

# GOOD SCHOOLS – GOOD NEIGHBORHOODS

The Impacts of State and Local School Board Policies  
on the Design and Location of Schools in North Carolina



Center for Urban and Regional Studies –  
The University of North Carolina at Chapel Hill

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# Good Schools – Good Neighborhoods

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## Project Partners

### **Center for Urban and Regional Studies**

David Salvesen, Director, Program on Smart Growth and the New Economy

David managed the project and co-authored the *Good Schools-Good Neighborhoods* report along with Philip Hervey. The Center for Urban and Regional Studies (CURS) at The University of North Carolina at Chapel Hill serves as a campus center for research on urban and regional affairs, drawing the attention of both faculty and students to a wide variety of issues and problems faced by our nation's cities and regions. It is the second oldest, university-based, urban research center in the country. The Center's mission is to promote and support high-quality basic and applied research on urban, regional and rural planning and policy issues.

### **North Carolina Smart Growth Alliance**

Cara Crisler, Executive Director

Cara was responsible for marketing and outreach of the *Good Schools-Good Neighborhoods* report. The North Carolina Smart Growth Alliance, based in Carrboro, NC, is a diverse and growing statewide coalition of private, public and nonprofit organizations and leaders working to promote a smarter pattern of development in NC. Partners work in many different fields, including economic development, downtown revitalization, health, agriculture, affordable housing, the environment, and more. NCSGA's mission is to bring North Carolinians together to inspire, create and promote a shared vision of growth, which sustains and enriches the character of our communities, the health of our environment, and the strength of our economy.

### **Erica J. McArthur, Active Communities Consultant**

Erica conducted the focus groups with five local school boards in North Carolina and with the North Carolina Department of Public Instruction. Erica works with state and local governments, grassroots organizations and nonprofits in the creation of more active communities. Using principles of active community design and planning, as well as active empowerment techniques, Erica works to achieve both physically and politically active communities. She serves as a consultant to state and local governments as well as nonprofit organizations to create active communities.

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## Executive Summary

Not long ago, schools were built as the cornerstone of communities, housed in proud civic buildings, many of which still can be found across North Carolina – in small towns and large cities alike. Today, many new schools are built not in the center of communities, but on the periphery, far from the neighborhoods they serve.

These newer schools tend to be larger than their predecessors and occupy larger sites as well. Some schools in North Carolina occupy sites of more than 100 acres. In comparison, old “neighborhood” schools were small buildings occupying small sites – schools built for a less auto-dependent age.

The modernization of schools has come at a price – the loss of walkable, neighborhood-scale schools in favor of larger, more remote campuses accessible primarily by school bus or chauffeuring parents.

Forty years ago, *half* of all students walked to school. Today, only about one out of every 10 trips to school is made by walk-

ing and bicycling.

This report outlines trends in school construction in North Carolina, identifies key factors affecting the location and design of schools, and suggests solutions for overcoming obstacles to building and maintaining walkable, neighborhood-scale schools.

### Key findings

- Several factors influence school location and design, including suburbanization, economics, local land use regulations, and the policies and guidelines of the North Carolina Department of Public Instruction (DPI), which encourage communities to “super-size” new schools.
- Building walkable schools requires that we first build walkable neighborhoods. For that to happen, local governments have to create the conditions that allow compact, mixed-use development.

### Key Recommendations

#### Local governments

- Adopt land use regulations that allow more compact development adjacent to

schools.

- Explore joint use of school and public facilities.
- Encourage the creation of racially and economically integrated neighborhoods (to promote diversity in schools).

#### School boards

- Collaborate with local planners and municipal elected officials in selecting the location for new schools.
- Select school sites that maximize bicycle and pedestrian access.
- Build smaller schools on more compact sites.

#### Department of Public Instruction

- Develop small school prototypes and examples of school renovation for the school design clearinghouse.
- Promote the renovation of old schools that serve as anchors to their community.

Some school systems in North Carolina have found ways to save existing schools and integrate new schools into new neighborhoods. The payoff for students and the community makes the effort worth it: *good schools create good neighborhoods.*

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## Introduction

*Good Schools – Good Neighborhoods* is a guide for policymakers at the state and local level to help with decisions about the design and location of schools and encourage the development and maintenance of schools that strengthen neighborhoods and increase physical activity among school-age children.

The principle objectives of the study are to identify key factors influencing school design and location, as well as obstacles to building more walkable, neighborhood schools.

The report draws on analysis of the North Carolina Department of Public Instruction (DPI) policies and reports, focus groups with local school boards and case studies of North Carolina schools to identify key issues and obstacles to building and maintaining walkable neighborhood schools. *Good Schools – Good Neighborhoods* concludes with recommendations that aim to remove these barriers to lay the groundwork for creating new, or maintaining existing, neighborhood schools.

Key findings include:

- The state's school facility *guidelines*, which are perceived as minimum *standards* by local school boards, tend to encourage large school sites that foster sprawling building and site designs. These large sites make it difficult if not impossible to tie a school into the surrounding neighborhood, in effect dis-

couraging kids from walking or biking to school.

- Local officials are presented with difficult challenges establishing walkable schools within low-density suburban residential areas; in other words, an auto-dominant environment leads to auto-dominated schools.
  - Local school districts have proven that it is possible to develop creative solutions that result in more walkable schools, even large ones (see the Mary Scroggs Elementary School case study on page 5).
  - A major justification for building big schools on large tracts is the perception that one facility, rather than several small ones, creates economies of scale that result in significant cost savings when compared to the option of building small schools. However, there are several options for reducing the costs of small schools, such as entering into joint-use
- Building small, walkable schools presents a dilemma — large schools serving a wide area help achieve diversity in the student population, whereas small schools may be located in an area lacking a racially diverse population. In these areas, a 100 percent walkable neighborhood school would not be a desired goal; the school would have to bus students in from other neighborhoods to increase diversity.
  - Renovation costs are not necessarily higher than new construction, as demonstrated by several communities in North Carolina. For example, Durham successfully renovated a 1920's elementary school building despite initial recommendations to close it due to its high estimated cost and its small size (see the George Watts Elementary School discussion on page 11).

agreements for playfields and athletic facilities.



**ONCE A SCHOOL, NOW AN INN:** Pinebridge Inn, formerly the Harris Elementary School in Mitchell County, NC.  
*Photo courtesy of Pinebridge Inn.*

- Compared to elementary schools, middle and high schools are more difficult to make walkable because of their larger class sizes and the much wider area from which they draw their student population. New Hanover High School in Wilmington (see case study on page 7) demonstrates how locating some facilities off-site, such as athletic fields, can allow for a compact school site, even at the high-school level.

## Trends in School Construction

### The National Picture

In the 1950s, an emerging trend in the education field was the principle of achieving economies of scale through construction of larger schools that would help offset the costs of expanded education programs and justify closing old schools believed to be outdated (Lawrence et al, 2002).

