawings.

Immediate Cost Savings Without Short-Changing the Future

Another consideration while proposing a solution to INDOT was their commitment to enhancing infrastructure while allowing for better management of assets throughout the lifecycle. To support that endeavor, the recommended choice of material for the wet well structure was fiber reinforced polymer, a highly durable material known to stand up to external factors such as extreme environmental conditions. Fiber reinforced polymer (often identified in the field as fiberglass) is praised for its cost-effectiveness compared to other materials used for these types of structures.

“Stormwater stations, especially like this one with a viaduct, have a lot of road salt, which is pretty aggressive,” said Keith Girup, municipal sales representative at Metropolitan. “That was a key part of why we went with the fiber reinforced polymer; because it could withstand the corrosive contaminants that would be in rainwater, including gasoline, diesel, road salt, etc.”

“Piping and accessories inside the station are stainless steel,” added Girup. “There was careful consideration when selecting the proper pump cables so they could withstand whichever chemicals they might be subjected to. We have to think about what we are going to be pumping. There’s always three to four feet at the bottom of the wet well, so you have your pumps, your base elbows, and your piping sitting in whatever this water quality is for an extended period of time until another rain event occurs.”

With the choice of fiber reinforced polymer, the lift station was assembled at Metropolitan's Romeoville, Ill. facility, where prefabrications are completed in-house. Girup emphasized that the prefabrication approach for lift stations ends up being much more efficient, both in terms of time and costs, for the end user.

"With prefab, it's a one-day shot," said Girup. "There is no contractor building it in the field for several weeks, at which it's definitely going to rain at some point. So, they have to put contingency costs for bypass pumping and dewatering. All of those contingency costs and efforts are eliminated with prefab."

Grimmer Construction Company of Highland, Indiana was on-site to install equipment. With less to do in the field, the less chance there are for delays and rising costs according to Girup. "Excavation, installation, powering, and backfilling are all completed rapidly. Get in, get out, and be done with reduced circumstances and time span playing out."

"And the quality, you know what you're getting up front," said Girup in reference to the lift station being built at Metropolitan. "Built in a controlled

environment, not in the field. It's all been tested prior to delivery. There are no surprises afterward."

From Our Roof to the Job Site and Beyond

In the end, the triplex, variable speed, submersible stormwater pump system equipment provided by Metropolitan included:

- Prefabricated fiber reinforced polymer wet well structure measuring 12' diameter x 39' deep with all internal stainless steel piping and pump removal components, including hatches with safety grates, installed before delivery.
- 12" submersible pumps capable of approximate 10,000 GPM with all three pumps operating simultaneously when needed at full speed.
- Prefabricated control building measuring 8' wide x 12' long x 8' inside height house all power distribution and control equipment including ultra-low harmonic variable frequency drives.

- 150 kW natural gas fueled standby power generator with sound attenuated enclosure.

Aligning with the other existing potable and stormwater pump stations within the town, the addition of Metropolitan's LMS II controller was an obvious choice for the newly installed lift station. Integrated with the LMS II was MetroCloud, our cloud-based SCADA monitoring platform, providing access to system operations and alarm notifications from users' mobile devices while also seamlessly generating the necessary reports needed for governing agencies.

The lift station start-up was completed in late 2020, with Metropolitan service technicians on-site to verify that all Metropolitan provided equipment was indeed functioning properly. All personnel were trained on the systems, and everybody was satisfied with system operations. From project conceptualization through installation, Metropolitan was involved in every step of the way.

The new underpass solves the current gridlock problems and creates the opportunity for new economic development because of the better traffic flow.

We look forward to the continued growth that is poised to occur throughout Northwest Indiana, especially as new transportation infrastructure opportunities develop. And if another unique water collecting challenge arises for any of those infrastructure opportunities, Metropolitan will be on call to take the incoming call.



Top: Interior of control building.
Bottom: Prefabricated control building & generator.
Left: Installation of reinforced polymer wet well.

BOOSTER PUMP SKID UPGRADE IMPROVES DOMESTIC & HIGH FLOW CAPABILITIES TO UPSTATE NEW YORK'S 'GLOVE CITIES'

By: Susan Gnirke & Martin Hawrysko



Booster system skid installed at Wesskum Woods.

