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SITING A COMMUNITY'S SCHOOL

Every great mistake has a halfway moment,
a split second when it can be recalled and, perhaps, remedied.
—Pearl Buck

Description:

Among the states across the country, compulsory education applies to children as young as five and as old as 18.[1] As a result, *whether* to have schools in or near a community is not an option—as a population grows, so does the number of school-aged children and thus a community's need for new, improved, or expanded schools.

Schools—keystones of a livable community:
Schools are essentially our watering holes—people migrate to them for the community amenities and privileges they bring about. They attract not only families with children but others who want the accompanying benefits of having a school nearby—feelings of permanency, safety, and stability; more sidewalks, crosswalks, and better traffic control; established waste and water management; and other infrastructure amenities.

Furthermore, across the country, schools and their affiliated structures increasingly serve many alternative uses in our communities. Although the purpose of schools is to educate children, they are becoming community hubs—familiar, practical venues for other activities, such as meeting places for community organizations and clubs, town and school fundraiser activities, town hall forums, polling places, recreational centers, day care centers, adult education classes, senior citizen events, art shows, intergenerational programs, sites for flu shots and other public health campaigns, and even community shelters during inclement weather or disasters. In many communities, when not transporting students, school buses do double duty by transporting elders and people with disabilities to meal sites and programs. Once established, schools act as an anchor to unite a community and help stabilize the population. This trend echoes the growing "community school" movement—the Coalition for Community Schools[1a] has compiled a directory of 5,000 community schools in the United States and abroad. According to the Coalition, "a community school is both a place and a set of partnerships between the school and other community resources, with an

> New school facilities should be accessible—day and night, all year round—to the community. Schools should serve a variety of community needs, in partnership with a wide array of public, civic, and private organizations.
>
> *— New Schools . . . Better Neighborhoods*

integrated focus on academics, health and social services, youth, community development, and community engagement—schools become centers of the community and are open to everyone . . . all day, every day, evenings and weekends."

School-siting decisions—significant impact on community livability:
The many elements and characteristics of a community's school combine to exert a significant influence upon the community's quality of life and general well-being—its level of livability. Beyond the significant effect of a school's "soft" aspects (curricula, teachers, administration) on children, there is growing recognition of the substantial impact of the *physical* aspects of the school—that is, *where* it is located, *what* it is constructed of, and the quality of its *environmental aspects*—on not only the children, but also on families and the greater community as a whole.

Thus, given this impact and the growing role of schools as community hubs, during construction or renovation decisions, communities should take a more expanded, encompassing view of schools to understand their force as a vital part of the community, affecting all community members. Experiences have shown that such decisions can have an impact on the social and financial aspects of the wider community, as well as significant consequences for the environmental quality of a school and, subsequently, the long-term health of students, educators, and staff.

The example of the Love Canal community in New York State (see side bar) illustrates the effects of school siting decisions on the overall health and morbidity of that community's children, school workers, and families and is a sobering example of school siting gone wrong. In

Example of a school siting decision negatively affecting overall community well-being[2, 3, 4, 5]

In 1953, when faced with limited funding and an increasing student population, the Niagara Falls, NY, Board of Education expressed an interest in purchasing a tract of land that was owned by the Hooker Chemical Company in the southeastern portion of the city. The company agreed to sell the land for one dollar and included a limitation of liability clause in the deed regarding chemical waste that was buried at the site.

At the time, the Board of Education did not understand the risks involved in developing this otherwise grassy field known as Love Canal, and within the next five years the 99th Street and 93rd Street Schools were constructed on the land. In addition, for added revenue, a portion of the land purchased by the Board was sold to private developers for housing construction. Unfortunately, 20 thousand tons of chemical waste were buried at the Love Canal site, and during construction of the schools and housing, and the subsequent construction of the LaSalle Expressway, the chemicals were disturbed. Little did anyone know that the result of these community decisions would snowball into one of the largest environmental health disasters in U.S. history.

Over the next two decades, school children played in puddles of toxic waste, community residents reported various illnesses as chemical fumes filled the air, and children were born with birth defects thought to be caused by exposure to chemical waste. Protests and advocacy by community individuals and groups triggered investigations. The 99th Street School was closed in August of 1978 and, after further investigation, the 93rd Street School was closed a year later. By 1980 residents were strongly advised to abandon the community built upon the Love Canal site, and the area was sealed off to the public.

The disaster at Love Canal contributed to the establishment of the Comprehensive Environmental Response, Compensation, and Liability Act's (CERCLA) trust to finance the clean-up of environmental disaster areas, commonly known as the Superfund . . . and it all began with a community's search for a place to build a new school.

addition, those decisions had a significant bearing on the continuing viability of that community's social and economic climate—the mishandling of toxic waste and a less-than-solid community-development plan led to a large portion of southeastern Niagara Falls, NY, being declared "unlivable" for many years.

