School Buildings and Community Building

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U.S. EPA's Office of Sustainable Communities

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About EPA’s Office of Sustainable Communities

• EPA’s mission is to protect human health and the environment.

• OSC focuses on the environmental and public health impacts of the built environment because where and how we build affects our land, air, and water.

• We work on:
  – Changing the conversation: Education and outreach
  – Helping the willing: Tools and technical assistance
  – Changing the rules: Research and policy analysis
What’s a Sustainable Community?

An urban, suburban or rural community that has more housing and transportation choices, is closer to jobs, shops or schools, is more energy independent and helps protect clean air and water.
A Response to Development Challenges

- Development that provides:
  - Choices for where to live and how to get around
  - A stronger, more resilient economy
  - A safer, healthier place to live
  - Opportunities to protect the things that you love about the place you live (farmland and open space, natural beauty, sense of community, etc.)
What’s the Connection?
Schools & Community

• Schools both affect and respond to community growth.
• Schools are a major financial investment that the entire community bears.
• Schools can either work with or against a wide variety of community goals.
Let’s Establish a Baseline for this Discussion

• Something we can and should all agree on: Schools should provide students with a safe healthy place to get a good education.
• This is their primary goal.
• But...having established that, there is room for discussion.
School Investments Influence Community Goals

- Children’s health
- Fiscal health of local and state government
- Open space and farmland preservation
- Traffic congestion
- Environmental goals – air quality, water quality, climate change
- Revitalization of downtown and existing neighborhoods
- Community character
- Social equity
Schools and Communities

• In 1929, planner Clarence Perry published *The Neighbourhood Unit: A Scheme of Arrangement for a Family Life Community*.

• This work advocated building “neighbourhoods” as the basis for city growth.
Clarence Perry’s Principles

1. The size of a residential neighbourhood should be determined by the population needed for one elementary school: about 750 to 1,500 families on 150 to 300 acres.

2. The neighbourhood should be bounded by arterial roads that eliminate through traffic to the neighbourhood.

3. Within the neighbourhood there should be a hierarchy of streets, each designed to minimum widths and laid out to discourage through traffic.

4. Streets and open spaces should make up at least 40% of any neighbourhood.

5. Schools and other institutions should be grouped at a central point in the neighbourhood.

6. Shopping areas adequate for the population should be set up at the edges of the neighbourhood, adjacent to arterial traffic.
Schools and Communities

- Clarence Perry defined neighborhood size based on a five-minute walking radius.
- The radius is measured from the center, which holds the cultural uses such as a school.
- A five-minute walking distance is approximately 160 acres.
Schools and Communities

• Clarence Stein expanded the definition of neighborhood center in 1942 by connecting the neighborhoods together to create towns.

• From the 1920’s to the 1940’s, the centers and anchors of neighborhoods were the schools.
Concentrations of civic, institutional and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.

—CNU Charter
The Demand for Facilities

• Over half of our school facilities are at least 40 years old.

• Over $30 billion spent annually from 1995 to 2005 on K-12 school construction in the U.S.
During this time of great investments in school building...

- 1969: 48% of all children walked or biked to school
- 2002: 14% of kids walk or bike to school
- This is an extraordinary shift.
- It’s almost as if we planned it that way.
Hmmm...Why can’t Johnny walk to school?

- TOP SECRET: National No Child Shall Bike or Walk to School Campaign
- Top 11 strategies for implementing the campaign.
Strategy #1: Bigger Schools

- 1930 = 262,000 School Facilities
- 2002 = 91,000 School Facilities
- Student population over the same time: up from 28 million to 53.5 million

Chippewa Hills, MI. Site size: 120 acres. Completed in 2004
• 1400+ Students, 120 acres
• Weddington Elementary/Middle, NC
Main St.
USA

125 acres

Space Mountain
Strategy #2: Mandatory Minimum Acreage for School Sites

Strategy #2: Mandatory Minimum Acreage for School Sites

- EPA commissioned CEFPI to do a study on state policies.
- 27 states have some minimum acreage requirement.
- States making changes, including Minnesota.

