School Buildings and Community Building

Matthew Dalbey, Ph.D.
U.S. EPA Smart Growth Program

January 19, 2010

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.

What's the Connection?
Schools & Community

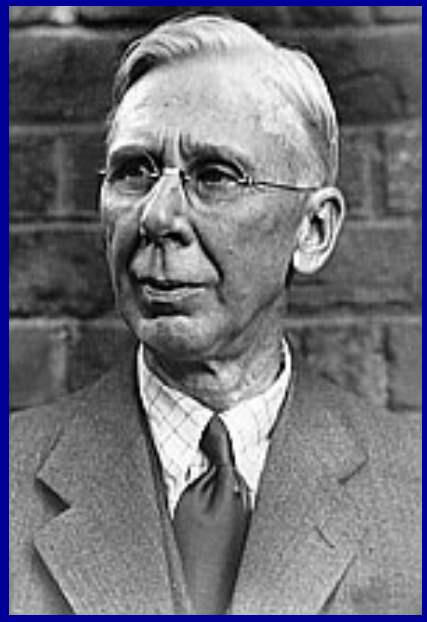
- Schools both affect and respond to community growth.
- Schools are a major financial investment that the entire community bears.
- Schools can either work with or against a wide variety of community goals.

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.*

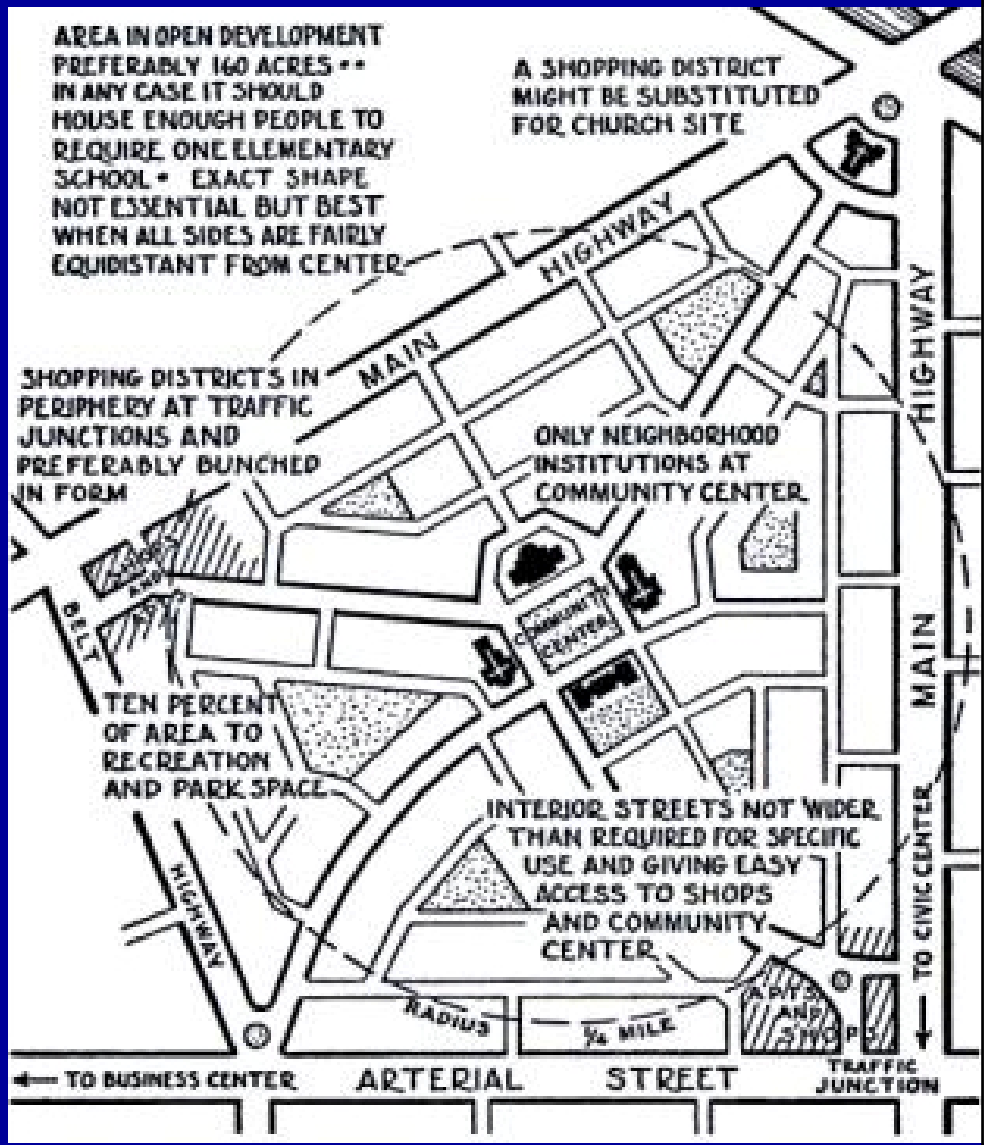
4. *Streets and open spaces should make up at least 40% of any neighbourhood.*