Conversely, examples abound of schools playing a positive role in improving community livability and population stability. For instance, in 1995 the Pomona Unified School District in California was faced with challenges that were similar to many schools across the nation: a surging student population, limited funding, and limited space.[6] These realities led Pomona's school to purchase a dying shopping mall and, by 2001, that space was transformed into the mixed-use Village at Indian Hill Pueblo School Complex.[6] The former mall is now home to businesses and two schools housing grades K-12, with future plans for housing development.

Sustainability Trends in School Siting:
Greening—
LEED (Leadership in Energy and Environmental Design) is the U. S. Green Building Council's internationally recognized rating certification system, which recognizes building projects that implement strategies for better environmental and health performance, including clean air and water; non-toxic cleaning, maintenance, and construction materials; clean energy alternatives and conservation of fossil fuels; increased use of daylighting; and other tactics.[7] LEED certification, or similar green building standards, is now encouraged or required for educational institutions in 45 states in the United States.[8]

> Asthma, a leading cause of school absenteeism, accounted for 14.4 million lost school days in 2008. Managing air quality is critical to asthma management in schools.
>
> *—American Lung Association*
>
> Poor indoor air quality (IAQ) can cause illness requiring absence from school, and can cause acute health symptoms that decrease performance while at school. In addition, recent data suggest that poor IAQ can reduce a person's ability to perform specific mental tasks requiring concentration, calculation, or memory.
>
> *—U. S. Environmental Protection Agency*

Across the country, the growing trend to "green" newly constructed and renovated schools reflects an increasing recognition of the health and educational benefits of green design, construction, and operation. In its study, "Greening America's Schools: Costs and Benefits,"[9] the U. S. Green Building Council demonstrates that green school design is an extraordinarily cost-effective way to enhance student learning, reduce health and operational costs, and, ultimately, increase school quality and competitiveness. To promote green design for the nation's schools, the Council developed its LEED for Schools rating system,[10] basing it on the Council's LEED for New Construction rating system, but recognizing the unique nature of the design

> Each school day, 55 million children and 7 million adults—that's 20% of the total U.S. population and 98% of all children—spend their days inside of school buildings; unfortunately, too many of our nation's 125,000 public and private K-12 schools are "unhealthy" buildings that can harm their health and hinder learning.
>
> *—Coalition for Healthier Schools*

and construction of K-12 schools and the specific association between school spaces and children's health issues. By mid-year 2010, green schools represented nearly 40 per cent of all new LEED projects in the United States.[11]

According to the New York State Energy Research and Development Authority (NYSERDA),[12] "greening" the design and construction of buildings involves careful consideration of three main elements: (1) healthy indoor environment, (2) maximum energy efficiency and conservation, and (3) conservative and thoughtful use of natural resources. The Green Building Council's rating system reflects NYSERDA's elements, addressing issues such as classroom acoustics, master planning, mold prevention, environmental site assessment, and more—providing a comprehensive tool for schools that wish to build green, with measurable results.

Site location—
As communities make greater use of school facilities for alternative uses, there is increasing recognition of the multiple benefits derived from siting schools within the community's populated boundaries. However, a variety of circumstances can lead schools to seek out large, vacant plots of land for school construction, which are generally found on the perimeters of populated areas. This can mean siting a school on a greenfield (previously undeveloped land, restored land, agricultural properties, and parks[13]) or on a brownfield (a formerly developed plot of land which has been abandoned or under-used, where expansion or redevelopment is complicated by the presence or potential presence of environmental contamination,[14] or where there may be remnants of the previous development to be demolished or removed, or where the land may have been allowed to return to nature through disuse). *On the surface*, brownfields are often indistinguishable from greenfields.

> Including civic uses, such as a school, in the center of a community is strongly supported in land use planning literature . . . and is also supported in current quality-growth trends, particularly with movements such as Traditional Neighborhood Development.
>
> —*Atlanta Regional Commission*

> In regard to "the neighborhood," concentrations of civic, institutional, and commercial activity, including schools, should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes.
>
> —*Congress of New Urbanism*

Developers often prefer to build on these sites because of the virtual "blank slate" nature of greenfields and brownfields. However, developing on such lands can include the additional costs of establishing the necessary hard infrastructure required before construction of a new school can begin, as well as the cost of exploring the presence of contaminants and any necessary clean-up. In addition, developing vacant land on edges of developed areas also increases sprawl and transportation energy costs, extends commutes, and eliminates elements of livability (such as walkable neighborhoods) for students, school staff, and the greater community.

