

# Advanced Perimeter Security

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Four problems  
commonly  
associated with  
hydraulic bollards,  
and how K12  
Defense has  
addressed them

In the rush since 9/11, a massive investment was made to improve perimeter security. Hundreds of thousands of at-risk facilities were secured with heavy-duty hydraulic vehicle barriers. Today, federal facilities are expected to be environmentally friendly and to operate on tight budgets.

As barriers age, major maintenance issues arise. Here are  
**4 MAIN PROBLEMS WITH HYDRAULIC BOLLARDS:**

### Hydraulic Oil Leaks



How many leaks have you experienced with your active bollard systems? How many times have you replaced hydraulic lines, fittings, and seals only to see them wear and leak again and again? Through regular operation, and because of temperature changes, components expand and contract and eventually leak. Although environmentally friendly oils can be used in most systems, leaks commonly require **MASSIVE CLEANUP EFFORTS**. Oil often mixes with debris and clogs drainage systems, resulting in **RUST** and **LIMIT SWITCH FAILURE**—externally-mounted limit switches that may control Sliding Gates, Traffic Arms and Flashing Lights.

### Not Energy Efficient



Although most systems operate on 3-phase power, they require large amounts of electricity to maintain **CONSTANT PRESSURE**. The system's valves and seals often lose pressure causing the **HYDRAULIC PUMP** to kick on sporadically. This causes premature failure of the hydraulic components. In addition to inefficient power consumption, the pumps also create noise pollution. Hydraulic pressure is **THE ONLY FORCE** used in these systems to lift the bollards.

### Limited Control



Hydraulic systems tend to move slowly when the temperature is cold and faster when the temperature is warm due to the changes in hydraulic fluid viscosity. Although each bollard in a system doesn't move in sync with the others, this doesn't affect the bollard's performance as much as it can contribute to more **MAINTENANCE ISSUES**. Oil pressure simply pushes each bollard to its maximum height, not slowing before reaching the top, which causes **STRESS** and **WEAR** on bollard **COMPONENTS** and **CRACKING** of the **CONCRETE FOUNDATION**.