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.*

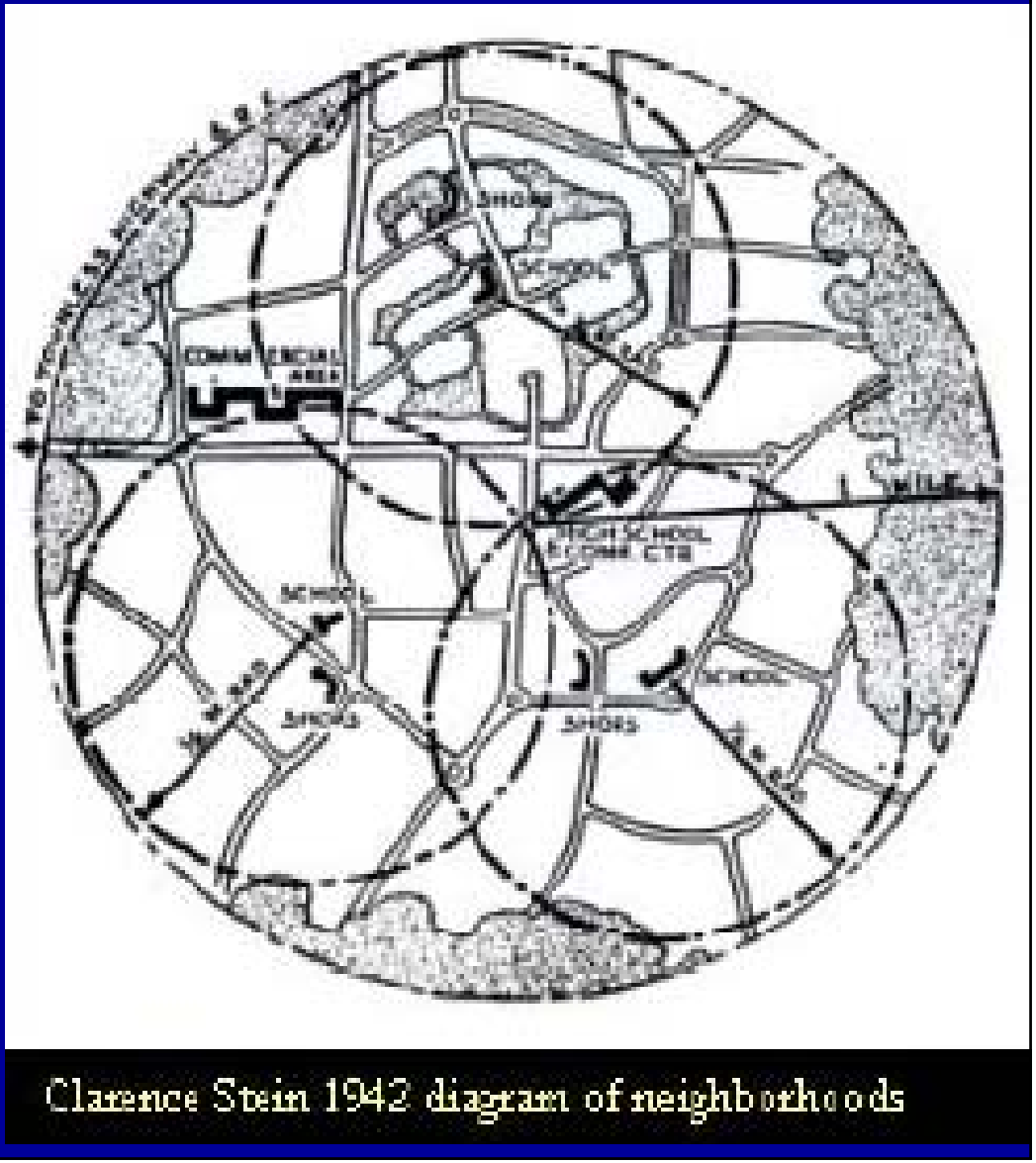
Schools and Communities

- 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.



Clarence Stein 1942 diagram of neighborhoods

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.

Why Johnny Can't Walk to School

NATIONAL TRUST for Historic Preservation

SMART GROWTH NETWORK

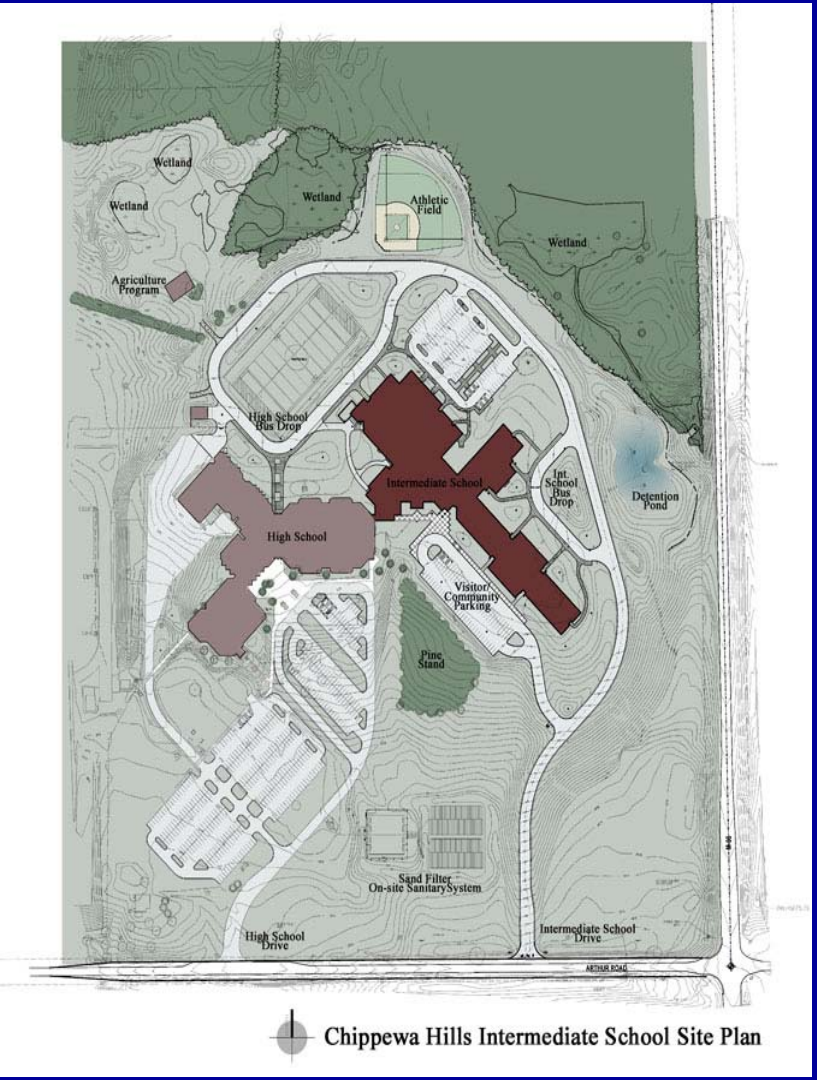
Hmmm…Why can't Johnny walk to school?

