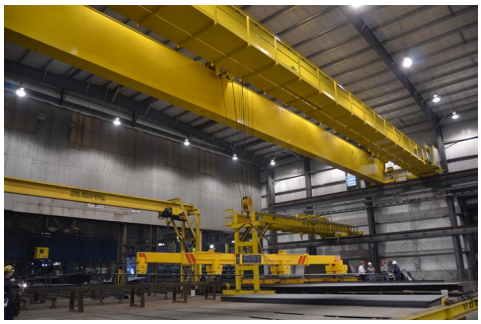

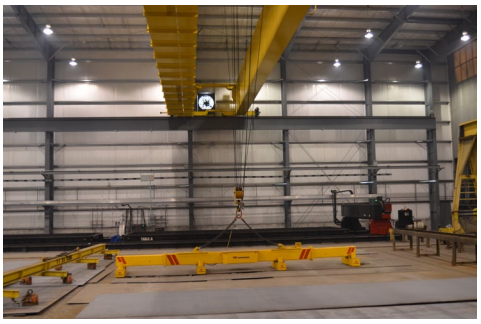

When Pennsylvania barge manufacturer Brownsville Marine Products embarked on a $15 million expansion of their facility in 2012, the goal was to increase the company's annual construction capacity to 180 barges per year to facilitate multi-year orders from its larger clients. Three years ago they built 86 barges, in 2012 they will produce 165. The expansion is partially justified by the easing of the economy, and the opportunity to address the backlog of pent-up demand. According to Brownsville Marine's CEO Tim Scheib, the expansion of the Panama Canal allowing expanded international traffic up the Mississippi is another factor.

If the Panama Canal represented one bottleneck to commerce, another existed in Brownsville Marine's manufacturing process. The company's former prep shop, where steel plate was abraded, blasted, primed and then cut to size on plasma tables had major logistical issues. Serviced by just one primary crane built in the 1930's, the process involved significant lateral movement and was not efficient.

"Prior to the expansion the bottleneck in our operation was our prep shop," says Scheib. "This expansion relocates all of our steel and prep functions in one linear flow into the plant. It is designed for maximum present and future efficiency."

Brownsville Marine is a marquee project showing how today's crane technology can be used to totally revamp productivity and output. The new building is serviced by a total of seven new cranes, supplied by Mazella's Progressive Crane, an order that is estimated at over $4 million USD. Brownsville Marine also built a new quarter-mile rail spur to the facility to alleviate supply delays from street traffic around their plant. Now, all steel is brought in by rail, and unloaded by two new 30-ton gantry cranes with fixed traveling cabs, also from Progressive Crane. The cabs are turned 180 degrees to give the operators a better view as they unload rail cars and load the steel onto a new Wheelibrator conveyance which takes it into the plant and delivers it to the plasma tables. According to Tim Scheib, the crane requirements were specific, and stringent. "We were looking for cranes with two hooks of differing capacities that could travel quickly down the runway. We also needed rapid vertical hook travel, and a high degree of reliability," says Sheib. "We had worked with Progressive Crane before through the owner, Mr. Mazella. We sent our job out for multiple bids, but Progressive gave us far and away the best package."

The expansion area is approximately 140' x 300', and contains a total of five indoor cranes doing various tasks. Three new 30-ton CMAA Class E overhead bridge cranes with 15-ton auxiliary hoists operate on a 130-foot span on the same 300' runway. These overhead cranes are equipped with heavy-duty Technomag lifting appliances that allow each to pick up multiple 3/8" to 1" plates at once. The 30-ton cranes feed five plasma cutters, creating multiple steel sections for the welders. These cranes are also equipped with sway control, which improves load-handling safety and cycle times for a more efficient operation. This new crane-based workflow allows the company to weld more sections at a time with the same number of people.