Solutions that support a community's overall level of livability can be better achieved if schools are sited in a way that integrates them within the existing

community—for example, utilizing infill property or renovating greyfields (old or vacant structures within a community, such as a vacant shopping center) (see "Infill Development" and "Mixed-Use Redevelopment Opportunity—Malls" in the *Resource Manual)*. Often the most sustainable decision for a community in need of a new or larger school is to renovate an existing structure, including an appropriately located existing school.

Steps involved in healthy, sustainable school siting and renovation—
In past years, school decisions were often made solely by school boards. Today, an inclusive process is more often employed; and school boards, community planners, residents, and others involved in making school development decisions can apply the lessons learned from the past experiences of others to their local school-siting and renovation decisions. For example, consideration should be given to such elements as testing for ground (soil and water) contamination from prior use; measuring air and drinking-water quality and noise levels inside and outside the facility; ensuring that structural materials are lead-free, asbestos-free, and sustainable (green); confirming that equipment is durable and cleaning and grounds-maintenance products are free of toxic ingredients; and certifying that the sewer system is properly installed and working.[16] Consideration should be given to the building's orientation, aesthetics, lighting, strategic use of plantings and greenery, and elements of general safety.[16] If building an entirely new school, the walkability of the area and the proximity of the school to where students live are major factors to examine.[15, 16]

Where should a community start when adding a new school to the community or renovating an existing school? Given that local property taxes support school budgets and that school buildings and resources are increasingly employed to address multiple community uses, *all* community members (all ages, cultures, businesses, officials, leaders) have a vested interest in school-siting decisions. Thus, the first step is to assemble a leadership team, which should consist of members of the school board, educators, the builder/developer, parents and students, other residents of all ages, government organizations, community leaders, advocacy groups, funders, and any other relevant stakeholders.[17] The leadership team should then follow a process that assesses and addresses the community's needs in a systematic way.

> A school that is physically located in the center of a community is more than just a convenient location for the school population. Over the last 30 years, school architecture placed walls between the school and the outside environment. In both a literal and a metaphorical sense, the new focus is on collaboration and cooperation between the school and the community.
>
> *—Atlanta Regional Commission*

Several organizations have developed guidelines for evaluating existing school locations for renovation or for siting new schools. A community leadership team can use such guidelines to help rationalize and standardize the school-siting or renovation planning process. For example, the State of California's Department of General Services[16] has suggested guidelines for school-siting and the State of Oregon's Transportation and Growth Management Program[15] has an entire school-siting handbook, both of which are available online. The U. S. Environmental Protection Agency (EPA) issued draft

voluntary school siting guidelines, which were published for public comment in late 2010/early 2011;[18] and EPA's web site provides extensive school-siting resources, including a report on the effects of school siting on transportation and the environment;[19] resources on school indoor air quality;[20] and a HealthySEAT assessment tool to help communities and school districts evaluate and manage their school facilities for key environmental, safety, and health issues.[21]

In New York, under the State's Education Law, approval of school-siting requirements lies with the New York State Education Department (see "Resource—laws and ordinances" below). In addition, NY-CHPS (Collaborative for High Performance Schools) Version 1.1[22] was jointly developed in 2007 by the New York State Department of Education and the New York State Energy Research and Development Authority. These guidelines provide a framework that helps school districts and their community teams "design and build sustainable school buildings that enhance the educational environment, facilitate learning, optimize resources over the life of the facility, are less expensive to operate than standard buildings, and help to ensure healthy, safe, and high quality learning environments for all occupants." The 143–page guidelines include seven sections: site, water, energy, materials, indoor environmental quality, operations and maintenance, and "extra credit" items; and rating points are assigned to the individual elements in each section. To meet the criteria for being deemed a New York High Performance School, a school must achieve 65 rating points out of a possible 133.

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[2] *Love Canal Collections: A University Archives Collection* (retrieved on-line July 13, 2011). Buffalo, NY: The State University of New York, University of Buffalo, University at Buffalo Libraries. http://library.buffalo.edu/libraries/specialcollections/lovecanal/index.html.

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[4] W. Hurwitz, (1981), "Environmental Health: An Analysis of Available and Proposed Remedies for Victims of Toxic Waste Contamination," *American Journal of Law and Medicine*, Vol. 7, No. 1, pp. 61-89.

[5] U.S. Environmental Protection Agency, Washington, DC (on-line updated August 10, 2011), *Superfund: Cleaning up the Nation's Hazardous Wastes Sites*. http://www.epa.gov/superfund/.

[6] Ann Krauth and Adam Marcus (January, 2002), *New Schools for Older Neighboroods: Strategies for Building.* Sacramento, CA: Local Government Commission, 1303 J Street, Ste. 250, Sacramento, CA, 95814, (916) 448-1198; and Washington, DC: National Association of Realtors. http://www.lgc.org/freepub/docs/community_design/reports/new_schools_rpt.pdf.

