Schools for Successful Communities:

An Element of Smart Growth

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Council of Educational Facility Planners International

United States Environmental Protection Agency

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Photographs of Moore Square Museums Magnet Middle School provided by and property of Touchberry Media, Raleigh, North Carolina

Thomas Kube

MESSAGE FROM THE PUBLISHER

Schools and their locations have a tremendous effect on how our communities grow. The cycle of growth and development of new communities is influenced by school sites. The resurgence of urban neighborhoods is impacted by school location and their educational quality and condition. New schools in our cities are challenged by site locations and limited availability of land. Rural communities also wrestle with keeping their communities intact as growth moves in concentric rings to push the neighborhood outside of the traditional town locations. This publication was developed to help provide real-world, viable alternatives to communities and their citizens who want to engage in well-planned and thoughtful growth.

The Council of Educational Facility Planners International has been engaged in the ongoing conversation about healthy, high-performing schools, including their locations, since 1921. This publication, jointly produced with the *U.S. Environmental Protection Agency* is our effort to further add to the collective body of knowledge that school districts and community leaders need when planning school buildings. It is our obligation to identify balanced perspectives on school locations and the manner and means through which communities can become engaged as they discuss these plans.

CEFPI produces a wide array of resources used expressly for helping plan, design and construct effective schools. We view *Schools for Successful Communities: An Element of Smart Growth* as a supplement to the Council's highly regarded *Creating Connections: The CEFPI Guide for Educational Facility Planning*, as it helps amplify and focus the discussion on this particular aspect of school planning.

I believe it important to acknowledge the hard work and dedication of Janell Weihs, who functioned as the Editor in Chief for this project. And, if not for the vision of Geoffrey Anderson, director, U.S. Environmental Protection Agency, and the help of Tim Torma, policy analyst, U.S. Environmental Protection Agency, Office of Policy, Economics and Innovation this publication would not have been possible.

We hope that you will find this publication the resource that we intend it to be.

Thomas A. Kube, Executive Director/CEO

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The Council of Educational Facility Planners International would like to thank Ms. Victoria Hay for her expert editorial skills. She has been very helpful in completing several CEFPI projects. In addition, the Council would like to recognize the following U.S. Environmental Protection Agency staff members who helped with this project: Sophie Cantell, Eric Sprague, and Amber Levofsky. The following primary authors deserve special thanks and recognition for their dedication to the Council and to this project specifically.

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INTRODUCTION

The U.S. Environmental Protection Agency (EPA) and the Council of Educational Facility Planners International (CEFPI) cooperatively developed this publication. It explains why and how communities should employ smart growth planning principles to build schools that better serve and support students, staff, parents, and the entire community. It presents examples of supportive state and local policies, as well as case studies from around the country that show how community-centered schools and the planning process used to design and build these schools have improved education and fostered more livable places. EPA and CEFPI recognized a need for such an integrated planning process in the urban planning and environmental fields and among educators and school board members.

Over the next few decades, thousands of school facilities around the country will be built and renovated. Where and how schools are built or rebuilt will profoundly affect the communities they serve. In making the decisions these projects demand, school boards, educational facility planners, and communities will have to meet many goals—educational, environmental, economic, social, and fiscal.

Although challenging, the boom in school construction offers an unprecedented opportunity to improve the quality of schools and communities together, by applying the principles of smart growth to educational facility planning. Smart growth development conserves resources and land; offers choices in housing, transportation, shopping, recreation, and jobs; encourages community collaboration; and fosters distinctive, attractive neighborhoods. Smart growth proponents share many principles with educators who support community-centered schools. Both groups believe that schools should provide quality educational programs and services. Both see community-centered schools as resources and enhancements for the entire community, not just for students. Both believe schools should be located in existing neighborhoods, within walking distance of residents and services, rather than in outlying areas accessible only by car or bus.

Many communities are realizing that the random, dispersed growth patterns they have experienced in recent decades have eroded their quality of life. Traffic congestion is increasing; municipalities spend funds on building new infrastructure in far-flung development, abandoning their investments in existing neighborhoods; open space seems to be vanishing. In reevaluating growth patterns, communities are also assessing how and where they spend their education dollars. Investments in schools at once respond to and influence growth.

When school districts collaborate with city leaders to incorporate smart growth principles in the master facility planning process, the community benefits socially and economically. Each community should use its education dollars to fulfill academic considerations and to express the values and vision of the community. This publication helps communities invest in schools that will give their children the best possible education, use taxpayer dollars wisely, and improve the quality of life for all citizens.

THE CHALLENGE TO GROW; THE OPPORTUNITY TO EXCEL

School districts across the nation are currently faced with providing more than 53 million students in grades K-12 with healthy, secure, high-performing educational facilities. This challenge will only grow—the U.S. Department of Education estimates that by 2030, the student population will reach 60 million (National Center for Education Statistics, *Baby Boom,* 2000. Hereafter the National Center is abbreviated NCES). Renovations and additions to existing schools and the construction of new facilities will be needed to address this projected growth. At the same time, many small schools in cities, towns, and rural communities are closing as large schools are built on the edges of communities. In many cases, economic considerations have encouraged consolidation. Some state and local policies are biased toward larger schools. The rationale for many of these policies remains unclear. For example, twenty-seven states have some form of minimum acreage standards, which often demand sites so large they can be found only in less developed parts of communities or outside of town.

The National Education Association (2000) estimates that billions of dollars are needed to bring schools into "good" physical condition. The ten states with the greatest need are these:

1.	California	$32.9 billion
2.	New York	$32.9 billion
3.	Ohio	$25.1 billion
4.	New Jersey	$22.0 billion
5.	Texas	$13.6 billion
6.	Illinois	$11.3 billion
7.	Pennsylvania	$10.4 billion
8.	Massachusetts	$ 9.9 billion
9.	Michigan	$ 9.9 billion
10.	Utah	$ 9.0 billion

The National Center for Education Statistics notes that the number of schools in the United States has decreased from approximately 247,000 in 1930 to 93,000 today (U.S. Statistics 2002), while the student population over the same period has risen from 28 million to 53.5 million (NCES, *Digest,* 2002). Furthermore, NCES reports that the average public school facility is more than forty years old and needs critical repair and modernization (Lewis 2000). To accommodate the growing demand, school districts are constructing new facilities and considering fresh approaches, such as adaptive reuse of buildings, to house students safely and to provide a high-quality education.

Over the past several decades, investments in educational facilities have often followed the model of most real estate development—building new schools at the edges of communities on large, undeveloped parcels of land. This approach, whether initiated by a town or by a school district, abandons the community core and existing facilities and increases public expenditures, traffic congestion, pollution and loss of open space.

To respond to changing demographics, school districts need efficient and innovative ways to plan, build, adapt, and renovate facilities. Faced with the costly consequences of independent master planning, many communities are seeking better ways to grow by applying the principles of *smart growth.* Smart growth improves the quality of life in communities by providing more transportation choices, preserving green space, making communities walkable, increasing fiscal capacity, and improving existing infrastructure.

The challenge of accommodating the growing student population presents an opportunity to invest in smart community development and to unite planning efforts between city planners and school district personnel. Any expenditure of public money should provide the greatest benefit for the community as a whole; educational investments are no exception. Integrating school district planning with smart growth planning can produce neighborhood-centered schools that offer high-quality educational programs while benefiting their communities in many ways.

SMART GROWTH PRINCIPLES

The EPA defines smart growth as "development that serves the economy, the community, and the environment. It provides a framework for communities to make informed decisions about how and where they grow" (U.S. Environmental Protection Agency 2001. Hereafter in references abbreviated EPA). The principles of smart growth promote economic development and job creation along with strong neighborhoods and healthy communities. Based on specific community needs and characteristics, smart growth may look different in each community that employs its principles.

Incorporating smart growth principles into the facility master planning process, school districts can provide high-quality learning environments that also enrich their communities. The ten principles below were developed from the experience of communities around the nation that have benefited from smart growth:

- **Mix land uses**

By mixing housing, shops, offices, schools, and other land uses in the same neighborhood, communities can encourage alternatives to driving, such as walking or biking. Streets, public spaces, and pedestrian-oriented shopping areas become places where people meet. With more people walking through the streets at different times of the day, communities are livelier and more secure.

- **Take advantage of compact building design**

During the last two decades of the twentieth century, Americans developed land three times faster than the nation's population grew (EPA 2001). Communities can be designed to preserve open space and use land and resources more efficiently. Compact building design saves localities money and supports more transportation choices by putting destinations close enough for people to walk or by creating a concentration of users for public transit. Services such as water, sewer, electricity, phone service, and other utilities are cheaper to provide and maintain per unit in more compact neighborhoods than in dispersed communities.

- **Create a range of housing opportunities and choices**

Providing quality housing for people of all income levels is an integral component in any smart growth strategy. No single type of housing can serve the varied needs of today's diverse households. Smart growth encourages communities to increase housing choices by modifying their land-use patterns on newly developed land and by developing the housing supply in existing neighborhoods and on land served by existing infrastructure. Housing is also a key factor in commuting patterns, energy and other resource consumption, and access to transportation, community services, and education.

- **Invest in walkable neighborhoods**

Walkable communities expand transportation options and create places that serve a range of users: pedestrians, bicyclists, transit riders, and drivers. Walkable places also encourage everyday physical activity, which is vital to good personal health. To encourage walking, communities should mix land uses, build compactly, and ensure safe and inviting pedestrian corridors.

• **Foster distinctive, attractive communities with a strong sense of place**

Development should represent the values and the unique history, culture, economy, and geography of a community. Smart growth development creates a sense of defined neighborhoods, towns, and regions. It encourages construction and preservation of buildings that prove to be assets to a community over time because of the services they provide and the unique contribution they make to the look and feel of a city.

• **Preserve open space, farmland, natural beauty, and critical environmental areas**

Farmland, pastures, forests, and other undeveloped land are key to the local and national economy and to a healthy environment. Open space preservation bolsters local economies, preserves critical environmental areas, improves air quality, improves the quality of life, and guides new growth into existing communities.

• **Strengthen and direct development towards existing communities**

Development that invests in existing neighborhoods takes advantage of the infrastructure and resources already in place, thereby maintaining the value of public and private investment. By encouraging "infill" development, communities benefit from a stronger tax base, greater proximity of a range of jobs and services, and reduced development pressure in fringe areas.

• **Provide a variety of transportation choices**

A balanced transportation system that incorporates many means of travel—private cars, buses, rail, walking, biking—and is supported by land-use patterns increases choices for moving around a city. Providing more transportation options can help reduce air pollution and traffic congestion. For citizens who cannot or choose not to drive, it increases mobility.

• **Make development decisions predictable, fair and cost-effective**

Government must create a more attractive investment climate to promote smart growth. The private sector must support a community vision for smart growth development for it to occur and be successful. To make that possible, state and local governments must be able to make decisions quickly, cost-effectively and predictably.

• **Encourage community and stakeholder collaboration**

Growth can create great places to live, work, and play—if it responds to a community's sense of how and where it wants to grow. Smart growth involves residents, businesses, and all other stakeholders early and often to define and implement the community's vision and goals.

The Connection: Smart Growth Principles and Community-Centered Schools

Integrating smart growth principles into the educational facility planning process will assist school districts and communities in delivering a first-rate education *and* improving the neighborhood. The results of the collaborative planning process are community-centered schools that offer many benefits similar to those of smart growth: better living and working environments, an enhanced sense of pride in the community, and a human scale for facilities and programs that serve the citizens of large cities. Just as smart growth development looks different in each community, each neighborhood school is unique because it serves specific academic programs and communities. Community-centered schools may be new facilities, renovated or retrofitted historic buildings, or buildings adapted to accommodate educational functions. Public and private organizations may share a community-centered school facility, and it may be accessible throughout the year to residents for various purposes during the day, evenings and weekends. Community-centered schools that are a result of a collaborative smart growth planning process share at least one common physical characteristic: all are located in the towns and neighborhoods they serve.

Educational Benefits

Through long-term and careful planning with the community that includes students, teachers, administrators, and members of all community constituencies, high-quality, community-centered educational environments

- Promote a sense of safety and security
- Build connections between members of the school and the community
- Instill a sense of pride
- Engage students in learning
- Encourage strong parental involvement
- Foster environmental stewardship.

Each community-centered school may look different and function differently, but they all hold the following six traits.

Promote a sense of safety and security: Community-centered schools can reduce student isolation and alienation that often breed discipline problems and violence. Students in small schools have a stronger sense of identity and belonging, of being connected to a community (Cotton 2001). This sense of belonging manifests itself in increased participation in extracurricular activities, strengthening students' connections to each other and to the school. Simply stated, in a small group, each individual feels that he or she matters more than in a large group. Thus the community-centered school fosters self-worth, improves behavior, and increases students' ability to learn (Cuningham 2002).

A Note about "Small Schools"

Community-centered schools are often smaller than schools built outside of town. In part, their size may be constrained by the limits of space available in an existing community. More important, regardless of the number of students enrolled, all community-centered schools create a "small school" atmosphere.

