

NORTHSIDE HIGH SCHOOL *a new approach for changing needs*

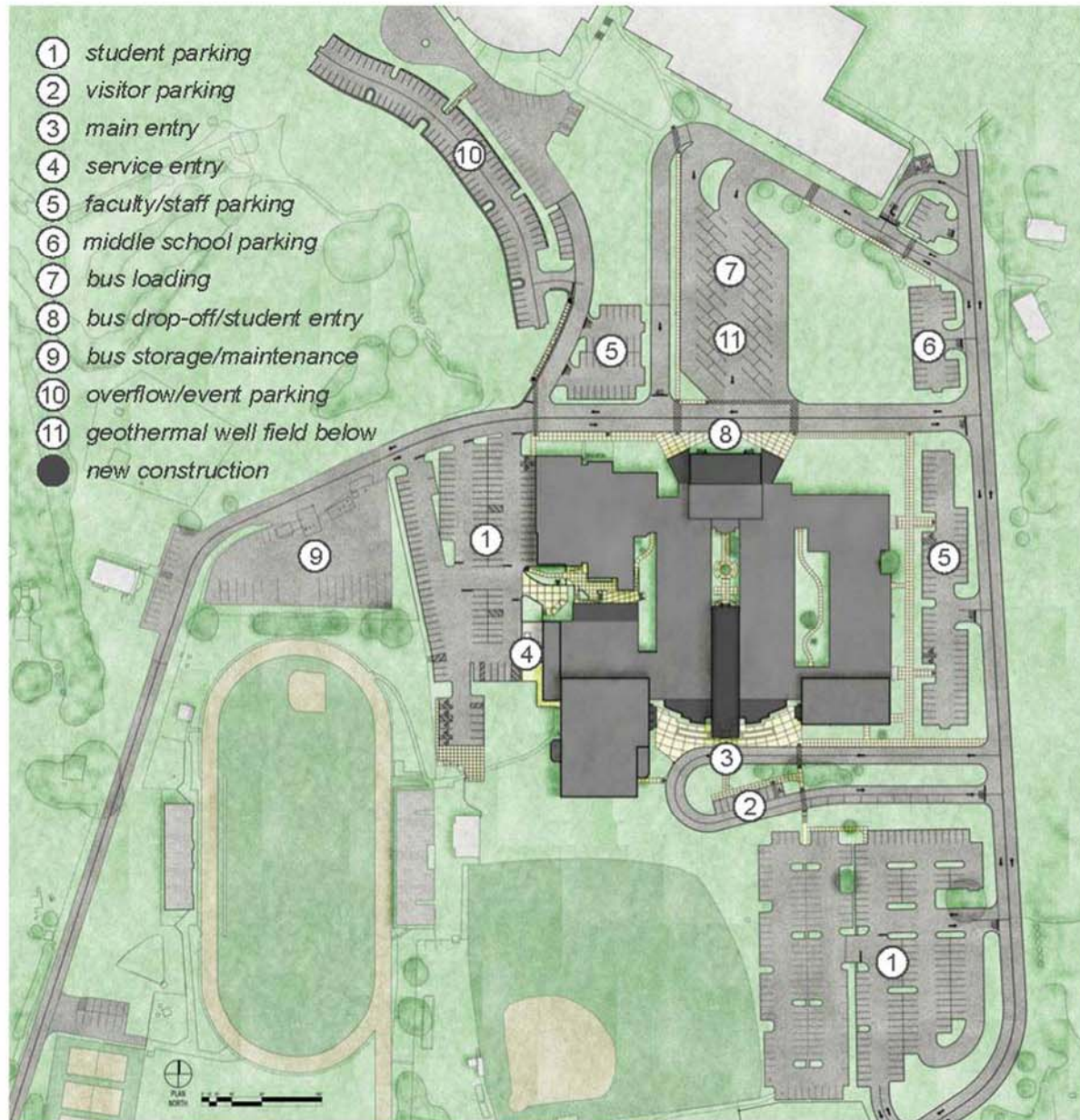


Located in Southwestern Virginia, Northside High School is one of five high schools serving Roanoke County. Home of the Vikings, Northside houses 1150 students in grades 9 through 12 and offers students a broad range of courses and programs. Originally built in 1960, the high school has seen many renovations and cosmetic upgrades since its opening, yet none of these fully addressed the school's changing needs.