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[8] U. S. Green Building Council, Washington, DC:
- (May 1, 2009), *LEED Public Policies:* https://www.usgbc.org/ShowFile.aspx?DocumentID=691.
- (September 24, 2010), *LEED Initiatives by State*: https://www.usgbc.org/ShowFile.aspx?DocumentID=7924.

[9] Gregory Kats and Jon Braman (October, 2006), *Greening America's Schools: Costs and Benefits*. Washington, DC: U. S. Green Building Council. http://www.usgbc.org/ShowFile.aspx?DocumentID=2908.
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[12] New York State Energy Research and Development Authority, Albany, NY (on-line August, 2011), "What is Green Building," *Green Building Services.*
- Green Building Services: http://www.nyserda.ny.gov/en/Page-Sections/Commercial-and-Industrial/Programs/New-Construction-Program/Green-Building-Services.aspx

[13] U. S. Environmental Protection Agency, Washington, DC (on line August 8, 2011), "Siting Schools: Greenfield Development," *Sustainable Schools.* http://www.sustainableschools.dgs.ca.gov/SustainableSchools/sustainabledesign/siting/greenfielddevelopment.html.

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Conservation and Development. http://www.oregon.gov/LCD/TGM/docs/schoolsitinghandbook.pdf?ga=t.

[16] California Division of the State Architect's Sustainable Schools Resource (retrieved July 14, 2011), *Siting*: *Greenfield Development.* http://www.sustainableschools.dgs.ca.gov/SustainableSchools/sustainabledesign/siting/siting.html.

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[18, 19, 20, 21] The U. S. Environmental Protection Agency, Washington, DC:

- [18] Draft voluntary school-siting guidelines: http://www.epa.gov/schools/.
- [19] Effects of school siting on transportation and the environment: http://www.epa.gov/dced/pdf/school_travel.pdf.
- [20] Resources on school indoor air quality: http://www.epa.gov/iaq/schools/.
- [21] HealthySEAT assessment tool: http://www.epa.gov/schools/healthyseat/index.html.

[22] C. T. Thurnau, M. Doyle, T. V. Robert, M. Brown, et al. (February, 2007), *NY-CHPS Version 1.1: High Performance Schools Guidelines—An Appendix of the New York State Education Department Manual of Planning Standards.* Albany, NY: New York State Education Department, Office of Facilities Planning. http://www.p12.nysed.gov/facplan/NYSERDA/NY-CHPS_Ver_1-1_Feb_07.pdf.

Benefits:

- Greening:
  - *For students, educators, school workers, and others who use the school buildings and facilities:*
    - A healthy interior and exterior school environment (quality of air, water, building materials, cleaning and maintenance supplies, lighting, etc.) has a positive impact on short-term and long-term physical and mental health, reducing incidences of such illnesses as asthma, allergies, respiratory infections, headaches, fatigue, cancer, and others.
    - A healthy school environment has been shown to improve student learning and significantly reduce absenteeism.
  - *For the community:*
    - Gregory Kats' analysis of 30 green schools across the country demonstrated that green schools cost less than 2 per cent more than conventional schools (or about $3 per square foot), but provide financial benefits that are 20 times as large.
    - Use of clean energy alternatives in place of fossil fuels reduces carbon emissions into the atmosphere.
    - Energy-efficient systems and equipment save heating, cooling, and operating costs.
    - Avoiding the construction of a school on brownfields eliminates the costs of identifying any contaminants from previous development, as well as

the costs of any required clean-up and subsequent on-going monitoring of the site.

- Site location—integrating the school within the populated boundaries of the community:
  - *For residents of all ages:*
    - Integrated siting is an element of a walkable community, encouraging biking, walking, and other pedestrian activities by students, educators, and work staff, as well as community members of all ages who use the school's facilities for alternatives purposes—thereby providing a passive exercise strategy that increases residents' health and fitness.
    - Integrated siting reduces the use of personal cars and various means of public transit, thereby conserving fossil fuels and reducing transportation costs.
  - *For the community:*
    - Integrated siting (in place of siting on greenfields at the periphery of developed areas) is an element of smart growth development, addressing issues that are associated with the negative impact of urban sprawl—such as increased transportation and energy costs, long student commutes, isolation of the school from community activity, reduced community-building interaction among residents, longer emergency management responses, and other concerns . . . . With integrated siting, schools can take advantage of existing resources in the community (such as sewer and water lines, roads, police and fire resources, etc.), so schools can draw upon existing infrastructure instead of having to create their own.
  - *For residents and the community:*
    - Siting the school close to the community's residents encourages the use of the school's buildings and facilities for additional community uses, which is a convenience for community residents of all ages (for example, shorter travel distances for elderly residents attending senior programs, intergenerational experiences, and public health events; or residents of all ages with disabilities participating in adult education and job-training classes, voting, or community recreational activities; or residents of all ages participating in volunteer and civic engagement activities).
    - Such availability of nearby school facilities—and their use for alternative community activities and programs—supports the ability of older adults and people of all ages with disabilities to continue to live independently in their own homes, a long-term care policy promoted by public and private entities across the country.
    - Using the school for alternative activities promotes the school's role as the community's hub/center/anchor, which:
      - Helps unify a neighborhood by promoting a "community identity" among residents.
      - Strengthens a sense of community by increasing interaction and socialization among community residents.
      - Increases interaction among the community's different age groups and various cultural groups, which can have a positive impact on the school's social and educational environment.