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

Strategy #1: Bigger Schools

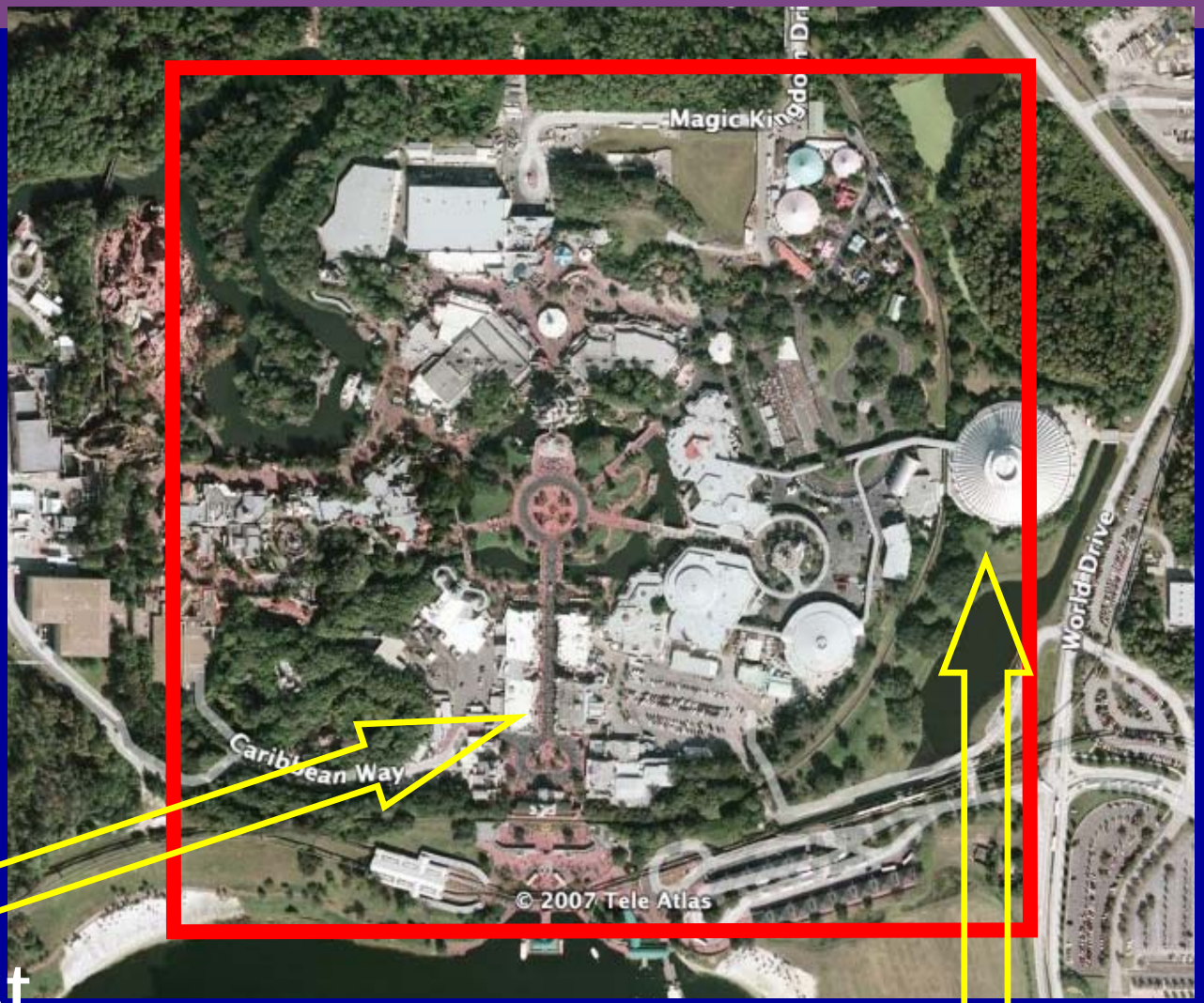
- 1930 = 262,000 School Facilities
- 2002 = 91,000 School Facilities

- 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**



Main St. USA

125 acres

Space Mountain

Strategy #2: Mandatory Minimum Acreage for School Sites

CEFPI
The School Building Association

— ISSUETRAK —
A CEFPI Brief on Educational Facility Issues

Topic: State Acreage Policies
Issue Tracker: Janell Weihs
Date Filed: September 2003

School Site Size — How many acres are necessary?

In recent years one of the most discussed topics regarding school construction is that of appropriate acreage for siting school facilities. This su
question that needs to be addressed for new schools, but for renovation and/or addition projects as well. Many factors need to be considered wh
question of acreage. These include, but are not limited to the number of students; the grades to be housed; the educational programs and services th
site requirementsincluding physical education programs, parking, forestation or reforestation, zoning and set-backs, storm water management, and c
leisure, and recreational events. Very often there are state, school district, and/or local government site size requirements, guidelines, or standards
considered. These entities may have varying opinions, methodologies, and rationales for their school site size requirements, guidelines, or standards.

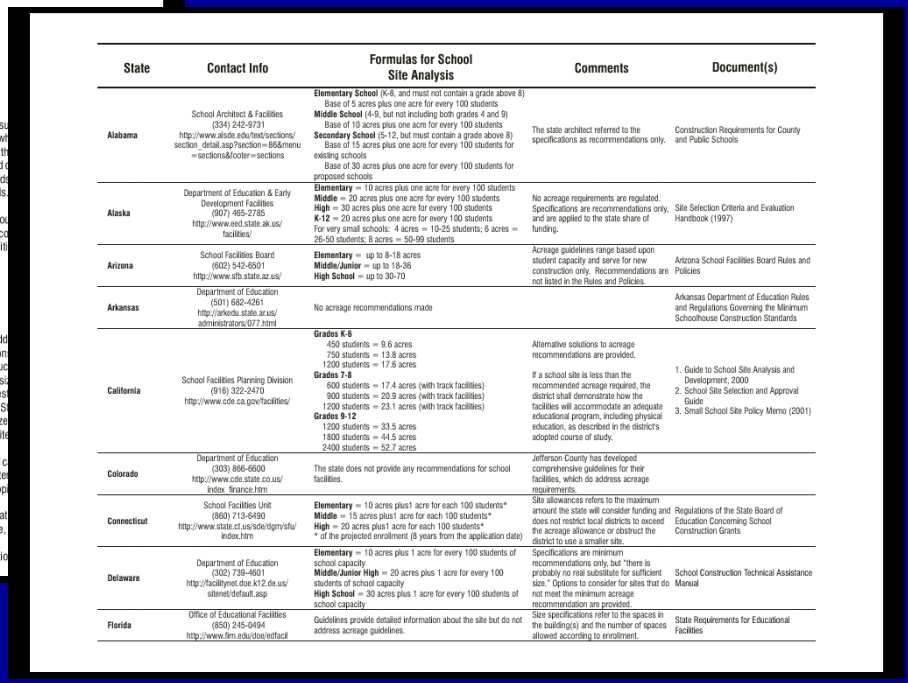
Although the Council of Educational Facility Planners (CEFPI) is not a "standards" setting organizations, the Council does publish guidelines on variou
educational facility planning. Many states that do provide acreage and other design specifications have formulas that are similar to the CEFPI reco
were published in past editions of *The Guide for Planning Educational Facilities*. These recommendations are being carefully reviewed as the new editi
Planning Educational Facilities is being prepared, due to be released in the Spring of 2004. Currently many states follow these site formulas:

Elementary Schools = 10 acres plus 1 acre for every 100 students;
Junior High/Middle Schools = 20 acres plus 1 acre for every 100 students;
Senior High Schools = 30 acres plus 1 acre for every 100 students.