At about the same time, the migration from cities to suburbs was in full swing, facilitated by the interstate highway system and paved secondary roads, which opened up large territory on the urban fringe for low-density, auto-oriented development. As people, employers, and retailers moved to the suburbs, schools followed. Locating schools outside town was made easier by the new and improved roads, water and sewer extensions and other infrastructure projects that helped urban areas expand.

In addition, the shift to consolidating schools into fewer, larger

**Table 1: Estimated Need (by 2005) for New Schools in NC**

	Schools	Total Cost (Millions)	Student Capacity	Average Student Capacity
<b>Elementary (K-5)</b>	111	\$996	69,106	623
<b>Middle (6-8)</b>	34	\$447	24,559	722
<b>High (9-12)</b>	32	\$715	33,938	1,061
<b>Other*</b>	19	\$148	9,723	512
<b>Totals</b>	196	\$2,306	137,326	701

\*\*"Other" includes schools with grades that overlap typical grade organizations for elementary, middle, or high schools such as K-8 or 6-12, as well as special or alternative schools.

Source: NCDPI 2001 Facility Needs Survey

buildings has had a dramatic effect. Since the 1930s, the number of schools in the nation has fallen from over 262,000 to around 90,000 today (Smart Growth America, 2002). This remarkable 69 percent decline took place during a period when the U.S. elementary and secondary student population grew from 24 million in 1948 (Lyons, 2000) to 47.2 million in 2001 due to the "baby boom echo" and rising immigration (US Department of

Education, 2002).

From the 1940s to the early 1990s, the average number of students per school in the U.S. increased by more than 500 percent, from 127 students to 653 (Walberg, 1994; Ehrich, 2001). Incidentally, when the trend took hold in the 1950s, the preferred school size – 400 to 500 students in a high school was the ideal in the influential 1958 book *The American High School Today* – is



**MIDDLE SCHOOL PROTOTYPE:** Darden Vick Middle School in Wilson, NC, occupies 48 acres. The school was designed for 592 students. The site is 11 acres larger than the average acreage of the five middle school "prototypes" listed in the State's School Clearinghouse website (see Table 2). The recommended minimum site for a school of this size in state guidelines is about 21 acres. *Photo from N.C. School Clearinghouse website (<http://www.schoolclearinghouse.org>)*

small by today's standards (Lawrence, 2002). North Carolina public schools contain an average of 564 students.

Since 1950, North Carolina added about 1,700 new schools while 362 were retired from service. Some of the retired schools were sold and converted to other uses such as apartments or inns. Others were transferred to state or local agencies and used for administrative offices. Figures on school construction before 1950 were not available from DPI.

**North Carolina: Population, School Construction Boom**

From 1960 to 2000, North Carolina's population grew by 77 percent, from 4.6 million to 8.05 million. The North Carolina Department of Public Instruction says that in order to accommodate the student population generated with the explosive population growth, 782 schools were built on new sites, and another 31 on existing sites. A \$1.8 billion bond issue approved by voters in 1997 provided funding for 924 school facility projects, including 150 new schools and 774 addition and renovation projects.

Today, more than 2,200 public schools are operating in the state. In 2000, the state had 1.24 million K-12 students enrolled in public schools, up about 84,700 in five years (DPI, 2001). In 2000, the state projected an increase of nearly 80,000 in the K-12 student population over the following

**Table 2: Figures from Prototype School Designs Posted on NCDPI Clearinghouse**

LEVEL	NUMBER IN SAMPLE	AVERAGE ACREAGE	AVERAGE DESIGN CAPACITY
Elementary Schools	19	31	601
Middle Schools	5	37	840
High Schools	4	76	1115

Source: NCDPI web site: <http://www.schoolclearinghouse.org>

five-year period. To meet the space needed for the increase in enrollment, as well as ease existing overcrowding, DPI estimated that another 196 schools would be needed, including 22 that would replace older schools on the same site. The state's projected average building capacity for new schools comes to 623 students at each of the 111 new elementary schools, 722 students at each of the 34

middle schools, and 1,061 at each of the 32 new high schools (see Table 1).

**State Prototype Schools**

As the national data suggest, schools have grown substantially since the 1950s. In North Carolina, a central clearinghouse created by the State in response to a 1996 directive from the North Carolina General Assembly sheds



**COMBINED ELEMENTARY/MIDDLE SCHOOL:** Weddington Elementary/Middle School in Union County occupies 120 acres. It was designed for 1,464 students. Photo from N.C. School Clearinghouse website (<http://www.schoolclearinghouse.org>)

**FOCUS GROUP COMMENT**

**FUNDING ISSUES ARE IMPORTANT:** "Show me the money." Cabarrus County Focus Group Participant

some light on construction trends in the state.

The Clearinghouse was established to provide local school boards access to a database of school prototypes, which they may choose to replicate in their area. The system was intended as a means of streamlining and reducing the cost of the design process, improving access to architects with experience in school design, and increasing awareness of current trends in school design (DPI, 2003).

The prototypes posted on the Clearinghouse website by the DPI School Planning Office are dated between 1994 and 2000. The design capacity of 19 prototype elementary schools average 601 students; the average site is 31 acres (see Table 2). The five middle school prototypes averaged 840 students in design capacity and 37 acres in size. The four high schools listed have an average design capacity of 1,115 students, occupying an average of 76 acres.

As a comparison, a typical downtown city block in Wilmington and Raleigh roughly ranges from 5 to 6 acres in size, according to U.S. Census data. In other words, the typical “prototype” elementary school would require five or six city blocks, based on the 31-acre average; the average high school prototype would consume roughly 13 to 15 city

blocks in downtown Wilmington or Raleigh. Clearly these are large sites that would not fit in most downtowns — they are meant to be built in the suburbs.

## Key Factors Affecting School Location and Design

Four major factors contribute to school location and design decisions — suburbanization, economics, state policies, and local policies.

### Suburbanization

For more than 50 years, Americans have been leaving the cities for the low-density lifestyle of the suburbs. As residents left, retailers, employers and schools followed. New schools were constructed primarily in the suburbs, where the kids were, while those in inner cities suffered from declining enrollment, which made it difficult for them to remain in operation. For example, between 1962 and 1983, twelve schools in Raleigh were closed or converted to other uses.

The low densities of the suburbs often means that relatively few kids live within walking distance of a school. Instead, most arrive by bus or car. Forty years ago, *half* of all students walked to school (School Transportation

Group, 2001). Today, only about one out of every 10 trips to school are made by walking and bicycling, according to the Center for Disease Control and Prevention (2003).

### Economics

Cost is a key factor behind the trend toward building larger schools. A DPI study, *Making Current Trends in School Design Feasible* (2000), estimated the construction cost of small schools to be about 20 percent higher per student in comparison with large and medium-sized schools. The study considered small, medium and large to be: 300, 600 and 870 students for elementary schools; 400, 650 and 950 for middle schools; and 600, 1,000 and 1,600 for high schools.

