

VILLAGE OF HOMEWOOD



BOARD AGENDA MEMORANDUM

DATE OF MEETING: May 26, 2026

To: Village President and Board of Trustees

Through: Napoleon Haney, Village Manager

From: Terence Acquah, Assistant Village Manager

Topic: Agreement- Architectural and Engineering services for HVAC installation

PURPOSE

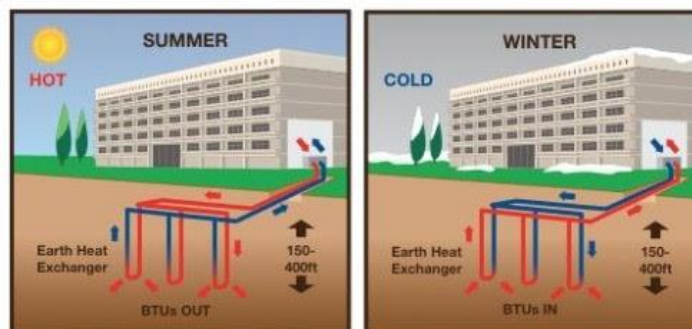
Staff is requesting Village Board approval of an agreement with Kluber Architects and Engineers of Aurora, IL to provide professional engineering and design services for the replacement of the existing geothermal system at the Public Safety Campus (Police and Fire Departments), with a new Heating, Ventilation, and Air Conditioning (HVAC) system in the amount of \$217,750. The project will also include the abandonment of the existing geothermal infrastructure. The scope of work includes the preparation of design plans and specifications, assistance with the bidding process, and construction administration and oversight throughout project implementation.

PROCESS

History of Geothermal

On September 27, 2011, the Village Board approved the installation of a geothermal HVAC system at the Public Safety Campus in an amount not to exceed \$1,546,000. The project replaced the facility's original boiler and chiller HVAC system, which had been in service for more than 20 years and dated back to the original construction of the building in 1967.

Geothermal HVAC systems operate by utilizing the consistent underground temperature of the earth to provide heating and cooling, rather than relying primarily on traditional systems powered by natural gas and mechanical chillers. At the time, the geothermal system was selected because, although it carried a higher initial installation cost, it was projected to provide significant long-term operational and energy savings when compared to a conventional HVAC system.



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In addition to anticipated cost savings, the geothermal system was viewed as a more environmentally sustainable option, easier to install than rooftop equipment alternatives, and expected to require less long-term maintenance. Projections at the time estimated that the higher upfront investment would be offset through energy savings within approximately 10 years, with an estimated savings of nearly \$600,000 over a 30-year period compared to the previous system. The project also benefited from a \$90,000 grant awarded through the Illinois Clean Energy Community Foundation.

Failure of Geothermal

Over the past several years, the geothermal HVAC system at the Public Safety Campus generally operated as originally intended and provided heating and cooling services to the Police and Fire Departments. However, as the system has continued to age, the Village has experienced increasing operational challenges, rising maintenance demands, and growing concerns regarding the long-term reliability of the system. In recent years, staff has dedicated a significant amount of time and resources to troubleshooting, servicing, and maintaining the system in an effort to keep it operational.

One of the most significant concerns involves the geothermal control system, which has become outdated and increasingly unreliable. Preliminary estimates to replace and modernize the control system alone have been quoted at approximately \$800,000. In addition to the aging controls, the system has experienced multiple mechanical failures involving pumps, valves, sensors, and other critical components necessary for proper operation.

The Village is also currently dealing with an ongoing glycol leak within the geothermal loop system. Glycol is a non-toxic fluid used within geothermal systems to transfer and regulate heating and cooling temperatures underground. While the fluid itself is designed to be environmentally safe, staff and contractors have been unable to definitively locate the source of the leak within the extensive underground well field infrastructure. This has created ongoing operational inefficiencies and increased maintenance concerns, as the system requires continual monitoring and refilling to maintain proper performance.