<table>
<thead>
<tr>
<th>Minnesota Department of Education, Facilities and Organization</th>
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<tbody>
<tr>
<td>(651) 582-8828</td>
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<td><a href="http://education.state.mn.us/stellent/groups/public/documents/translatedcontent/pub_intro_finance_facil.jsp">Link</a></td>
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- **Elementary School** = 10-15 acres plus *
- **K-8 or Middle Level School** = 25-35 acres plus *
- **K-12 School or Small High School** = 35-40 acres plus *
- **Large High School (+2000 students)** = 60 acres plus *
- **Campus (two or more schools)** = Combine site sizes plus *
- **All Schools** = 1 additional acre for each 100 students of estimated student enrollment and community use/partnership program capacity, including possible additions.
Strategy #3: Locate Schools Far From the Students they Serve

www.governing.com/articles/3schools.htm
Strategy #3: Locate Schools Far From the Students they Serve

Side benefits = demand for new:
- Roads
- Traffic signals
- Sewer lines
- Utilities
- Other infrastructure and services
Strategy #3: Locate Schools Far From the Students they Serve
Barriers to Children Walking to or From School—United States, 2004


MMWR. 2005;54:949-952

1 figure, 1 table omitted

Walking for transportation is part of an active lifestyle that is associated with decreased risks for heart disease, diabetes, hypertension, and colon cancer and an increased sense of well being. However, the percentage of trips made by walking has declined over time among both children and adults. One of the objectives of Healthy People 2010 (no. 22-14b) is to increase among children and adolescents the proportion of trips to school made by walking from 31% to 50%. In 1969, approximately half of all schoolchildren walked or bicycled to or from school, and 87% of those living within 1 mile of school walked or bicycled. Today, fewer than 15% of children and adolescents use active modes of transportation. This report examines data from the 2004 ConsumerStyles Survey and a follow-up recontact survey to describe what parents report as their children aged 5-18 years walking to or from school. Distance to school was the most commonly reported barrier, followed by time...
Update: It’s Unanimous!!!

Distance is #1 Factor

- Living less than 1 mile from school increased the odds of walking/biking by at least a factor of 160 over those living 3 or more miles from school. (McDonald)

- The percentage of students living close to school has declined over time:
  - In 1969, 66.1% of students lived less than 3 miles from school.
  - By 2001, the figure was 49.5%. (McDonald)
Strategy #4: Neglect or Demolish Existing Neighborhood Schools
Location of New School
Location of Old School
Strategy #4: Neglect or Demolish Existing Neighborhood Schools
Strategy #4 (cont.): Neglect or Demolish Existing Neighborhood Schools
Also Part of this Strategy: Funding Formulas that Favor New Construction over Renovation

• 2/3 Rule
• 60% Rule

• If the cost of renovating a school exceeds some percentage of new construction costs, a new school must be built.
• This policy is adopted even when renovation options could yield “like new” schools for less.
Replace the older schools with places built for cars.

Salemburg Elementary School, NC – 474 students, 44 acres
http://www.schoolclearinghouse.org/
Strategy #5: Locate Schools On Unwalkable Roads
Strategy #5: Locate Schools On Unwalkable Roads

- A pedestrian hit at 40 mph has an 85% chance of being killed.
- At 20 mph the fatality rate is only 5%

Strategy #5: Locate Schools On Unwalkable Roads

Strategy #6: Decrease “Pedestrian Route Directness” Around Schools
Strategy #7: Do Not Provide Sidewalks or Crosswalks

Image courtesy of National Center for Biking and Walking
Strategy #8: Do Not Provide Sidewalks or Crosswalks
Strategy #7: Do Not Provide Sidewalks or Crosswalks
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Strategy #8: Creative Approaches to the Sidewalk Problem
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Photo: Michael Tobis
University of Chicago
Strategy #9: Prohibit or Discourage Walking and Biking to School

R-7 officials said a reduced-speed school zone is not necessary because children would not be allowed to walk to the school.

"A bus will pick up every child within the attendance boundaries of this school," [Superintendent] McGehee said.
Strategy #9: Simply Prohibit Walking and Biking to School

Wauconda (IL) School Bans Bikes
...and the school’s bicycle ban is on the wrong track!

BY STEVEN J. BOIME, CHICAGOLAND BICYCLE FEDERATION

The attack came from the most unexpected source. Still, barely two months into my job of expanding opportunities for bicyclists in the north and northwest suburbs, Wauconda schools banned bikes for all students from fifth grade through high school. No bikes on school grounds under threat of suspension!

As I sat at the school board meeting, listening to the superintendent’s rationale for the ban and the parents’ impassioned pleas for a reversal, I saw the 30 or so wide-eyed, extraordinarily quiet children watching as one of the most cherished and joyous rights of childhood was being stolen from them.

I recalled the movie “Footloose,” where the Kevin Bacon character moves to a small town that has prohibited its children from dancing. The audience could sneer at the self-righteous, misguided adults who thought they could break the spirit of their children. If dancing is a right, then bicycling is a right.
School cyclists fit to be tied over rack snub
Bridgewater club had offered a gift

Thursday, May 01, 2008

BY NYIER ABDOU
Star-Ledger Staff

When the Bridgewater-Raritan High School environmental club settled on a way to spend more than $2,000 raised over the last four years, co-president Michelle Slosberg never imagined their choice would be so controversial.