In order to maximize productivity inside the prep building, Progressive also delivered two new smaller 10-ton CMAA Class E semi-gantry cranes with twin 5-ton hoists on each. One serves an 800-ton tandem press brake used to bend steel plate. The other helps move structural pieces that are kitted onto cassettes for later assembly. This lean manufacturing technique puts steel sections into the proper order for more efficient throughput. The two semi-gantries operate underneath the three 30-ton overhead bridge cranes, and according to Mark Erny of Progressive Crane, that's where maintaining a safe workflow became really challenging.

Brownsville Marine needed all three of the prep area

overhead cranes to operate from one radio control belly box. The radios, supplied by Cervis, were required to control the Technomag lifting devices, the only option available that could pick up multiple plates. These uber-powerful magnets hang 18 feet below the hooks on the three cranes, which created a situation where an operator could potentially wrap a chain around the smaller gantries working below and pull them into the plasma cutters. Clearly, some strategic safety planning was needed.

Originally Progressive Crane explored standard off the shelf collision avoidance products, but Progressive's VP Cranes and Crane Service Mark Erny wasn't satisfied with that solution for his customer. Erny consulted with Erik Petersen at Drivecon, a company responsible for many cutting-edge evolutions in crane control, and whose core products include inverter controls with smart features.

"Our technical solution is called Traffic Cop," says Petersen. "Traffic Cop keeps track of each crane's position in a dynamic, real-time format to actively prevent collisions from occurring."

Traffic Cop is a packaged software system engineered and applied by Drivecon to meet the application requirements. Each crane in the system uses lasers for monitoring the position of the cranes and trolleys. This positioning information is routed through a PLC, and then wirelessly transmitted to a main command station that Drivecon refers to as the "crane brain." In conjunction with the traveling inverter's active load sway compensation, that command station creates and prioritizes dynamic exclusion zones around the pieces of equipment associated with the system. If one crane starts to enter an area occupied by another, the system brings it to a stop before a collision can occur.

For example, when Brownsville Marine's lower semi-gantries move along the rails out of the way, Traffic Cop recognizes that a safe distance has been reached and allows the three bridge cranes above them to continue travel. "Traffic Cop removes the operational inconsistencies by taking human error out of the equation," Petersen says.

Mark Erny agrees. "Traffic Cop is as safe as a fully automated system," says Erny. "When something gets in the way, it shuts down crane bridge and trolley travel. When it recognizes that another crane is no longer in its zone, it allows travel to resume."

The crane traveling and hoisting functions are radio-controlled with units designed by Cervis, which according to Erny, wins hands-down for reliability and ergonomics. These systems meet the highest level of control directives for safety in the world, EU directives 99/5 and 98/3 (Category 3). The radio's functionality can be upgraded by changing out a chip, and one spare transmitter can steer all five cranes. Traffic Cop works on its own separate wireless network; routed through the same belly box. "The crane does what it needs to do, but it also communicates full time via a separate wi-fi network to Traffic Cop," Petersen asserted. "It's like a parallel crane control universe, fully focused on safety."

From a practical standpoint, the Traffic Cop solution used in conjunction with Sway Control generates a positive return on investment by protecting loads, equipment, and ultimately improving safety. "If you save one major collision, you've more than paid for it," says Tim Scheib. "When you think about possible reasons these cranes could be put out of service, one of the biggest would be a collision, particularly with three cranes on one runway. Our entire manufacturing workflow is crane-dependent. Bottom line, we need to ensure that these cranes will be up when we need to use them. Traffic Cop prevents the cranes from running into each other, taking a major potential reason for crane downtime off the table."

Brownsville Marine also understands the value of maintaining their investment, and According to CEO Tim Scheib, the company has an ongoing relationship with Progressive Crane to inspect and service its crane equipment. "We're spending a lot of money to upgrade our position in the marketplace, and crane service is going to be an essential part of that upgrade," he says. "When we have a problem at 2:00 a.m. on a Sunday, I'm confident we can pick up a phone and know someone will respond. We looked at all of our options and we think we have made a perfectly responsible decision for the short, intermediate and long term to deal with Progressive Crane.