Research demonstrates that smaller learning environments, like community-centered schools, provide high-quality education. Just as smart growth differs from community to community, the definition of "small" varies from school district to school district. The school's population and enrollment must be defined so that the facility serves the students and the neighborhood in which it is located. As CEFPI notes, "The reality is that the size of the school is not as critical as the delivery systems used in meeting the educational needs of students… . . . In all cases, planners must decide what kind of program will meet the needs of all students. . . . One size does not fit all. The debate over school size should center on addressing the identified educational program in the most effective manner" (CEFPI 2004: 2:6).

"Smaller schools create intimate learning environments where each learner is well known and can be guided and coached individually by teachers" (Cuningham Group 2002). Many studies show that students in small schools improve their grades, test scores, attendance, and graduation rates (Blank 2003, 19-20). Moreover, small schools reduce the effect of poverty on achievement. In fact, according to a recent U.S. Department of Education study, "a higher percentage of students, across all socioeconomic levels, are successful when they are part of smaller, more intimate learning communities" (Irmsher 1997).

Small schools encourage teachers to become more involved in their students' success. Staff members find themselves playing multiple roles, more fully participating in decision-making, and working together to integrate the curriculum across disciplines and grade levels. Their increased participation gives them greater satisfaction in their work, reduces staff turnover, and offers a greater chance for a strong connection between the learner and teacher (Blank 2003,19).

Build connections between members of the school and the community: Community-centered schools foster increased involvement in the school by all members of the community, including parents. This has been proven to play a role in students' success (Blank 2002, 27-28. Increased community participation may be due in part to the ease with which parents and other visitors can get to the school and to the welcoming feeling of a neighborhood school, in contrast to large, often intimidating facilities located outside of the center of the community.

> "A true community partnership recognizes schools as an integral part of the town, city, and state, and it involves all members of the community who have a vested interest in the schools. Whether financial, political, social, or educational, these interests should be recognized and addressed" (CEFPI 2004, 3-2).

Such a school acts both as an educational facility and as a community center. Members of the business community might serve as guest lecturers; senior citizens might come in for meals, recreational opportunities or to assist with instruction; neighbors might use the facility for evening or weekend classes or recreation. Schools may also organize volunteer programs for students to help adults who live in the community.

Instill a sense of pride: Community-centered schools can reinforce a "sense of place" or distinctive neighborhood character, because they blend into the fabric of the community. In contrast, schools isolated on vast tracts of land, separated from communities they serve often have no architectural context on which to draw. By reflecting a community's unique identity and culture in its design and activities, neighborhood schools can instill pride and ownership, key ingredients to successful learning environments. The new high school in Foresthill, California, for example, reflects its site's heritage as a former timber mill property by blending traditional timber-mill elements with the high-tech look that students wanted and by working with a nearby forestry education center.

The convenience of getting to and from a community-centered school often increases student participation in school-related activities. At a neighborhood school, students are more likely to walk or bike between home and school, instead of having to rely on a school bus or private ride that can limit their freedom to participate in after-school activities. Students also develop independence and responsibility in getting to and from school and community activities on their own, instead of being chauffeured by their parents and guardians.

Engage students in learning: Strong connections between local businesses and a community-based school allow students to apply what they are learning at nearby businesses, offices, cultural venues, and libraries. For instance, Moore Square Museums Magnet Middle School in Raleigh, North Carolina, collaborates with nearby museums and arts facilities to give students the opportunity for hands-on learning (for more details, see the case studies). Likewise, students in California's North Hollywood High School Animal Studies/Biological Sciences Zoo Magnet Center go behind the scenes at the Los Angeles Zoo to work with zoo research staff on unique, exciting science projects.

Encourage strong parental involvement: As students participate more in the school, so do their parents. Recent research has shown that when parents are involved in school activities, their children do better and stay in school longer. In fact, a critical mass of parental involvement improves the performance of all students, not just those with more involved parents (Blank 2003). Clearly, the connection between parents, students, and the school is an important influence on student achievement. Community-centered schools support and encourage these connections.

> "Community partnerships often produce more systemic recommendations, incorporating a broad range of the community's physical, cultural, social, economic, organizational and educational assets" (CEFPI 2004, 3-3).

Foster environmental stewardship: Community-centered schools are themselves excellent teaching tools to instruct children on preserving and protecting the natural environment and to instill in them a sense of environmental stewardship. Teachers, for instance, can use the school's compact site to talk about land use and development; a renovated or reused building provides lessons on resource conservation. Many schools that install energy-efficient heating, cooling, or lighting systems leave the mechanical workings exposed to be used as educational and

instructional tools. For example, the Neptune Community School, in Neptune, New Jersey is working with the Liberty Science Center to develop a rooftop green space that will serve as a living classroom. The school also will install transparent floors so that students can see the geothermal heating and cooling systems and other energy-conserving components and learn, from the example of their building, how energy consumption affects the environment.

> "Revitalizing a neighborhood school may stimulate local businesses and residents to make improvements to their properties. This new investment can raise property tax assessments, broaden the tax base, and ultimately enhance tax revenues."
>
> Yale Stenzler, Ed.D.
> Former Executive Director
> School Construction Program, Maryland

Community Benefits

Quality of education is *always* the primary consideration when investing in school facilities. Schools that are centered in the community enhance their educational programs and improve the overall quality of education. However, they also benefit the community as a whole by

- Promoting economic development
- Strengthening neighborhoods
- Improving human and environmental health.

Economic Development

Major employers with considerable purchasing power, schools significantly influence a community's economic well-being. The economic consequences of a school's location are often underestimated or ignored, yet they affect not only students and teachers but the local business community as well. A study by Charles H. Sederberg of the University of Minnesota found that in six rural Minnesota counties, the school district payroll made up, on average, 4 to 9 percent of the county's total payroll. District expenditures comprised 1 to 3 percent of a county's total retail sales, and the take-home pay of school employees accounted for five to ten percent of total retail sales (Lawrence 2002, 15). Other studies show that property values can fall when nearby schools are closed (Lyson 2002; McClelland 2004). When the high school in Lund, Nevada, closed, the town's retail sales dropped 8 percent (Lawrence 2002, 16).

Meanwhile, new construction in outlying regions may create unexpected negative consequences. A school built outside of town may limit places for parents or teachers to shop as they travel to and from the school and provide few opportunities for students to work part-time near the school. In rural areas, building schools near farms can render agricultural land unusable, because of state laws regulating pesticide use near schools and buffer zones between schools and farms (Fried 2004).

Travel and Environmental Implications of School Siting

This U.S. EPA study was the first to empirically examine the relationship between school location, the infrastructure and environment around schools, transportation choices for trips to school, and impacts of those choices on air pollution. It found that:

- School proximity matters. Students with shorter walk and bike times to and from school are more likely to walk or bike.
- The built environment influences travel choices. Students traveling through neighborhoods with sidewalks and bike lanes are more likely to bike or walk.
- School location has an impact on air emissions. Centrally located schools that can easily be reached by walking and biking reduce air pollution. (EPA 2003)

http://www.epa.gov/smartgrowth/pdf/school_travel.pdf

Strong Neighborhoods

Community-centered schools help create strong neighborhoods whose residents know one another. When the school is an integral part of the community, it becomes an icon of the community as well as a gathering place for residents of all ages. Residents and students are likely to use a community-centered school for many activities before, during, and after school hours throughout the calendar year. Community schools create a venue for neighbors to build relationships, encouraging them to invest time, money, and effort in building a cohesive neighborhood. In rural communities and small towns, the community school may be the only civic gathering place, and its loss can be devastating; a survey of small towns in North Dakota that had lost schools showed that residents participated

less in local organizations and activities following the schools' closure. Residents also rated their quality of life significantly lower than did their counterparts in communities that did not lose their schools (Lawrence 2002, 17).

Citizens are more likely to participate actively in the daily life of small neighborhood schools than they are in schools located far from where they live (Cotton 1996, 17). This participation gives them greater influence regarding academic curriculum, educational standards, budgets, teacher qualifications, and the daily operations of the school—factors that contribute to an economically and socially vibrant place in which to live, work, and play.

School boards have long been an important vehicle for involving residents in community governance. But the number of people serving on school boards fell from one million in 1930 to less than 200,000 today as the number of school districts declined. At the same time, U.S. population doubled. This loss of opportunities to serve on school boards may be contributing to the general disengagement of Americans from civic life (Lawrence 2002, 17).

Healthy Communities

Integrating educational facility planning with smart growth planning will create community-centered schools and provide health benefits for residents, who can use school facilities for recreation and exercise. It also helps to improve the environment. Locating schools close to where people live can reduce the number and length of automobile trips, reducing auto emissions and thus air pollution. An EPA study of two high schools in Gainesville, Florida, suggested that neighborhood schools could generate 13 percent more walking or biking trips and 15 percent fewer auto emissions than schools built outside a community. (EPA 2004)

Walking to School: A Quick Guide

International Walk to School Day
http://www.iwalktoschool.org/
A one-day event that occurs around the world every October. Children, parents, teachers, and community leaders walk to school together to promote physical activity and making streets more friendly for walking and bicycling.

Walk to School Programs
http://www.walktoschool-usa.org/
Programs that extend Walk to School Day events into more sustained programs to encourage safe walking and bicycling to school. They rely on neighborhood, school, transportation, public works, health, safety, and environmental partners to accomplish specific goals. They occur at the neighborhood, school, county, or state level.

SAFE KIDS Walk This Way
http://www.safekids.org
A year-round pedestrian safety program conducted by the National SAFE KIDS Campaign with support from Federal Express and 3M. Local SAFE KIDS coalitions launch the programs by participating in International Walk to School Day. SAFE KIDS coalitions work with parents, educators and community leaders to teach pedestrian safety to children, enforce speed limits and other traffic regulations, and improve school environments through research, engineering, and traffic calming.

Walking School Bus
http://www.walkingschoolbus.org
A small group of students who are accompanied by one or more adults on their walks to and from school.

KidsWalk-to-School
http://www.cdc.gov/nccdphp/dnpa/kidswalk/index.htm
A walk-to-school program to guide community members and local and state health officials on how to implement walking school buses and other walk-to-school programs.

Safe Routes to School
http://www.saferoutestoschool.org
A sustained walk-to-school program that uses a comprehensive approach to make school routes safer for children to walk and bicycle. The programs often use policies and dedicated transportation funding to create permanent change and normalize walking.

Safe Routes to School Legislation
http://www.walktoschool-usa.org/funding/index.cfm
Legislation that dedicates funding to create safe walking and bicycling routes to school. The model is California's law that directs significant transportation funding to local Safe Routes to School programs.

Reprinted from the Pedestrian and Bicycle Information Center of the University of North Carolina Highway Safety Research Center for the Partnership for a Walkable America.
http://www.walktoschool-usa.org/downloads/WTSDbooklet.cfm

Walking or biking to school gives students an opportunity for everyday physical activity. Fifteen percent of children aged 6 to 19 are overweight, triple the rate of just twenty years ago, according to the 1999-2000 National Health and Nutrition Examination Survey. Another 15 percent are on the verge of becoming overweight. The soaring obesity rate has brought with it startling rises in the incidence of childhood diabetes (McConnaughey 2003), asthma, and even high blood pressure (Stein 2004). Although many factors are to blame for the obesity epidemic, one element is a lack of physical activity. The Youth Risk Behavior Surveillance Survey for 2001 found that on at least five days in the previous week nearly a third of the students surveyed had not engaged in even moderate physical activity. The Centers for Disease Control and Prevention (CDC) reported that only a quarter of American children regularly walked or biked to school in 1999 (U.S. CDC 2002). Physical activity recommendations for children suggest a variety of activities each day—some intense, some less so; some informal, some structured. Walking or bicycling to and from school is an ideal way to incorporate exercise into a child's daily routine at no extra cost. However, proximity to a school, though necessary, may not suffice to spur this activity. That's why many jurisdictions have begun "Safe Routes to School" programs that ensure children can walk safely to and from school.

Locating schools in neighborhoods, reusing infrastructure, and renovating buildings conserve energy and resources. Integrating schools into existing neighborhoods, instead of building them on undeveloped land on the fringe of the community, also preserves the natural environment, including farmland, fields, and wildlife habitat. By reusing buildings, roads, parking lots, and other infrastructure, communities can avoid building more impervious paved surfaces, which in turn reduces contaminated water runoff into nearby lakes, rivers, and streams. Rather than draining the natural and human resources of their communities, neighborhood schools promoted by smart growth preserve and nourish them (Lawrence 2002, 15).

FACTORS TO CONSIDER WHEN PLANNING COMMUNITY-CENTERED SCHOOLS

Community-centered schools serve educational needs while strengthening and revitalizing neighborhoods, but they require careful planning and a strong commitment to a collaborative planning process. Educational leaders and community stakeholders must consider many factors as they examine the options for renovating or expanding an existing facility, constructing a replacement school on the existing site or a new location, or converting an existing building into a school.