Within the sparsely populated area of the Mohawk Valley in Upstate New York are Gloversville and Johnstown. The two communities have historically been closely connected by location, resources and industry since the 1700's. By the early 20th century, the area had become the country's center for glove manufacturing and was known as the glove capital of the world, thus earning the nickname "Glove Cities." While glove manufacturing in the area has since dropped off, the remaining glove industry businesses serve as a reminder of the area's proud manufacturing history.

In 1992, the Town of Johnstown acquired over six acres of land that housed a water source shed and pump system used by the "Glove Cities" municipalities and the local fire district. In 1996, Kim Emmons and his team at then Emmons Pump & Control of Albany, N.Y. became involved with supplying a municipal booster system on Wesskum Woods Road, a residential street shared by the two communities. To ensure that the project proceeded as planned, Emmons turned to his then system design and manufacturing partner, Metropolitan Industries of Romeoville, Ill.

The collaboration in planning, engineering, meticulous attention to detail, and coordination every step of the way resulted in a successful development and installation of the booster system. The Wesskum Woods Road project was one of several that demonstrated the positive working

relationship between the two companies, which paved the way for a natural transition in 2019 following Metropolitan Industries' acquisition of Emmons Pump & Control. Today, both Metropolitan Industries and now Emmons Metro, work in tandem to manufacture and supply various system-based water pumping and control solutions throughout North America.

Going on 25 years since the original install, Emmons, now the general manager of Emmons Metro, knew that the Wesskum Woods Road booster system was nearing its end of life. "We had been servicing this system since it was originally installed," said Emmons. "Due to the amount of maintenance required keeping the system operational, we had strongly been recommending an upgrade over the last couple of years." Following a public bid for the replacement skid, the contractor who secured the project turned to Emmons Metro. And just as Emmons did 25 years ago, he called upon Metropolitan Industries to assist.

While the new system matched the footprint of the original, the change in technology over the last 25 years provided an opportunity to seize a far more energy efficient solution according to Emmons. "We recommended that the system be upgraded to current control technology along with vertical multi-stage pumps for the normal domestic load and a high capacity pump for hydrant flows."

The upgrade to variable speed meant replacing all of the existing controls and pressure regulating valves, which had required regular maintenance. "Variable speed allows for the system to only use the energy absolutely needed to make the work happen," said Mike Tierney, sales and technical consultant at Metropolitan Industries. The result is better electrical efficiencies and less wear and tear on the equipment.

To further capitalize on minimizing wear and tear, the two domestic water pumps were vertical multi-stage, as opposed to end suction. The 3:1 turn down ratio of end suction pumps is relatively small according to Tierney, compared to 10:1 ratio of vertical multi-stage pumps, which offers a steeper curve profile.

"That pump can operate all day and every day at a lower flow rate without any concern over potential radial loading," said Tierney. "The pump won't object to the lower gallons-per-

minute." Tierney attributes the use of a diffuser housing in place of a traditional pump volute casing as the difference maker. Tierney emphasized that with people now more conscious of their water use, domestic flows on average have trended lower.

"With the water conservation taking place, the net result is when we put in a pump, we typically operate it at way low capacities," said Tierney. "Vertical multi-stage pumps make great sense from that perspective. In most scenarios, it will perform at its lower capabilities and there is no harm in doing that. And when it is necessary to utilize its full capabilities, it will keep up. As soon as the hydrant opens, the bigger pump comes on, allowing the system to go from 50 gallons-per-minute up to 500 gallons-per-minute without a hitch."

The single skid configuration of the two domestic vertical multi-stage pumps and the high capacity pump for hydrant flows personifies the customization possibilities routinely offered by Metropolitan Industries and Emmons Metro. With the design, manufacturing, and overall project management all taking place in-house, we can output complete customizable systems that adhere to the unique specifications of a given application.

Following a successful installation and start-up of the new system, the water supply alongside Wesskum Woods Road is set for the long haul. The new system more than meets the needs of today while going a long way to reduce energy consumption. Just the same as 25 years ago, the engineered and designed materials used in the manufacturing remain solid through and through while the people to be trusted and products provided are dependable, reliable, and ready for today and well into the future.

Left: Installation of the skid at Wesskum Woods.