Another major challenge is the increasing difficulty in obtaining replacement parts for the system. Due to the age and specialized nature of the equipment, many components are no longer readily manufactured or supported. In several instances, staff has had to search secondary markets, including online resale platforms such as eBay, to locate replacement parts necessary to keep portions of the system functioning. This has created delays in repairs, increased uncertainty in maintenance operations, and raised concerns regarding the long-term sustainability of continuing to operate the system.

As the system's efficiency has declined, the Police and Fire Departments have also experienced ongoing heating and cooling inconsistencies throughout the facility. Certain areas of the building frequently struggle to maintain comfortable temperatures during both extreme summer and

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winter conditions. As a result, staff has often relied on supplemental plug-in heaters, portable fans, and wall-mounted cooling units to maintain workable conditions in offices, workspaces, and living quarters. These temporary solutions are not ideal for a critical public safety facility that operates 24 hours a day, 365 days a year, and they further highlight the growing need for a modern, reliable HVAC system capable of consistently supporting daily operations and employee working conditions.

Request for Qualifications (RFQ)

To address the increasing operational challenges and long-term reliability concerns associated with the aging geothermal HVAC system, Village staff issued a Request for Qualifications (RFQ) on October 10, 2025, seeking professional engineering services for the evaluation, planning, and design of a new HVAC system for the Public Safety Campus. The RFQ specifically sought firms with experience designing and evaluating HVAC systems for mission-critical facilities such as police stations, fire departments, and other 24-hour emergency response operations.

Following the RFQ process, the Village received qualifications from three (3) engineering firms: Interface Engineering of Chicago, IL, Kluber Architects and Engineers of Aurora, IL, and Valdes Architecture and Engineering of Lombard, IL. Each firm submitted information outlining their experience with geothermal and conventional HVAC systems, lifecycle cost analysis, mechanical system design, and work involving mission-critical public safety facilities. Staff subsequently reviewed and evaluated the proposals as part of the Village's qualifications-based selection process.

Kluber Architects and Engineers was ultimately selected by staff to conduct the study and assist with the transition away from the existing geothermal system based on the firm's extensive experience performing similar HVAC evaluations and replacement projects for other municipalities and public sector facilities. Staff also considered the firm's familiarity with Village operations and facilities, as Kluber previously partnered with the Village during the renovation of Village Hall. Their prior experience with municipal facilities, combined with their established working relationship with the Village, positioned the firm as the most qualified consultant to evaluate the Public Safety Campus and develop recommendations for a modern, reliable HVAC solution. The final amount of the study was \$14,750.

Who is Kluber?

Kluber Architects and Engineers is a full-service architectural and engineering firm headquartered in Aurora, Illinois, with extensive experience providing mechanical, electrical, and facility design services for municipalities and other public sector clients throughout Illinois. Founded in 1988, the firm specializes in the planning, evaluation, and design of municipal and mission-critical facilities, including police departments, fire stations, public works facilities, village halls, justice centers, and other 24/7 operations.

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Kluber has completed numerous HVAC studies, system replacements, and facility improvement projects for municipalities and public agencies such as the Villages of Oak Brook, Woodridge, Hinsdale, and North Aurora, as well as Kane County, DuPage County, and the City of West Chicago. Their experience includes evaluating aging mechanical systems, developing phased replacement strategies, improving energy efficiency, and overseeing construction in occupied facilities that must remain operational during renovations

Proposed recommendation

As part of the study, Kluber documented the complexity and condition of the existing geothermal HVAC system, which includes 24 geothermal wells, multiple ground-source heat pumps, aging piping infrastructure, dedicated ventilation systems, rooftop units, and specialized systems serving the shooting range and apparatus bay. The evaluation also identified operational concerns related to ventilation, maintainability, comfort control, and long-term reliability of the existing equipment.

Following the evaluation, Kluber explored multiple replacement alternatives for the facility. The firm ultimately presented two primary options to the Village for consideration:

Option 1 – Variable Refrigerant Flow (VRF) System

Option 2 – Hot Water / Chilled Water System (Boiler-Chiller Central Plant)

Option 1 – Variable Refrigerant Flow (VRF) System

Option 1 involved replacing the existing geothermal system with a modern Variable Refrigerant Flow (VRF) HVAC system. A VRF system uses refrigerant lines instead of traditional hot and chilled water piping to provide heating and cooling directly to individual areas throughout the building. This type of system allows different areas of the facility to be heated or cooled independently, providing greater temperature control and energy efficiency.