Factors to Consider:

- Educational programs and services
- Student and community demographics
- Site size
- Transportation and parking
- Community partnerships and co-location
- Cost comparisons
    - o Renovation vs. new construction
    - o Life-cycle cost
    - o Adaptive reuse
- Local planning and zoning ordinances
- Economic impact
- Environment, health, and safety
- Flexibility

Educational Programs and Services

Community-centered schools must first meet the core academic requirements mandated by the school district. Next, community-centered school planning should consider other educational needs and services for students and nonstudents. These programs typically evolve through study and discussion with educators, students, and residents, who share their needs and additional community goals that the facility could meet. For example, a community with a large immigrant population might have an unmet need for English as a second language programs that are offered to students and their parents; or community health care services may be housed at the school; or the school may use a public park for outdoor activity space and recreation rather than build its own playground and athletic fields. School facilities are public property and should be used in ways that serve many needs within the community.

Student and Community Demographics

Enrollment forecasts and other demographic analyses can help educational facility planners determine how many people the district will have to accommodate, where a school will be located, and how the populations are likely to change. The best school planning responds not only to current needs but also to future needs as the community grows and changes. Because reliable, realistic data is essential, this job requires a professional demographer's experience and expertise.

> "Connecting what the community wants for its schools to the vision of the district should be the driving force behind the design of the educational plan" (CEFPI 2004, 1:6).

An enrollment forecast examines patterns of families moving in and out of the school district, rates of existing housing sales and new home construction, and total fertility rates. The school's projected enrollment over five to ten years is based on historical enrollment data, birth rates, and demographic trends derived from professional analysis. In conjunction with enrollment studies, the planners must review overall community population shifts that already have taken place and that are predicted.

Site Size and Location

One size does not fit all. Educational and community leaders should determine the best site size required to accommodate the expected number of students, the educational programs, and the needs of the community. An assessment of educational programs, extracurricular activities, parking ordinances, and other factors may help identify the site requirements for the school. A community-centered school in an existing neighborhood that offers students the opportunity to walk, bike, or take public transportation may be located on a smaller site than a new facility on the fringe of town with more land but little connection to the community.

"We still build in new areas buildings that are off on their own; that are separated. It's not just schools, but all kinds of land use. There are people who are trying to change that, particularly in the smart-growth movement. Schools need to become a part of that overall trend, become part of the smart-growth movement by integrating things rather than separating them" (Blurock 2004).

A small site can be a catalyst for innovative, enriching partnerships with nearby arts, cultural, recreational and educational facilities. Joint-use projects can reduce land requirements through cooperative arrangements for parking and the use of parks and recreational fields. This consolidation reduces land acquisition costs and expenses for site development or redevelopment, as well as for maintenance of grounds and open space. A centrally located school that is easy for students and citizens to walk or bike to can reduce land needed for parking, bus drop-off and circular traffic. Schools can even use the money they save by using a smaller site to build a multistory school, reducing yet again the needed land and associated costs. These arrangements can save money and create unique, stimulating educational opportunities.

Acreage Standards

Most states with oversight responsibilities accept waivers and alternatives to published requirements, guidelines or standards, and often differentiate between existing facilities and new construction. For specific information regarding school site size, contact the State Department of Education or school building authority in your state. The following states have no site size requirements:

Arkansas
Colorado
Florida
Iowa
Kansas
Louisiana
Maryland
Massachusetts
Michigan
Montana
Nebraska
Nevada
New Jersey
New Mexico
North Dakota
Oregon
South Carolina
South Dakota
Tennessee
Texas
Vermont
Wisconsin

Many states or local school districts have suggested minimum school site size guidelines or mandatory standards. Urban, rural, and suburban communities are questioning guidelines and standards for many reasons: some simply do not have the acreage available to accommodate prescribed standards; some communities appreciate the rich environment of an in-town setting and neighborhood schools; some districts cannot afford to purchase and maintain large parcels of land on the fringe of town. Some states allow an exception to or a waiver from site size guidelines or standards. It is often easier to obtain a waiver for an existing school being considered for renovations or an addition than to get one for new construction.

Transportation and Parking

When selecting a site for building a new school or an existing property for renovation, facility planners should consider the long-term costs of student transportation. A site outside of town might appear attractive because it costs less per acre, but more students will have to use school buses than would be the case for a school located close to their homes. For example, the John A. Johnson Elementary School in St. Paul, Minnesota, serves more than three hundred students, but just eight of them ride the bus (see case studies for more details). Any cost-benefit analysis should include projected travel distances for the majority of students and related transportation costs to the school district and taxpayers over fifty years. Schools that offer transportation choices in addition to school buses are accessible to more community members.

The school's configuration and cost must also take into account parking for teachers, students, and visitors. Zoning laws may require on-site parking, which may prove excessive for in-town, neighborhood schools. However, community-centered schools sometimes can negotiate more favorable parking requirements based on their transportation options and opportunities to share parking areas.

Community Partnerships and Co-location

A school should be a focal point for the neighborhood. To truly serve the entire community, facility planners must involve residents who would not usually receive services from the public school system. The entire community should be engaged in every step of planning the facility, from determining programs to choosing a site. Architect Steven Bingler, who specializes in educational facilities and community engagement, notes, "At the end of the day. . .the community has to agree to [the site selection]. That's the rule. And if the community doesn't agree with it then they let themselves, and their ideas, and their opinions be known in various ways. Almost every way, except community engagement, takes longer at the end of the day" (Bingler, "(Re)designing learning environments," 2003).

Community Engagement

"In Walnut Hills in Cincinnati, for example, at the beginning of the process the [school] district had already developed a master plan that said here's where your new school is going to be located. [During] this community-engagement process, the community built quite a large inventory of its assets. . .[and] its needs. And the community decided about two-thirds of the way through the process that there were other sites in the neighborhood that might be better for a location for the school. The site that the community came up with was adjacent to a park, an open space, it has a YMCA on the site, it has a library right across the street from the site—these are assets that already existed. Lots of taxpayers' money has been spent on building these assets. The community said let's build a school where we can hook into these things. The YMCA has a swimming pool. The school wouldn't have had a swimming pool on its own. But if it's adjacent to a swimming pool then they can work their arrangement with the YMCA to share facilities. That's the kind of thing we're talking about. Common sense, by the way, is what we're talking about" (Bingler 2003).

To meet the community's needs, the school might share space with other public services, such as health clinics, libraries, senior citizen centers, early childhood centers, day care, and employment services. Private-sector and nonprofit organizations may also share the facility, offering various public-service classes; the facility might also house programs from a community college or university, association offices, a bank, a catering business, a physical fitness center, or a medical office. This space-sharing strategy is known as *co-location*. In an outstanding example of co-location, Brooklyn Park Middle School and Community Center in Anne Arundel County, Maryland, completed a renovation project that incorporated a senior center, police-sponsored programs, and a world-class performing arts facility. The Neptune Community School in Neptune, New Jersey, will include a health and dental clinic, a community center, and art and music studios.

Co-location saves the community money by using a single structure to achieve several goals. Partnerships between the school and local businesses, organizations, or government agencies allow the parties to pool their resources, sharing in the costs of site acquisition, construction, operations, and maintenance. The result is a facility that accommodates more uses at a lower cost than any single party could have produced alone.

Some states may provide additional financial incentives or funding to support these cooperative arrangements. Although zoning or other restrictions may apply, the only real limitation is the community's imagination and desire to find compatible functions that can share space and expenses. St. Paul's John A. Johnson Elementary School, for example, shares recreational facilities with the local YMCA. This arrangement has saved the county money, increased YMCA attendance, and provided many other benefits to the community. Additionally, the co-location arrangement provides recreational and physical education opportunities for the students and staff. So, co-locating the YMCA in the John A. Johnson Elementary School allows it to serve the school's educational program and services.

When education bonds are on the ballot, partnerships that integrate community resources and services with a school's educational program can strengthen support from citizens, even those with no school-age children. After two bond issues failed to win voters' approval, Gaylord High School in Gaylord, Michigan**,** engaged the community in designing its new facility to include an auditorium, athletic facilities, and classrooms that community members could use after school hours. In response, the citizens passed a bond of nearly $20 million to finance construction.

Cost Comparisons

To determine whether to build a new school or renovate an existing one, planners should make a detailed comparison of costs. Such an analysis should include these factors:

- A feasibility study assessing projected enrollment and the number of students to be accommodated in the facility
- An educational specification that describes the programs and services to be provided (including any community requirements)
- Realistic cost estimates for renovations and new construction
- Real estate acquisition costs
- Estimates for operating and maintaining each alternative over thirty or forty years
- Transportation costs (also over time)
- Required infrastructure improvements (roads, water, sewer, gas and electrical service)
- Emergency services response time and cost
- Outstanding bond debt on the existing facility
- Potential resale value of the existing school building
- Potential uses of the existing school building in the future and associated costs
- Potential sources of funding from outside the district (state, federal, other)
- Estimated time line for each option
- Provisions for the temporary housing of students if the renovation option is pursued
- Economic impact on the community.

Renovation versus New Construction. A state requirement, a school district policy, or a recommendation from a design consultant often establishes a limit on what a district may spend to renovate rather than build new, usually a specific percentage of the cost of new construction. The National Trust for Historic Preservation urges states to eliminate these funding policies, because they penalize communities for maintaining and modernizing old schools, even when doing so costs less than building new. Basing a decision about the future of a school facility on a prescriptive formula often precludes identifying and considering other costs associated with building in a new location, such as site acquisition, long-term transportation, operation and maintenance, and infrastructure improvements. In addition, renovating an existing building can reuse existing facility elements, saving money compared to building new. Communities facing mandated formulas that favor new construction over renovation may be able to obtain waivers, even in places without a formal waiver process.

Regardless of funding restrictions, an existing school building may be important enough to a community to support renovation or reuse. Such value may be difficult to quantify, but community and school leaders should consider these questions:

- Is the school a treasured part of the town?
- Is the building a landmark that defines the neighborhood?
- Is the school located ideally to serve the residents of the community, including senior citizens?
- Do nonstudents use the school for a variety of activities?
- What fate awaits the school and community if it is no longer used for educational purposes?

Life-Cycle Costs. Architects, engineers or other consultants performing the feasibility study should include life-cycle costs to fully express the true costs of each option. Life-cycle costs examine not only the initial costs of a

particular building system or component but those associated with the entire facility over a long period. Often, an item that costs relatively little to obtain or install can have such high long-term operating or maintenance costs that it is a poor value. The reverse may also be true. For example, many environmentally friendly building materials are more expensive to buy than their conventional counterparts, but they cost less to maintain and save resources over years of use.

A life-cycle cost approach considers long-term transportation implications in selecting the school site. Because transportation operations may be funded from a different pool of money than are construction costs, they may receive inadequate consideration during site selection and at other key points in the process. The long-term value of transportation and energy savings can offset some larger capital outlays that may be required during site acquisition or construction. Life-cycle cost studies can help determine the best solution for the school system and the community over time.

Entrance to Marc T. Atkinson Middle School. Former Maryvale Mall, Phoenix, Arizona.

Adaptive Reuse. Typically spacious and centrally located, vacant or abandoned structures such as former office buildings, department stores, and commercial business facilities offer great opportunities for reuse as community-centered schools. Acquiring and renovating such a structure may be more economical than building a new facility outside of town. In considering a renovation, keep in mind two basic principles: the property must be safe, and the structure must accommodate the educational program and create a high-quality learning environment. Thus planners must study buildings for potential conversion very carefully. The Detroit and Miami public school districts offer cautionary examples: both tried to convert hospital buildings into schools, only to find that the structures couldn't be adapted to the schools' needs (Spector 2003, 2).


Former Maryvale Mall, Phoenix, Arizona currently serves as an entire community resource.

The National Clearinghouse for Educational Facilities (NCEF) cites several examples of schools that have reused nonacademic buildings, such as furniture stores, offices, and manufacturing plants. A mall in a low-income section of Phoenix, Arizona, became an academic complex that includes an elementary school, a middle school, and temporary space for students from schools that are being renovated. The mall's movie theater is now a performing arts center, its skating rink was turned into a physical fitness facility, its bowling alley became a school warehouse, and its parking lots were converted into playgrounds and athletic fields. The creativity of the school planners, a generous mall owner who reduced the price of his building, and a lack of affordable land available for the new school converged to create a state-of-the-art educational complex for this impoverished community (Spector 2003, 3).

Local Planning and Zoning Ordinances

In many communities, school districts are exempt from local planning and zoning ordinances. However, to create the best possible resource for the community and for students, school planners should work with the local

government and community leaders to fit the facility into the community's overall planning goals, regardless of whether they are legally obliged to do so.

Economic Impact. In our discussion above, we have seen how a school's location affects a community economically. Planners should consider the distinct benefits of a vibrant local school that remains within a neighborhood, the economic consequences for local business and for the tax base involved in moving a school out of a neighborhood, and possible negative effects of new development on rural landowners.