The architecture team responded to Northside's design problem by adding 18,500 new square feet of learning and administrative space, reorganizing the disjointed plan and upgrading or renovating all existing spaces. To increase energy efficiency, the mechanical, plumbing and electrical systems were redesigned and a geothermal heating and cooling system was installed - the first system of its type in Roanoke County Public Schools!



NORTHSIDE HIGH SCHOOL



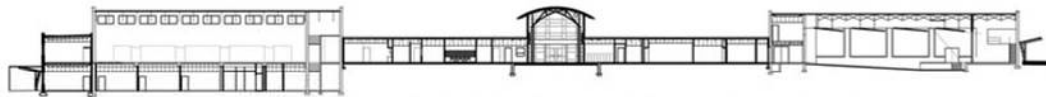
the site

The design team modified the existing driveways and parking lots to accommodate the needs of both Northside High School and the adjacent Northside Middle School. The new site plan features additional parking spaces for faculty, staff, students and visitors. Overflow parking was included to accommodate events at both the middle and high schools. These parking lots, placed between the building and the street, protect pedestrians from busy traffic.

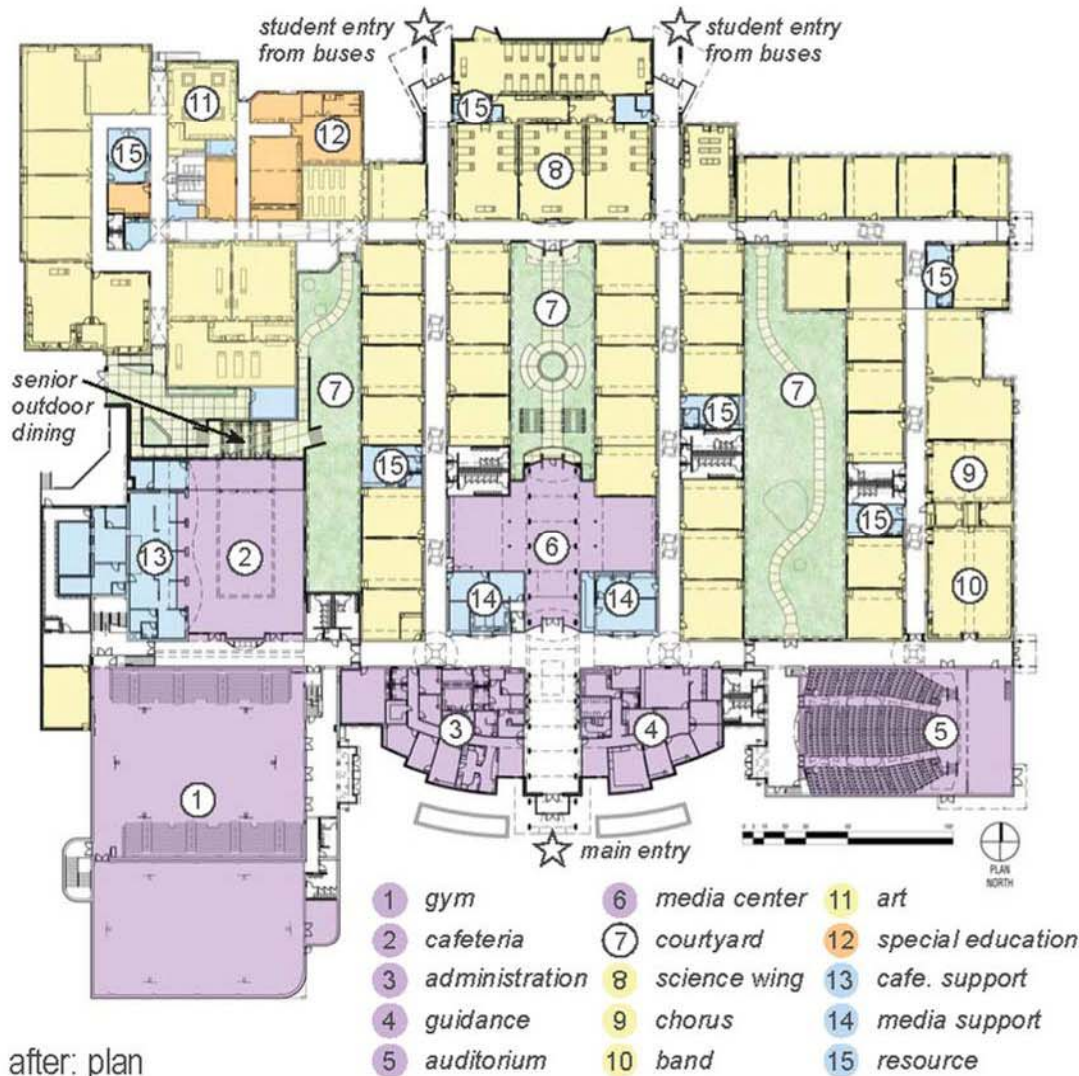
The new traffic route safely and efficiently separates parking and visitor traffic from bus traffic. Enlarged student entries, an easy drop-off area and convenient loading spaces at the back of the building allow for expedient bus transportation. The front of the building, now free from bus traffic, welcomes faculty, staff, students and visitors with a pedestrian friendly traffic loop and favorable parking.