Larger per-student costs at small schools are due to several factors, according to the DPI, including the need to provide certain support or core spaces such as a media center, cafeteria and gym, no matter what the school size. These areas also require a minimum staffing level; lights, heating and air conditioning; and maintenance work. These costs are only marginally higher for large and mid-sized schools compared with small ones on a per-student basis. DPI estimates that, for example, a 300-student elementary school costs about \$12,700 per student, compared with about \$11,000 per student

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#### FOCUS GROUP COMMENT

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**SCHOOL CONSOLIDATION ENCOURAGED:** “The state [general assembly] encourages us to consolidate; they would love to have all counties as consolidated systems. This forces us to spread out. We used to have schools located in prominent, important places. No longer... now, they’re just functional buildings.” - Cabarrus County Focus Group Participant

## CASE STUDY: Mary Scroggs Elementary School *Chapel Hill, N.C. (Southern Village)*

Sections of grass are missing in front of a Chapel Hill elementary school. A sign of neglect? No. The bare ground is a mark of a walkable school. Children's feet and bicycle tires have marked paths that meander through a grassy area alongside a pond, routes that connect a sidewalk in the Southern Village development to Mary Scroggs Elementary School.



Southern Village is situated on more than 300 acres in southern Chapel Hill west of U.S. 15-501 South. The "New Urbanist" development has more than 1,100 homes, and features, in addition to the school, a village core with offices and shops, a church and a day care.

The two-story school, due to code requirements, houses kindergarten and first-grade classes on the first floor. The second floor, a rare feature in new schools, reduced the building footprint by about one-third, saving approximately 30,000 square feet of impervious surface. The building plan allows for more efficient use of land compared with one-story schools that tend to sprawl out across a site.

The seven-acre school site (not including the adjoining town-owned soccer field used by the school during the day) is nine acres less than the state's minimum acreage guidelines for a 600-student school; it is also less than a fourth of the size of the average prototype in the state Clearinghouse (see Table 2 on Page 7). The school is not a small school by any means; however, it succeeds as a "walkable school" for a good portion of the student body due to its integration with the adjacent neighborhood, which has ample sidewalks and no wide streets—design features that make walking and biking safer.

The school has a walk zone which extends throughout Southern Village, meaning no school buses pick up Mary Scroggs students who live in Southern Village. Out of 605 students who attend Mary Scroggs Elementary, an estimated 240 students are from Southern Village.

How many walk or bike to school? About 200 on a typical day, or 83 percent of the students within the walk-zone. (About 100 students walk and 100 bike, according to the school.)

Steve Scroggs, Assistant Superintendent for Support Services, attributes the strong "comfort zone" parents have allowing their children to walk or bike the neighborhood's narrow streets or bike path that winds along a creek past the school. Another factor is the lack of traffic in front of the school entrance, including no buses. He emphasized the importance of involvement in the early planning stages when there was an opportunity to plan the relationship of the school with the rest of the Southern Village development — a better scenario compared to situations where school planning is incidental to the design of nearby development.

for a 650-student school.

While the per-student cost figures appear to make small schools substantially more expensive on a per-student basis, the numbers do not reflect important "hidden costs" such as operating buses for transporting students who cannot walk to school, water and sewer extensions and road improvements (Beaumont and Pianca, 2000). Researchers who conducted a study of the costs of small schools suggest that the per-student cost comparisons are an inadequate measure; they recommend instead that costs per graduate, at least for high schools, be used to determine cost comparisons of small versus large schools. This standard would help put small schools, which have a lower drop-out rate, on par with the costs of large ones (Lawrence, 2002).

Short of a major shift in the way of thinking about school costs, local officials are likely to continue looking at per-student cost comparisons when considering school size. In *Making Current Trends in School Design Feasible*, DPI suggests techniques that can reduce the cost of small schools. These include:

- Enter into joint-use agreements with other agencies or groups to share additional cost associated with a needed facility, such as a play-field for an elementary school. For example, Mary Scroggs Elementary School in Chapel Hill uses a six-acre town-owned soccer field adjacent to the school during the day as part of a joint-use

agreement.

- Find ways to maximize the use of all spaces, such as scheduling class programs so that all classrooms are used throughout the day, moving to year-round scheduling, and using off-site facilities where feasible (kitchen, athletics, special programs).

DPI's report states that achieving "small and walkable elementary (kindergarten-5<sup>th</sup> grade) schools are relatively easy to achieve," particularly in areas with a dense population and a sizeable school-age population. A more difficult issue, according to DPI, is achieving small and walkable middle and high schools. With fewer grade levels, these schools require a larger geographical area from which to draw a student base of sufficient size to justify operating the school.

DPI's suggested strategy: feed "non-walkable" middle and high schools with several walkable elementary schools.

**State Policies**

*Facility Guidelines*

Many states have adopted school construction guidelines based on the Arizona-based Council of Educational Facility Planners International (CEFPI) model rules, which state, for example, that a high school for 2,000 needs at least 50 acres.

**Figure 1: Site Size in Acres of Land by Grade Levels**

K-6	10+1/100 ADM
5-8	15+1/100 ADM
7-9	20+1/100 ADM
9-12	30+1/100 ADM

ADM = average daily membership.  
 N.C. Department of Public Instruction: *The School Site Planner* (1998)

In North Carolina, the Department of Public Instruction's School Planning Office reviews local school districts' plans for new schools, additions and renovations "to ensure that school facilities accommodate and facilitate educational programs" (DPI, 2003).

DPI says local communities should be flexible, recommending that "good judgment beyond the application of minimum standards is needed to determine the appropriate size for a site" (DPI, 1998). DPI's *The School Site Planner*, while cautioning that the minimum acreage recommendations may be too big in densely populated areas, contains the following illustration on site size minimums by grade level. The diagram (see Figure 1) is based on the CEFPI's rules.

To illustrate, this formula works out to 15 acres minimum for a 500-student kindergarten through 5<sup>th</sup> grade elementary school (10 acres plus 1 additional acre per 100 students), 26 acres for a 600-student middle school, and 40 acres for a 1,000-student high school.

The minimum recommended size of school sites is immense compared to the comparatively compact size of some old schools, many of which were built on just 2 to 8 acres (National Trust for Historic Preservation, 2000). New Hanover High School, for example, occupies about 10 acres in downtown Wilmington.

For the National Trust, CEFPI's recommended minimum acreage standards for determining the adequacy of school sites and school building space recommen-

**FOCUS GROUP COMMENT**

**ACHIEVING DIVERSITY DIFFICULT IN SMALL SCHOOLS:** "We do want the makeup of our schools to reflect the overall population within Asheville, and if you went strictly to a neighborhood school design where every student can walk to school and bike to school, we would not be able to maintain that diversity for our elementary school." Buncombe County Focus Group Participant

**CASE STUDY:**  
**New Hanover High School**

*Wilmington, NC*



The New Hanover High School campus in downtown Wilmington is situated on 10 acres, according to state figures. The main 1920s building occupies about two city blocks, adjacent to a historic district neighborhood.

