

# Vernon Hills High School

CASE STUDY



## Challenge

When Vernon Hills High School, a public four-year high school located in a northern suburb of Chicago, was constructed more than fifteen years ago, the controls system was split among four different lowest-bid vendors. With poor communication between the systems, energy use was excessive, and facility managers could not keep up with the multitude of problems, wasting hours overriding settings and addressing issues. VHHS sought a solution to reduce energy costs, free up time for its staff, and create an optimal learning environment for students.

## Solution

Drawing from the Trane Intelligent Services portfolio of products and services, Trane worked with VHHS to develop a solution that answered the school's controls system needs.

### Reducing supplier selection risk

Using cooperative procurement, VHHS was able to mitigate costs and implement a faster, easier resolution to its upgrade. With cooperative procurement, contracts are competitively bid, evaluated, and awarded to vendors that have been carefully selected based on quality, proven performance, customer satisfaction and pricing. By choosing Trane, a preapproved network vendor, the district streamlined the procurement process, freeing up staff time, and reduced its supplier selection risk, ensuring they would get the exact equipment and quality suppliers they sought.

### Consolidating systems into a single platform

The installation crew worked after hours and weekends to limit disruption to school operations and meet deadlines. The four control systems were consolidated into a single platform using a Trane® Tracer® ES, a web-based systems integration solution. With Tracer ES, facility managers gain an enterprisewide view of building systems from any web-enabled device to perform daily operations such as centralized scheduling, alarm management and remote troubleshooting. Tracer ES also supports long-term data storage to document and monitor performance, allowing operators to make informed decisions for efficient building management. With Trane support and training, operators easily adjusted to the userfriendly system.

**“The systems were trying to talk to each other, but couldn’t. We weren’t able to make ice in our thermal storage plant, and the building was way out of balance.”**

- **Mark Koopman**, District Director of Buildings and Grounds

## Vernon Hills High School

Vernon Hills, Illinois

### PROJECT HIGHLIGHTS

With a lack of communication between four controls systems causing inefficiencies and high energy use, Vernon Hills High School (VHHS) consolidated systems, resulting in an energy savings forecast of \$51,000, a \$193,000 incentive, and streamlined building management.

A U.S. Department of Education National Blue Ribbon of Excellence Award winner, VHHS was ranked by U.S News & World Report in the top 100 STEM high schools in the nation.

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### Restoring ice storage operation

With the added functionality of the consolidated controls system, VHHS was able to restore operation of its thermal storage plant. Thermal storage allows the school to shift electrical consumption to off-peak nighttime hours to control peak demand. Ice generated overnight, when energy demand and costs are lowest, is stored and then used to cool the building during the day. A Tracer Chiller Plant Control application allows facilities managers to monitor equipment, and decide whether to melt, make or preserve ice to enable efficient cooling.

### Ensuring optimal performance

A Trane Service Agreement provides scheduled maintenance by factory authorized service technicians to keep systems running at their best. With 24/7 Active Monitoring, Trane building professionals in the Trane Intelligent Services center analyze incoming alarms to resolve issues remotely or initiate necessary action to maintain performance, saving time and expense.

### Results

Working with Trane, Vernon Hills High School was able to consolidate its four controls systems into one platform, allowing the high school to achieve the control it desired for nearly fifteen years. The controls upgrade is also helping to lower energy costs, with a 641,000 kWh reduction in the first year, a year-over-year energy savings forecast of \$51,000, and a project payback of 4.8 years. In addition, Trane helped administer a \$193,000 incentive for the energy saving project.

With increased functionality and just one platform to operate, the high school has been able to improve classroom comfort and is realizing significant operational and maintenance cost savings.

"Trane worked well with our staff during the transition, training them on using the new system," said Koopman. "With a single platform, it is much easier to control the building and it is saving us a lot of time. Plus, we have a single source to go to if we have any issues."

"We no longer have a negative pressure in the building and we're able to properly manage the air flow," added Koopman. "The building is now properly balanced, which is helping us to create the right learning environment for our students."

"We can use our ice storage again, and we're not wasting energy. The project data and documentation Trane provided allowed us to receive rebates that covered approximately 44 percent of the project cost."

- **Mark Koopman**, District Director of Buildings and Grounds



### About Vernon Hills High School

The added functionality of its consolidated controls system has enabled VHHS to restore operation of its thermal storage plant, enabling the school to shift electrical consumption to less-costly, off-peak hours.



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