Right: Angled picture of the booster system prior to arriving at the job site emphasizing the high capacity hydrant flow pump.



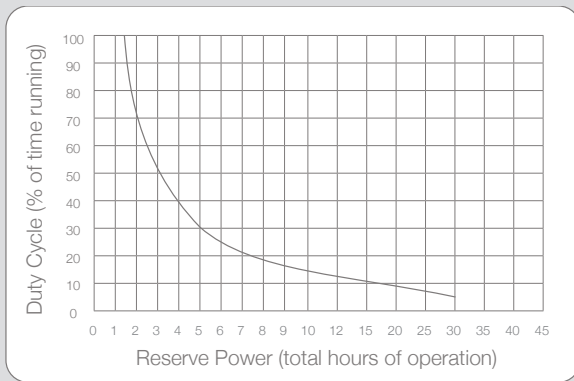
EASY PRE-PIPED INSTALLATION, *ENDLESS* INTEGRATED RELIABILITY

The 35ACi Power Pac is a fully automatic battery backup system. This all-in-one system automatically alternates the running of pumps, helping to prolong their lifespan. And in the event of high water levels, both pumps will kick on to keep your basement dry. If the power goes out, the inverter kicks on to keep things running smoothly and keep your basement protected. The system comes pre-piped, making installation quick and easy.

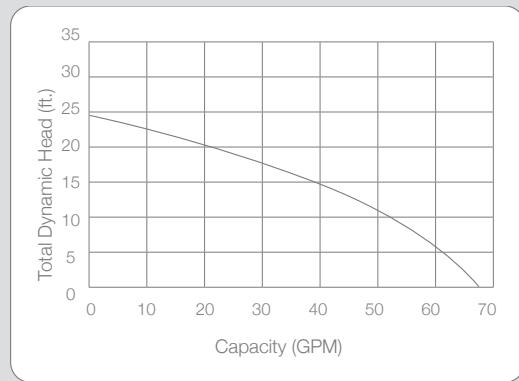
Ion Genesis

- First of a kind digital pump controller that is designed to operate one or two pumps, alternating, or simultaneously
- LED Lights: Indicate when the pump or pumps are running, system power, and alarm mode
- LCD Screen: Displays vital equipment data and alarm notifications





System Performance



Pump Performance

Ion Digital Level Sensors



- Rated for use in both sump & sewage pump applications
- First of its kind solid-state sensing technology with no moving parts
- Ion® sensors communicate with controllers to provide controller based turn on level adjustment from 2.5" to 72" for optimal pump operation



35AC Inverter

- Fully automatic, converts 12 volt DC to 120 volt AC when power is lost
- Inverter has digital display, tells status of system at all times
- Uses two 12 volt deep cycle AGM batteries for extended run time (batteries are NOT included)
- Non-corrosive battery enclosure



BA33 Pumps

- Pumps up to 68 GPM
- Energy efficient motor
- Carbon ceramic mechanical seal
- Thermal overload protection
- Stainless steel screen prevents debris from entering the pump

CAMPUS WATER MOVEMENT SOLUTIONS FOR MULTI-BUILDING INFRASTRUCTURES OF ALL SIZES

By: John Bray

Water movement covers everything from a small sump pump in the basement of a single-family home to a comprehensive municipal utility system. From the design and use standpoint, the utility infrastructure on these campuses operates much like a small town or village. And, just like municipal systems, large campuses require engineering and installation expertise to help ensure stability, seamless integration across the campus, and equipment longevity.

Metropolitan Industries has decades of experience providing comprehensive expertise whether customers need one pump, a full utility system, or help tackling an unforeseen challenge. We recognize the unique needs that arise with any project and approach every large-campus application with an eye on enabling efficient water management that makes both routine use and necessary maintenance as easy as possible. That means fewer concerns for our customers across the United States and a better experience for anyone who puts these water management systems through their paces on a daily basis.

Complete solutions for mini municipalities

Like cities and towns, large campuses are responsible for water distribution, treatment, sewage collection, and stormwater dewatering storm, in addition to managing temperature-controlled water. University and hospital campuses house multiple buildings often built in different years or decades as needs grow and change. The existing infrastructure that supports these buildings is no less varied. Some systems may be modern, others held together with years of creative maintenance, and when one part of the system fails, maintenance crews — and budgets — must decide whether to replace and modernize the equipment or patch things together to squeeze out a little more use.