In this report, no attempt has been made to either evaluate the published documents or determine how a state implements the acreage formula. Add
does not identify local district or governmental policies that may vary from the figures listed for a specific state. Most states with oversight respons
waivers and alternatives to the published requirements, guidelines or standards, and often differentiate between existing facilities and new construc
have formulas that only apply to the maximum amount of state funding available and allow districts to locally fund acreage beyond the site si
accompanying chart. In other cases a state might approve a site smaller than what is specified in the charts based upon the submission of a reques
well-documented justification. For specific information regarding the school site size requirements, guidelines, or standards, please contact the S
Education or school building authority in your state. Please contact your local school district for additional information and policies affecting the size
general or for a specific project. State documents that have been referenced may be accessible through the individual department of education website

With the assistance of Barbara Kent Lawrence, Ed.D., educational consultant, CEFPI staff collected this data from state facility reports, manuals and c
legislation, and verified it through direct contact with personnel from state educational agencies and practitioners. Dr. Kelvin Lee, Ed.D., Superinte
Joint Elementary School, and Yale Stenzler, Ed.D., educational facilities consultant, also deserve recognition and thanks for their assistance in develop

All information in the table was collected from state facility reports and manuals, and verified through direct contact with personnel from state educat
practitioners. For additional information, details, and/or procedures regarding school site size requirements, guidelines, or standards in your state,
State Department of Education or school building authority in your state. To recommend revisions and additions to the table, please contact CEFPI.



State	Contact Info	Formulas for School Site Analysis	Comments	Document(s)
Alabama	School Architect & Facilities (334) 242-9731 http://www.alsde.edu/text/sections/section_detail.asp?section=86&menu=sections&footer=sections	**Elementary School** (K-8, and must not contain a grade above 8) Base of 5 acres plus one acre for every 100 students **Middle School** (4-9, but not including both grades 4 and 9) Base of 10 acres plus one acre for every 100 students **Secondary School** (5-12, but must contain a grade above 8) Base of 15 acres plus one acre for every 100 students for existing schools Base of 30 acres plus one acre for every 100 students for proposed schools	The state architect referred to the specifications as recommendations only.	Construction Requirements for County and Public Schools
Alaska	Department of Education & Early Development Facilities (907) 465-2785 http://www.eed.state.ak.us/facilities/	**Elementary** = 10 acres plus one acre for every 100 students **Middle** = 20 acres plus one acre for every 100 students **High** = 30 acres plus one acre for every 100 students **K-12** = 20 acres plus one acre for every 100 students For very small schools: 4 acres = 10-25 students; 6 acres = 26-50 students; 8 acres = 50-99 students	No acreage requirements are regulated. Specifications are recommendations only, and are applied to the state share of funding.	Site Selection Criteria and Evaluation Handbook (1997)
Arizona	School Facilities Board (602) 542-6501 http://www.sfb.state.az.us/	**Elementary** = up to 8-18 acres **Middle/Junior** = up to 18-36 **High School** = up to 30-70	Acreage guidelines range based upon student capacity and serve for new construction only. Recommendations are not listed in the Rules and Policies.	Arizona School Facilities Board Rules and Policies
Arkansas	Department of Education (501) 682-4261 http://arkedu.state.ar.us/administrators/077.html	No acreage recommendations made		Arkansas Department of Education Rules and Regulations Governing the Minimum Schoolhouse Construction Standards
California	School Facilities Planning Division (916) 322-2470 http://www.cde.ca.gov/facilities/	**Grades K-6** 450 students = 9.6 acres 750 students = 13.8 acres 1200 students = 17.6 acres **Grades 7-8** 600 students = 17.4 acres (with track facilities) 900 students = 20.9 acres (with track facilities) 1200 students = 23.1 acres (with track facilities) **Grades 9-12** 1200 students = 33.5 acres 1800 students = 44.5 acres 2400 students = 52.7 acres	Alternative solutions to acreage recommendations are provided. If a school site is less than the recommended acreage required, the district shall demonstrate how the facilities will accommodate an adequate educational program, including physical education, as described in the district's adopted course of study.	1. Guide to School Site Analysis and Development, 2000 2. School Site Selection and Approval Guide 3. Small School Site Policy Memo (2001)
Colorado	Department of Education (303) 866-6600 http://www.cde.state.co.us/index_finance.htm	The state does not provide any recommendations for school facilities.	Jefferson County has developed comprehensive guidelines for their facilities, which do address acreage requirements.	
Connecticut	School Facilities Unit (860) 713-6490 http://www.state.ct.us/sde/dgm/sfu/index.htm	**Elementary** = 10 acres plus1 acre for each 100 students* **Middle** = 15 acres plus1 acre for each 100 students* **High** = 20 acres plus1 acre for each 100 students* * of the projected enrollment (8 years from the application date)	Site allowances refers to the maximum amount the state will consider funding and does not restrict local districts to exceed the acreage allowance or obstruct the district to use a smaller site.	Regulations of the State Board of Education Concerning School Construction Grants
Delaware	Department of Education (302) 739-4601 http://facilitynet.doe.k12.de.us/sitenet/default.asp	**Elementary** = 10 acres plus 1 acre for every 100 students of school capacity **Middle/Junior High** = 20 acres plus 1 acre for every 100 students of school capacity **High School** = 30 acres plus 1 acre for every 100 students of school capacity	Specifications are minimum recommendations only, but "there is probably no real substitute for sufficient size." Options to consider for sites that do not meet the minimum acreage recommendation are provided.	School Construction Technical Assistance Manual
Florida	Office of Educational Facilities (850) 245-0494 http://www.flrn.edu/doe/edfacil	Guidelines provide detailed information about the site but do not address acreage guidelines.	Size specifications refer to the spaces in the building(s) and the number of spaces allowed according to enrollment.	State Requirements for Educational Facilities

