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Diving In

**Athletic Facilities Aim to Improve
Student and Community Experiences**



Data Delivery

Facility, Program Indexes Help Determine Project Needs for Nevada District

By Carolyn Staskiewicz

When the Clark County School District in Las Vegas began its 10-year master capital planning project in 2008, school administrators utilized an extensive planning process to ensure that they successfully meet their goals now and in the future.

The district created a facility quality index (FQI) that includes a standard facility condition index (FCI) and a program index (PI) that identifies each school's educational adequacy. Furthermore, a customized decision tree was developed to address specific needs of prototypically designed schools and multiple-building campuses.

While most large school districts in the United States use an FCI during the facility planning process, they don't always use a PI. The FCI helps districts decide if they should replace buildings based on the standards under which they were built. The PI enables districts to go one step further and look at current educational-building standards, which include more square footage for classrooms and other enhancements.

Incorporating a PI often results in higher projected building cost, but the information is worth gathering during the planning process because it helps prioritize capital projects. An FCI and a PI allow planners to be proactive instead of waiting until buildings begin to crumble or outlast their usefulness.

Population Growth

Administrators in Clark County proactively assembled a team of professionals to provide their facility managers with all the information they need as they plan their capital budget for fiscal years 2010 through 2020.

As the fifth-largest school district in the United States, Clark County serves more than 311,000 students. It is the fastest-growing school district in the country, with 200 new schools since 1986. The district now has more than 340 schools and oversees more than 34 million square feet.

A 1998 school bond will add 101 new and 11 replacement schools while providing approximately \$800 million in various other capital improvements. Generally speaking, the district's portfolio of buildings is relatively large and young. The median age of a campus is 20 years.

The project team involved in the master capital plan includes VFA Inc., a Boston-based provider of capital planning solutions; DeJong, an Ohio-based provider of educational master planning services for K-12 school districts; and Tate Snyder Kimsey Architects, a Henderson, Nev.-based architectural firm.

The team's goal was to develop a process to identify buildings in order of

greatest need, then identify needs at individual campuses. The process involved objective assessment data that enabled the team to assemble a facility condition assessment, an educational adequacy assessment and a master capital plan.

The facility condition assessment

evaluated the current composition and condition of each school's physical assets, including buildings and their major component systems, site infrastructure elements — such as paved areas and playing fields — and utility services. The educational adequacy

assessment evaluated how well a campus is equipped to deliver instructional curriculum.

The master capital plan incorporates the information from the two assessments and also includes a replace/repair rule established by the

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district's bond oversight committee. The rule states that if the FCI is greater than 60 percent, the school will become a candidate for replacement. If the FCI is less than 40 percent, it will not be a candidate for replacement, and any work needed will be through renovations or additions. For schools with an FCI between 40 and 60 percent, other factors, including program needs, will be considered to determine if the school's total need surpasses the replacement threshold.

While it is natural to expect that older schools are in poorer condition than newer schools, this is not necessarily the case. There is no clear pattern between facility age and condition at the district. Therefore, deciding to replace all schools that reach a certain age would be wasteful. That is why the team reviewed each school by varying prototype.

Prototypical Consistency

The Clark County School District has a long history of implementing prototyp-

ical schools to promote consistency, equity and fiscal responsibility.

Because it is difficult to analyze 214 schools at the same time, the team reviewed the schools by prototype.

Most prototypes were designed and built over a span of 10 to 14 years and share similar issues involving educational adequacy, condition and lifespan.

The team identified prototype buildings by decades — schools built in the 1950s, '60s, '70s, '80s and '90s. The pros and cons of each group were identified so the district could compare dollar amounts to be spent by group.

The data gathered from the entire process was placed into a master capital planning decision tree to calculate the recommended action for a school or building through a series of questions related to the metrics.

The decision tree assigns facilities into groups based on certain thresholds for

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The Steps of the Decision Tree

Step 1: Determine which schools qualify for replacement of the entire campus or select buildings. Since the funding source for the capital budget is a 10-year bond that will most likely be available in two years, the team recommended a 12-year analysis of which schools might need to be replaced.

Step 2: Buildings that need major renovation or expansion work move to this step. Major renovations can involve a budget of up to 40 percent to 60 percent of a building's replacement cost. Since renovation and addition projects are planned using a four-year planning horizon, the team recommended that four-year metrics inform these decisions.