> "One of the great things about adaptive reuse is that it forces you to address context. It also moves beyond the building and gets to site issues and buildings within communities. We actually can start to not break down and recreate communities, but build on what's been done before and help that maturation process of communities by working with what we've got" (Leonard 2004).

Residential Development

The appearance of a school, particularly the exterior of the building and the grounds, sends a message about the community's convictions and commitment to education and its students, teachers, staff, parents, and other citizens. A well-maintained, welcoming building with a cheerful atmosphere says, "We care, and we are committed to providing high-quality education." That positive image can reflect on the entire community. Renovating a school in an existing neighborhood demonstrates the community's commitment and stability, which can stimulate improvements to the housing stock in the area. On the other hand, a poorly maintained school sends the message that the community doesn't care about its residents. Over time, this can have a negative effect on housing around the school as residents with children move to communities with well-maintained schools.

Closing schools, especially in small communities or neighborhoods, can also affect housing values and economic development. According to the Rural School and Community Trust (n.d.), rural communities with schools had higher growth rates, housing values, and incomes, more professional workers and entrepreneurs, and a lower percentage of households receiving public assistance than did rural communities that had lost their schools (Lyson 2002). A study of rural communities in Iowa found that, over twenty years or more, half of the communities with a high school gained population, while three-quarters of those without a high school lost population (Dreier and Goudy, 1994). Quite simply, a well-maintained community school benefits a neighborhood in a variety of ways, whereas closing schools or allowing them to deteriorate can precipitate neighborhood decline.

Environment, Health, and Safety

Building a new school on a previously undeveloped site alters the land and the vegetation, substantially changing the natural environment of the area. Development usually increases the acreage of impervious surfaces—building roofs, paved walkways, paved playgrounds, and parking areas. Before development, runoff from storms is absorbed by the soil. Once a school goes up on a site, the school district must spend money to appropriately treat the runoff, which otherwise would carry oil, fertilizer, and other contaminants into surface waters. Although some site disturbance does occur during renovation of an existing school or during construction on a previously developed site, these activities generally cause less environmental harm than developing a new site would.

Perhaps one of the most profound environmental outcomes of placing schools in existing communities is that it helps conserve undeveloped land and reduces sprawl. The negative environmental

effects of sprawling development are well documented.[7] Community schools represent an opportunity for the school system to actively improve the environment and promote smart growth. Less raw material is usually used in renovated facilities than in newly constructed schools, reducing the budget and the impact on the environment. A renovation can reuse many of the elements of the existing building, such as concrete footings, foundations, floors, and walls; structural steel walls, floors, and roofs; window and door frames; and main distribution lines for electricity, water, gas, and sewer lines. And a renovation, like a new school, can use energy-efficient, non-toxic, and environmentally friendly materials, supplies, and equipment to save energy, reduce operating costs, and ensure a healthy environment.

Transportation is a major factor in a school's overall environmental impact. Schools that offer more transportation choices can reduce the amount of land that is paved, cut automobile pollution, and encourage regular physical activity for children. Walking or biking to school is one of the easiest ways to instill the habit of physical activity in a child's everyday routine. EPA's transportation and school siting study, discussed earlier, confirms common sense in suggesting that the further a school is from a child's residence, the less likely it is that the child will walk or bike to school. Connecting a school to a network of sidewalks, bike paths, and other infrastructure that makes walking and biking safe and enjoyable can also encourage physical activity. Site size, location, and design all play a role in determining whether walking or biking will be an option for students.

Flexibility

It is hard to predict how a school building being renovated or built today might someday be used. While planning a current facility, planners should consider potential future renovations for educational and noneducational uses, so that regardless of changes in the school's enrollment and programs the building will continue to serve the community and its substantial investment for as long as possible. Some sites, because of their location, lend themselves to future alternative uses for housing or commercial development. Former public schools, for example, have been converted to residential developments or office space for local governments or private businesses. The historic Kennedy School in Portland, Oregon, an elementary school built in 1915, is now a unique and popular movie theater, restaurant, and hotel, offering guests the chance to "fall asleep in class."

LOCAL POLICIES THAT SUPPORT COMMUNITY-CENTERED SCHOOLS

To encourage renovation and construction of more community-centered schools and to promote better collaboration between school districts and towns, many local jurisdictions are revising regulations, passing new laws, and implementing innovative policies. The efforts described below reflect such actions taken by local governments and may serve as models or ideas for other towns.

Incorporate State Funds to Create Neighborhood Schools

In August 2000, the Wisconsin legislature passed the Neighborhood Schools Initiative (NSI), authorizing Milwaukee Public Schools (MPS) to borrow up to $98.4 million in state funds. The goals of this publicly financed effort are to reduce school crowding and transportation burdens, to create more neighborhood school choices, and ultimately to revitalize the MPS System and Milwaukee's neighborhoods. In addition to encouraging district-wide reform, the program focuses on the city's 28 most crowded elementary schools and six most crowded middle schools. In September 2001, Milwaukee's Board of School Directors approved the creation of an Office of Neighborhood Schools to ensure that the neighborhood-oriented goals of the initiative are accomplished. To increase enrollment at neighborhood schools, the MPS is undertaking a construction program of additions, renovations, and new buildings. To reduce the need for bus and car transportation, MPS has redrawn attendance area boundaries. The initiative formed Operation Helping Hands to make walking safer for students by erecting signs and establishing patrol groups to safely guide children to and from school. See the case study of Milwaukee's 37th Street Elementary School for an example of this policy in practice. (Milwaukee Public Schools 2004; Milwaukee Dept. of City Development 2003)

Integrate School Construction and Renovation Plans into Neighborhood Revitalization Plans

"Building For Success," a partnership between the Toledo Public School System and the Ohio School Facilities Commission, is a comprehensive 12-year project aimed at revitalizing the city's schools and surrounding neighborhoods. Construction and renovation of 62 schools is the centerpiece of plans to revitalize the city's neighborhoods. In 2002, the city approved the master plan for the facilities, and Toledo voters approved a bond issue for the city's contribution that, combined with state funds, will provide approximately $800 million for the schools. The program will construct 39 new elementary schools, 12 new middle schools, and five new high schools, as well as renovate three elementary schools and three high schools. In 2004, the New Schools New Neighborhoods Coalition (NSNN), a collaboration between public and private-sector stakeholders and supporters in Toledo, began work on using the Toledo Public Schools' reconstruction program to redevelop declining neighborhoods. NSNN supports the implementation of existing neighborhood revitalization plans and the development of new plans that build on the unique needs of each school and neighborhood. (Toledo Public Schools 2002)

Create Relationships with Other School Districts, Counties, and Agencies to Curtail Sprawl

In early 2004, Macomb County, Michigan, in the northeast quadrant of metropolitan Detroit, proposed a five-year plan for improving its schools. The plan recommends that, for the first time, schools work closely with county and local planners, other jurisdictions, and each other to curtail sprawl. School districts in Michigan are not legally required to get municipal or county approval for the school construction, so Macomb County's plan could have major effects on siting new schools in the future. As of July 2004, the plan was awaiting approval by the school board. A broad advisory committee, including legislators, executives from General Motors and Ford, utility companies, municipal and county officials, local school superintendents, and parents, drafted the plan. It calls for more collaboration and sharing of growth data and demographics; improved communication between school districts, utility providers, municipalities, and state agencies; and the creation of a leadership team to monitor and respond to growth fluctuations in the county (Wowk 2004).

Incorporate Community-School Principles into School-Building Programs

The Los Angeles Unified School District (LAUSD) is currently engaged in an ambitious school-building program to overcome the region's intense overcrowding and projected population growth. LAUSD, which serves 26 cities, needs 162,000 new classroom seats and 160 new public schools over the next ten years. The program, which was proposed in the late 1990s, will be completed in several phases, using roughly $9 billion from state and local bonds passed between 1997 and 2004. The first phase, costing $3.8 billion, built many large schools to accommodate large numbers of students in certain neighborhoods, but in the second and third phases, LAUSD plans to build smaller schools using community-school principles. Its current goal is to have a guaranteed neighborhood school seat for each student in the district. By using this approach, LAUSD combines school bonds with government and philanthropic funds to create mixed-use, neighborhood schools, offering much-needed health and human services in addition to education. Today, with less land available for construction in Los Angeles County, unique designs, often by prominent architects, are being created for each campus to address the specific needs of each community. As of May 2004, 23 projects had been completed, including two new schools in downtown Los Angeles, and nearly 100 others had broken ground (Los Angeles Unified School District 2004; Los Angeles 2003).

Incorporate Community Services and Affordable Housing into Neighborhood School Projects

The San Diego Unified School District (SDUSD), in partnership with numerous public agencies, San Diego State University, and philanthropic organizations, has built successful new schools and a revitalized town center in City Heights, once San Diego's most blighted community. The City Heights Redevelopment Project revitalized a seven-square-block area in 1992, at a time when the neighborhood had no center and little community infrastructure. As part of this effort, the school district built Rosa Parks Elementary School and Monroe Clark Middle School, which opened in 1997. In addition, Price Charities, SDUSD, the city's housing commission, the local redevelopment agency, and San Diego State University's National Center for the 21st Century Schoolhouse joined forces to plan a new neighborhood school and

urban village in City Heights. In January 2001, this group formed the San Diego Model School Development Agency to construct an elementary school with health and social services, sharing playing fields with the community. Connected to its residential setting by sidewalks, this model school will serve as the cornerstone of the revitalized City Heights neighborhood. Building the new school means demolishing some low-income residences, but the project will add 350 new low-income and moderate units. The new school and the housing units, as well as the community amenities and stores envisioned by the development agency, are scheduled for completion in 2006. (San Diego Model Schools Development Agency, n.d.; "San Diego Model School Project" 2002).

Collaborate with Neighboring Institutions

Launched in January 1996, Hartford's Learning Corridor project, largely the vision of former Trinity College President Evan Dobelle, aims to revitalize the rundown Frog Hollow neighborhood on the city's south side. The project centers on a 16-acre educational campus adjacent to Trinity College and neighborhood hospitals. The college collaborated with community leaders and government officials on the plan, which represents a $175 million investment from public and private sources. Within the campus, school buildings are arranged around playing fields like a college quadrangle. SmithEdwards Architects of Hartford, Connecticut, designed the collection of buildings, including a Montessori-style public elementary school; a public middle school; a science, mathematics, and technology high school resource center; the Greater Hartford Academy of the Arts; an early childhood and family resource center; and a boys and girls club. Now complete, the Learning Corridor initiative demonstrates how collaborative planning can revitalize a neighborhood, boost home ownership, and provide modern educational facilities (Trinity College n.d.).

Create After-School Programs for Students and Community Members

In 2002, the Chicago Public School (CPS) system, in partnership with the Polk Brothers Foundation, Bank One, Chicago Community Trust, COMMA, and many other investors, launched the Community Schools Initiative, an ambitious five-year campaign to create 100 community schools. CPS initiated this program after a study showed that students in community schools had higher test scores, improved relationships with supportive adults in after-school settings, switched schools less often, and had an overall greater feeling of safety. Each CPS school has the choice of becoming a community school, at which point it must work with a local organization to develop the necessary programs and services using $130,000 of funding provided by the city. After-school programs offered at each community school vary, but most invite students and adults to participate in art programs, recreational activities, English as a second language and GED classes, computer training, and health services. The programs are designed to support the school's academic program and expand the services offered within the community. In 2002, CPS converted 20 urban schools into community schools (Chicago Public Schools 2003, Office of After School Programs; Chicago Public Schools 2003, Six More Schools Open).

Encourage Renovation by Accurately Comparing Costs with New Construction

In 2002, the Columbus Landmarks Foundation (CLF) joined with the Columbus Public Schools to preserve the architectural integrity of the district's 56 historic schools, as a response to the Ohio School Facilities Commission's "two-thirds rule." Under this rule, the state withholds funds for school renovations if the cost exceeds two-thirds of the cost of building a new school. Working with a consortium of architects, engineers, construction managers, and planners, CLF undertook a study that showed many cases where school renovation would be cheaper than replacement. The report, completed in 2002, found that ten historic schools could be refurbished to meet state-of-the-art educational standards for $13 million less than the cost of building ten new schools. The Columbus school board accepted the report's findings and moved almost all of the examined schools from the replacement list to the renovation list. The success of the Columbus study encouraged the Ohio Historic Preservation Office to fund a similar project in Cleveland ("Historic Preservation" 2004; Raymond and Powers 2004; Lentz 2003).

Offer Bonus Funds for School Construction if Smart Growth Goals Are Met

The Orange County Commission in North Carolina plans to award Chapel Hill-Carrboro City Schools (CHCCS) bonus funds for incorporating specific smart growth strategies in the construction of its third high school. The bonus funds approved by the county commissioners provide the school district with an additional $1.9 million for the school, pending the implementation of smart growth measures such as compact design, increased bus use, reduced parking, and sufficient sidewalks and paths to encourage student walking and biking. In June 2004, the school board agreed to design the new school with bike lanes and racks, parking spots for only 22 percent of the expected 800 students, and other environmentally sensitive features. The school board will receive an additional $300,000 if it agrees to a set of transportation initiatives laid out by the commission, including shuttles, park-and-ride shelters, and sidewalk improvements. The school's location was selected before the school board developed its smart growth goals, so siting was not part of the smart growth criteria in this case. However, site selection is a critical component of neighborhood schools and should be part of local policies that support community-centered schools (Scroggs 2004).