More than a week ago, the carbon-conscious students offered to buy and install a bike rack at the school, but were baffled by the response. Principal James Riccobono declined the offer.

"It didn't seem that logical. It would be at no cost to them," Slosberg, 18, said yesterday as she slipped on her bike helmet and prepared for a nearly 20-minute ride home.

"Actually, they said no on Earth Day," remarked Katherine Dransfield, a senior who has tried, with a group of other students, to start a bike club. "Essentially what they told us was that they didn't want to promote biking as a way to get to school."
Strategy #10: Separate Parallel Universes

School Planning

Community Planning
Strategy #11: Show Children Innovative Alternatives to Walking
Thanks and intellectual credit to Dr. Howie Frumkin of CDC for inspiring the preceding series of slides.
Where you put the School Matters

• Schools built close to students, in walkable neighborhoods
  – Can reduce traffic
  – Yield increase in walking and biking
  – Reduce emissions

[www.epa.gov/smartgrowth/publications.htm](http://www.epa.gov/smartgrowth/publications.htm)
Vehicle travel has grown faster than population

** Source – US Census Bureau, Annual Population Estimates
Moms Become Cab Drivers

Everything is a Drive Away

Suburban mothers spend 17 full days a year behind the wheel, more than the average parent spends dressing, bathing and feeding a child.

Source: Surface Transportation Policy Project
Moms Become Cab Drivers

Young children are more than five times as likely to travel with their mothers as with their fathers.*

* 2001 National Household Travel Survey
Implications for Household Budgets

– Transportation costs account for 19% of all household expenses. *

– Most families spend more on driving than on health care, education, or food.

Implications for Household Budgets

A HEAVY LOAD:
The Combined Housing and Transportation Burdens of Working Families

CENTER FOR HOUSING POLICY
October 2006
Health Implications

• The percentage of overweight children, aged 6 to 19 years, has doubled in the United States since 1968

• One in three children in the United States is now overweight

Source: Journal of Occupational and Environmental Medicine 2002
Health Impacts -- Physical Activity

Big schools on edge of town

- ↑ trip distances
- ↑ vehicle trips
- ↓ walking

↑ overweight
↑ obesity

Richard Jackson, MD, MPH, Center for Disease Control
“An estimated 32% of American children are overweight, and physical inactivity contributes to this high prevalence of overweight.”

“The most universal opportunity for incidental physical activity among children is in getting to and from school.”

“Factors such as school location have played a significant role in the decreased rates of walking to school, and changes in policy may help to increase the number of children who are able to walk to school.”
Implications for student performance

• Smaller schools are better for students:
  – education outcomes
  – social involvement
  – behavior
  – attendance rates
  – dropout rates

• All this “is particularly true for disadvantaged students, who perform far differently in small schools…”*

Recommendations:

-- Smaller schools

-- Schools that are centers of the communities they serve.
Schools for Successful Communities: An Element of Smart Growth
• Pennsylvania policy now makes renovation easier.
• Maryland’s School Construction Program favors renovating versus constructing new schools.

http://www.saveourlandsaveourtowns.org/
Good News: Safe Routes to School

Image courtesy of: www.saferoutesinfo.org
Annual Spending: School Construction vs. Safe Routes

122 Million

30+ Billion
John A. Johnson Achievement Plus Elementary School
St. Paul, Minnesota

Postcard from the 1920’s
This school went from this to...
John A. Johnson Achievement Plus Elementary School
St. Paul, Minnesota

To this and then, ...
John A. Johnson Achievement
Plus Elementary School
St. Paul, Minnesota

Images provided courtesy of Ankeny Kell Architects

...to this.
John A. Johnson Achievement Plus Elementary School
St. Paul, Minnesota

Infant day care
John A. Johnson Achievement Plus Elementary School  
St. Paul, Minnesota

Some Important Characteristics:

- The compact, multi-story building fits seamlessly into the community
- Restoration of the school has had a positive effect on the surrounding neighborhood
- Attended by residents of all ages, the new facility is a hub of community life
- Only 8 of over 300 students ride the bus
Former Stapleton Airport, Denver
7.3 square miles
12,000 homes and apartments
3 million sq. ft. of retail space, 10 million sq. ft. of office space
Westerly Creek Elementary School

Odyssey Charter School
EPA and School Siting

- Research effect of urban form/location on school travel
- Grant to NTHP and 21st Century School Fund
  - Work on state policies in 6 states
- Energy Independence and Security Act of 2007:
  - Directed EPA to create voluntary school siting guidelines
  - Helps states, tribes, communities, school districts, parents, and teachers consider environmental factors when selecting locations
- Guideline implementation project begins summer 2012
  - OSC leading technical assistance to Billings, MT

