



## CMAA AWARD-WINNING DELSEA REGIONAL HIGH SCHOOL ROOFING & HVAC REPLACEMENTS

By: Michael A. Schaefer, CEFM

### Project Summary

In a special election held 30 September 2014, voters in New Jersey's Delsea Regional School District (DRSD) approved a \$20.7 million bond referendum for multiple projects throughout the district, of which \$10.8 million was slated for the high school. The high school was built in 1959 with five additions over the next 50 years. The Roofing & HVAC Replacements project included a new digital data control system, electrical service, fire alarm system, ADA upgrades for classroom access, and some ceiling replacements.

DRSD and Garrison Architects submitted designs for approval with a scheduled Phase I start in February 2014 and the high school project start date in February 2015. The referendum's final eligible costs were submitted in July 2013 to the N.J. Department of Education (DOE); however, due to an influx of Regular Operating District (ROD) grants submitted, the DOE placed a hold on approvals. DRSD could not vote on its referendum for 18 months after the final eligible cost had been locked. The Phase 1 Project was bid in October of 2014, awarded and completed on time in November of 2015. However, during the interim timeframe, the construction market became less competitive and costs rose, which resulted in the high school project having to be publicly bid twice. It was finally awarded after negotiating with the three lowest bidders after some design changes.

### Construction Management Summary

GREYHAWK was engaged for project and construction management services in January 2015 and immediately led the design team in efforts to begin construction in February 2015 for Phase 1 and then roll right into the high school project after the negotiated award in January 2016.

The industry standard agreement to manage the \$10.8 million construction project included: preconstruction phase services for constructability reviews and assisting in the bidding process; construction phase services to assist contractors in obtaining permits, observation, monitoring, and daily reporting on construction progress in accordance with contract documents; providing construction cost data (estimated and actual) to the DRSD Business Administrator; and post-construction phase services to assist with development of punch lists, obtaining certificates of occupancy, and compiling close-out documentation.

Using one full-time and one part-time construction manager, GREYHAWK provided oversight of the general contractor and 15 subcontractors for both first and second shift work during the school year and extended days and weekends during the summer months. GREYHAWK's full-service program management and tireless commitment to project success ensured final and successful completion of all phases of work by November 2016.

### Quality Management

GREYHAWK coordinated all construction management activities for the DRSD High School Roofing & HVAC Replacement project, served as liaison between the DRSD and all prime and subcontractors, and coordinated the district's environmental contractor as needed to address concerns during the demolition phase. GREYHAWK led the effort and performed extensive constructability reviews resulting in large pre-bid addendums that prevented future changes.

From the moment a project is awarded, GREYHAWK implements a methodology of communication, coordination, monitoring, documentation, and follow-up. The design intent of the architect and engineers is balanced with the owner's primary objectives. During construction, GREYHAWK examines work in progress on a daily basis, and notifies contractors and the design team before small problems become large. Extensive photo documentation, daily reporting of issues and resolutions, and daily communication with field superintendents and subcontractors ensures issues are discussed and solutions vetted. GREYHAWK takes a proactive lead, managing and maintaining a work-to-complete list with diligent follow-up to ensure end results with minimal defects and that the owner's vision is fully realized. By putting this quality management methodology into action, GREYHAWK ensured successful project completion and DRSD gained much-needed school updates.

### Cost Management

During preconstruction, GREYHAWK facilitated value management and negotiation with the three contractors, saving DRSD almost \$1.1 million. Bid activity was encouraged in order to maximize the competitive bid environment. Taking advantage of the revised strategy and use of alternate bids and allowances, GREYHAWK worked with the architect and



DRSD to develop and coordinate design enhancements, analyze change order requests, and ensure good value. The design team received \$861,370.00 in change order requests; through strict adherence to contract documents, use of allowances, negotiation and other sources of funding outside the referendum, GREYHAWK reduced that number to \$275,707.00 with no claims or liens filed. GREYHAWK went above and beyond tracking construction cost, also tracking all soft costs and estimating potential change orders; this due diligence provided real-time financial status of the referendum and financial protection for DRSD.

### Schedule Management

The work was completed using second shift during the winter/fall of 2016 and extended day shifts and weekends during the summer of 2016. The general contractor used an in-house project scheduler, who was responsible for developing the initial project construction schedule and providing monthly updates. During preconstruction, GREYHAWK provided specific schedule requirements, which were incorporated into the general and supplementary conditions and front-end specifications. School construction is always dictated by the need to open in September; a delay of one week can be disastrous. By monitoring actual progress versus the updated schedule, GREYHAWK could anticipate when contractors needed to assign additional resources to meet schedule milestones. GREYHAWK also coordinated all second-shift construction activities. During the construction timeframe, The DRSD never missed or had to adjust the school year start date or extend or cancel any scheduled school recesses and there were zero project incidents.

### Safety Management

During the 10-month construction project, there were zero incidents and during the seven-week summer construction timeframe, with crews working extended day shifts and Saturdays and over 70 tradesmen working, there were zero lost-time injuries. GREYHAWK contributed to this phenomenal safety record by making construction safety awareness a priority and constant theme throughout the project. Contractors were required to prepare safety plans and enforce the plans among workers, subcontractors, and suppliers. Any deficiencies or concerns required immediate resolution.

### Innovation and Creativity

With the unfavorable bidding atmosphere, the design team was tasked with a partial redesign and identifying alternate equipment and materials to reduce the overall cost. This had to be done in order to award the project in keeping with the intent of the referendum. The majority of the savings came from substituting a factory-applied glue instead of field-applied glue for the EPDM rubber roofing material and redesigning the types of HVAC equipment to be used in different areas of the building.

### Customer Service

From the first phasing development meetings through construction completion, GREYHAWK effected exemplary customer service for DRSD. Consistent and continual updates provided by GREYHAWK kept DRSD apprised, including regular budget updates to the owner's business administrator to reconcile the DRSD and project budgets; this was especially critical in managing change orders and contingency, and ultimately, it allowed DRSD to integrate certain aspects of work that were not possible at the time of construction contract award. Due to the large scope of the referendum, GREYHAWK repeatedly served as a subject matter expert, providing transparency in the process and how tax monies were being spent to taxpayers, constituents, civic leaders, and the community. GREYHAWK's tireless commitment ensured the project was completed successfully.

### Green Building

Although LEED certification was not pursued, portions of the work were designed to green best practices, starting with the efficiency ratings of the HVAC equipment to utilizing EPDM roofing with factory-applied adhesive.

*This article originally appeared as a submission for the CMAA Mid-Atlantic Project Achievement Awards for which it won the 2017 Award for Best K-12 Project Under \$20 Million.*

#### About the Author

*GREYHAWK Project Manager Michael A. Schaefer, CEFM, has over 30 years of construction management experience. He led the project for Delsea Regional High School. Contact him at [mschaefer@greyhawk.com](mailto:mschaefer@greyhawk.com).*