Institute a Safe Routes to School Program

In the spring of 2000, Arlington County, Virginia, adopted a comprehensive policy to protect walking students called the Safe Routes to School Program. Approximately $1.75 million from the county's general fund will finance the program over four years, while other sources will pay for additional measures such as crossing guards, signs, pavement stripes, and other traffic-calming measures. Before launching the program, local government and school officials evaluated the existing safety conditions at all 32 Arlington County schools. Following the site visits, the county installed new school-zone flashing signals at about ten schools, relocated several parking and drop-off zones, and introduced crossing guards at all four middle schools. Long-term projects include new sidewalks, pedestrian refuge islands, and curb extensions. The county is also redesigning its school renovation and expansion projects to incorporate pedestrian safety improvements ("Safe Routes" 2004).

STATE POLICIES THAT SUPPORT COMMUNITY-CENTERED SCHOOLS

Policies, rules, and programs at the state level can augment and complement efforts at the local level to create community schools. State leadership can also spur movement towards community schools in places where it did not previously exist. Below is a sample of existing state policies that support community-centered schools.

Promote School Area Safety

In 1999, California Governor Gray Davis signed the Safe Routes to School Bill, which reauthorized and made permanent a two-year demonstration project to improve school area safety by redirecting some of the state's federal transportation dollars to local governments. In its first year, the program received applications from local government agencies totaling $130 million, six times the amount of money made available under the bill. Funded projects include new crosswalks, pedestrian and bicycle paths, bike lanes, sidewalks in neighborhoods where none had been built, and "traffic calming" efforts in neighborhoods around schools to slow the speed of cars and encourage walking (California Dept. of Transportation 2004).

Require Information-Sharing and Coordinated Planning between School Districts and Local Planning Agencies

Under Florida's growth-management strategy, a plan to restrict sprawl, local governments and district school boards must share information regarding school planning and land development, and they must collaborate in making decisions over school locations and land use. Failure to strike an agreement subjects both the local governments and district school boards to financial penalties. (Florida Division of Community Planning 2004; Florida Growth Management Study Commission 2001).

Use Schools to Promote Smart Growth Development and Redevelopment

In January 2002, New Jersey Governor Jim McGreevey issued an executive order to establish a new state organization charged with ensuring "that school construction initiatives promote smart growth, open space, and revitalization of communities." The Smart Growth Policy Council quickly developed the Schools Renaissance Zone (SRZ) Program based on the concept that new school facilities can become catalysts for redevelopment and investment in neighborhoods surrounding the schools. Such neighborhood revitalization might include construction or rehabilitation of apartments, commercial development, streetscape improvements, and investment in community recreational facilities, cultural assets, and open space. (For an example, see the case study of the Neptune Community School.) "Zone teams" of state officials from various departments and agencies coordinate financial and community assistance for the program. (New Jersey Schools Construction Corp. 2004)

Coordinate and Integrate School and Land-Use Planning

The state of Maine asks its education officials to consider whether the location they choose for a new school will promote sprawl. In 2000, the state planning office and state board of education collaborated on voluntary guidelines for local officials. The collaboration resulted in "The ABC's of School Site Selection," a brochure

outlining the steps to take when making decisions about school siting. According to the National Clearinghouse for Educational Facilities, the brochure outlines the following steps:

- Consider renovation or expansion in a central location
- Follow the community's comprehensive plan
- Site ancillary facilities, such as playing fields, creatively
- Select a site where students can walk or cycle to school
- Use existing services and facilities
- Tap into community resources to plan school expansion
- Consult with site selection experts

This brochure urges school districts to avoid sprawl; consider school renovations or expansions in central locations; analyze school sites for their proximity to village centers and established neighborhoods; and select sites served by adequate roads, utilities, and other essential services."

TO ORDER: Maine Department of Education, 23 State House Station, Augusta, ME 04333. Tel: 207-624-6600 (Maine State Planning Office, n.d.)

Direct State Funds to Schools in Existing Communities

The Maryland Public School Construction program directs capital improvements to schools located in "priority funding areas"—areas where new development is sanctioned by the state. From 1997 to 2001, the state allocated more than $1 billion to support 1,700 public school construction projects; 95 percent of the projects supported capital improvements for existing schools; 83 percent of the funds were for renovations or other capital improvements to existing schools. Maryland uses the following criteria to evaluate the merits of school construction:

- Projects should not encourage sprawl development.
- Projects should not be located in agricultural preservation areas ... unless other options are not viable and the project's development will have no negative effect on future growth and development in the area.
- Projects should encourage revitalization of existing facilities, neighborhoods, and communities.
- Projects should be located in developed areas or in a locally designated growth area.
- Projects should be served by existing or planned water, sewer, and other public infrastructure." (Maryland Public School Construction program, n.d.)

"Creating more neighborhood schools is one of the most important avenues for advancing quality of life in South Carolina. It makes sense from a learning standpoint, an economic standpoint and it makes sense if you want to have schools that are part of a community's fabric as opposed to part of its sprawl."

—South Carolina Governor Mark Sanford
July 16, 2003

Set Aside Funds for Aging Schools

Established in 1997, the Aging School Program in Maryland provides funds to upgrade aging school buildings throughout the state. School districts may use the funds for capital improvements, repairs, and deferred maintenance work at rundown buildings and sites serving students. The state funds provided under this program require no matching local funds. The program selects projects that would protect the school building from deterioration, make students and staff safer, and improve delivery of educational programs (Maryland Public School Construction program, n.d.).

Reduce or Eliminate Acreage Standards for Schools

Currently, 27 states have minimum acreage standards, with a wide range of specified sizes. However, given the drawbacks to such an approach discussed elsewhere in this document, many states are rethinking this approach. In 2003, for example, South Carolina eliminated its minimum acreage requirements (South Carolina 2003). In the early 1970s, the state of Maryland made a decision not to establish any site size guidelines or standards. Lawmakers felt that in doing so there might have to be dual standards; one for suburban areas where lots of land is available and another standard for urban areas and rural towns and communities where existing schools may be on small sites and large parcels of land are not readily available.

Maine and Pennsylvania have mandated maximum site sizes—if a school district builds on a site exceeding the maximum, the state will not fund the purchase of the excess land; the school district will have to pay for it. For a listing of state policies governing school site size, see http://www.cefpi.org/pdf/state_guidelines.pdf.

Change Grant Criteria to Encourage Renovation Over New Construction

In Massachusetts, the School Building Assistance Program provides "incentive percentage points" for school renovation or reuse proposals. Such points enhance prospects for state aid to school renovation projects and encourage new school construction only when renovation is not feasible (Wulfsen, n.d.)

Protect Historic Schools

Pennsylvania policy states that "school districts should take all reasonable efforts to preserve and protect school buildings that are on or eligible for local or national historic registers. If, for safety, educational, economic, or other reasons, it is not feasible to renovate an existing school building, school districts are encouraged to develop an adaptive reuse plan for the building that incorporates an historic easement or covenant to avoid the building's abandonment or demolition"(Pennsylvania Department of Education 2004). Historic schools taken out of service may be conveyed by school districts to nonprofit organizations and used for historic purposes for no remuneration (National Trust 2000).

Provide Dedicated Funding for Joint-Use School Projects

California has passed two state school bond measures that each dedicate $50 million to joint-use planning and construction. This funding supports the development of schools as integrated parts of their communities, around child care centers, health clinics, and libraries shared by the schools and the residents who live near the schools. In its 2003-04 session, the state legislature is considering a bill that would expand the list of school construction projects currently eligible for joint-use funding to include parks, recreational centers, cultural arts centers, technology centers, health clinics, and athletic fields (New Schools, Better Neighborhoods 2003).

CASE STUDIES

All across the country, cities and towns are building schools that play a central role in their communities. Beyond providing educational assets for their communities, the schools also preserve or revitalize neighborhoods, conserve land, use taxpayer dollars efficiently, foster economic development, and enhance the quality of life for citizens.

These nine case studies highlight a variety of municipalities—urban, suburban, and rural—that have successfully used smart growth principles and created community schools. Just as these places look different, so, too, do their schools. They include a mix of elementary, middle, and high schools, new construction, and renovations and expansions of older structures. The imaginative and innovative approaches in these examples offer useful lessons to educators and community leaders around the country.

37th Street Elementary School

John A Johnson Achievement Plus Elementary School

Moore Square Museums Middle School

Littleton High School

St. Helena Elementary School

Neptune Community School

Inderkum High School

Westerly Creek Elementary and Odyssey Charter School

Noble High School

THE 37TH STREET ELEMENTARY SCHOOL

Milwaukee, Wisconsin

A 1903 elementary school on the west side of Milwaukee is the linchpin of a comprehensive plan to re-establish neighborhood schools in the city. This inspiring project springs from the Neighborhood Schools Initiative (NSI), approved by the Wisconsin legislature in October 1999. The law authorized the Milwaukee school district to borrow up to $170 million of public funds to construct new schools or renovate existing ones to increase the number of students attending school in their neighborhoods.

Under this initiative, a collaborative and interactive planning process, in which the school district invited participation from community residents from every part of the city, developed a plan to revamp Milwaukee's overcrowded schools. This process included 310 community outreach meetings, door-to-door surveys of 940 households, telephone surveys of 1,473 parents, 13 focus groups, and 1,617 parent information surveys. During the outreach effort, parents told MPS the factors that would encourage them to send their children to their neighborhood school: expanded before- and after-school child care and schooling, increased safety, more school seats for kindergarten through eighth grade, and continued choice of schools. These recommendations form the guiding principles for the Neighborhood Schools Plan.

The plan focused on improving the 28 most crowded elementary schools and the six most crowded middle schools. When fully implemented, the plan will have created more than 11,000 new seats and 750,000 square feet of additional space through construction of six new schools, additions to 19 existing schools, and renovations of 15 existing schools. In addition, it will convert a total of 32 additional schools to K-8. Milwaukee Redevelopment Authority bonds will fund the plan.

One of the first schools to be replaced under this plan is the historic 37th Street Elementary School, located in the city's Washington Park neighborhood. The school's attendance area is predominantly African-American (63 percent) and Asian (Hmong; 32 percent). Currently, half of the population is under the age of 18, and 63 percent of neighborhood households are headed by single females. Most of the housing units are rental, with only 25 percent being owner-occupied. The average family

size is 3.94 persons, compared to the city average of 2.53. The existing school, built in 1903, accommodates only 300 students, although the attendance area has over 1,500 students.

To ameliorate overcrowding, the school district will build a new elementary school two blocks away from the current school on a 5.5-acre site. Early in the planning process for the new facility, the design team of PACE Architects, Fanning Howey & Associates, and school district staff conducted a design workshop to incorporate input from residents, parents, teachers, and students. Throughout the planning and design of the new school, the team involved the neighborhood as much as possible.

With guidance and assistance from political leaders, parents, students, and neighborhood residents, MPS and its team developed a site and building plan that respects and enhances the neighborhood. Students and the neighborhood will benefit from the community and recreational spaces inside and outside the building. The new building, due to be completed in 2005, encourages community use of the library, gym, cafeteria, parent center, and art and music rooms. In addition, the site is available for outdoor recreational and community functions, such as a weekly farmer's market.

Because safety concerns, not just distance, can deter students from walking to school, the community outlined nearly a dozen measures to promote a safe walking environment. "Operation Helping Hands" recruits and screens parents and community members who volunteer to assist children on their way to and from school. "Safe haven" homes will be identified by signs in their windows, neighbors will be encouraged to sit on their porches to keep an eye on children, and volunteers will walk students to school.

Understanding the relationship between a stable home environment and success at school, the NSI is investing in the neighborhood around the 37th Street School as well. The school board, working with Habitat for Humanity, West End Development Corporation, and the Milwaukee Housing Authority, is committed to replacing 31 housing units razed to make way for the new school, For every home raized to make way for the new school, two will be either rehabilitated or built new. The new housing units will be made available with low-interest loans to low-income households in an effort to double the homeownership rate in the

neighborhood, from 25 percent to 50 percent.

This effort has already proven successful. To date, there have been 26 properties with a total of 31 units completed in the 37th Street school attendance area. Of these units, 23 are owner-occupied and eight are renter-occupied. A total of 17 new single-family homes have been constructed and nine existing properties rehabilitated. In addition, 15 other properties with 16 total units are currently under construction or are being rehabilitated. A total of 14 of these units will be owner-occupied. By the end of 2004, a total of 41 properties with 47 units will have been completed with 37 new owner-occupants. To further illustrate the success of this project, redevelopment is not limited to the 37th Street School's attendance area. Within a four-block radius of the attendance area, a total of 34 new single-family homes are either complete or under construction for new owner-occupants.