The 212,000-square-foot high school has a capacity of about 1,500 students, a capacity which the acreage recommendations in the State Facilities Guidelines works out to a site minimum site of 45 acres. As noted earlier in the report, the four high schools in the DPI's Clearinghouse website are on sites of 70 to 90 acres – the equivalent of 14 to 18 downtown Wilmington blocks.

According to the U.S. Census, more than 20,000 people live within two miles of the school, the population of a small town. The radius of the school's walk zone — the area not served by buses — extends about four city blocks from the campus. School officials said "quite a few" students walk to class; some take the city bus.

The need for land-consuming uses — roughly 400 parking spaces and athletic facilities — are handled in atypical fashion that is essential for reducing acreage requirements. Parking for students and some employees is on the south side of four-lane Market Street; employee parking is also provided on a lot near the gymnasium, on-street in designated areas, and at an adjacent church as part of a cooperative agreement. In the 1950s, the school built an overpass across Market Street to the south side where parking, tennis courts, an R.O.T.C. building and an auto mechanic building are. In order to prevent students from opting for the most direct, but dangerous, route — crossing Market Street, the school erected a fence in the median of Market Street.

Most of the athletic facilities are located off-site. Fields for football, baseball, lacrosse and soccer are at Legion Stadium, about three miles to the south on Carolina Beach Road. Softball is played at a city park nearby. Students swim at either UNC-Wilmington or at the YMCA.

School buses pick up students on two-lane Princess Street. The drop-off and pick-up area for private vehicles is typically out front, on Market Street.

The school's relatively open access to the surrounding area requires some additional staff to supervise the grounds; administrators enforce a strict no-trespassing policy when visitors fail to report to the front office as required.

The school does not lack modern conveniences, Principal James McAdams said. The school system recently completed a \$14 million renovation of the school, including classroom expansion and upgrading internet access.

Asked whether the school could be replaced, he said: "That's just not possible. Too many people have too many fond memories of the school."

dations make it impossible to locate schools in old neighborhoods without causing serious damage:

To satisfy the standards, school districts must often destroy nearby homes, parks and neighborhoods, or they must move to 'sprawl locations' in outlying areas. These areas are usually too remote for students to walk to or reach by public transit and are accessible only by cars or school buses, which in turn require vast expanses of asphalt for parking (National Trust for Historic Preservation, 2000).

*Push to Consolidate*

Another factor driving the trend toward larger, more remote schools is the push to consolidate school districts. "The state [general assembly] encourages us to consolidate; they would love to have all counties as consolidated systems," a focus group participant from Cabarrus County said. "This forces us to spread out. We used to have schools located in prominent, important places. No longer... now, they're just functional buildings."

The push for consolidation (a trend towards dissolving city systems and creating county systems, consolidating several smaller, existing schools and districts into a few larger ones) has resulted in a move away from neighborhood schools — which serve a smaller geographic area, that may be walkable or bikeable — and toward schools that serve many neighborhoods, covering a larger geographic area and thus needing larger buildings to ac-

commodate a greater number of students. Most focus group participants identified this push toward consolidation as beginning around the same time as the closing of segregated schools.

**Local Policies**

*Growth Management*

Local policies and plans, e.g., zoning and subdivision regulations, can also influence school site selection decisions. For example, local land use regulations may determine whether there are adequate and safe pedestrian and bicycle connections in place to make the school walkable for students. In addition, the surrounding connections may not be adequate and safe.



**SCHOOL CONVERSION:** This former school in Edenton, featuring an elegant colonnaded entrance, was preserved, but the use changed. It is now an apartment building. Maintaining historic schools as schools can promote the walkable neighborhood school concept because they typically are within walking distance of older residential areas. They also reduce the need for new schools.

These community design issues demonstrate that the goal of creating walkable schools cannot be achieved by school officials alone. Making a school walkable in a suburban area is challenging due to the low density of housing within walking and biking range, and the safety issues posed by busy roads or an incomplete sidewalk system. If a community is to integrate a school into new neighborhoods, it is essential that plans for a school are incorporated early in the design phases of planned developments to ensure ample pedestrian and bicycle connections are provided to the school and that the routes are safe (Scroggs, 2003).

One key barrier identified by the focus groups is local development ordinances that either did not require sidewalks, or did not encourage shared uses. Several city planners noted that development codes could change to encourage sidewalks and shared parking lots. School administration participants took a proactive approach and suggested providing incentives to developers to include schools or at least connections to schools in their projects.

Along these lines, there are two larger issues at hand: (1) should school location choices be consistent with local land use plans?

(2) what role should local planning officials as well as municipal or county elected officials play in school location decisions?

Comments from focus groups suggested the degree of interaction between school boards and local planning officials varies across the state. For most participants, school boards communicated with planning officials after they already had selected a site for a new school or reached a decision about whether to close or renovate an existing school. Most communication from the school boards was after-the-fact. For others, local school boards were more proac-

**FOCUS GROUP COMMENT**

'COMMUNITY' SCHOOL IS PREFERRED TERM: "Neighborhood schools ... has a very strong political connotation. The use of the term 'community schools' I think opens it up and makes it a little bit broader and emphasizes perhaps some of the positive aspects of what you want in a school as opposed to the more narrow politically motivated neighborhood school definition." - Wake County Focus Group Participant

## FOCUS GROUP COMMENTS: Key Points Raised in Sessions

**Barriers to neighborhood schools.** When asked to note barriers to building neighborhood schools, participants noted the following: Current zoning; adherence to the DPI Guidelines; reliance on cars and driving; a push to consolidate; growth in population resulting in bigger schools to accommodate more kids; money; safety (particularly as it relates to “snatching”); and codes that may prevent rehabilitation or use of older schools.

**Meaning of “neighborhood school.”** Some participants referred to the concept of a “neighborhood school” as code for exclusive and non-diverse schools because of the lack of diversity in many neighborhoods. In areas where population diversity is lacking within walking distance of a school, busing strategies would be needed to ensure diversity is attained.

**Schools as magnets for growth.** New schools can attract residential and commercial development. This is particularly true when new schools must locate out on the fringe (due to the availability of land). Up until that point, water and sewer were not available in that area. Once the school goes in, along with supporting infrastructure, development follows.

**Impact of DPI guidelines and policies.** Overall, there was consensus that the DPI Guidelines—although guidelines and not regulations—certainly influence the design, construction, and site selection for new schools being built in public school systems across North Carolina. Negatively or positively, these guidelines encourage the construction of larger schools often with necessary amenities (playgrounds, parking lots, cafeterias, gymnasiums/auditoriums) that facilitate construction on large pieces of land, typically on the fringes of already developed communities and towns. For most of the participants, the guidelines were not restrictive, they were perceived as being easy to follow and a ready made formula based in solid education practice (i.e., effective classroom size). Going further, many participants felt that the location had more to do with the available real estate than with the guidelines; however, the guidelines necessitate locating a school with more acreage to accommodate the recommended components of the school.