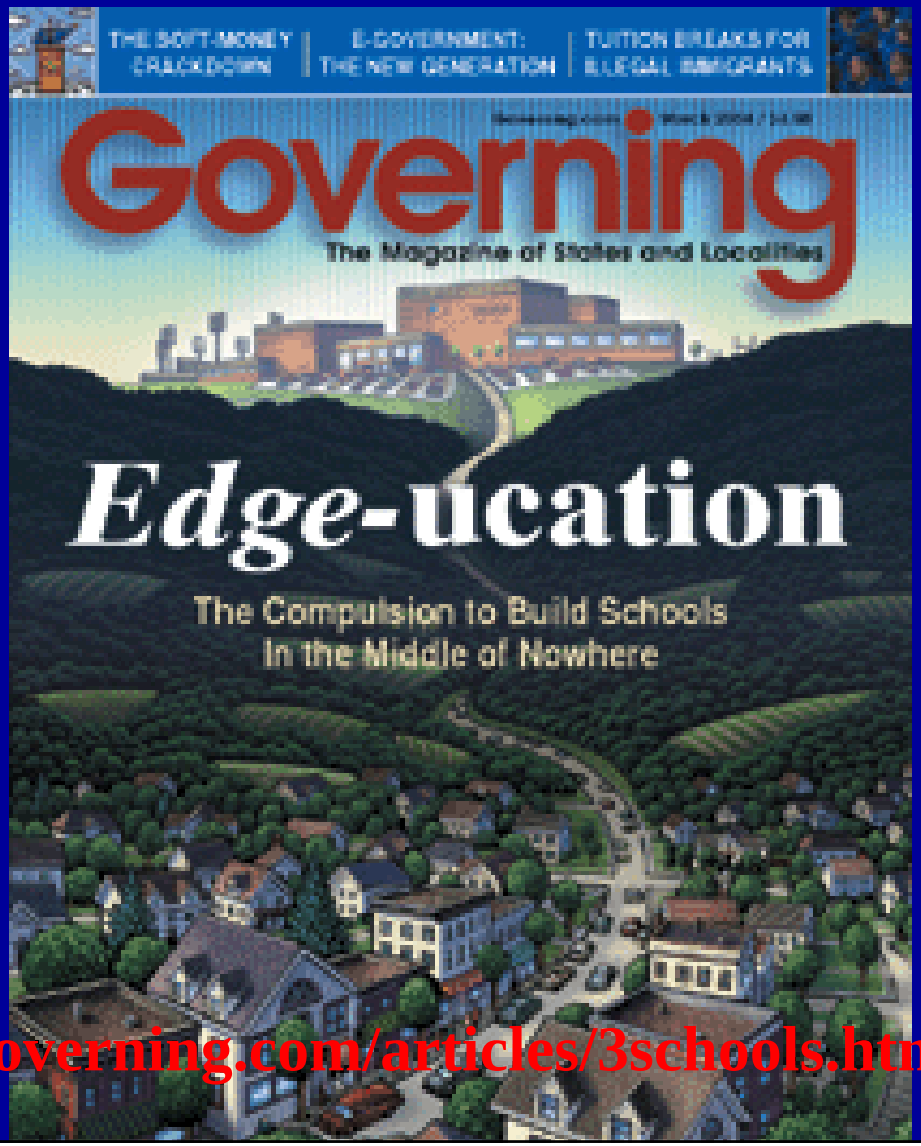
http://www.cefpi.org/pdf/state_guidelines.pdf

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

Minnesota	Minnesota Department of Education, Facilities and Organization (651) 582-8828 http://education.state.mn.us/stellent/groups/public/documents/translatedcontent/pub_intro_finance_facil.jsp	**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

Photo: Dan Burden

Strategy #3: Locate Schools Far From the Students they Serve

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The Journal of the American Medical Association — To Promote the Science and Art of Medicine and the Betterment of the Public Health

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Vol. 294 No. 17, November 2, 2005 TABLE OF CONTENTS >

From the Centers for Disease Control and Prevention: Morbidity and Mortality Weekly Report

Barriers to Children Walking to or From School—United States, 2004

JAMA. 2005;294:2160-2162.

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.[1] However, the percentage of trips made by walking has declined over time among both children[2] and adults.[3] 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%.[4] 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.[5] Today, fewer than 15% of children and adolescents use active modes of transportation.[2] This report examines data from the 2004 ConsumerStyles Survey and a follow-up recontact survey to describe what parents report as b children aged 5-18 years walking to or from school. Distance to school was the most commonly reported barrier, followed by

#1 Barrier? Distance to School

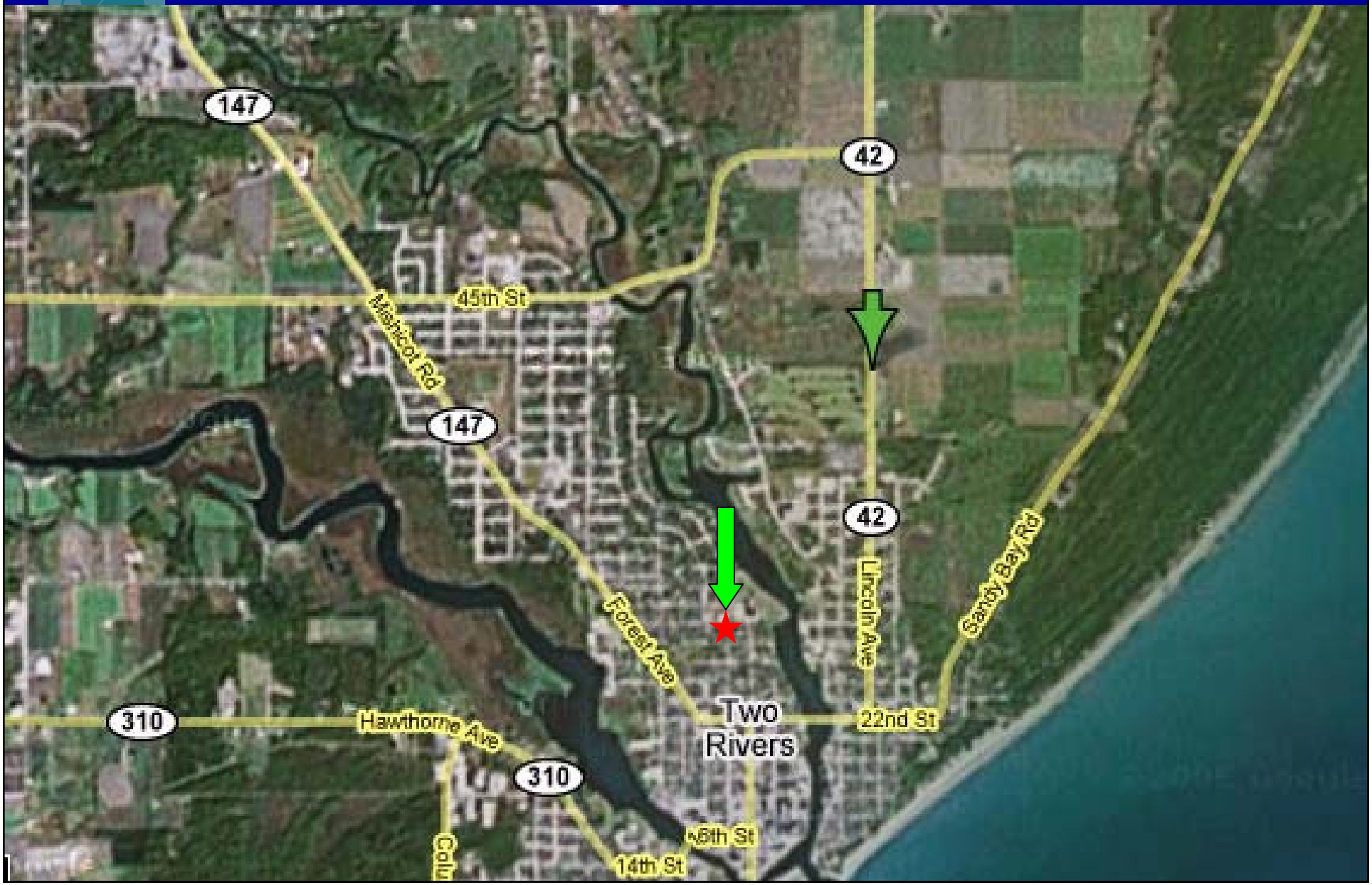
Update: It's Unanimous!!!
Distance is #1 Factor

