



Strengthening Physical and Cyber Security: Virginia Department of Transportation's Statewide Deployment of Medeco XT

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At a glance

Customer: Virginia Department of Transportation

Challenge: To strengthen both physical and cyber security measures by quickly and easily retrofitting existing traffic cabinets with new security technology

Solution: Medeco XT Intelligent Keys and Electronic Traffic Cabinet Locks that are a simple drop-in replacement for current locks

Results: Due to the simplicity of the XT installation, VDOT was able to quickly update and harden security for more than 6,000 traffic cabinets statewide with technology to add security and control access to only authorized personnel

Background

The Virginia Department of Transportation (VDOT) maintains thousands of traffic cabinets across the state that house sophisticated electronics which are critical to controlling traffic signals and also communicate over the state's network infrastructure. While the cabinets protect electronic controls from environmental elements, until recently, nearly all VDOT cabinets were secured using only a standard mechanical lock and common key.

The Challenge

The journey for the Commonwealth of Virginia and the VDOT management team began with a security assessment that focused on cyber security, risk compliance, and network resilience. One of the priority tasks was to assess and identify security risks to the state's transportation network.



Virginia became the first state to strengthen the physical and cyber security of its traffic infrastructure by deploying an Intelligent Key system statewide





Findings showed their traffic-related infrastructure was indeed vulnerable to these risks, though a very common situation given the rapid rise in technology over the past few years.

To remediate this condition, state officials created a list of tasks to undertake in determining the best overall solution that not only alleviated the condition but fit with their infrastructure, their traffic operations, and the ongoing maintenance and support of the state's traffic systems.

This list included investigating ways to better control access and improve security while not hindering support and operation of the traffic system. That's a huge challenge when there are more than 6,000- traffic cabinets, nine districts, five traffic operation centers, field engineers and various third-party contractors that routinely work on and support the State's systems.

Next Steps

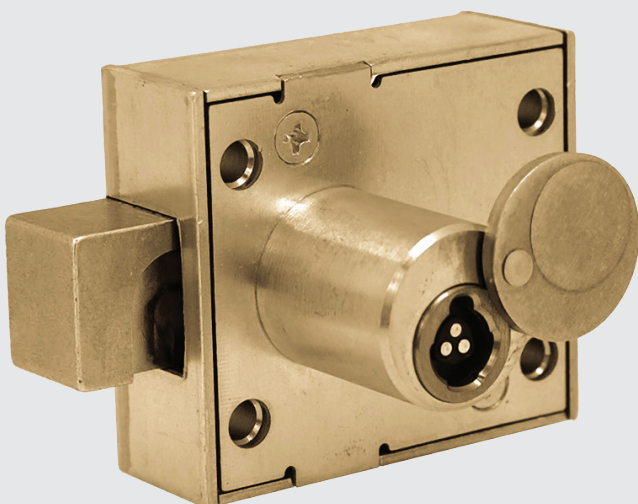
After a thorough review of industry technology, VDOT management determined that Medeco has the expertise, experience, technology, and industry recognition as a leader in high security locking systems.

To work through all the challenges, VDOT enlisted the consulting and project management services of DLG Strategic. DLG connected with Medeco and proceeded to lay out VDOT's plan for a proof of concept and evaluation of the technology.

Weekly update calls between VDOT, DLG, and Medeco were set up to review the technology, production and deployment plans, learnings from other traffic agencies, and how to make this project successful for all.

Proof of Concept

With the Medeco XT Intelligent Key system selected as the best solution for the State, VDOT and DLG put together a pilot program as a proof of concept for the real-world field test. The Medeco XT Intelligent Key system uses keys that are programmed to work with intelligent cylinders. Administrators use web-based software to grant, revoke, and schedule access. The software also generates audit reports. All of the power is in the key, so hard-wiring is not required to the cabinet.



The pilot program included 56 Medeco XT traffic cabinet locks and 22 traffic cabinet locks using a high-security mechanical key. This afforded VDOT a means to evaluate whether a lower cost, high-security mechanical key and lock would satisfy their requirements, or if what the Intelligent Key and electronic lock provided met their needs better. As the pilot was deployed, it was quickly determined that the control and flexibility of the Intelligent Key system met the state's requirements.

Compliance Review

Before being approved for installation on Virginia's state network, Medeco XT software underwent stringent compliance review by Virginia Information Technologies Agency (VITA) to assess any risks to Virginia and/or citizen data security.