**Key factors driving school design and location.** Land (availability and cost); money; utilities; location/proximity to students served; transportation and accessibility (as related to the automobile); travel time; and, zoning. The most important factors for participants were land and money needed to build the school. Many NC communities are experiencing significant growth that pushes available land farther and farther out, and drives the cost up. As such, school boards and staff find it increasingly difficult to find the land they need to build the schools they desire.

tive and met with local planners and municipal elected officials early in the decision-making process.

### *Walk Zones: Design Issues*

The need to plan for bicycle and pedestrian connections in the school planning process was identified by the School Transportation Group in a 2001 study on school walk zones in North Carolina. The study defined the problem as follows: “The lack of consideration for pedestrian and bicycle accessibility and safety in the school siting process can significantly contribute to low numbers of children walking and bicycling to school, and to high levels of private vehicle traffic.” (School Transportation Group, 2001).

Some school districts have established walk zones around schools that meet certain criteria. The School Transportation Group’s 2001 *School Walk Zones* study includes information on 74 school districts; at that time 40 had walk zones and 34 did not. While the study says there are no standard guidelines or definition for walk zones, school district officials typically defined them as an area within a defined distance from a school where school bus service is not provided, or an area established as safe for walking or biking to school. A walk zone “might also be understood as an area in which guidelines suggest walking routes for students based on proven safety and accessibility criteria,” the study states. If bus service is not provided in the walk zone, then students have several options: walk, bike or catch a ride to school.

Steve Scroggs, Assistant Superintendent for Support Services with the Chapel Hill-Carrboro City Schools, described differences in the performance of the Mary Scroggs Elementary walk zone and other walk zones in the district. At other schools with walk zones, most of the students are escorted across the street by parents, even with crossing guards present and traffic lights on the route to school. Parents want a “comfort zone” reassuring them that their children are in no danger, he said. On the other hand, the comfort zone is apparently high at Mary Scroggs Elementary, where an estimated 200 of 240 students from the walk zone either bike or walk to school regularly, according to school officials (see the Mary Scroggs Elementary School case study on page 5). Factors facilitating walking or biking include a lack of traffic in front of the school, which is not a through street and is only used for pickups and drop-offs, well-connected sidewalks and bicycle trails, and low-volume residential streets in Southern Village, the New Urbanist development in which the school is located.

#### *Donated Sites*

The acceptance of land donated by a developer can drive school location choices. Developers often donate sites to enhance the value of their project; however, the site may not be in an ideal location for promoting walkable schools. For example, it may be on a busy street or located in a sparsely populated area with few students within walking or biking range. Some donated sites, however, provide opportunities to promote walking and biking ac-

cess to school. The Mary Scroggs Elementary School was built on a compact site on land donated by a developer. This resulted in a school that is walkable for a sizeable portion of the student body.

## Renovating Neighborhood Schools

Renovating, instead of closing or tearing down, existing walkable neighborhood schools helps solve the dilemma of trying to find a suitable site within a developed area. Supporters of preserving schools often fight against what they consider conventional wisdom that the cost of renovating a school is too high compared to building a new, modern facility. Several examples have shown that renovation can be comparable to the cost of building a new school.

The National Trust report *Why Johnny Can't Walk to School* (2000), considers the minimum acreage recommendations adopted by states as the main culprit preventing schools from being built in a town's built-up neighborhoods. The report outlines several major common obstacles to school renovations:

- *Inflexible application of building codes.* Old schools were built before modern codes were written, but “this does not mean the buildings are not safe,” the National Trust says. Communities need to consider code compliance alternatives rather than strictly enforce the codes.

[Several states, (e.g., New Jersey, Maryland and North Carolina), have adopted codes that recognize the special circumstances of older buildings].

- *Inflated renovation cost estimates.* School boards often receive quotes from architects or others who are unfamiliar with renovation projects, leading to high estimates. For example, in Kokomo, Indiana, a renovation project wound up costing \$4 million, \$16 million less than originally estimated.
- *Deferred maintenance.* Failing to keep up with routine maintenance in older schools such as painting the exterior can accelerate damage and reinforce the perception that repairs are not worth it, and a new structure is needed.

Many school boards across North Carolina are faced with the issue of building a new or renovating an old school. In 1996, more than 1,000 school buildings were slated for replacement in North Carolina (Preservation North Carolina, 1996). At that time, Myrick Howard, Director of Preservation North Carolina, a nonprofit group based in Raleigh, blamed North Carolina's policies as contributing to the demise of older schools. Writing in *North Carolina Preservation*, the organization's newsletter, Howard is critical of DPI guidelines, which he said discouraged school districts from doing simple routine maintenance at old schools.

“This policy is short-sighted,

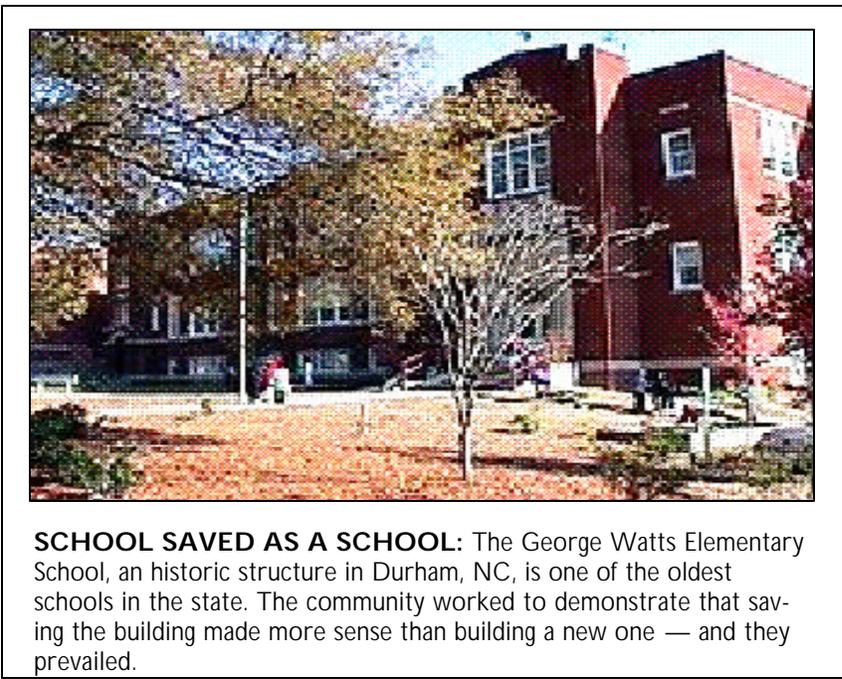
wasteful and wrong. I have visited many North Carolina schools after their abandonment and witnessed the lack of basic maintenance. Roofs leaking because gutters were never cleaned out. Wet basements where outside drains were clogged with leaves. ... With North Carolina's schools (old and new), the most sensible program is continued upfitting of buildings to keep them in good condition and to meet modern needs."

**A Success Story in Durham**

As an example, the renovation of the 1920's George Watts Elementary School was completed despite recommendations from the DPI in 1989 to close the school due to issues such as non-compliance with State Building Codes, School Facility Standards and the Americans with Disabilities Act (Caiola, 1998).