### Not Completely Secure

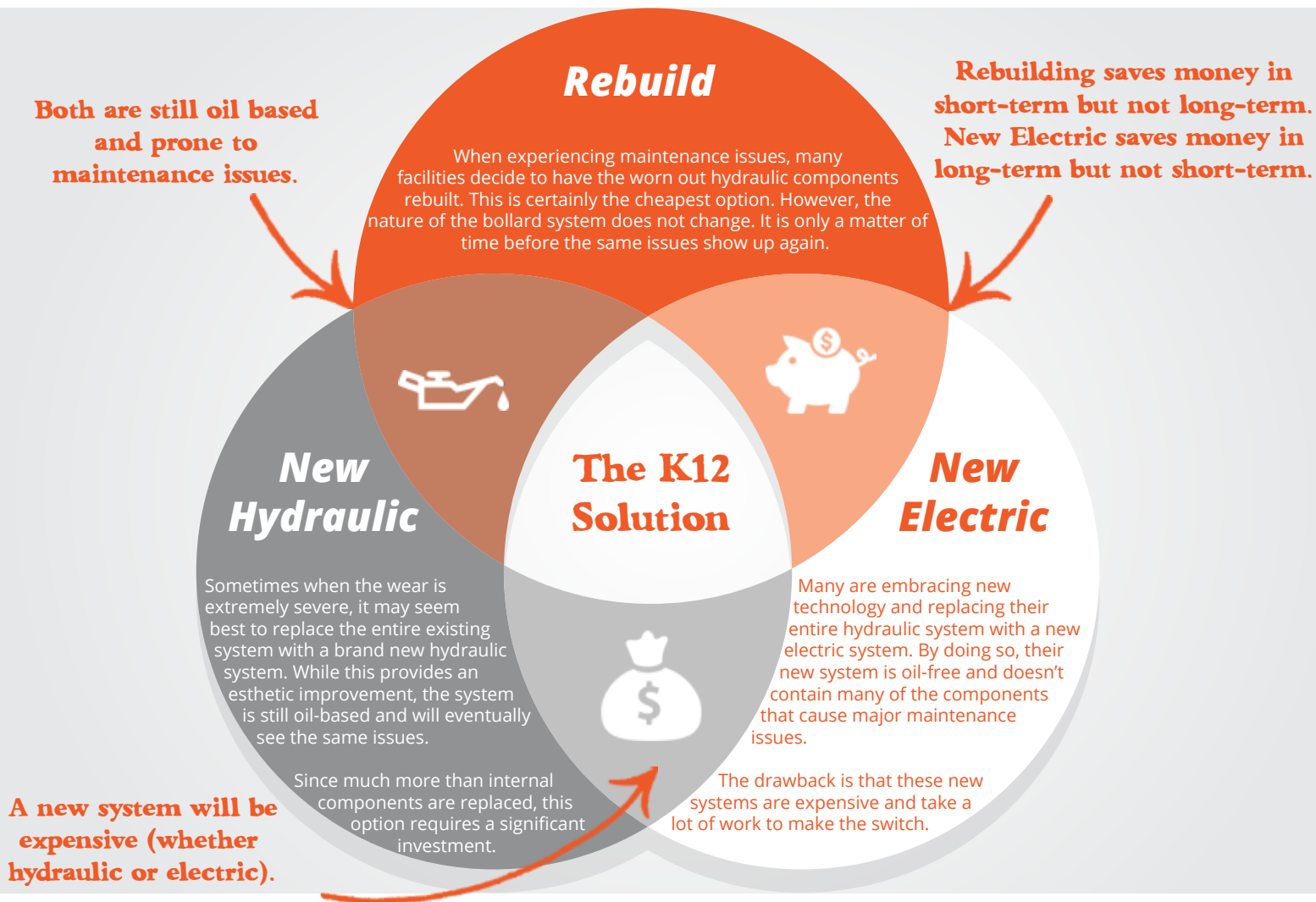


Most systems are comprised of at least 3 individual bollards. There are 2 hydraulic lines run to each of these bollards. If **EVEN ONE LINE** has a leak, the system will continue to run (trying to increase pressure), until the **ENTIRE SYSTEM** bleeds out and the "low oil level" signal goes on. At this point, there is **NO FORCE** keeping the bollards up and gravity pulls them down.

Each system operates using a Hydraulic Power Unit (HPU). If the HPU cabinet is demolished, again, there is no force and the **BOLLARDS WILL RETRACT**.

## WHAT TO DO?

What is the best route to take when your bollard system has reached its lifecycle or you've had enough of the maintenance issues? Three common options are outlined below with their respective pros and cons.



## THERE'S GOT TO BE A BETTER WAY

Wouldn't it be great if you could get all of the benefits of dumping your hydraulics and going electric without the substantial investment of money and time? You run a tight budget and these maintenance issues are bleeding you dry. At the same time, your facility needs to be secured and you'd rather not experience the prolonged downtime that comes with a full replacement of your bollard system.

## HERE'S K12 DEFENSE'S SOLUTION:

The Electric Sealed Actuating Unit (SAU) from K12 Defense is the world's first electro-mechanical retrofit for bollards. It is a pin-for-pin replacement of the hydraulic components in your current bollard system. By capitalizing on your existing infrastructure, the crash-rating of your bollards stay the same and you're spared the prolonged downtime of replacing your entire system. This prolongs maintenance cycles and reduces operating costs, saving you money short-term and long-term.



### Hydraulics Eliminated

All hydraulic components (pump, valves, accumulator, hoses, etc.) are removed from the HPU and replaced with an Electrical Power Unit (EPU). The result is an environmentally friendly system, completely eliminating leaking fluids. Since there is no hydraulic fluid to filter or replace and no hoses to wear and burst, this all electrical system requires far less maintenance.

***This all-electric system cuts maintenance costs by as much as 80%.***



### Energy Efficient

The SAU's brushless motors have an efficiency rating of greater than 90%, which is far greater than a typical hydraulic bollard system. The spring-assist component lowers the amount of electrical power needed to operate the bollard. The SAU recovers energy when the spring is compressed.

***The SAU requires less power to activate bollards.***



### Programmable

Acceleration, deceleration, and move speed are programmed into the brushless motor drive. These drives monitor the movement of the bollards and ensure consistency, regardless of temperature. Bollards are programmed to stop smoothly at the end of both the up and down moves, reducing stress and wear on components. All bollards are synchronized. Internal sensors are used instead of external limit switches which results in more reliable operation of Traffic Arms, Sliding Gates, and Flashing Lights.

***The system is completely programmable and is self-tuning.***



### Fail-Safe Locks

The fail-safe mechanical lock built into each SAU locks and holds the bollard in its current position. Power must be applied to the SAU in order to disengage the lock. The bollard cannot be circumvented by killing electrical power or damaging the control cabinet, the fail-safe mechanical lock will remain engaged and holds the bollard in place.

***A fail safe lock maintains bollard position.***



**MORE INSIGHTS**  
K12 Defense's **proprietary ELADDIN™ software** has been adopted as the standard for operational diagnostics, date/time stamping, and associated data recordation and analysis by PACAF (Pacific Air Force - 2013).



**BACKUP BATTERY**  
Worried that power outages will affect your perimeter security? It won't because each SAU includes a backup battery.

***You already have a HUGE investment in perimeter security with the existing hydraulic bollards at your facility, but they keep having maintenance issues. Put your investment to use and minimize your maintenance issues by upgrading your active bollard system with the world's first electro-mechanical retrofit for bollards from K12 Defense.***

***Learn more at [K12Defense.com](http://K12Defense.com)***



**LESS MAINTENANCE**  
When hydraulic bollards have issues, typically the faulty components are replaced, only to show the same issues over time. K12 Defense upgrades the existing hydraulic components with electro-mechanical components that don't leak and require far less maintenance.



**ENVIRONMENTALLY FRIENDLY**  
Get LEED points by completely eliminating oils that can contaminate soil and water. By operating much more efficiently, the SAU is better for the environment.