Not later than 18 months after the date of enactment of this section, the Administrator, in consultation with the Secretary of Education and the Secretary of Health and Human Services, shall issue voluntary school site selection guidelines that account for—

(1) the special vulnerability of children to hazardous substances or pollution exposures in any case in which the potential for contamination at a potential school site exists;

(2) modes of transportation available to students and staff;

(3) the efficient use of energy; and

(4) the potential use of a school at the site as an emergency shelter.
Stakeholder Process & Timeline

• December 2008 thru June 2009, EPA developed draft guidelines
• July 2009 -- Outside stakeholder group convened under Children’s Health Protection Advisory Committee (CHPAC)
• April 7, 2010 – CHPAC letter to the Administrator transmitting School Siting Task Group (SSTG) report
• November 17, 2010 – 90 day public comment period
  – Received public comments Spring 2011
  – Incorporated and processed comments Spring and Summer 2011
• Final guidelines released Fall 2011
Public health as the focus of equity and community in school siting decision making

• Top aim of the guidelines: Give communities a wide variety of tools to help them consider environmental impacts of school siting;
• Public health considerations come from a variety of sources – from the site itself to its location to the impact of public investments in schools on communities;
• From a sustainable community perspective, there is no tolerance for schools being built on contaminated sites.
EPA Voluntary School Siting Guidelines
http://www.epa.gov/schools/siting/index.html

On this page, you can access the full School Siting Guidelines and individual sections of the guidelines. You will need the free Adobe Reader to view some of the files on this page. See EPA's PDF page to learn more. Within the PDF of the entire School Siting Guidelines, sections are cross-linked to each other so you can easily navigate through the document. Each section is also available in separate PDFs to facilitate printing individual sections.

**Entire Guidelines (PDF)** (152 pp, 2.45M, About PDF)

1. **About the School Siting Guidelines (PDF)** (12 pp, 293K)
2. **Overview of the School Siting Guidelines (PDF)** (6 pp, 418K)
   - Exhibit 1: Overview of the Siting Guidelines (PDF) (1 p, 284K)
3. **Meaningful Public Involvement (PDF)** (14 pp, 358K)
   - Exhibit 2: Meaningful Public Involvement Points and Opportunities (PDF) (7 pp, 161K)
4. **Environmental Siting Criteria Considerations (PDF)** (32 pp, 1.05M)
   - Exhibit 4: Desirable Attributes of Candidate Locations (PDF) (3 pp, 188K)
   - Exhibit 5: Factors Influencing Exposures and Potential Risks (PDF) (3 pp, 163K)
   - Exhibit 6: Screening Potential Environmental, Public Health and Safety Hazards (PDF) (12 pp, 284K)
5. **Environmental Review Process (PDF)** (30 pp, 655K)
   - Exhibit 7: Stages of Site Review (PDF) (1 p, 204K)
   - Exhibit 8: Stage 1: Project Scoping/Initial Screen of Candidate Site (PDF) (1 p, 131K)
   - Exhibit 9: Stage 2: Preliminary Environmental Assessment (PDF) (1 p, 145K)
   - Exhibit 10: Stage 3: Comprehensive Environmental Review (PDF) (1 p, 151K)
   - Exhibit 11: Stage 4: Develop Site-specific Mitigation/Remediation Measures (PDF) (1 p, 160K)
   - Exhibit 12: Stage 5: Implement Remediation/Mitigation Measures (PDF) (1 p, 150K)
   - Exhibit 13: Stage 6: Long-term Stewardship (PDF) (1 p, 135K)
6. **Evaluating Impacts of Nearby Sources of Air Pollution (PDF)** (10 pp, 263K)
7. **Recommendations for States and Tribes (PDF)** (12 pp, 270K)
8. **Quick Guide to Environmental Issues (PDF)** (12 pp, 257K)
9. **Frequent Questions (PDF)** (10 pp, 265K)
10. **Glossary (PDF)** (5 pp, 177K)
Resources

EPA Smart Growth & Schools:  www.epa.gov/smartgrowth/schools.htm

EPA Voluntary School Siting Guidelines:  www.epa.gov/schools/siting/

Safe Routes to School Partnership:  www.saferoutespartnership.org

National Center for Safe Routes to School:  www.saferoutesinfo.org

National Center for Education Facilities:  www.edfacilities.org/rl/index.cfm

21st Century School Fund/BEST:  www.21csf.org/csf%2Dhome

National Trust for Historic Preservation:  www.nthp.org/issues/schools/index.html

Council of Education Facility Planners International (CEFPI) and EPA “Schools for Successful Communities”:  www.epa.gov/smartgrowth/pdf/SmartGrowth_schools_Pub.pdf

UC Berkeley Center for Cities and Schools:  http://citiesandschools.berkeley.edu/
Thanks

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