- 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

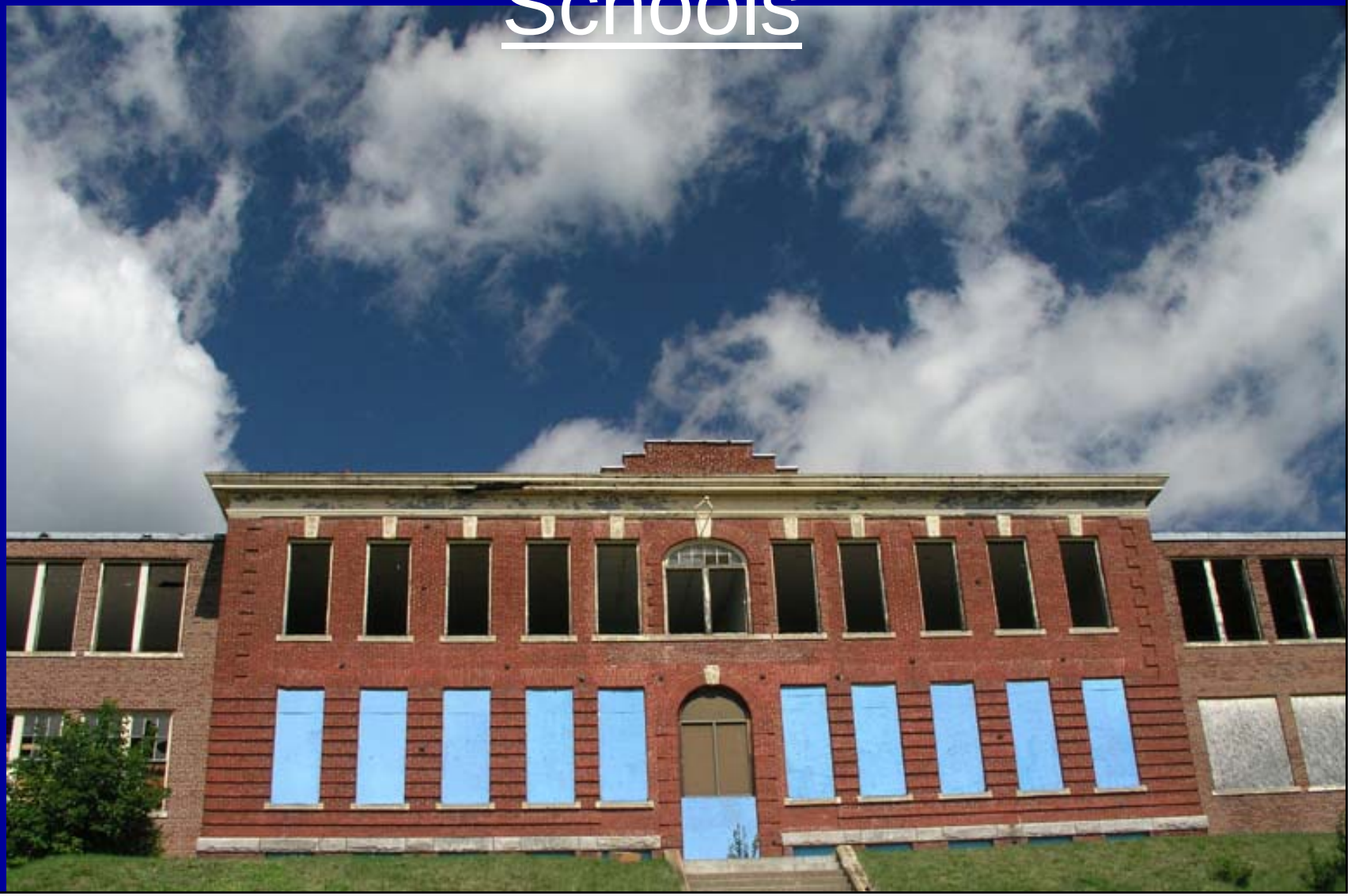
Location of Old School



Strategy #4: Neglect or Demolish Existing Neighborhood Schools


KLEINERT INC.
DESIGN/BUILD
920-775-3861

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/

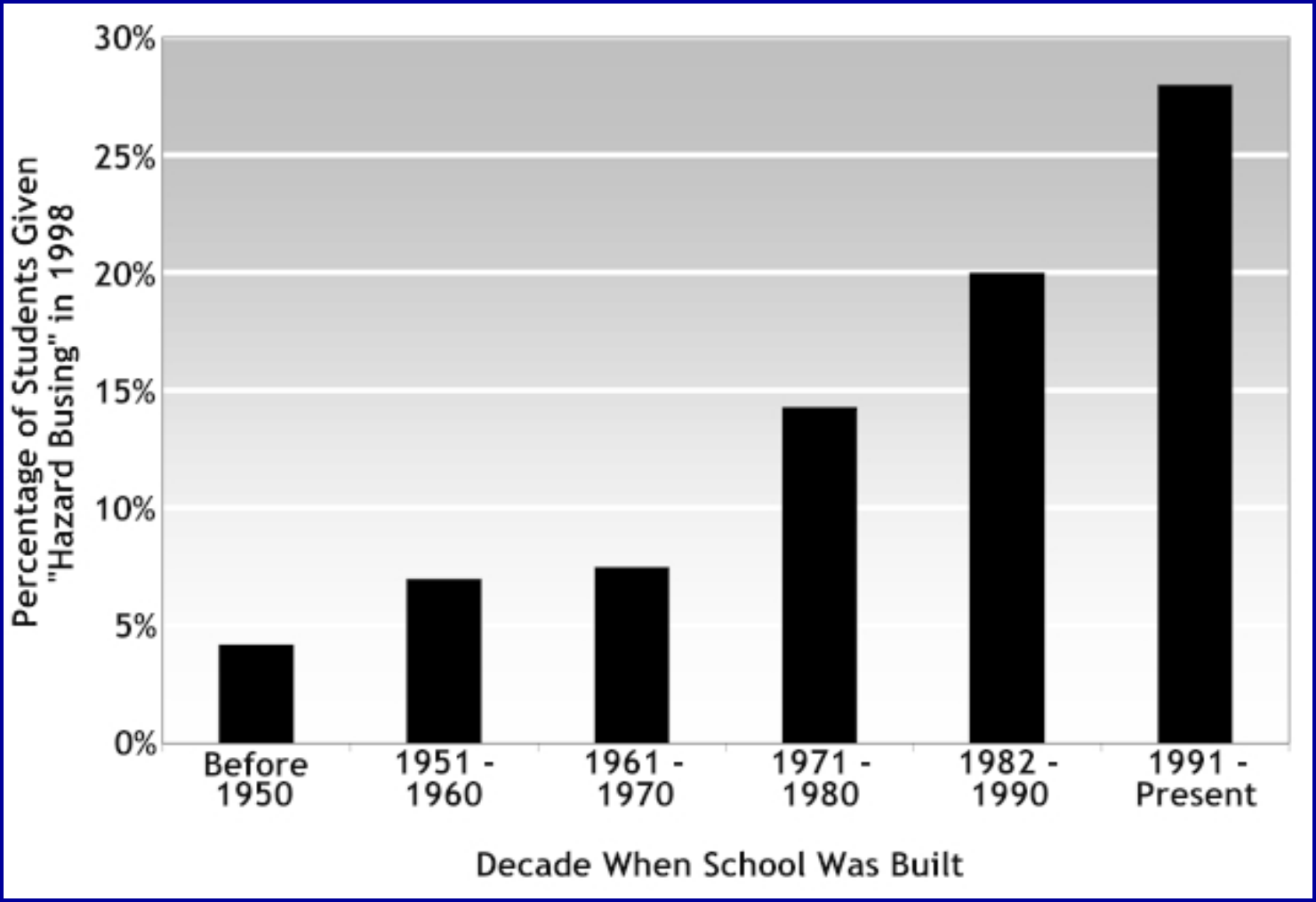
Strategy #5: Locate Schools On Unwalkable Roads

