



Capacity Evaluation & Emergency Evacuation



Architect Rendering
*Multi-story Middle School
Prototype*



TransSolutions Simulation Model
*Multi-story Middle School
Prototype*

Client Name: Welles-Pugsley Architects

Date Started: September 2001

Date Completed: January 2002

The Clark County School District (CCSD) is planning to build a new middle school in Las Vegas, Nevada. Welles-Pugsley Architects (WPA) was retained to design the facility. To effectively utilize available land, WPA proposed a design that features a multi-story school building. In the past, fire and safety code restrictions discouraged the school board from seeking proposals to build elementary and middle schools with more than one floor. However, rapid increases in population and real estate prices have made it a necessity for the CCSD to utilize available land and resources more economically.

The school building has to provide an excellent learning environment, as well as a comfortable, safe and secure environment. Clark County and the State of Nevada have established fire and safety codes specific to school buildings that must be maintained. The CCSD required that WPA demonstrate that the design meets the local and state fire and safety codes and regulations.

WPA retained TransSolutions to evaluate the performance of the proposed school design. TransSolutions first developed a school class scheduler that generated individual student schedules for all 1,750 students. TransSolutions then used the schedule to develop a simulation model to assess the performance of the general student circulation within the school hallways, corridors, stairways, and courtyard in the school building. The building has to maintain an acceptable congestion level under normal and emergency evacuation conditions. The model is also used to evaluate the capacity of the school roadway activities including student drop-offs and pick-ups along the curbsides, busing operations, and faculty/staff parking.

In addition to the capacity evaluation, TransSolutions helped establish the emergency evacuation guidelines for multi-story school design, making sure that all students can clear the building in a specified time.