NORTHSIDE HIGH SCHOOL



after: section through gym, administration, guidance & auditorium

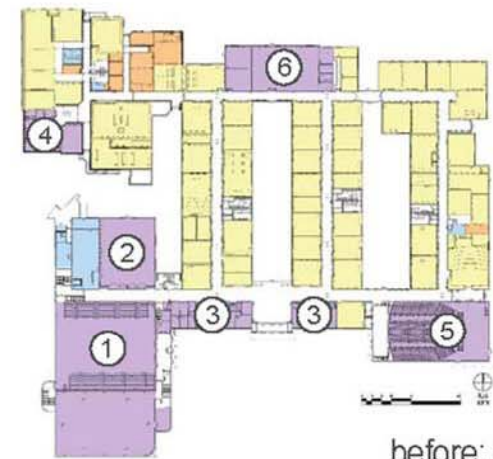


after: plan

the plan

Previous additions and modifications had led to an incohesive plan that did not efficiently serve the needs of students, teachers, administrators or visitors. The architecture team relocated the core of the school's functions to a central location in the front of the building. Key to this plan was the conversion of the existing library into a new science wing. The team then transformed part of an under-used courtyard at the front of the building into a soaring media center. The new "core function" plan now incorporates the administration suite, the guidance center, the media center, the auditorium, the cafeteria and the gym into one coherent neighborhood.

- "core functions"
- classrooms
- special education
- support



before: plan

NORTHSIDE HIGH SCHOOL



main entry corridor



main entry corridor



administration suite

the entry

Identified by a striking curvilinear roof, the new front entry gives Northside High School a prominent face for the community. The dramatic entrance conveys a sense of importance and creates an atmosphere of academic excellence. A stepped facade invites visitors, students and faculty into the building and guides them to the appropriate department. Exposed structural and mechanical systems give students the opportunity to learn about building systems. The administration suite and the guidance center flank the main entry corridor allowing the offices to communicate easily and still provide a necessary division. The administration suite's abundant glass looks onto the main drive as well as into the main entry corridor. This arrangement allows for plenty of natural light and visual supervision of the entrance. Additional subtle security measures are provided in limiting the amount of entry points into the building and reorganizing the circulation plan to eliminate blind corridors and congested hallways.