The school board is spending $11.8 million on the new school and the housing providers $15 million on the housing component. The board believes this $26.8 million commitment will not only improve education but will also spur investment in the neighborhood. Using this approach, MPS is not just building a school; it is also rebuilding the community—realizing the true meaning of a neighborhood school in all respects.

Project Information and Contacts	
Project	37th Street Elementary School
Owner	Milwaukee Public Schools
Land area	5.5 acres
Building size	69,858 square feet
Cost per square foot	$173.21 (Includes site acquisition, fees, fixed furniture and equipment)
Cost per student	$21,100 (estimate)
Number of students	572
Space per student	122 square feet
Parking spaces	46 on-site
Total project cost	$12.1 million
Architect	PACE Architects, S.C. 233 North Water Street, Suite 201 Milwaukee, WI 53202 Tel: (414) 273-3369 x15 Fax: (414) 273-5669 http://www.pacearchitects.com
School principal	Marion Reiter 1715 North 37th Street Milwaukee, WI 53208-1811 Tel: (414) 934-4600 Fax: (414) 934-4615 Email: 356@mail.milwaukee.k12.wi.us
Projected completion date	August 2005

JOHN A. JOHNSON ACHIEVEMENT PLUS ELEMENTARY SCHOOL

St. Paul, Minnesota

The John A. Johnson School is once again an asset for the East Side neighborhood in St. Paul, Minnesota. This former high school, built in 1911, was fully renovated and now serves more than 300 kindergarten through sixth-grade students. By recycling the historic building, the community recovered an asset that had stood vacant in their neighborhood for decades. The school's rebirth has spurred neighborhood revitalization and united a community that worked together to achieve its vision.

Abandoned in the 1960s when a new high school was built a mile away, the boarded-up school building loomed over the East Side for decades, until community groups had a tool to exploit its potential: "Achievement Plus," an initiative introduced by the governor of Minnesota in 1996 to improve public schools. With the state's financial support, the program fosters public-private partnerships aimed at "integrating the school community, families, and the resources of public and private organizations to ensure academic achievement for all students." Each Achievement Plus school has a family resource center, parenting classes, drop-in child care, family literacy nights, before- and after-school activities, health and dental services, housing and job referrals, and public access to telephones and computers.

In 1997, the Amherst H. Wilder Foundation, a St. Paul charity, identified the East Side neighborhood as an exemplary place to implement this model, because of the historic school and the high levels of unemployment, crime, and poverty in the area. To develop a revitalization plan, the foundation teamed with Ramsey County, the city of St. Paul, and St. Paul Public Schools. From the beginning, the community was involved extensively and continuously, reviewing and commenting on everything from the building design to the educational and social programs. Community members visited other schools and model programs, assisted in hiring the staff and principal, and recruited and registered students. Participants in the planning process agreed that the original school should remain standing, though it would need extensive renovation. Ankeny Kell Architects, a St. Paul firm, was hired to oversee the rehabilitation of the historic school and to design a new wing.

In 2000, the masonry exterior of the historic school building was refurbished while the interior was modernized with art, new classrooms, and high-tech study spaces. Environmental principles that benefit the community and the students guided the design and the construction. In both the old and new buildings, light sensors reduce energy consumption, classroom windows open to provide daylight and natural ventilation, and nontoxic materials prevent "off-gassing" of noxious substances. Materials from the old school not used in the new design were salvaged for reuse.

In addition, the compact, three-story building fits seamlessly into the community. The land conserved with compact design has been turned into playing fields for the children and community. The school won a St. Paul Heritage Preservation Award in 2002, honored for its renovation and compatibility with the surrounding neighborhood.

One of the most innovative aspects of this school is its relationship with the new Eastside YMCA. The county wanted to provide social services in the area, but it was

financially infeasible. Meanwhile, a new 60,000-square-foot YMCA located a few blocks away was having difficulty attracting community use of its gymnasium, pool, child-care center, multi-purpose rooms, and workout spaces. By encouraging the school and the YMCA to co-locate, the county saved a substantial amount of money. The YMCA has increased its attendance, and the community school now has more room for before- and after-school activities. Shared programs include a teen center, youth development programs, free swimming lessons, a track, and health and special education classes.

Restoration of the Johnson school has also spawned redevelopment in the surrounding neighborhood. A partnership between the Wilder Foundation, the East Side Neighborhood Development Company, and the St. Paul Foundation established the Opportunity Housing Investment Fund, which plans to build or renovate 75 homes near the elementary school within five years, making them available to low-income families with children attending the school. The fund also finances new construction and rehabilitation of older homes in the school attendance area; assists property owners in providing high-quality, affordable, rental properties on the East Side by matching families from the school with vacant rental units; and assists developers and landlords in creating high-quality, affordable housing in the area.

John A. Johnson Achievement Plus Elementary School has become the centerpiece of the community, attended by 300 neighborhood children—only eight of whom ride the bus—as well as residents of all ages. According to Ankeny Kell Architects, "The school was identified as a 'walking school.' In this way, a diverse community was drawn together. The surrounding neighborhood was united and the school has become a source of community pride." And by improving the quality of life in St. Paul's East Side, the school gives residents a reason to remain in the neighborhood.

Project Information and Contacts	
Project	John A. Johnson Achievement Plus Elementary School and Eastside YMCA
Owner	St. Paul School District #625
Land area	12.5 acres
Building size	75,000 square feet renovation; 15,000 square feet addition
Cost per square foot	$124
Cost per student	$34,500
Number of students	300+
Space per student	252.50 square feet
Parking spaces	No dedicated school parking
Total project cost	$21 million (Achievement Plus) $8 million (YMCA)
Architect	Ankeny Kell Architects, P.A. 821 Raymond Avenue, Suite 400 St. Paul, MN 55114 Tel: (651) 645-6806 http://www.ankenykell.com
School principal	Mr. Frank Fennberg 740 York Avenue St. Paul, MN 55106-3730 Tel: (651) 793-7300 Fax: (651) 793-7310
Completion date	September 2000 (Achievement Plus), July 2001 (YMCA)

MOORE SQUARE MUSEUMS MAGNET MIDDLE SCHOOL

Raleigh, North Carolina

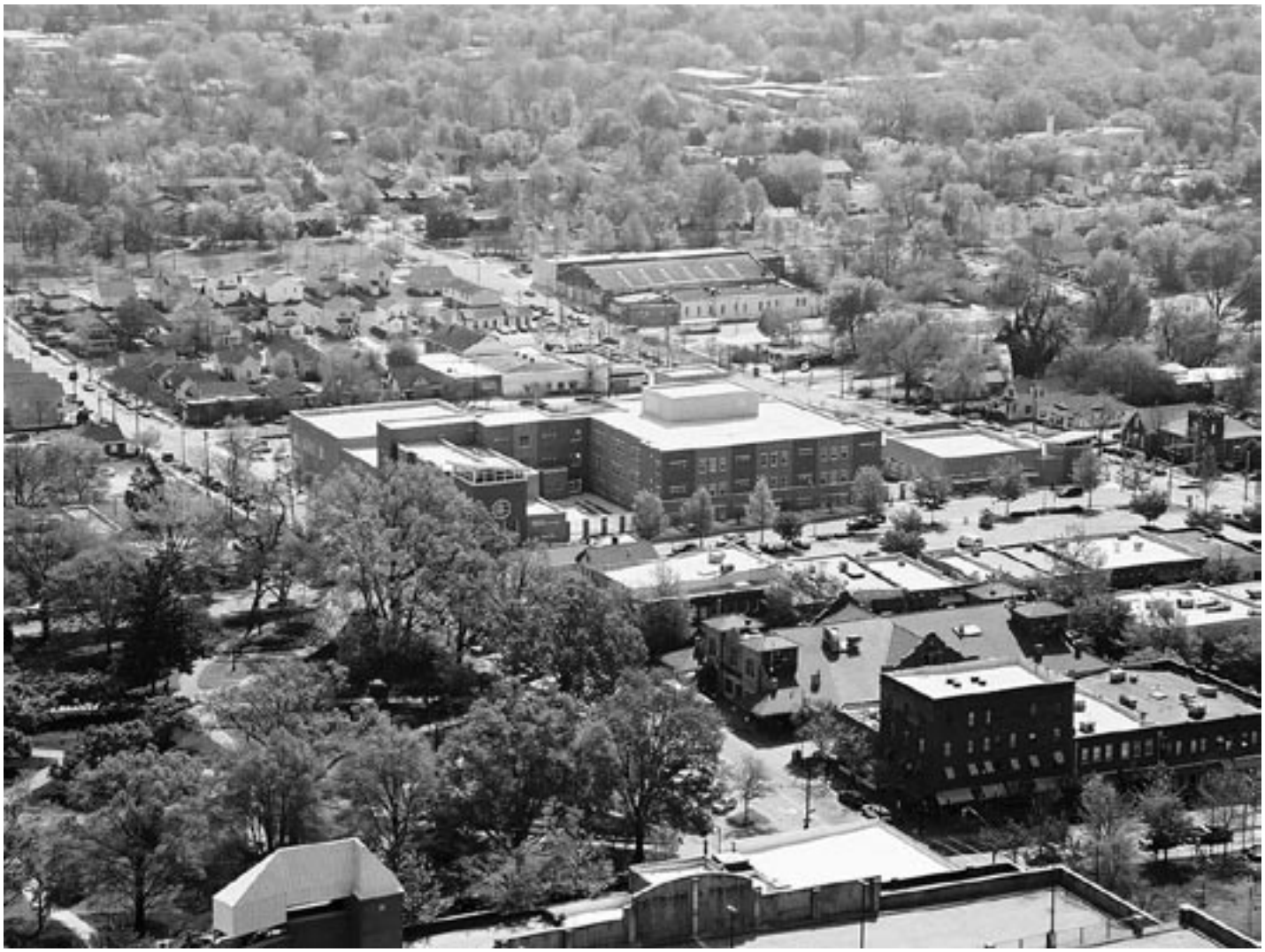
Students at Moore Square Museums Magnet Middle School have a special opportunity to explore history, science, and the arts. Located in downtown Raleigh, North Carolina, the school has developed partnerships with several local museums and arts facilities to enrich the curriculum with unique learning opportunities. The instructional program allows students to attend museum exhibits; view ballet, dramatic, and musical performances; and work behind the scenes with museum staff, technicians, archivists, researchers, and other experts. Access to downtown stores, businesses, and churches adds to the stimulating learning environment.

The school has an enrollment of 500 students (with a capacity of 600) in grades six through eight, many of whom applied specifically to attend the school. The school's unique curriculum and downtown location have also attracted excellent teachers. Only one block away from the school, the Capital Area Transit System's bus depot extends access to the school beyond adjacent neighborhoods, creating a socially and economically diverse student body. The school's location also allows students to get plenty of exercise as they walk to school and to classes in nearby museums as part of their daily routines.

Despite its relatively small, four-acre site, the school incorporates a full-sized gymnasium and two playing fields, which are used for daily physical education classes and intramural sports. By contrast, the typical acreage for a comparable middle school in Raleigh and other cities in North Carolina is 25 acres or more.

The school is helping to stabilize the community by drawing new residents and other redevelopment to the area. Moore Square is in the Downtown East Residential Redevelopment Area—an area targeted for housing and community development. The city of Raleigh assembled the site by removing several blighted and vacant structures. Moore Square has generated substantial community support for increasing downtown investment, expanding residential opportunities within the city, and concentrating sensitive development within areas of existing infrastructure where city services are already provided.

Neighborhood resident Wade Smith has lived near the site of the new school for 37 years. He noted that since the school's construction, "the neighborhood has gotten quiet and more peaceful," and "it's been a wonderful thing" (Stradling 2003). In 2003, the Wake County Public School System and the city of Raleigh received the U.S. EPA's National Award for Smart Growth Achievement for Moore Square Museums Magnet Middle School.



Project Information and Contacts	
Project	Moore Square Museums Magnet Middle School
Owner	Wake County Public School System
Land area	4 acres
Building size	125,000 square feet
Cost per square foot	$107
Cost per student	$27.235
Number of students	492
Space per student	254 square feet
Parking spaces	About 70
Total project cost	$13.4 million
Architect	Charles Todd Little Diversified Architectural Consulting 4309 Emperor Blvd. Durham, NC 27703 Tel: (919) 474-2510 Fax: (919) 474-2502
School principal	Cathy Bradley 301 South Person Street Raleigh, NC 27601 Tel: (919) 664-5737 Email: cbradley@wcpss.net
Completion date	July 2002

LITTLETON HIGH SCHOOL

Littleton, New Hampshire

Known as one of the best small towns in America, Littleton, New Hampshire, has invested in its in-town high school to provide state-of-the-art educational facilities and solidify the school's role in the community. For years, the rural community of 6000 people debated whether to renovate the existing high school or build a new one elsewhere. With considerable community support, Littleton approved the largest bond issue in town history—$6 million—to renovate and expand the school, ensuring it will remain an important community resource.