Step 3: The remaining buildings move to this step, which identifies buildings requiring component

renewals or program projects but not major renovations. These typically have budgets between 16 percent and 39 percent of a building's replacement value.

Step 4: This is the "age gracefully" step, in which only high-priority program needs and/or critical systems are addressed. All other work is deferred until the building moves up into a higher category.

Step 5: The final step in the decision tree is for buildings that require emergency reserve funds. These specific buildings cannot be pre-planned, and the actual dollars spent from this fund vary from year to year. Having an emergency fund set aside prevents delays for planned projects at other schools when districts must use that money to address unanticipated emergencies elsewhere.

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A building flush-out was conducted prior to occupancy to ensure air quality met EPA environmental standards.

construction waste went to a local recycling company for salvage or reuse, and renewable materials and recycled content were utilized wherever possible.

Flooring is made from cork and bamboo, roof shingles contain 40 percent post-consumer material, and insulated glass contains 25 percent recycled material.

A building flush-out was conducted prior to occupancy to ensure that indoor air quality meets EPA environmental requirements and that the building was completely safe for students.

Sustainability was also planned as a teaching tool for students during construction. Signs detailing the green features were hung on the fence so students could follow the progress.

Aesthetic Goals

Designers were also challenged with satisfying the aesthetic goals of the campus.

Mount Holyoke is often considered one of the most beautiful college campuses on the East Coast, says Ray Weaver III of S/L/A/M Collaborative. The new residence hall needed to blend in with other Elizabethan-style and older English-style brick buildings.

“This building demonstrates that you can have modern features in a historical context, and it doesn’t have to look like a space ship.”

“This was my toughest challenge: to provide a building that integrated with what the college holds in high accord but was still a 21st-century building,” Weaver says.

Key design members toured Amherst College, the University of Massachusetts and Middlebury College in Vermont for inspiration. Open forums

with Mount Holyoke students were also organized to gauge their preferences.

Although the exterior blends well with the campus architecture, a walk inside reveals a plethora of updated technology.

The building features WiFi connectivity, and plasma screens display current events. Occupancy and daylight sensors adjust a artificial light in the public spaces to conserve electricity and reduce heat loads. A heat-recovery wheel also saves energy in the heating and cooling system.

“This building demonstrates that you can have modern features in a historical context, and it doesn’t have to look like a space ship,” Bergmiller says.

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FQI, age, etc. The questions were designed to identify the most extensive strategies first, such as campus replacement.

Before committing schools to a course of action, a rank-and-filter step was included in each step to allow district staff to consider current priorities and budget constraints. In addition, a “project reality check” was also included to sort out any anomalies.

After the general strategies were established for each facility based on the decision tree, district administrators used a prioritization methodology developed by VFA to determine which projects at a facility should be handled first. The decision-making process in this methodology isn’t focused on a direct comparison between one project and all the others. Instead, it is based on the attributes that contribute to the inherent value of the projects. This allows decision makers to focus on the mission without bias toward particular projects.

The decisions are simplified and codified by using a proven mathematically-based process and meeting the district’s goal to select data-driven, unbiased attributes that provide the necessary criteria in determining the degree of importance of each project, without an independent review of each project during the selection process.

VFA used a pairwise comparison method that compares entities in pairs to judge which of the pair is preferred or has a greater amount of quantitative property. It is a method of breaking down very complex, multidimensional

decisions into discrete pairings of value.

The results of the pairings are mathematically quantified and combined to create composite scores for the alternatives being considered. Though the mechanics of the system are complex, they are a distillation of the relative value placed by district educators on various facility attributes in the delivery of the educational mission. Thus, they reflect the prioritized needs of the entire organization.

Funding Scenarios

The team also created funding scenarios for district administrators. If the district wants to reach an average 10 percent FCI, it should plan to spend \$191 million per year for 12 years on existing facilities; a 15 percent FCI would require \$180 million per year. This does not account for inflation and assumes the same backlog.

Another scenario was more far-reaching: If the district wants to complete 100 percent of the projects identified today resulting in an average 2 percent FCI, \$445 million per year is needed.

Deciding which strategy — replace, renovate, renew or age gracefully — to employ at each school can be politically and emotionally charged, but now administrators have the necessary data to reconcile their decisions.

Carolyn Staskiewicz, REFP, joined DeJong in 1998. She serves as vice president of operations for the educational facility planning firm based in Dublin, Ohio, and is president of CEFPI-Ohio.

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