Impediments or barriers to development or implementation:

- Apathy or lack of knowledge and understanding by residents and other community stakeholders regarding:
  - The short-term and long-term impact of environmental conditions on health.
  - The health and cost benefits of greening and sustainability.
  - The important role of a school's location, as well as its potential for alternative community uses, in advancing the community's economic and social vitality.
  - The importance of the school's role as a community hub or anchor in strengthening a "sense of community" and the community's identity, stabilizing the population, and developing the community's social capital—all elements that increase a community's level of livability.

- Lack of resources:
  - Limited funds may drive communities to make unwise siting decisions.
  - A lack of space within city limits may drive communities to build schools in less desirable areas, such as outlying greenfields or areas unappealing or hazardous for development.

- Weaknesses in current procedures or systems:
  - Community residents and leaders are often unaware of the few systematic/standardized processes available for evaluating sites and which can help communities through the school-siting process.
  - The School Board is often the sole or major decision-maker in the school-siting process, which:
    - Reduces access to broader knowledge, expanded perspectives, and innovative ideas inherent in an inclusive planning process;
    - Limits active involvement of community members and other stakeholders (city/community planners, parents, students, business owners, government leadership, community leaders, builder/architect, etc.) in the process, which can result in siting decisions that do not adequately reflect the community's best interest.
    - Does not take advantage of an opportunity to build community members' committed investment in any decisions made and in the successful outcome of the school-siting process.
  - City zoning rules and regulations may prevent making healthier, safer, more efficient, or more modern renovations to an existing school, which can drive decisions to relocate the school outside of the community.

Resource—laws and ordinances:

- New York State:
  Prior to the approval of working drawings and specifications for a new school building or an addition, various aspects related to the site for the facility must be approved by the New York State Commissioner of Education:
  - New York State Education Law, Title 20, §408, Subdivision 3: http://www.p12.nysed.gov/facplan/forms/SchoolSitePkg.PDF.

  - Department of Education Regulations, 155.1(c): http://www.p12.nysed.gov/facplan/forms/SchoolSitePkg.PDF.
  - Facilities Planning - School Sites: http://www.p12.nysed.gov/facplan/articles/B05_school_sites.html.
  - Instruction Guide for Public School Districts and BOCES—Obtaining Building Permits for Capital Construction Projects: http://www.p12.nysed.gov/facplan/publicat/BP_instruction_guide.html.

- New York City Green Schools Guide (2007):
  A project of the New York City School Construction Authority and the New York City Department of Education. A rating system based on materials from the U. S. Green Building Council, the Collaborative for High Performance Schools, and NY-CHPS Version 1.0. http://source.nycsca.org/GreenSchools/NYC-GSG.pdf.

- New York City—Green Building Requirements for Municipal Buildings:
  Local Law 86 of 2005: Makes a variety of green building and energy efficiency requirements for municipal buildings and other projects funded with money from the City treasury; requirements apply to new construction, building additions, and substantial reconstructions of existing buildings—including schools:
  http://www.dsireusa.org/incentives/incentive.cfm?Incentive_Code=NY12R&re=1&ee=1.

- U. S. Green Building Council, Washington, DC:
  LEED Public Policies (May 1, 2009)—various government LEED initiatives across the United States, including legislation, executive orders, resolutions, ordinances, policies, and incentives in 45 states, 206 localities, 34 state governments, 14 federal agencies or departments, 17 public school jurisdictions, and 41 institutions of higher education.
  http://www.leed.us/ShowFile.aspx?DocumentID=691.
  http://www.usgbc.org/PublicPolicy/SearchPublicPolicies.aspx?PageID=1776.