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%

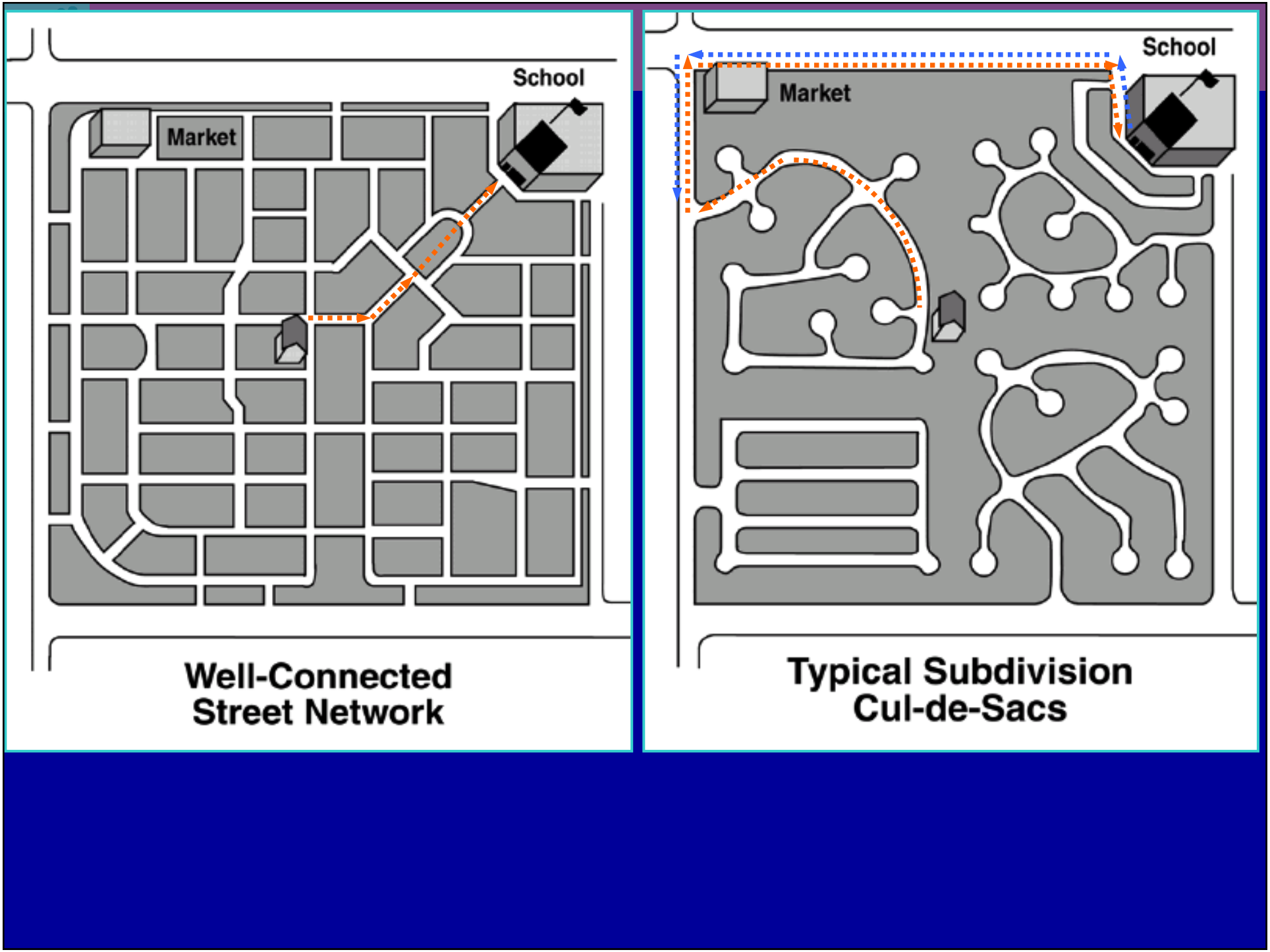
(FHWA, Pedestrian Facilities Users Guide, 2002)

Strategy #5: Locate Schools On Unwalkable Roads



Southern Carolina Coastal Conservation League, 1999, '**Waiting for the Bus**: How Lowcountry School Site Selection and Design Deter Walking to School'

Strategy #6: Decrease "Pedestrian Route Directness" Around Schools


School
Market
Well-Connected
Street Network
School
Market
Typical Subdivision
Cul-de-Sacs