The latter is tempting, but investing in new, more reliable equipment can save money over time, improve the user experience, and give maintenance crews the room to work on other projects. Quality equipment is essential to this effort, but cost and future

maintenance also play a significant role. To understand how, let's look at three different solutions: self-priming pumps, booster systems, and hot water temperature control.

Self-Priming Pumps

Submersible and vertical column pumps have long been common for the removal of storm and sewage water, but they also present costly, complex, and hazardous challenges. The design of these systems requires multiple personnel for repairs, often necessitates the need for a hoist and/or time in a confined space, and makes downtime unavoidable. For older systems that have rusted significantly, it's possible that piping will have to be cut to gain necessary access.

Our Metro-Prime self-priming pumps eliminate many of these drawbacks, as well as provide today's premium efficient motor designs. The pumps themselves rest on the basin cover, allowing them to be serviced without accessing a hazardous location, and they're engineered to make most

maintenance a one-person job with easy access to clean the impeller and replace the flapper valve.

In the best of circumstances, sewage and solids handling pumps will inevitably jam. Under such scenarios, the ease of accessibility of self-

Installation of a self-priming pump at a campus in Illinois.



priming pumps makes servicing faster, easier, and safer, therefore lessening downtime while minimizing the potential for subsequent problems.

Booster Systems

The role of a booster system is straightforward: ensure water availability when and where you need it. Despite the simplicity, the importance of these systems is clear, and delivering on this expectation across multiple buildings on the back end is not quite as easy with aging equipment. Depending on the quality of the controller, it's not always easy with new systems either.

Metropolitan's pressure boosting pump systems are custom designed and engineered for ease of use. They're assembled indoors in our Romeoville, Ill. facility, designed specifically to meet both flow demands and space restrictions (for any sized project), while each system is fully tested to minimize surprises at installation. Finally, it's shipped complete with pumps, motors, piping, valves, and controller.

Our custom-programmed PLC-based control systems are intuitively designed to minimize the learning curve for maintenance teams while allowing them to understand system performance in a few taps. With seamless integration into building automation systems, building maintenance crews can remotely access monitoring and controls, in addition to receiving critical notifications regardless of where they are situated. For buildings without automation systems, MetroCloud, our cloud-based SCADA platform, provides an additional integration option to the same remote monitoring and

control capabilities. Such remote accessibility becomes a necessity on campuses where on-site maintenance may not be present in the buildings housing these systems.

As an added benefit, we can often work with owners and their contractor to replace an existing booster setup without taking the rest of the water operations offline.

Hot Water Temperature control

Along with providing a better experience for those using the system, temperature control is crucial to meeting code guidelines at state, local, and building-specific levels. Older systems are thermostatic (mechanical), leading to a manual process of temperature setting and monitoring along with wider temperature variations (often +/-5 degrees). Mechanical operation also means they're difficult to connect to today's building automation systems as individual electronics, such as temperature sensors, must be integrated. This solution can be viable for a time but introduces another vendor, potentially complicating maintenance challenges that may arise.

Unlike many electronic mixing valves that are simply thermostatic valves with integrated electronics, Metropolitan's MetroMix was designed to be electronic. Temperature,

which only varies by +/-1 degree, is automatically logged for easy trend monitoring and system integration is simple. You can still manually actuate the valve to compensate for power loss or perform maintenance without downtime, but we provide this functionality without sacrificing the digital benefits.

Ready to Provide Complete Solutions for Any Scenario

Best of all, none of this is an all-or-nothing scenario. If only one of your specific pumps needs replacement, we can ensure the new one works well with the rest of the system. If you decide to upgrade one building and save the others, that's fine, too. We're guessing you'll find enough value in Metropolitan's components and service to make those other replacements sooner rather than later, but we'll be here to offer guidance and support along the way regardless of what you decide.



Left: Duplex booster system installed at the Henry Dale and Betty Smith Football Center at the University of Illinois at Urbana-Champaign.



Right: MetroMix installation for a healthcare center in Champaign, Illinois.