Under this option, multiple outdoor condensing units would be installed outside or on the roof of the facility and connected to indoor air handling units throughout the Police and Fire Departments. The system would also include dedicated outdoor air systems to improve building ventilation and indoor air quality.

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Option Estimated Cost 1- Variable Refrigerant Flow (VRF) System

LINE	COST ITEM	COST
01	Building Remodel Construction Raw Cost	\$1,063,943
02	Building Design Contingency (10.00%)	\$106,394
03	SUBTOTAL BUILDING CONSTRUCTION COST	\$1,170,337
04	General Contractor OH & P (15.00%)	\$175,551
05	General Contractor Bond & Insurance (2.00%)	\$26,918
06	TOTAL BUILDING CONSTRUCTION COSTS	\$1,372,806
07	Building Construction Contingency	\$100,000
08	Estimated Permit Fees	\$0
09	Abatement (Not Included)	N/A
10	A/E Fees (TBD)	TBD
11	TOTAL SOFT COSTS	\$100,000
12	TOTAL PROJECT COST	\$1,472,806
	Alternates: (including OH&P, Bond & Insurance)	
13	Bldg Alternate No. 1 - Apparatus Bay / Sallyport	\$45,161
14	Bldg Alternate No. 2 - Shooting Range	\$630,356
15	TOTAL PROJECT COST WITH ALTERNATES	\$2,148,323

Option 2 – Hot Water / Chilled Water System (Boiler-Chiller Central Plant)
 After reviewing the operational needs of the Public Safety Campus and discussing the alternatives with Village staff, Kluber recommended proceeding with Option 2, the Hot Water / Chilled Water System.



Floor-mounted fan-coil unit

Kluber recommended replacing the existing geothermal HVAC system with a more traditional hot water and chilled water system designed specifically for long-term reliability and ease of maintenance at the Public Safety Campus. The recommendation includes removing the existing geothermal infrastructure and installing new high-efficiency boilers for heating and a rooftop chiller system for cooling. The new system would distribute heating and cooling throughout the Police and Fire Departments using updated fan coil units and improved ventilation systems to provide more consistent temperatures, better airflow, and improved comfort throughout the facility.

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High-efficiency boilers

Village maintenance staff is already familiar with Hot Water/Chilled system because this was the previous system used before the Geothermal system. Moving to this method would make repairs and long-term maintenance easier and more cost-effective. In addition, replacement parts are more readily available compared to the existing geothermal equipment, which has become increasingly difficult to service. Overall, the boiler and chiller system was viewed as the most reliable and practical solution for a mission-critical facility that operates 24 hours a day, 365 days a year even if the initial cost is higher.

Option 2 Estimated Cost - Hot Water / Chilled Water System (Boiler-Chiller Central Plant)

LINE	COST ITEM	COST
01	Building Remodel Construction Raw Cost	\$1,642,667
02	Building Design Contingency (10.00%)	\$164,267
03	SUBTOTAL BUILDING CONSTRUCTION COST	\$1,806,934
04	General Contractor OH & P (15.00%)	\$271,040
05	General Contractor Bond & Insurance (2.00%)	\$41,559
06	TOTAL BUILDING CONSTRUCTION COSTS	\$2,119,533
07	Building Construction Contingency	\$100,000
08	Estimated Permit Fees	\$0
09	Abatement (Not Included)	N/A
10	A/E Fees (TBD)	TBD
11	TOTAL SOFT COSTS	\$100,000
12	TOTAL PROJECT COST	\$2,219,533
	Alternates: (including OH&P, Bond & Insurance)	
13	Bldg Alternate No. 1 - Apparatus Bay / Sally Port	\$45,161
14	Bldg Alternate No. 2 - Shooting Range	\$630,356
15	TOTAL PROJECT COST WITH ALTERNATES	\$2,895,050