Resource—examples:

- LEED certification:
  - Sidwell Friends School, Washington, DC (Platinum LEED certification): http://www.sidwell.edu/about_sfs/environmental-stewardship/green-buildings/index.aspx.
    https://www.usgbc.org/ShowFile.aspx?DocumentID=3943.
  - Third Creek Elementary School, Statesville, NC (Gold LEED certification): http://leedcasestudies.usgbc.org/overview.cfm?ProjectID=119.
  - Hampton Bays Middle School, Hampton Bays, Suffolk County, NY (Silver LEED certification): http://westhampton-hamptonbays.patch.com/articles/hampton-bays-middle-school-sets-green-example-for-students.
  - Fossil Ridge High School, Fort Collins, CO (Silver LEED certification): http://www.usgbc.org/ShowFile.aspx?DocumentID=2060.
  - Clackamas High School, Clackamas, OR (Silver LEED certification): http://leedcasestudies.usgbc.org/overview.cfm?ProjectID=196.

- National Clearinghouse for Educational Facilities (NCEF), a program of the National Institute of Building Sciences, Washington, DC:
  - *Case Studies: Community Use of Schools*. Examples of schools that have opened their facilities and grounds to use by the community: http://www.ncef.org/rl/case_studies_community_use.cfm.

- New Schools, Better Neighborhoods, Los Angeles, CA:
  - *Case Studies—Joint Use Facilities*: examples of joint-use projects, joint-use analysis and recommendations, and joint-use policies: http://www.nsbn.org/case/jointuse/index.php.

- An internet search for "school-community joint-use contracts" will provide numerous resources for information and samples of such contracts; for example:
  - Kenneth Testa (2000), "Development of joint-use educational facility agreements between California Public school districts and community entities: A cross-case analysis of strategic practices, barriers, and supportive elements." Excerpt from dissertation, University of La Verne, La Verne, CA. http://smhp.psych.ucla.edu/pdfdocs/joint-use.pdf.
  - Advisory Committee on Joint Use of School and Community Facilities (2010) *Community Use of Schools and School Use of Community Facilities: A Handbook for Reviewing and Developing Facility-Use Policies, Procedures, and Agreements for Schools, School Divisions, Municipalities, and Recreation Commissions.* Manitoba, Canada: Province of Manitoba, Manitoba Education. http://www.edu.gov.mb.ca/k12/docs/reports/use_facilities/docs/handbook.pdf.
  - Jeffrey M. Vincent (September, 2010), *Partnerships for Joint Use—Expanding the Use of Public School Infrastructure to Benefit Students and Communities, Research Report*. Berkeley, CA: University of California, Center for Cities & Schools. http://media.cefpi.org/CCS_Partnerships.pdf.
  - National Clearinghouse for Educational Facilities, Washington, DC—links to books and other resources about calculating joint-use costs, leveraging financial resources through joint use, and joint-use agreements: http://www.ncef.org/rl/community_use.cfm; http://www.ncef.org/rl/joint_use.cfm.
  - The Trust for Public Land (TPL), San Francisco, CA (retrieved on-line August, 2011), *New York City Playgrounds.* TPL is partnering with the City of New York and the Mayor's "PlaNYC 2030" to transform neglected school playground spaces into vibrant playgrounds and community parks. http://www.tpl.org/what-we-do/where-we-work/new-york/ny-city-playgrounds.html.
    Also: NYC.gov (July 2, 2007) "Mayor Bloomberg Launches the PlaNYC Schoolyards to Playgrounds Initiative," *News from the Blue Room*, Office of the Mayor, New York, NY: http://www.nyc.gov/portal/site/nycgov/menuitem.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2007b%2Fpr223-07.html&cc=unused1978&rc=1194&ndi=1.

- New York State Energy Research and Development Authority, Albany, NY:
  - *K-12 Energy Smart Schools Program:* http://www.nyserda.ny.gov/en/Page-Sections/Commercial-and-Industrial/Sectors/K-12-Schools.aspx?sc_database=web.
  - *New York State K-12 Recognizing Excellence in Energy, Management and Sustainability*: scroll down for descriptions of schools in New York State that are recipients of *New York State Leader Awards:* http://www.nyserda.ny.gov/en/Page-Sections/Commercial-and-Industrial/Sectors/~/media/Files/EERP/Commercial/Sector/K%2012%20Schools/nys-k12-awards-2008.ashx.

- Robert Cevero (February, 2007), "Models for Change: Lessons for Creating Active Living Communities," *Planning Magazine.* Eleven case studies (including lessons learned) from the Robert Wood Johnson Foundation's Active Living Research Program, which stresses collaboration and an inclusive planning process for community projects, including school siting. http://www.activelivingresearch.org/files/ALRPlanningMagazine_CaseStudies.pdf.

- Collaborative for High Performance Schools (CHPS), Sacramento, CA:
  - List of schools across the country that have achieved CHPS status: http://www.chps.net/dev/Drupal/node/216.