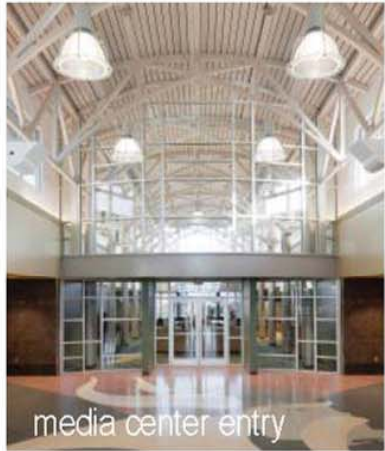


before



after

NORTHSIDE HIGH SCHOOL



media center entry



display cases



media center

the media center

Sharing the dramatic roof of the entry, the new media center's design allows for abundant light and color to enter deep into the space. Now located in the front of the building and directly adjacent to the courtyard, the space offers the opportunity for outdoor study and research areas. The integration of outdoor/indoor areas gives the media center the flexibility to handle a multitude of functions and collaborative projects. The media center is also easily accessible to community support programs.

Display cases are prominent features throughout the building giving students and faculty the opportunity to display work and athletic trophies throughout the year. These cases instill pride and promote interest and involvement among students who are often interested in different academic paths and activities.



before. library

NORTHSIDE HIGH SCHOOL



science lab

the classrooms

The newly renovated classrooms promote creativity and collaboration through open workspaces and flexible arrangements. The design team tripled the amount of glass in every room allowing natural light to flood every space. The replacement windows are thermally broken, insulated and fitted with low-e glass.

The classrooms were significantly upgraded to incorporate the latest technologies. Each classroom is fitted with an interactive smart board, wireless capabilities, occupancy sensors and adjustable lighting levels. Additionally, each classroom is served by its own heat pump, allowing for individualized temperature control. Every desk is powered for electricity through power and data raceways installed along the perimeter of the room.



band room



art room



before: typical classroom

NORTHSIDE HIGH SCHOOL



cafeteria



gym



auditorium

the cafeteria, gym and auditorium

The cafeteria, gym and auditorium complete the "core function" plan and play an important role as student and community gathering spaces. Northside now has the ability to comfortably host a multitude of events in various venues. The 30% larger cafeteria serves meals via five distinct food stations and touts new acoustic and lighting systems. An adjacent courtyard featuring a trellis and green wall was created for senior outdoor dining. The auditorium was completely refurbished with new seats, ceilings and finishes and also features new acoustical, electrical, sound, rigging and stage systems. A large exterior plaza allows for gathering space before and after performances and athletic events. The gym received new paint and refinished floors. The lower level locker rooms were refitted with appropriately sized lockers. The physical education department gained additional fitness rooms, new health classrooms and improved circulation.



before: cafeteria

NORTHSIDE HIGH SCHOOL



sustainable design

Northside High School's renovation implemented a number of eco-conscious building materials and systems. The largest undertaking was the installation of a highly efficient geothermal heating and cooling system. The geothermal system uses no fossil fuels and has reduced the building's natural gas consumption by almost 90%. The existing mechanical, plumbing and electrical systems were redesigned to further increase energy efficiency. A large percentage of the building materials came from recycled or rapidly renewable sources. Low VOC paints, carpets and adhesives were used to contribute to the building's good air quality. The building envelope's efficiency increased with the installation of high-performance windows, additional insulation and a new white EnergyStar roof. The site received an updated stormwater management system to reduce runoff and improve stormwater quality as well as extensive landscaping to increase water absorption and reduce "heat island" effect.





NORTHSIDE HIGH SCHOOL

descriptive data

size of site: 19.5 acres

student capacity: 1175 students

area of building: 160,000 s.f.

total project cost: \$28,000,000

cost per square feet: \$136 per s.f.

cost per student: \$18,545 per student

space per student: 136 s.f. per student





NORTHSIDE HIGH SCHOOL

identification

name and location: Northside High School, Roanoke, Virginia

owner: Roanoke County Public Schools
Dr. Lorraine S. Lange, Superintendent

design firm: Spectrum Design, PC

*principal-in-charge and
project designer:* David L. Bandy, AIA

*project manager and
construction administrator:* Frank L. Moeller, PE

landscape architect: Spectrum Design, PC

engineers: Spectrum Design, PC

builder: Martin Brothers

photographer: Richard Boyd Photography



SPECTRUM DESIGN
architects | engineers