Some of the standards the building failed to meet were: it was too small to be efficient (90 students short of the recommended 450), it occupied a 4-acre site (about 10 acres shy of the facility guidelines' recommended minimum), and the building was far too small to meet the target of 145 square feet per student.

With the local community mobilized to save the school, voters in Durham approved a bond ear-



**SCHOOL SAVED AS A SCHOOL:** The George Watts Elementary School, an historic structure in Durham, NC, is one of the oldest schools in the state. The community worked to demonstrate that saving the building made more sense than building a new one — and they prevailed.

marking funds for the school renovations. A feasibility study commissioned by the neighborhood came up with an estimated cost of \$65 per square foot for renovating and expanding the school. An estimate by the school board's consultant came in at \$99 per square foot to renovate; the state's estimated price tag for a new school was \$120 per square foot.

In the end, the building was renovated and expanded using creative design solutions to meet building code requirements without destroying the character of the school. The central lesson, according to Jeff Caiola, writing in *North Carolina Preservation*, was the "recognition by the Watts

School community of the placement of ultimate power in the hands of the Durham City Board of Education," not the state DPI. For another example of the continued use of an historic school, see the New Hanover High School case study on page 7.

**Ingredients for Walkable Schools**

**What is a Walkable School?**

One of the goals of this study is to examine the obstacles to creating a walkable school, or simply a school that is designed to encourage walking and biking from nearby neighborhoods. This means the school is in an area

**FOCUS GROUP COMMENT**

**DRIVING CAN BE EASIER THAN WALKING:** "Again, we have quite a few schools that do have walkers and crossing guards, but it's just not as prevalent obviously as it used to be for security and safety reasons more often than not. It's more convenient in many parents' minds to get in the automobile and drive the kids a block or a half a block to the school and open the door, than it is to walk that kid." Wake County Focus Group Participant

that is accessible to a significant portion of the student body. However, the presence of sidewalks and bike paths does not guarantee that the school is walkable, particularly if the surrounding area has few homes or if the school is on a busy street, which would discourage parents from allowing their children to walk or bike to class.

Also, the term “walkable school” is not necessarily synonymous with “neighborhood school.” When asked to define neighborhood schools, the focus groups often mentioned these characteristics: they are walkable, small, and serve a particular geographic area. Some people preferred the term “community school” to neighborhood school to convey a facility that the community uses and identifies with; such a school is not necessarily within walking or biking distance.

Members of focus groups raised concerns about the term “neighborhood schools,” which could be construed to mean segregated, homogeneous schools, lacking in diversity and equity. Some referred to the concept as code for exclusive and non-diverse schools. Their fear was based on the recognition that our communities and neighborhoods are far from diverse, and that if we were to have more neighborhood schools in North Carolina, we’d see less diverse schools and a return to segregated schools.

An important consideration, then, is striking a balance between achieving some degree of walkable school design and diversity in the student body. Policies that maximize opportunities for

**Figure 2: Principles of Smart Growth**

- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Encourage community and stakeholder collaboration
- Foster distinctive, attractive places with a strong sense of place
- Make development decisions predictable, fair, and cost-effective
- Mix land uses
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Provide a variety of transportation choices
- Strengthen and direct development towards existing communities
- Take advantage of compact building design

Source: Smart Growth Network. See: <http://www.smartgrowth.org>

walking and biking can be coupled with strategies maximizing diversity, such as extending a school’s attendance district to achieve a level of diversity at the school. In other words, a 100 percent walkable school may not be the main objective. However, a major benefit to adopting local policies that promote walkable schools — such as promoting higher residential density and enhancing road and pedestrian connectivity around schools built on compact sites — is that such policies in turn address problems with sprawl (for example, see Figure 2, which lists strategies for combating sprawl).

**Walking and Biking to School – A Thing of the Past?**

One measure of the impact of building larger, more auto-dependent school campuses is the degree to which students are able to walk or bike to school. Fewer, larger schools means they are more spread out in the community, drawing students from a larger geographical area; one would expect that fewer students live close enough to walk or bike

to such schools.

Statistics from the last 20 years support this assumption: trips to school by walking and biking have declined by 40 percent nationwide (Center for Disease Control and Prevention, 2003). The Center for Disease Control and Prevention has launched the “KidsWalk-to-School” program to target rising youth obesity.

In North Carolina, the numbers of students walking and biking to school appear to be no better than the national figures. Within the local school systems of our focus group members, the percentage of students who walked or biked to school ranged from less than 1% to around 5% of the student population.

A national survey of 800 adults in October 2002 measured people’s attitudes toward walking and the desire for more walkable communities (Surface Transportation Policy, 2002). The survey found that 7 in 10 adults recalled walking or riding a bike when they were a child; however, fewer than 2 in 10 of parents surveyed

GOOD SCHOOLS-GOOD NEIGHBORHOODS

had children walking to school today. Reasons parents gave for their children not walking or biking to school included:

- School is too far away (66%)
- Too much traffic and no safe route (17%)
- Fear of abduction (16%)
- Lack of convenience (15%)
- Crime in the neighborhood (6%)
- Children not wanting to walk (6%)
- School policy against children walking to school (1%)

The survey suggests that distance from home to school is by far the

most significant deterrent for kids walking to school, followed by safety issues. The major issues, then, are related to school location and traffic.

Our focus groups suggested that local and global issues are behind the trend toward building auto-oriented schools that, by their design and location, discourage biking and walking. Participants identified current DPI guidelines for school construction, consolidation efforts, and years of integration policy as key factors influencing school location and design. They also identified several societal factors as well as community policies that have an impact. Sev-

eral of the societal factors mentioned include:

- The ease and convenience of cars;
- A reliance on driving everywhere for everything; and,
- The overbooked schedules of students, which precludes walking or biking to and from school and instead requires an adult to chauffeur them about.

**Why small schools?**

The state's projected average building capacity for new schools reveals that the DPI anticipates that the construction of large

**Table 3: Advantages and Disadvantages of Small and Large Schools**

	<b>Smaller Schools</b>	<b>Larger Schools</b>
<b>Advantages</b>	School safety/violence prevention	Enhanced course offerings
	Personal touch with students	Less expensive per student (unless "hidden costs" are included)
	"Neighborhood schools"	More/higher-league athletics and student activities
	More consistent with smart growth principles	Can achieve diversity with normal busing
	Higher achievement	Less susceptible to family aging of neighborhoods
	Less bus distance/time	
	Potential "walkable schools"	
	Greater student involvement in activities	
<b>Disadvantages</b>	Basics-only course offerings	School safety/violence problems
	Can be more expensive per student	Impersonal student/staff relationships
	Fewer/lower-league athletics and student activities	"Institutional" rather than "community" feel
	Difficult to achieve diversity without busing	Contributes to sprawl
	Susceptible to family aging of neighborhood	Potential reduced learning
		More bus distance/time
		Lower percentage of students involved in activities

Source: NCDPI, 2000

schools will continue into the future. The projections, for example, assume that new elementary schools will average more than 600 students. The state may be missing an opportunity by not encouraging communities to scale down the size of new schools.