- American Association of School Administrators, Arlington, VA (October, 2009), *Building Success, Leading Change: Stories of Healthy School Environments*. Two school systems (one urban and one rural), which have successfully implemented and sustained a healthy learning environment by addressing indoor air quality. http://www.aasa.org/uploadedFiles/Childrens_Programs/Healthy_School_Environments/BuildingSuccess_Web.pdf.

- Coalition for Community Schools, Washington, DC:
  - Community schools across the nation: http://www.communityschools.org/aboutschools/faqs.aspx#_10; http://www.communityschools.org/assets/1/AssetManager/Community%20School%20Models2009.pdf; http://www.communityschools.org/assets/1/AssetManager/State_To_State_report.pdf.

Resource—written and web:

- National Clearinghouse for Educational Facilities (NCEF), a program of the National Institute of Building Sciences, Washington, DC—extensive listings of references to books, articles, and other media on a variety of topics related to the impact of school facilities on learning, community and economic development, health, and strengthening a sense of community, including such topics as acoustics, greening, daylighting, indoor air quality, safety, and others: http://www.ncef.org/rl/index.cfm.
  Examples of informational resource listings compiled by the NCEF:

  - *Resource Lists: Community Development and School Facilities.* Information on the role that public school facilities play in urban and rural economic development and in community revitalization: http://www.ncef.org/rl/community_development.cfm.
  - *Case Studies: Community Use of Schools*. Examples of schools that have opened their facilities and grounds to use by the community: http://www.ncef.org/rl/case_studies_community_use.cfm.
  - *Community Participation in School Planning*. Information on the participation of students, teachers, parents, administrators, and community members in the planning and design of schools: http://www.ncef.org/rl/community_participation.cfm.
  - *Student Participation in School Planning and Design*. Information on how students can become involved in the planning and design of school buildings, and in sustainability activities on campus: http://www.ncef.org/rl/students.cfm.
  - *Impact of School Facilities on Learning.* Information on the relationship between student achievement and the physical environment of school and campus buildings: http://www.ncef.org/rl/impact_learning.cfm.
  - *Healthy School Environments.* Information on healthy and environmentally safe school facilities: http://www.ncef.org/rl/healthy_schools.cfm?date=4.
  - NCEF's web site also includes other "health" listings addressing mold in schools, indoor air quality, hazardous materials, green cleaning, pesticides, and others.

- The U. S. Environmental Protection Agency's (EPA), Washington, DC—provides extensive school-siting resources, including:
  - Healthy School Environments: http://www.epa.gov/schools/.
  - A report on the effects of school siting on transportation and the environment: http://www.epa.gov/dced/pdf/school_travel.pdf.
  - Resources on school indoor air quality (IAQ), including IAQ Tools for Schools Program: http://www.epa.gov/iaq/schools/.
  - HealthySEAT assessment tool to help communities and school districts evaluate and manage their school facilities for key environmental, safety, and health issues: http://www.epa.gov/schools/healthyseat/index.html.
  - EPA has drafted voluntary school-siting guidelines, which were submitted for public comment in late 2010/early 2011: http://www.epa.gov/schools/; http://www.epa.gov/schools/epa_school_siting_guidelines.pdf.

- U. S. Environmental Protection Agency (EPA) (August 18, 2011), "Settlement with the Department of the Interior to Resolve Violations at DOI Schools in Indian Country," *Compliance & Enforcement at Federal Facilities.* Washington, DC: EPA. The settlement addresses all alleged violations under the Resource Conservation and Recovery Act, the Safe Drinking Water Act, the Clean Air Act, the Clean Water Act, the Emergency Planning and Community-Right-to-Know Act, the Toxic Substances Control Act's PCB provisions, and the Asbestos Hazard Emergency Response Act. The settlement affects 60 tribes (72 schools and 27 water systems) throughout the U.S. that have DOI Office of Indian Affairs schools or public water systems on or near their tribal lands.

http://www.epa.gov/compliance/resources/cases/federal/bia-settlement.html; Consent Agreement and Final Order: http://www.epa.gov/compliance/resources/cases/federal/bia-cafo.pdf.

- U. S. Green Building Council, Washington, DC:
  - *Schools,* "LEED 2009": http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1586.
  - *About Green Schools:* links to news reports on the impact of greening on raising educational standards and on saving money for schools: http://www.usgbc.org/DisplayPage.aspx?CMSPageID=1640.
  - LEED Initiatives by State (updated September 24, 2010): https://www.usgbc.org/ShowFile.aspx?DocumentID=7924.