Scheduled to reopen in fall 2004, the refurbished school will have a new lobby leading to overhauled classrooms, a new cafeteria, and music and technology facilities. The renovations also ensured that the school will be able to meet future enrollment with additional classrooms on a new second floor, reached by a newly installed elevator. The upgrades are expected to improve the educational performance of an already great school system, selected as one of the 100 best school districts in the country by *Offspring Magazine* in 2000.

The high school was recently chosen as one of a handful of schools nationwide to participate in NASA's Explorer School Program. The program provides opportunities for schools, administrators, and students and their families to collaborate with NASA to improve learning; participate in authentic experiences with NASA science; apply NASA science, mathematics, and technology to real-world issues and problems; and participate in special events. Partnership leaders hope to introduce and expand a "culture of technology" among students from the primary to the secondary grades. The program recognizes that if students are not exposed to technology in high school, they are unlikely to consider it as a career option in post-secondary training.

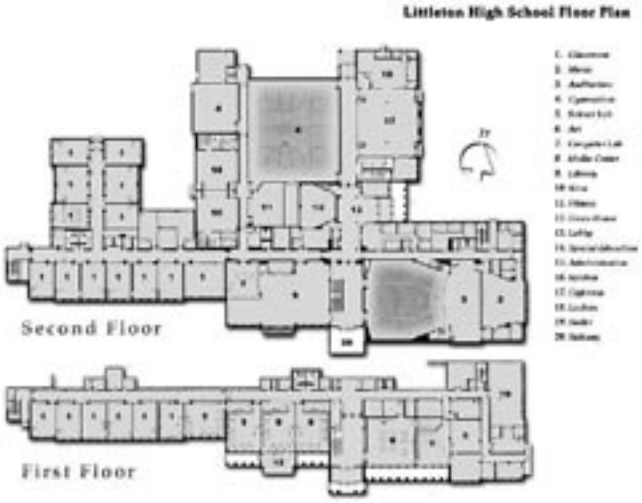
At Littleton High, this exposure has already produced results. A physics class recently devised a self-heating system for school walkways in cooperation with the Massachusetts Institute of Technology and local mentors, through a grant from the Lemanson Foundation. In winter, waste heat from the school's boilers will be channeled into the pavement to melt snow. If this system works, it will be incorporated in Littleton's Main Street renovation.

The school has also developed unique partnerships with downtown businesses through "Main Street Academies," created to respond to students' desire to "make the learning real." Students attending the business academy in Chutter's General Store, for example, design the retailer's Web site, advertise, market to targeted customers, and negotiate shipping agreements. Those enrolled in the technology academy work with the town's GIS program (Bingler, "Community-based school planning," 2003).

Long a focal point of the town, the high school's central location allows many students to walk. In fact, only four school buses serve the school, and they are

generally only half full. Littleton High School also makes great use of the community's civic amenities to meet its athletic needs. The town-owned Remmick Park, only a hundred yards from the school campus, hosts outdoor athletics like field hockey, soccer, and baseball. Additional fields for softball are only two blocks away. The school uses other town parks and nearby open spaces for events such as downhill and cross-country skiing.

Littleton's commitment to its public high school is part of a larger effort to recruit businesses and employees to this New Hampshire town. Debating the renovation, the chairman of the Board of Selectmen, Burton E. Ingerson, noted, "This decision is not only about schools, it is about the continuation of healthy and viable community and economic development for our collective future. We cannot expect to sustain economic vitality and tax base growth without addressing our school facility's needs" ("Expand and upgrade," 2002). The renovation coincides with substantial investment in the city's downtown. Since 1997, more than $2 million has been invested in building improvements guided by recommendations from the National Trust for Historic Preservation's National Main Street Center. Littleton received the Trust's Great American Main Street Award in 2003.



Project Information and Contacts		
Project	Littleton High School	
Owner	Littleton Union School District	
Land area	3 acres	
Building size	96,000 square feet	
Cost per square foot	$62.50	
Cost per student	$15,000	
Number of students	400	
Space per student	240 square feet	
Parking spaces	102	
Total project cost	$6 million	
Architect and design/builder	Daniel Herbert, INC. 1 Pleasant Street Colebrook, NH 03576	Michael Couture 760 Kearsarge Road North Conway, NH 03860 Tel: (603) 356-9606
School principal	Alan Smith 105 School Street Littleton, NH 03561-1238 Tel: (603) 444-5601	
Completion date	June 2004	

ST. HELENA ELEMENTARY SCHOOL

St. Helena, California

"It was never an option to rebuild at a different site," says architect John Stong. "The community really valued the neighborhood location of the historic school." Renovating the St. Helena Elementary School in California's scenic Napa Valley allowed the landmark to remain a firm fixture in the town's future. While preserving its historic character and status as a neighborhood center, the school has also vastly improved its capabilities with educational upgrades and a renovated community theater.

St. Helena Elementary has been a neighborhood asset for this town of 6,000 people since 1931. The school's central location and short distance from Main Street have enabled most students and community members to walk or ride their bikes to take advantage of its resources; in fact, the school has no dedicated parking lot (National Trust for Historic Preservation n.d.). Only 13 percent of students ride the bus to school each day.

During a 1996 renovation, a fire badly damaged the school. Cost considerations could have led the community to scrap the renovation and rebuild at a different site. However, the public quickly rallied to keep the school in their community and vigorously renewed the renovation effort. Residents pitched in by helping to raise money and even painting. Performances in the school auditorium by the Napa Valley Shakespeare Group helped pay for new blinds in the band room.

In addition to refurbished classrooms and cafeteria, the school received state-of-the-art data infrastructure upgrades that will allow continued technological advancement for years to come. The community believes it is no coincidence that test scores have increased since the renovation.

The school continues to be a community resource. Various organizations, such as the Napa Valley Symphony, stage concerts and performances in its theater. Sports leagues and groups like the Boy Scouts use its cafeteria and playing fields. These community resources allow students to attend extracurricular activities without their parents having to spend hours chauffeuring children from event to event.

The school also participates in a state-sponsored program called "A Garden in Every School," which encourages hands-on nutrition education by having students care for their own gardens. In St. Helena, the students grow a variety of fruits and vegetables, use them in classroom education, and prepare them for special celebrations. The entire community is involved in this endeavor. As noted in a gardening publication, "Napa County's master gardeners offer technical assistance, the Culinary Institute of America hosts hands-on cooking adventures, and a local nursery, grocery, and wineries donate seeds, labor, and money" (Kirschbaum 1999, 6).

By choosing to renovate the existing school instead of building a new one on the city's edge, St. Helena was able to help maintain the high quality of life in this beautiful county.

Project Information and Contacts	
Project	St. Helena Elementary School
Owner	St. Helena Unified School District
Land area	7.7 acres
Building size	58,000 square feet
Cost per square foot	$128
Cost per student	$23,125
Number of students	320
Space per student	181 square feet
Parking spaces	None
Total project cost	$7.4 million
Architect	Mr. Jon Strong, AIA Quattrocchi Kwok Architects 636 Fifth Street Santa Rosa, CA 95404 Tel: (707) 576-0829 Fax: (707) 576-0295 Email: markq@qka.com http://www.qka.com
School principal	Mr. Stan Augustine 1325 Adams Street St. Helena, CA 94574 Tel: (707) 967-2712 Fax: (707) 967-2756 Email: pdineen@sthelena.k12.ca.us
Completion date	1999

Photographs property of Tim Maloney Technical Imagery Studios, Santa Rosa, California.

NEPTUNE COMMUNITY SCHOOL

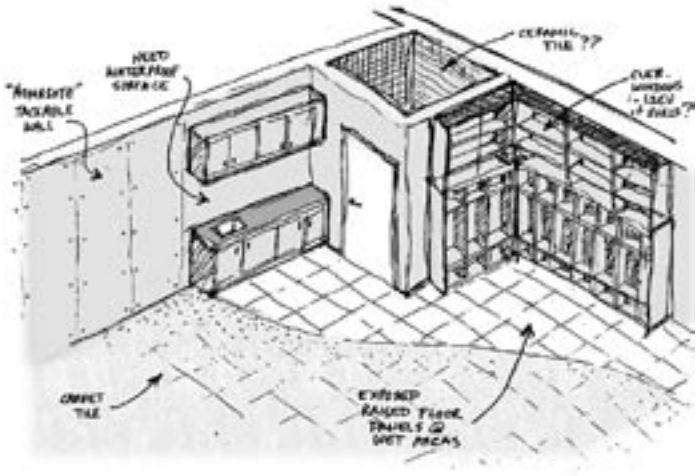
Neptune, New Jersey

The township of Neptune, New Jersey, has benefited from a state initiative that uses successful school rehabilitation and construction as the centerpiece for community revitalization. Called the School Renaissance Zone (SRZ) program, the initiative targets state investment to spur private economic development in neighborhoods around schools.

Through the leadership of the local community organization, the Midtown Neighborhood Empowerment Council, Neptune was chosen as one of the state's first SRZ sites. The original plan was to renovate the existing elementary school. Built in 1927 on 3.5 acres, it was the centerpiece of the community until water damaged the building's hollow terra cotta-tiled walls and roof, making it structurally unsound. A new school site was chosen a few blocks away, on vacant land that had been cleared during the 1970s. The site, at seven acres, is substantially smaller than most new schools and lets the school to blend into the community, allowing the majority of the students to walk to school. Of the 800 children who will attend the new Neptune school, 150 at most will ride the bus. To encourage teachers as well as students to use alternate transportation, the school provides bike racks and showers and designates five parking spots for carpoolers.

The new school, scheduled to open in fall 2005, will offer innovative, state-of-the-art facilities in science, math, and technology for up to 700 pre-kindergarten through fifth-grade students. It will accommodate 150 children who were previously bused to other schools. Neptune Township is happy to save these transportation costs, and the students look forward to classes with friends in their neighborhood. Another benefit is that many special education students, who were being bused to other schools, will be "mainstreamed" so that they can attend school with their neighbors and friends while still receiving proper attention.

In addition to renovated classrooms, the community requested that the school incorporate social services programs and amenities. The expanded school will accommodate new art and music studios, a guidance office, and an intergenerational tutoring and community center. The community was particularly concerned about medical and dental facilities, and the school understood the effects of poor health on students' behavior and inability to concentrate and learn. Therefore, a health and dental clinic was included in the school, staffed by volunteers from the New Jersey Shore University Medical Center. The school facilities will be open for use long after classes end, and the Monmouth County Recreational Center will coordinate a summer camp. An adjacent site, once used for light industry and occupied by abandoned warehouses, will be rehabilitated and turned into a childhood education center.



The school has been designed by SSP Architectural Group according to guidelines established by the U.S. Green Building Council. The architects are aiming for a Gold rating of LEED (Leadership in Energy and Environmental Design) Green Building Rating certification for the environmentally sensitive design.

Geothermal heating and cooling systems and other energy-efficient components, viewable by students through a unique transparent floor, will be incorporated into a science curriculum so that students can learn first-hand how their school uses and conserves energy. Storm water recycling will irrigate the site, building materials will incorporate recycled components, classrooms will be illuminated by daylight, and the school will feature a landscaped roof. The rooftop area, built in collaboration with Liberty Science Center, provides an additional 5,000 square feet of "green" classroom space and play area for the children.

Neptune aims to share the benefits of its school revitalization with the surrounding neighborhood. The local planning agency has been working with the community to encourage infill and affordable housing development. Habitat for Humanity and modular homebuilders have already expressed interest in the area, and plans to develop the old school site are underway. According to Alfred McNeill, former chief executive officer of the New Jersey Schools Construction Corp. (SCC), "New Jersey is investing more than $8.6 billion in the renovation and construction of new schools. SCC and our state partners will work diligently with the City to ensure this state investment produces a community of learning for the children of Neptune, and a national model of urban redevelopment" (New Jersey Governor's Office 2003).

Because of its designation as an "Abbot" district, the new Neptune School is being entirely financed by state funds. In 1998, the New Jersey Supreme Court ruled in *Abbott v. Burke* that schools in 30 of the state's neediest districts needed better facilities and would have all of their eligible costs paid by the state.

In announcing the Neptune School as New Jersey's first SRZ project, Governor Jim McGreevey said, "This program is yet another initiative to ensure we are investing in the growth of our urban areas and older suburbs. Through the collaborative efforts of our many state agencies, it enables us to create a school that will serve as a magnet for the rebirth of a community. By leveraging the state's commitment, we can attract private and non-profit investment to energize the local economy, build safe neighborhoods for our students, and secure a successful future for our families" (ibid.).