Studies suggest that small schools measure up better than large ones on a number of fronts, including higher achievement, improved student safety, and lower dropout rates. Neighborhood-scale schools also serve as anchors for communities that enhance both social capital and community involvement (Lawrence, 2002).

Researchers also have called into question the central assumption behind the drive away from small schools toward consolidation – that small schools are cost prohibitive compared to large ones. A 2002 study found that costs associated with small schools are about on par with large schools after factoring in hidden costs typically not factored in these cost comparisons, such as extra busing and infrastructure costs (Lawrence, 2002).

The trend of building smaller neighborhood schools is catching on in many cities across the country, including Chicago, Providence, Atlanta and Cincinnati. The N.C. Department of Public Instruction, however, says the trend has less to do with the goal of establishing neighborhood schools, but, rather, to improve academic performance, reduce dropout rates and lessen safety problems.

### Small Schools: Potential Neighborhood Schools

This study recognizes the potential of small schools in promoting a better learning and working environment and providing an anchor for the surrounding community. However, one of our objectives is to examine the question of whether new schools become sprawl leaders. That is, do schools built on the urban fringe not only serve an existing need, but stimulate additional demand nearby? Development in these outlying areas typically comes in the form of houses on large lots separated from other uses; in other words, sprawl. The Funders' Network for Smart Growth and Livable Communities (2002) describes the phenomenon as follows:

If new schools are being built on the edge of town and they are perceived to be superior, as new schools often are, then families who can afford the move will often relocate. Similarly, under-performing schools in older neighborhoods can push families to leave. ... Thus, school quality can influence population shifts within a region from the urban core to the periphery, precisely the pattern of urban disinvestment and suburban expansion that troubles smart growth advocates the most.

Pushing schools to sparsely developed areas in the countryside or the urban fringe makes it nearly impossible to create conditions conducive to walking or biking to school for a significant number of students at a given school. Reducing the size of new schools

and, most importantly, the acreage of the school site helps solve problems associated with the large school concept, namely:

- *Building more small schools places a facility in walking and biking distance of more students.* From a land use perspective, small schools are important if the goal of building walkable neighborhood-scale schools is to be realized. Building smaller schools throughout a community would enable each school to draw on smaller geographical areas, so that a larger percentage of students would live within walking or biking distance. (As noted earlier, one drawback is the potential increased need for busing to achieve diversity if the surrounding neighborhoods have a homogenized population. See Table 3 for an assessment by the DPI of the pros and cons of small and large schools.)
- *Small schools enable more flexibility in site selection.* Small schools require less acreage, making smaller in-town sites feasible locations for new facilities and avoiding the need for large sites which are most likely on the urban fringe.

In short, small schools have significant advantages over large ones in terms of performance, and they make it possible to build walkable schools. However, just the fact that a school is small does not mean that it is friendlier for walking and biking. Indeed, details matter. For example, a school, large or small, will not be

neighborhood-oriented unless:

- The school is connected (e.g., with sidewalks and bike paths) to surrounding residential areas,
- The adjacent residential areas have a significant numbers of students, and
- The school is perceived to be safe.

Installing sidewalks to provide better access to the school may not be enough to spur walking. For example, in an effort to encourage kids to walk to school, Roanoke Rapids, North Carolina, built sidewalks to Belmont Elementary School and created a walk (non-busing) zone in the neighborhoods within walking distance to the school. The effort backfired. Only 10 percent of the kids in the walk zone actually walked to school. The rest were driven by their parents, creating a traffic jam at the school each morning and afternoon (School Transportation Group, 2002).

## Recommendations

DPI's report *Making Current Trends in School Design Feasible* states that achieving "small and walkable elementary (K-5<sup>th</sup> grade) schools are relatively easy to achieve." We agree. We also believe that middle and high schools can be designed to be walkable as well, for at least a portion of the student body (see Figure 3 for a summary of recommendations).

Below are recommendations for

local school boards, local governments and for the State Department of Public Instruction on preserving existing schools and on building new schools that are more walkable.

### Recommendations for Local School Boards

As they plan for the future, school boards should consider the following:

- **Consult with municipal and county governments early in the process of selecting a design and location for a new school.** Such consultation could help ensure that the school's location is consistent with the town's growth policies and goals and that it will be near enough and well-connected

Figure 3: Summary of Recommendations

<p><b>School Boards</b></p> <ul style="list-style-type: none"> <li>• Consult with municipal and county governments early in the planning process.</li> <li>• Emphasize saving the old over building new.</li> <li>• Build small schools on compact sites.</li> <li>• Seek creative solutions for achieving compact school sites for the main school building.</li> <li>• Provide safe and adequate bicycle and pedestrian connections.</li> <li>• Factor in walk-zone compatibility in selecting school sites.</li> <li>• Work with the community to identify solutions to improving connections to schools.</li> </ul> <p><b>Local Governments</b></p> <ul style="list-style-type: none"> <li>• Adopt local development standards that allow developments to be built that maximize the potential for walkable neighborhood schools.</li> <li>• Work with the local school board to identify school sites in advance.</li> <li>• Facilitate connections to schools.</li> <li>• Explore joint use of school and public recreational facilities.</li> </ul> <p><b>State Department of Public Instruction</b></p> <ul style="list-style-type: none"> <li>• Recommend small school prototypes and examples of renovations rather than sprawling school designs using the Prototype School Design Clearinghouse</li> <li>• De-emphasize the CEFPI minimum acreage guidelines in facility planning guides.</li> <li>• Provide staff expertise at the state level to help communities with land use and urban design planning decisions as they are related to promoting walkable schools.</li> <li>• Steer more funding for renovations of older schools.</li> <li>• Provide funding to improve walking and biking routes to schools.</li> </ul>
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to residential areas for kids to walk or bike. Providing safe, walkable routes near an existing or proposed school site is possible if pedestrian and bicycle connections are provided by private developers or by the public such as through capital improvement programs. These are issues often handled in planning departments.

- **Emphasize saving the old over building new.** Search for solutions to make modernizing and/or renovating existing schools, in particular neighborhood schools, a feasible and economical option.
- **Build smaller schools on compact sites.** Building small schools on small sites provides flexibility in locating more schools throughout the community, thus creating a larger “walkable” student base. The DPI summarized research as suggesting the following ranges for optimal small school sizes:
  - ◇ 300 to 400 students, elementary
  - ◇ 300 to 600 students, middle school
  - ◇ 400 to 800 students, high school
- **Seek creative solutions for achieving compact school sites for the main school building.** Large schools can be built on small sites, as illustrated by the 1,500-student New Hanover High School, which occupies a 10-acre site. There are tradeoffs, however, such as transporting students to off-

site playing fields. Still, using off-site athletic fields and other facilities through special arrangements such as joint-use agreements provide the opportunity for flexibility in choosing a compact site for the main facility.

