



Confident. Skilled. Safe. How Hillsborough County Water Resources Is Transforming Training

Situation

Due to retirements and a loss of skilled operators, Hillsborough County Water Resources needed to design a new training program to rebuild workforce capacity and enhance operational readiness.

Solution

Develop a simulation training program with three phases: simulation training, yard training, and evaluation. Certified trainers administer the program across all districts to develop consistent, safety-focused operators.

Addressing the Labor Shortage with Simulation Training

Hillsborough County Water Resources, a public utility servicing over 1.6 million residents, suffered labor constraints due to a wave of retirements and exits from the industry. This resulted in a deficit of trained, experienced heavy equipment operators. Managing over 6,200 miles of water, wastewater, and reclaimed water pipelines across 300 square miles, the department needed an urgent change of course.

Chris Jones, Director of Infrastructure Maintenance, turned to simulation training as a strategic response to the rapidly shifting labor market and workforce turnover. “We had new hires coming in with no equipment background and

Goals

Replace an outdated generalist model with role-specific training designed to improve safety, reduce errors, and accelerate on-the-job excellence.

The CM Labs Advantage

CM Labs offers superior, immersive, and utility-specific simulation training tools and content that outperform generic construction simulators. CM Labs’ focus on underground infrastructure, realistic controls, and hazard modeling made it the ideal choice.

longtime operators who never got deep training,” he said. “Simulation gave us a way to train both, consistently and safely.” With mounting pressure to get new operators job-ready faster than ever, Jones sought a training solution that could accelerate skills development without compromising safety or quality.

Drawing from his prior experience at Orange County Utilities and in the military, he understood the value of simulation firsthand and led its adoption at Hillsborough. The decision to partner with CM Labs was driven not only by the quality of the solution but by its focus on utilities-specific equipment and training, which he saw as a critical differentiator in the market.

Hillsborough's Simulation Training Program

To address these workforce challenges at Hillsborough County Water Resources, Jones spearheaded the initiative to build a simulation training center.

Each of the county's three operational districts is staffed with a dedicated, full-time trainer responsible for instruction and competency evaluation. Each trainer received certification on the four pieces of equipment used by the organization, including skid steer, backhoe, front loader, and trackhoe. Veteran and novice operators alike move through three phases of training:

- **Phase 1: Simulation Phase (4 Weeks)** Operators begin their training by completing intensive simulator-based training exercises, helping them develop controls familiarity and practice essential movements. These exercises replicate routine as well as high-risk jobsite conditions to expose operators to the breadth of challenges they may encounter in the field.
- **Phase 2: Yard Training (8 Weeks)** Once operators complete the simulation phase of training, they move on to real equipment in a supervised, on-site practice yard. Here students put their skills into practice in a physical space.
- **Phase 3: Evaluation Phase** Operators complete the training program by meeting transparent performance and safety metrics. Those who do not meet benchmarks are put back into the simulation phase for further training. This ensures operators who make it to the jobsite are thoroughly trained and vetted.

The training program is also used for refresher training cycles for long-term staff as well as skill enhancements when performance gaps are identified. In this way, the

training program serves new and existing operators equally, thereby strengthening the safety and skillset of the workforce as a whole.

Hillsborough launched the simulation training program in two steps. First, it standardized and upgraded existing operators' skillsets, including supervisors. With a total of approximately 120 maintenance operators on staff, training the team took approximately 12-18 months.

"This is workforce transformation, not just training. CM Labs simulators are an important asset in how we build operator excellence going forward."

The second step consists of integrating simulation training into the onboarding process for all new hires. This is a long-term vision that Hillsborough is projecting to spend the next 3-5 years on to reach full adoption.

Measuring the Success of Simulation Training

The simulation training program is guided by a clear objective: build a pipeline of specialized, safety-minded utility operators who are comfortable on the equipment from their first day in the field.

In the past, Hillsborough relied on a generalist model in which operators rotated between a variety of equipment depending on the needs of the project. This approach led to inefficiencies and diluted expertise, which was only made worse by labor constraints. Instead, Hillsborough is leveraging simulation training for deep skill development in designated equipment roles.



Hillsborough set benchmarks for the training program against performance-driven KPIs, such as:

- Improved preventive maintenance completion rate
- Fewer job delays due to operator missteps or inexperience
- Accelerated training times and readiness for field deployment
- Reduced incidents of equipment misuse or damage

Hillsborough County leverages the advanced, built-in performance analytics of the simulation training system to track progress and guide continual improvement. These analytics allow instructors to tailor feedback and adjust curriculum elements to address specific performance issues. In this way, trainers can accelerate the transfer of skills.

“We looked at a number of systems, but few understood the underground utility space.”

Another goal of the program is to help operators feel more confident, safe, and competent before stepping onto the live equipment. Simulation training is critical to achieving this end, offering a risk-free environment where operators can safely build confidence. Novice operators can make mistakes, restart the exercise, and try again without fear of injury or accident. Apprehension and anxiety can be put aside, allowing the operator to focus on the movements and expertise they need to learn.

Finally, by expanding its pool of skilled, certified operators, Hillsborough County Water Resources is able to take on more work, generate more revenue, and rebalance resources to support underserved divisions.

Why CM Labs

Hillsborough County Water Resources conducted an extensive evaluation of simulation training vendors, ultimately prioritizing CM Labs due to its experience with the unique demands of underground infrastructure maintenance. According to Jones, most providers offered generalized construction simulators that lacked

the technical depth required for water and wastewater operations. He said, “We looked at a number of systems, but few understood the underground utility space.”



More specifically, Jones selected CM Labs for the following reasons:

- **Realistic training environment:** CM Labs’ simulation training system replicates real-life ground utility operations, including complex surroundings such as traffic and pedestrians.
- **Effective operator training:** CM Labs simulators provide a safe, risk-free environment where operators can practice and build confidence without live equipment hazards.
- **Enhanced immersion:** Simulators from CM Labs can be equipped with a five-screen immersive interface. This enables greater spatial and hazard awareness, promoting greater safety training.
- **Tactile controls:** The simulators include realistic physical feedback and tactile controls, making them feel like the real thing. This helps operators develop skills that translate to the real world.

CM Labs combined immersive design, equipment realism, and industry scenarios to create the simulation training system best suited to address the specific needs of a utilities maintenance company.

With its new training program, Hillsborough County Water Resources is poised to transform training, hiring, and the way Hillsborough serves its community.