Project Information and Contacts	
Project	Neptune Community School (NCS) and Early Childhood Center (ECC)
Owner	New Jersey Schools Construction Corporation
Land area	7 acres (NCS), 3 acres (ECC)
Building size	149,000 square feet (NCS), 46,000 square feet (ECC)
Cost per square foot	$208 (NCS), $160 (ECC)
Cost per student	$44,286 (NCS), $27,407 (ECC)
Number of students	700 (NCS), 270 (ECC)
Space per student	213 square feet (NCS), 170 square feet (ECC)
Parking spaces	N/A
Total project cost	$31 million (NCS), $7.4 million (ECC)
Architect	SSP Architectural Group Somerville, NJ Tel: (908) 725-7800 Fax: (908) 725-7957 http://www.ssparchitects.com
Projected completion date	Fall 2005 (NCS), April 2004 (ECC)

INDERKUM HIGH SCHOOL

Sacramento, California

North Natomas is a fast-growing planned community in California's capital. In 2001, the city approved a master plan designed according to smart growth principles for the Natomas Town Center. Anchoring the community, Inderkum High School was completed in August 2004. The new two-story school occupies about thirty-six acres, a departure from California's typical single-level buildings on 60-acre sites. It shares facilities with Los Rios Community College, a local branch of the public library, and its athletic programs will use adjacent public park land and a community aquatic center.

The design reviews for the high school solicited public participation, and the steering committee included representatives from the city's planning and parks and recreation departments, the local regional transit light-rail authority, and local property owners. Not only does the school consume less land, it will also consume less energy. It will get nearly one-third its power from solar panels, and more than half the classrooms can be lit entirely by natural light. Water will be cooled and heated naturally by hundreds of geothermal wells. Mechanical systems are exposed so that teachers can use them for instruction. The senior manager for the project says that these features cost more initially, but he estimated they would pay for themselves in energy savings and reduced maintenance costs in as little as five years (Vellinga 2004). The school design has already won a 2003 DesignShare Citation Award (Nacht and Lewis 2003), and administrators hope it will be designated a "High Performance School" by the Collaborative for High Performance Schools, which recognizes California schools that "meet design standards for energy efficiency, comfort, and student health" (Vellinga 2004).

The high school, community college, and public library buildings form an outdoor courtyard open to all. Inderkum students will be able to enroll in community college courses that meet their graduation requirements and earn community college credits (Nacht and Lewis 2003). With such intermingling of high school students, college students, and the public, school officials worried about security but decided that the compact design of the high school made it easier to secure students within the school when necessary (Vellinga 2004).

The school plans to cooperate with neighborhood retail businesses to help students find career opportunities. Natomas Unified School District Superintendent David Tooker says, "Because of our location in the town center, we wanted to conserve land, so we could have these partnerships. . . We wanted to partner with other entities to have access to more resources. Because we're part of a park, we wanted the high school to blend in" (Gonzales 2003).

Another innovative feature of the Inderkum High School is its creative financing. A private real estate firm, The Eastridge Companies, pays for the school's construction, then leases the building to the school district until the district can afford to buy it back. Eastridge guaranteed that the construction costs wouldn't run over $58 million,

and the district was able to start building the school without having to wait for all of their eligible state financing. Bond money that would have financed the construction of Inderkum could be used instead for other schools. Although the district has 20 to 30 years to buy back the building, its administrators believe it can afford to do so by the time the school opens in 2004 (ibid.).

Eventually, an extension of Sacramento's light-rail transit system will be routed through the community, with a stop next to Inderkum High School. Some in the community opposed this route, claiming that it would bring "noise, congestion, and crime" to their neighborhoods. Instead, they wanted the light rail to run along Interstate 5, well away from any residential areas. Nonetheless, the Regional Transit Board of Directors voted in December 2003 to run the line through Natomas Town Center, believing that it had to go "to where people live" ("Natomas Light Rail," 2003). When the line opens to riders in 2012, it will give more transportation options to students, staff, parents, and other community members using the school.

With the education center situated within the core of the entire planned community of North Natomas Center, pedestrian and bicycle pathways integrate the site back into the community. Both on-street and off-street dedicated pathways are being developed to link the education center with the adjacent commercial and retail center, residential neighborhoods and eventually the regional park. Parking for the high school is reduced by regional standards as a result of the access to these alternative means of transportation.

Project Information and Contacts	
Project	Inderkum High School
Owner	The Eastridge Cos. (lease-leaseback agreement; Natomas Unified School District will lease from Eastridge until it can afford to buy back the structure).
Land area	36 acres
Building size	235,000 square feet
Cost per square foot	$246
Cost per student	$29,000
Number of students	2,000
Space per student	117 square feet
Parking spaces	460
Total project cost	$58 million
Architect	Brian Maytum, Principal, K-12 and Higher Education Nacht & Lewis Architects 600 Q Street, Suite 100 Sacramento, CA 95814 Tel: (916) 329-4000 Fax: (916) 329-7474 Email: bmaytum@nlarch.com http://www.nlarch.com/portfolio/edu_inderkum.html
School principal	Ron Zimbalist 1901 Arena Blvd. Sacramento, CA 95834 Tel: (916) 567-5415 Fax: (916) 567-5406 Email: rzimbalist@natomas.k12.ca.us http://www.natomas.k12.ca.us/ihsweb/ihs.html
Completion date	August 2004

WESTERLY CREEK ELEMENTARY SCHOOL AND ODYSSEY CHARTER SCHOOL

Denver, Colorado

The redevelopment of Stapleton Airport is one of the nation's largest and most ambitious infill projects, converting Denver's old airport complex into 4,700 acres of homes, offices, shops, schools, and parks. Over six years, a grassroots effort of more than 100 public meetings gathered community opinion on reusing the site, creating a unified vision of "a network of urban villages, employment centers, and significant open spaces, all linked by a commitment to the protection of natural resources and the development of human resources" (Stapleton Development Foundation 1995). The master plan emphasizes environmentally sound development, walkable neighborhoods, and lifelong learning. It rests on the principles of economic opportunity, environmental responsibility, and social equity. Stapleton will include a wide variety of housing choices, most of which will be less than a ten-minute walk from shops, schools, offices, and parks. Some housing is reserved for seniors, some for low-income residents, some for rental, and some for homeownership; homes and apartments feature diverse designs, but all are required to meet the minimum environmental quality level established by the Built Green Colorado program.

Stapleton residents, real estate developer Forest City, the City and County of Denver, and Denver Public Schools (DPS) created an Education Master Plan, which addresses traditional K-12 public, private, and charter schools; early childhood learning; adult education; vocational training; online learning; and partnerships with libraries, churches, and cultural organizations. Based on this plan, DPS plans to open two K-5 schools, four K-8 schools, and two high schools to serve Stapleton. The first elementary school, Westerly Creek Elementary School, opened in August 2003 for preschool through fifth-grade students. In its first year, it became one of the most diverse schools in Denver, with 46 percent African-American students (compared to an average of 17 percent in all DPS elementary schools), 36 percent white (18 percent average), and 13 percent Latino (61 percent average). Forty-two percent of students receive a free or reduced-price lunch, compared to the 72 percent average for DPS elementary schools (Denver Public Schools n.d.).

Westerly Creek shares some facilities, such as the cafeteria, gymnasium, library, and play areas, with the Odyssey Charter School, a K-8 expeditionary learning school modeled after the Outward Bound program, which moved to Stapleton in August 2003. Both schools share the same new two-story building, but they occupy different wings. Following the principles to which all of Stapleton's schools will adhere, the building occupies a small site that fits into the town's compact, walkable neighborhoods; shares public playing fields and

athletic facilities; and is designed to conserve energy and natural resources.

The school building's three-story tower recalls Stapleton's former airport control tower and has become a visual landmark within the new community. It includes a weather station and a photovoltaic system that generates enough electricity to light one classroom. A computer monitor in a kiosk displays information from the system, including the energy generated over time, the money saved by using electricity from the solar panels rather than from the utility, outside air temperature, and wind speed. The system also serves as an instructional tool for science classes ("Photovoltaic system," 2004).

Friends of the Center for Human Nutrition, a nonprofit organization, won a five-year grant in early 2004 to demonstrate how community design can encourage physical activity, with Stapleton as its laboratory. Part of this Active Living Partnership will include walking school buses, Safe Routes to School, and in-school educational programs for the elementary school.

By January 2004—with only Westerly Creek Elementary and the Odyssey Charter School open—the chief operating officer for Forest City Stapleton, John S. Lehigh, noted, "the emphasis on the quality of our schools is already showing results. Drawn by the prospect and reality of innovative public schools within a short walk or bike ride, families with children have purchased nearly half of the first 750 homes now occupied at Stapleton" (Lehigh 2004, 8).

Project Information and Contacts	
Project	Westerly Creek Elementary School and Odyssey Charter School
Owner	Denver Public Schools
Land area	10 acres
Building size	80,000 square feet
Cost per square foot	$134
Cost per student	$18,772
Number of students	350 (Westerly), 220 (Odyssey) (capacity)
Space per student	140 square feet
Parking spaces	62 parking spaces on-site
Total project cost	$10.7 million
Architect	Anderson Mason Dale Architects 1615 17th Street Denver, CO 80202 Tel: (303) 294-9448 Fax: (303) 294-0762 www.amdarchitects.com
School principal	Patricia Kuhn 8800 East 28th Avenue Denver, CO 80238-1247 Tel: (303) 322-5877 Fax: (303) 764-6816 http://westerlycreek.dpsk12.org
Completion date	August 2003

Photographer: Frank Ooms

NOBLE HIGH SCHOOL

North Berwick, Maine

Noble High School in rural Maine participates in the Coalition of Essential Schools, a nationwide organization whose members adhere to a set of principles that encourages innovative teaching. The district uses a project-based, interdisciplinary approach, where teams consisting of math, science, English, and social studies teachers work with learning communities of no more than 100 students. Noble High School does not place students in classes or learning communities according to ability and/or skill level; rather, all classes are heterogeneous, and traditional departmental structures have been dissolved. Democratic processes, a collaborative environment, and standards-based curricula are central to the educational program of the district. This approach has brought dramatic results, with student scores rising from the bottom third to the top third in state testing.

The district wanted to encourage life-long learning for all ages and to provide much-needed space for community programs in a rural area that had no real community core. Despite needing a space large enough for 1,500 students, the three towns in the district wanted a friendly, small-school ambiance.

The year-long planning and design process was truly democratic, with intensive involvement by faculty, students, administrators, staff, parents and community members. Architects held meetings with the faculty and conducted in-depth interviews with each teacher individually and with all departments. They distributed detailed questionnaires, gathering information on specific needs and general ideas about the design. A student committee developed a survey questionnaire. Student facilitators led discussions in all classes. A half-day workshop was held for faculty, students, administrators, parents and community members. Every element in the school's design was based on determining what was best for students and began with five basic principles. The new facility should

- Abolish anonymity by creating schools within schools
- Reflect the concept of teacher as coach, student as worker
- Accommodate a curriculum that is collaboratively designed, interdisciplinary and project-based
- Be a community center that embraces the community so community functions are integrated and not separated from education functions
- Be flexible in design, material, and function

These principles were expanded and formed the basis of a school that provides fifteen 100-student learning communities, each taught by four teachers. The result of this extensive planning process is a school that has a warm, small-school ambiance despite its 270,000-square-foot size and that provides space for numerous educational, recreational and community programs.

The school recognizes and establishes a sense of ownership for all three towns in the district. A wood arcade at the main entrance leads to an inviting skylit "Town Square" with three large, permanent display cases, one for each town, serving as a visible reminder that they are all part of the school district.

The need for lifelong learning is embodied in the design

of Noble High School, with several community resources co-located in the facility and partnerships that serve the educational program of the school. A day-care center is adjacent to an adult education center and enables community members the opportunity to upgrade their skills and further their education while their children are tended to in an adjoining room. Students in a child-care training program staff the center, and classes are offered during the day and in the evening.

The need for community health care in the area has resulted in a cooperative arrangement with a nearby hospital. Children from Noble, as well as from other schools in the district, can be treated at Noble's clinic. To provide as much privacy as possible, the clinic has a separate entrance, eliminating the need for parents to use the main entrance of the building. A parking area for the clinic is nearby.

Noble also has a small, 50-person restaurant, staffed by members of the school's culinary arts program. Students prepare and serve meals at a very reasonable cost. Students can practice a profession and community members can interact with them.

Noble's 1000-seat performing arts center ranks among the largest in the region and has professional-quality rigging, lighting and audio equipment to make it a community resource for many organizations. For athletic and fitness activities, the sports fields, gymnasiums and fitness center at the school are available for community use when not needed for scholastic activities. The library is designed with a special area for use by the community volunteers who come to the school to read to children in the day-care center.

Project Information and Contacts	
Project	Noble High School
Owner	School Administrative District #60
Land area	141 acres
Building size	270,000 square feet
Number of students	1,500
Space per student	185 square feet
Total project cost	$33,990,000
Architect	Daniel W. Cecil, AIA, Partner Harriman Associates One Auburn Business Park Auburn, Maine 04210 Tel: (107) 784-5100
School principal	Mr. Christian Elkington P.O. Box 819 North Berwick, Maine 03906 Tel: (207) 676-3217
Completion date	September 6, 2001

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