- **Design school sites to maximize safe bicycle and pedestrian connections to the surrounding area.** Small schools provide flexibility for locating more schools in a facility near existing student populations; however, few parents are likely to allow their children to walk or bike to a school, no matter how small, that is built near major roads or in an area lacking sidewalks, footpaths and bikeways. Adequate bicycle storage areas also are important.
- **Factor in walk-zone compatibility in selecting school sites.** In considering building schools “where students are,” consider as a top priority finding a site where streets are safe and good pedestrian and bike connections are in place or are planned to be provided in new development. A walk zone rating system ranking sites based on connectivity and safe routes could be used as a resource for determining suitable school locations.
- **Work with the community to identify solutions to improving connections to schools.** Hands-on community design workshops involving the public and ex-

perts such as transportation engineers, city planners and urban designers, would be helpful in identifying potential design solutions for removing on-site and off-site obstacles to walking and biking to school.

### Recommendations for Local Governments

- **Adopt development standards allowing developments to be built that maximize the potential for walkable neighborhood schools.** An opportunity for a walkable suburban neighborhood school site may arise when major new developments are proposed, in particular those built on New Urbanism principles such as Southern Village in Chapel Hill, where Mary Scroggs Elementary is located. However, local development standards often prevent these types of dense, highly connected projects from being built.
- **Work with the local school board to identify school sites in advance.** Local governments should collaborate with the school board in selecting sites for schools in advance and reserve, e.g., through the development review process, these sites for when they are needed. In addition, local governments should ensure that the selected sites are consistent with the comprehensive plan, if one exists, and, to promote walking and biking to school, should allow more compact, mixed-

income residential development in adjacent areas.

- **Facilitate connections to the school.** Many schools are built without adequate connections to nearby neighborhoods, e.g., sidewalks and bike paths. Local governments should require that all new residential development within walking distance of the school include sidewalks and bike paths. Building sidewalks and bike paths to connect existing neighborhoods to schools should be part of a community's capital improvement plan.
- **Explore joint use of school and public recreational facilities.** Some schools could be built on smaller sites if the ball fields were shared with the local community. Such shared use also saves money for the school.

**Recommendations for the State Department of Public Instruction**

The following recommendations would help promote smaller and more walkable schools.

- **Develop and recommend small school prototypes and examples of school renovations and post on the School Design Clearinghouse.** Include examples of new as well as renovated neighborhood schools in the Clearinghouse. This resource has tremendous potential as a tool for removing the per-

ception that schools must be on large sites. Many of the prototype school designs made available on the School Design Clearinghouse web site were replicated several times across school districts. Currently, small, neighborhood schools are not well represented; they should be showcased by DPI.

- **De-emphasize the CEFPI minimum acreage guidelines in the DPI's School Site Planner guide.** As an alternative, include in the guidelines explicit descriptions of the trade-offs local school officials face when choosing sites at the edge of town or in-town, and recommend entering into shared facilities agreements to make small sites and small schools feasible. Also, provide case studies of small school sites designed in a way that encourage students to walk or bike to school.
- **Provide expertise at the state level to help communities with land use and urban design planning decisions as they relate to promoting walkable schools.** As a reviewer of school plans, DPI is in a position to alert local officials to opportunities for walkable school sites and design. The state also could suggest design guidelines for building more traditional school buildings, such as orienting the building to the street with no parking in front, and building multiple stories with an articulated front entrance.

- **Steer more funding for renovation of older schools.** In particular, the state should work to preserve older schools that serve as centers of a community. More than economics is at stake in decisions about whether to renovate or close an older school.
- **Seek funding sources, such as transportation money, to improve walking and biking routes to and around schools.** In 1999, California launched its Safe Routes to School Program, which began providing \$20 to \$25 million a year in federal transportation funds for the construction of traffic calming devices, crosswalks, sidewalks, bike lanes and paths in and near schools in the state (California Surface Transportation Policy Project, 2003). Improvements at about 200 school sites have been completed since 1999. Safe Routes to School Projects have produced positive results; for example, in Mill Valley, California, the walk-to-school rate has increased by 80 percent in two years due to projects such as pathway improvements near schools (Appleyard, 2003).

## Conclusion

The purpose of this report was to examine the main factors affecting the location and design of schools in North Carolina. The issues affecting school design and location are complex. Economics, land use patterns, state and local policies and politics are but a few factors behind the prevailing trend of building big schools on big lots on the edges of towns and cities; other factors include the perception that bigger and newer is better and the lack of coordination among school boards and local governments.

Of course, not all new schools in North Carolina are mega-structures built on the edge of town. There are some wonderful examples of new schools built on compact sites, where a large share of students walk or bike to school. In addition, there are a growing number of examples of where old schools in existing neighborhoods have been renovated and restored rather than demolished. However, the prevailing trend seems to be toward building larger schools on more remote sites. That means that most students arrive at school by bus or private automobile. In North Carolina, only about one in ten schoolchildren walk to school.

The interest in promoting more walkable schools is not based on nostalgia—a throwback to the woebegone days when most kids walked to school and everyone knew their neighbors. It is based instead on preserving the character and vitality of ex-

isting neighborhoods, providing opportunities for kids to integrate exercise into their daily routines, and improving academic performance.

Why is this important? In many communities, the local school serves as the social, recreational and cultural center. When a community loses its center, it suffers. Also, several studies have shown that children are getting heavier and are experiencing higher rates of Type II diabetes. One of the reasons is a lack of exercise. Providing opportunities for children to walk or bike to school can only help. In addition, children tend to perform better in smaller schools.

The location of schools can have a strong influence on the pattern of growth in a community. Schools located on a remote site likely will promote low-density development nearby. Schools closely integrated with adjacent neighborhoods can strengthen and support more compact, walkable communities.

The predominate land use pattern in North Carolina and indeed the nation is characterized by low-density development segregated by use—e.g., office in one area, residential in another, retail in yet another—all connected by the automobile. Building a walkable school in such an environment is no small challenge.

Many communities seek to grow in ways that expand the range of options of where people live,

work, shop and how they get around. They are working to integrate rather than segregate land uses and allow more compact development that reduces the dependence on automobiles. That is, they are trying to grow smarter.

Building walkable schools requires that we first build walkable communities. For that to happen, local governments will have to create the conditions that allow more compact, mixed-use communities to be built. That is, they will need to revise their zoning and subdivision ordinances. In addition, they will need to require the construction of sidewalks that connect neighborhoods to local schools. And these routes must be safe, or parents will simply drive their children to school.

Finally, if a diverse student population is one of the main objectives of school boards, then we should encourage the creation of more racially and economically integrated communities. Otherwise, building a neighborhood school could result in a homogenous student body. Building smaller schools provides greater flexibility in finding in-town school sites that are walkable to a portion of the student body and near, one would hope, a diverse student population base. Opportunities for finding these sites will vary from community to community and depend on available land and proximity of diverse populations. However, we believe neighborhood schools would help achieve diversity and limit the amount of busing needed.

The solution rests in many hands — local school boards, the Department of Public Instruction, local planning departments, municipal elected officials and, most of all, members of the community.

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