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Cost Breakdown

To provide flexibility for funding and construction sequencing, Kluber developed a phased implementation approach for the project. Phase 1 would consist of the overall HVAC improvements to the Public Safety Campus, including the new central boiler/chiller plant, building-wide HVAC distribution upgrades, ventilation improvements, and associated infrastructure work. Phase 2 would be dedicated specifically to the shooting range HVAC and filtration improvements. Kluber recommended that the shooting range work (\$630,356) be bid separately and completed at a later phase due to the specialized nature of the ventilation and filtration systems and to allow the Village greater flexibility in project scheduling and budgeting. The Apparatus Bay/Sally Port portion of the project, was dropped due to it not being a critical part of the project. This will bring the initial cost more in line with option 1.

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12	TOTAL PROJECT COST	\$2,219,533

The final cost for Kluber to provide architectural and engineering services will be \$217,750. In addition, potential hazardous material abatement costs have not yet been fully identified, as unknown conditions may not become apparent until construction activities begin.

It should also be noted, within the \$217,750 amount, \$45,000 has been budgeted for commissioning services that will be required as part of the project to ensure the new HVAC system is installed, calibrated, and operating properly prior to final acceptance.

To assist with the cost of the project, the Village has secured \$700,000 from the Department of Commerce and Opportunity (DECO) to assist with project. These funds will be reimbursed to the Village when the project is completed.

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What's next?

Upon approval of the agreement by the Village Board, Kluber Architects and Engineers will begin preparing the detailed construction drawings, technical specifications, and bid documents for the project. Staff anticipates this design phase will take approximately 6–8 weeks to complete before the project is formally advertised for bid.

Due to the critical nature of the Public Safety Campus and the need to maintain reliable heating operations during the winter months, construction is anticipated to begin in spring 2027. This schedule is intended to avoid major disruptions to the heating system during colder weather conditions. During the summer months, staff will implement temporary safeguards and operational measures as necessary to help maintain cooling and comfort throughout the facility while construction activities are underway.

It should also be noted that the existing geothermal wells located beneath the Village Hall parking lot will ultimately be abandoned as part of the overall HVAC transition project. At this time, it is anticipated that the future developer associated with the Village Hall parking lot redevelopment project will be responsible for the removal and final restoration of the geothermal well field infrastructure.

Preliminary Project Timeline

Phase 1 – Public Safety Campus HVAC Improvements

- **Summer/Fall 2026** – Final design and construction documents completed
- **Late 2026** – Village review and bidding process
- **Winter 2026 / Early 2027** – Contract awards and equipment procurement
- **Spring 2027** – Construction begins
- **Spring 2028** – Substantial completion of Phase 1 improvements
- **Summer 2028** – *Final completion and closeout of Phase 1*

OUTCOME

Moving forward with the project will allow the Village to replace the aging and increasingly unreliable geothermal HVAC system at the Public Safety Campus with a modern, more dependable heating and cooling system designed to support 24/7 police and fire operations for decades to come. The new system is expected to provide improved temperature control, better ventilation, increased energy efficiency, and a more comfortable working environment for police and fire personnel, while significantly reducing the maintenance challenges and operational issues currently associated with the geothermal infrastructure.

The project will also position the Village for greater long-term operational stability by transitioning to a system that is easier to maintain, utilizes readily available replacement parts, and can be serviced more efficiently by Village staff and contractors. Ultimately, the investment

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will help ensure the Public Safety Campus remains a safe, reliable, and functional facility capable of supporting critical emergency services operations well into the future.

FINANCIAL IMPACT

- **Funding Source:** General Capital
- **Budgeted Amount:** \$2,500,000 including \$700,000 of grant funding from DCEO
- **Cost:** \$217,750

LEGAL REVIEW

Pending Legal Review

RECOMMENDED BOARD ACTION

Authorize the Village President to enter into an agreement with Kluber Architects and Engineers of Aurora, IL to provide professional engineering and design services for the replacement of the existing geothermal system at the Public Safety Campus (Police and Fire Departments), with a new Heating, Ventilation, and Air Conditioning (HVAC) system in the amount of \$217,750.

ATTACHMENT(S)

- Proposal
- Final Report
- RFQ
- RFQ Response
- Presentation