TOP OF THE LINE CONTROLS FOR TODAY'S LIFT STATIONS

The LMS II (Level Management System) is a completely menu-configurable lift station controller capable of constant or variable speed motor control for simplex, duplex, triplex, or custom pump down applications.

The LMS II is more than just a controller and touch screen, rather a complete control system designed around providing redundancy, reliability, an industry-leading feature set, and an out-of-the-box MetroCloud SCADA option– all while maintaining a focus on operator and ease of use.

The system allows for single transducer or optional second transducer, as well as an optional 100% redundant float backup system, and it is configurable for either single or dual wet-well operation.

Features include adjustable set point control, level & flow monitoring/trending, flow estimation, totalizers for pump hours and starts including 5-day history & alarm history, integrated help menu, and much, much more.

The LMS II was not just designed for the control on the ground. Every LMS II comes MetroCloud ready! Bringing end users world-class SCADA functionality, secure remote access, and alarm notification via SMS, voice, and email for as low as \$35/month. Integration with existing SCADA or BACNet systems is also a breeze with a bevy of protocol communication options and standardized tag lists.

Newly released Version 5 adds more features and flexibility to the product than ever before. Upgraded graphics provide end-users with a sleek, intuitive interface.



Above: Main LMS II screen showing triplex LS.

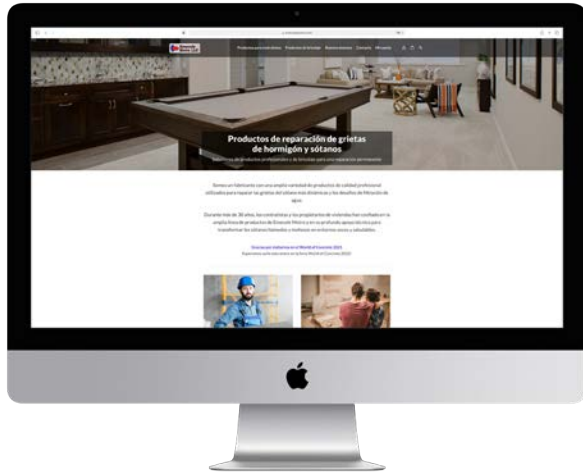
Below: Screens for easy set-up and set point changes.



Find out more at: metrocloud.us



EMECOLE METRO LAUNCHES DEDICATED SPANISH-LANGUAGE WEBSITE



Emecole's Spanish-language website increases the accessibility of products for Spanish-speaking customers.

Emecole Metro has officially launched a dedicated Spanish-language website, EmecoleEspanol.com. This effort increases the accessibility of Emecole Metro's concrete repair product offering to thousands of Spanish-speaking contractors and homeowners.

The dedicated Spanish website's selection of products is rolling out in phases. Upon launch, the website featured the most popular offerings from their foundation crack repair and concrete slab repair selection of products, including their fully equipped starter kits. The phased rollout allows for the necessary instructions, labels, and data sheets to be properly translated into the Spanish language, ensuring that Spanish-speaking end users are fully accommodated from pre-sales web browsing to the final use of product.

Emecole Metro has been the concrete repair and basement waterproofing contractor's trusted product supply partner for more than 30 years, with its extensive line of solutions for addressing water seepage and troubled foundations in basements and crawl spaces. The story of Emecole Metro starts with the pioneering of the low pressure crack injection process by company founder Lou Cole. His subsequent

formulations of his two-component epoxies and the development of his dual cartridge spring-assisted manual dispensing gun made repairing cracks in poured foundations more time-efficient and cost-effective.

Compared to the drawn-out effort of servicing leaking foundation walls via drain tile, low pressure crack injection made the servicing of foundation cracks a one-person job that could also be accomplished in only a couple of hours. Contractors had the flexibility to complete more jobs each day to result in reduced man-hours and with less manpower. When compared to high pressure crack injection, contractors saved on equipment costs with low pressure crack injection's modest component requirements.

Following its acquisition by Metropolitan Industries in 2016, Emecole Metro has maintained its commitment to supporting contractors servicing concrete and wet basement challenges. The new Emecole Metro Spanish-language website opens that opportunity to a wider audience while helping to grow the number of wet basements being transformed into dry and healthy environments.



Emecole 121 LV, 555, and 322 are just a few of the products being offered on the Emecole Spanish-language website.

emecoleespanol.com

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