



Information Item: Air Conditioning Options Study

TO: School Board
Trisha Kocanda, Superintendent

FROM: Greg Kurr, Chief Financial Officer

November 15, 2016

Overview & Background

At the September 20, 2016, School Board meeting, the Board asked Administration to define options to provide full or increased air conditioning at four schools (Carleton Washburne School is already fully air-conditioned). In response to this request, Administration met with the District's architect, Green Associates, and its structural engineering firm, 20/10 Engineering Group, to evaluate the current situation and to develop potential options.

Over the years, similar analysis has been prepared and considered for implementation. While these analysis were used as a reference, the approach was to evaluate options in light of current technology and the current condition and operation of the buildings. In addition, the objective of the analysis was to identify options to air condition the entire school and also to identify and evaluate options to air condition additional "common spaces" within a school with a view to provide additional areas of relief on hot days.

The results of this analysis are provided in the attached report prepared by 20/10 Engineering Group. This report provides a technical narrative of the various options as well as schedules of the related estimated costs of implementing the options under described assumptions. A summary of the costs under an assumed more realistic multi-year implementation plan for fully air conditioning the schools is also provided in the tables attached to the 20/10 report. In consideration of the benefits of not only adding air conditioning, but also replacing aged and inefficient steam heating and related ventilation systems, 20/10 provided its recommended Option E approach to fully air conditioning the schools.

The tables attached to the report also provide a separate area and cost analysis by school to address potentially air conditioning additional "common space" areas within a school. In order

to assist in visualizing the benefit of air conditioning these spaces, 20/10 attached floor plans of each school highlighting separately existing air conditioned staff and student use areas and the potential additional air conditioned areas.

A factor that has been used in evaluating the cost benefit of adding air conditioning to schools is the duration and amount of seasonal heat impacting the schools. Administration asked the District's environmental consulting firm, Ramboll/Environ, to provide an historic analysis of a heat index by days in the spring (May 15 to June 10) and the fall (August 28 to September 30). The heat index is composed of the combination of temperature and relative humidity.

The various graphs that Environ prepared are attached. The first set of line graphs provide a summary of heat and relative humidity for the spring and fall periods from 2010 to 2015. The second set of bar graphs depict the number of days over a twenty year period that the temperature and relative humidity combined exceeded certain demonstrative bench mark levels. The figures used to prepare these graphs was obtained from data compiled at the accredited Executive Airport in Wheeling. While there is no statistical data to support a variant factor for closer proximity to Lake Michigan, the belief is that the location would provide on average an approximate 2-degree benefit.

This information is provided for the Boards' benefit in evaluating and discussing options for any potential implementation of additional air conditioning in District schools. Administration is available to address any additional question or follow up needs that the Board might have.

Recommendation

None; informational only.

Attachments

Report by 20/10 Engineering Group of air conditioning options

Analysis of historic temperature and relative humidity

Diagrams of air-conditioned areas