- Healthy Schools Network, Inc., Washington, DC—a national voice for children's environmental health at school and a national-award-winning 501(c)3 not-for-profit environmental health organization; launched the national healthy schools movement with comprehensive state policies; created the national Coalition for Healthier Schools. Web site provides extensive information, resources, and links: http://www.healthyschools.org/who_we_are.html. http://www.healthyschools.org/index.html.
  - Healthy Schools Network, Inc.—New York Program, Albany, NY: http://www.healthyschools.org/ny_program.html.
  - Claire Barnett (2009), *Sick Schools 2009: America's Continuing Environmental Health Crisis for Children.* Washington, DC: Healthy Schools Network, Inc. http://www.healthyschools.org/SICK_SCHOOLS_2009.pdf (this on-line document is very slow to load). Publication includes extensive information, including:
    - By state: status of Indoor Air Quality in schools (New York State data: page 44).
    - Green Schools: Attributes for Health and Learning (page 68).
    - Coalition for Healthier Schools, "Position Paper and Recommendations: Providing the Platform and the Forum for School Environmental Health," (page 71).

- New York State Energy Research and Development Authority, Albany, NY, *Green Building Services.* Information, technical assistance, resources on costs, and case studies on green building for a variety of buildings, including schools: http://www.nyserda.ny.gov/en/Page-Sections/Commercial-and-Industrial/Programs/New-Construction-Program/Green-Building-Services.aspx?sc_database=web.
  - *Case Studies*, including "K-12 Schools," "Colleges and Universities," "Health Care Facilities," "Offices," and others: http://www.nyserda.ny.gov/en/Page-Sections/Commercial-and-Industrial/Programs/New-Construction-Program/Case-Studies.aspx.

- Gregory Kats:
  - (October, 2006), *Greening America's Schools: Costs and Benefits,* a Capital E report. Sponsoring organizations: American Federation of Teachers, American Institute of Architects, American Lung Association, Federation of

American Scientists, and U. S. Green Building Council. An analysis of 30 green schools across the nation, documenting the financial costs and benefits of green schools compared to conventional schools. Kats' analysis demonstrated that green schools cost almost 2 per cent more than conventional schools (about $3 per square foot) but provide financial benefits (about $70 per square foot) that are 20 times as large. See chart, "Financial Benefits of Green Schools ($/ft^2),"on page 2 of the document. http://www.usgbc.org/ShowFile.aspx?DocumentID=2908.

- (On-line 2011), "Green School Design: Cost-Effective, Healthy, and Better for Education," *Center for Ecoliteracy.* http://www.ecoliteracy.org/essays/green-school-design-cost-effective-healthy-and-better-education.
  (2003), *Green Building Costs and Financial Benefits.* Westborough, MA: Massachusetts Technology Collaborative. http://www.bouldercolorado.gov/files/commercial_green_building_costs_and_benefits_-_kats_2003.pdf.

- American Association of School Administrators, Arlington, VA, *AASA Healthy School Resources.* Information and resources for schools across the country on indoor air quality—to increase the ability of school leaders to be conversant about indoor air quality and its effects on children. http://www.aasa.org/content.aspx?id=1186.

- Mark Schneider (November, 2002), *Do School Facilities Affect Academic Outcomes?* Washington, DC: National Clearinghouse for Educational Facilities. *http://www.ncef.org/pubs/outcomes.pdf*.

- Atlanta Regional Commission, Atlanta, GA (retrieved August 18, 2001), *Linking School Siting to Land Use Planning.* http://www.atlantaregional.com/File%20Library/Local%20Gov%20Services/gs_cct_schoolsitetool_1009.pdf.

- Coalition for Community Schools, Washington, DC, an alliance of national, state and local organizations in K-16 education, youth development, community planning and development, family support, health and human services, government, and philanthropy, as well as national, state and local community school networks: http://www.communityschools.org/about/default.aspx. Extensive information about Community Schools, including:
  - Frequently Asked Questions About Community Schools: http://www.communityschools.org/aboutschools/faqs.aspx.
  - Guiding Principles: http://www.communityschools.org/aboutschools/faqs.aspx#_7.
  - Benefits and Advantages: http://www.communityschools.org/aboutschools/faqs.aspx#_8.
  - Evaluations: http://www.communityschools.org/aboutschools/faqs.aspx#_14;
    - "Research Brief": http://www.communityschools.org/assets/1/AssetManager/CCS%20Research%20Report2009.pdf.

  - "Evaluation Tool Kit": http://www.communityschools.org/resources/community_schools_evaluation_toolkit.aspx.
- Community schools across the nation: http://www.communityschools.org/aboutschools/faqs.aspx#_10; http://www.communityschools.org/assets/1/AssetManager/Community%20School%20Models2009.pdf; http://www.communityschools.org/assets/1/AssetManager/State_To_State_report.pdf.

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- Civic Builders (2006), *Charter Schools and Community Development: The Economic Impact of New Charter Schools*, Policy Brief #8. New York, NY: Civic Builders. http://www.civicbuilders.org/PDF/PDF_publish_charters_econ_development.pdf.

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