With Medeco XT Web software now an ECOS approved cloud application for a Commonwealth agency to use, the software had to be set up,

VDOT manages third-party contractor access through Medeco XT scheduling and auditing functionality

configured, and programmed to be ready for the locks and keys that it would control. VDOT, DLG, Medeco, and Medeco's certified traffic partner held weekly team calls to work through the challenges. There was much behind the scenes work to do in order for keys to work in locks once they were deployed. Due to a significant amount of in-depth planning and preparation by the team, a strong plan was devised and tested to ensure the desired outcome. Ultimately, it was this plan that made the accurate identification and distribution of the locks across the state and their proper functioning a very successful project.

Deployment

With the team now finalized, both production of about 14,000 locks and planning for how to deploy those across the state began in earnest. It is no easy task to deploy that many locks, but to do so in over 6,000 locations across an entire state is a daunting task. Medeco ramped up production of the XT traffic cabinet locks to ship to VDOT in batches so that a more controlled set-up, identification, and distribution plan could be put in place by VDOT and DLG.



“...VDOT can take comfort knowing its keys can’t be duplicated or purchased online.”



Outcome

Medeco began shipping locks to VDOT in April 2021, and in less than one year, VDOT successfully deployed all across the state. VDOT also used the opportunity to deploy intelligent padlocks. The XT Web software is providing control of access to traffic cabinets and analytical reporting from all locks and keyholders.

Dwayne Cook, Division Admin, Transportation Strategy Office at VDOT said, “For this project, nine VDOT districts came together to greatly improve security on more than 6,000 traffic cabinets. As a result of the incredible support and collaboration we received from our partners, we are much better equipped to prevent cyberattacks and enjoy traceability for all individuals who access our traffic assets.”

*“This initiative clearly demonstrates that we are prioritizing security across VDOT,” said **Kevin Gregg, Chief of Maintenance and Operations at VDOT**. “We were pleasantly surprised by how quickly locks could be retrofitted into our existing cabinets. Workers simply popped out the old lock and popped in the XT. It took less than five minutes per lock.”*



Guerry Bruner, Solutions Manager for Traffic and Unmanned Infrastructure at ASSA ABLOY Opening Solutions, added, “For the past few years, Medeco has been working with municipalities and states across the country to secure traffic cabinets, but to our knowledge, Virginia is the first state that has deployed this level of technology statewide.”

“Like VDOT, many state transportation agencies enlist contractors to service their cabinets. So, they either have to assign an employee to accompany contractors to open cabinets or they have to give contractors their own mechanical key. With a mechanical key in hand, contractors have access to any cabinet at any time. Administrators don’t know which cabinets

were accessed, and they don’t know if that mechanical key was duplicated. Intelligent locks and keys give administrators total visibility and control over employees and contractors, via programmable keys and detailed audit reports – and VDOT can take comfort knowing its keys can’t be duplicated or purchased online.”



The Medeco XT system also complies with the NEMA (The National Electrical Manufacturers Association) TS2 standard for traffic control assemblies, which is designed to ensure high network reliability for remote, outdoor traffic enclosures that are subject to wide temperature and humidity ranges.

Benefits of the Medeco XT Solution

- **Control access rights** based on user profiles, including providing temporary access to individuals
- **Grant or revoke permissions** and change access rights and schedules from anywhere using **web-based software or a smartphone app**
- Respond quickly to security threats, lost or stolen keys, or personnel changes **without the added cost** and time of rekeying locks or replacing keys
- Refer to access logs in both the lock and key to get a **time- and date-stamped record of every event**, including authorized accesses and unauthorized attempts
- Utilize **one key to access thousands of locks**, based on permissions granted, thereby eliminating the need to carry multiple keys and rest easy knowing keys cannot be duplicated
- **Increase labor efficiency** by eliminating the need for employees to accompany contractors to job sites
- Eliminates need for electrical wiring or power supply, so upgrading from mechanical locks is **fast and easy**
- Complies with **NEMA TS2 standard** for traffic control assemblies





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Founded in 1968 and based in Salem, Va., Medeco is a market leader in mechanical and electronic locks and locking systems for security, safety, and control. The company's customer base includes wholesale and retail security providers; original equipment manufacturers; and institutional, commercial, industrial, and residential end users.

Patent pending and/or patent www.assaabloydss.com/patents

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2022.048-04/23