Strategy #7: Do Not Provide Sidewalks or Crosswalks

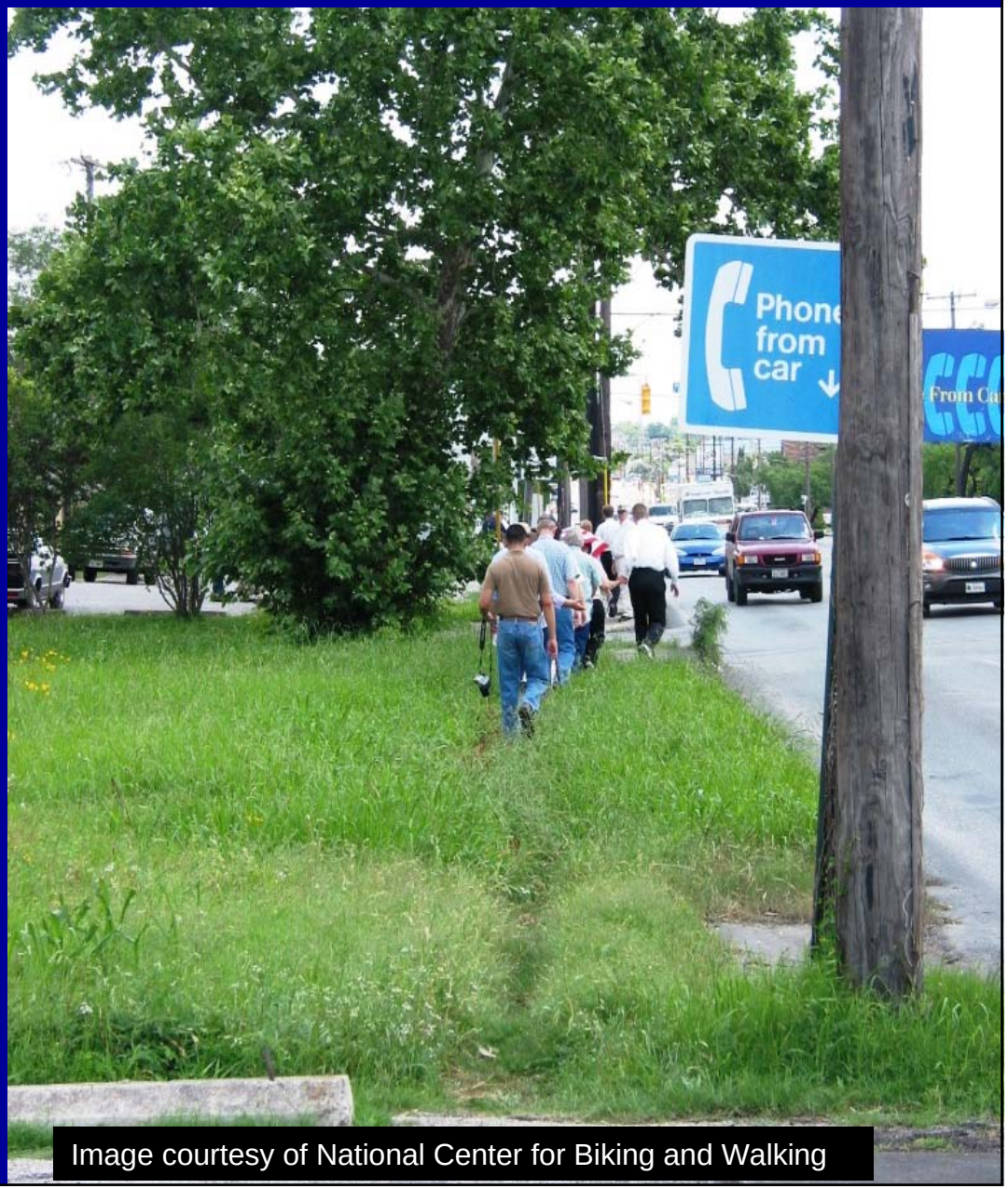


Image courtesy of National Center for Biking and Walking

Strategy #8: Do Not Provide Sidewalks or Crosswalks

Strategy #7: Do Not Provide Sidewalks or Crosswalks

Strategy #7: Do Not Provide Sidewalks or Crosswalks

PHOTO BY STEVE RINGMAN / THE SEATTLE TIMES

Strategy #7: Do Not Provide Sidewalks or Crosswalks

Strategy #8: Creative Approaches to the Sidewalk Problem

Image courtesy of National Center for Biking and Walking

Strategy #8: Creative Approaches to the Sidewalk Problem

Image courtesy of National Center for Biking and Walking

Strategy #8: Creative Approaches to the Sidewalk Problem

Strategy #8: Creative Approaches to the Sidewalk Problem

Photo: Michael Tobis
University of Chicago

Strategy #9: Prohibit or Discourage Walking and Biking to School

LEE'S SUMMIT TRIBUNE

THE TRUTH: Plain & Simple

Saturday, June 07, 2008

New school runs into opposition

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.

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," McGehee said.

nj.com
Everything Jersey

The Star-Ledger

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."

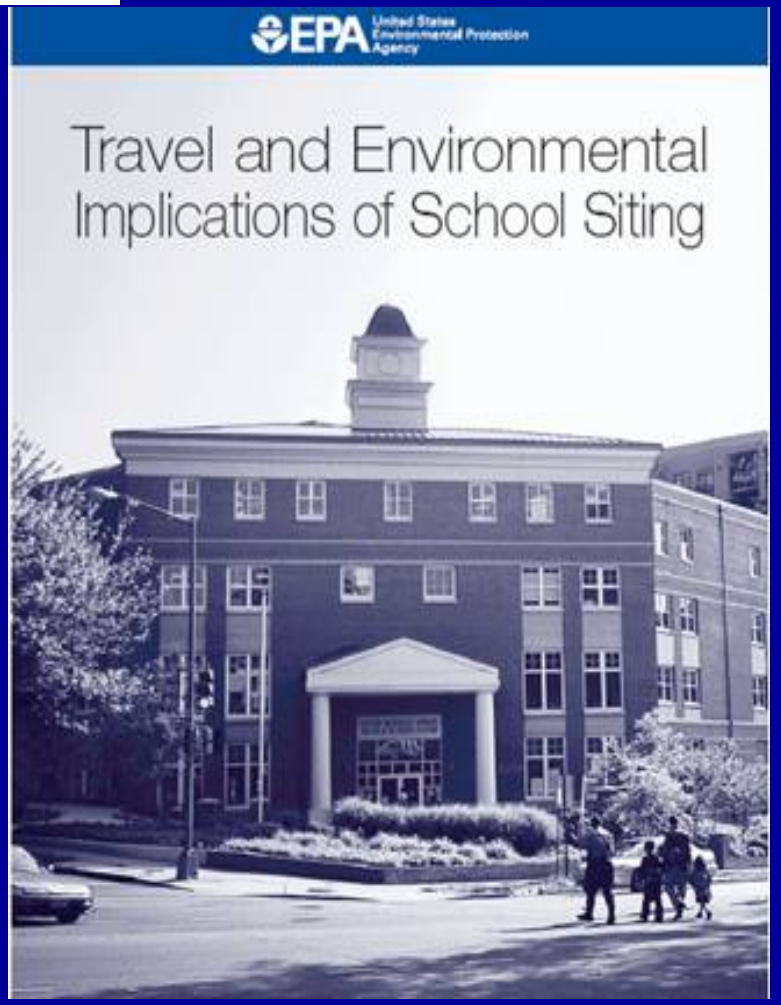
Strategy #10: Separate Parallel Universes

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.

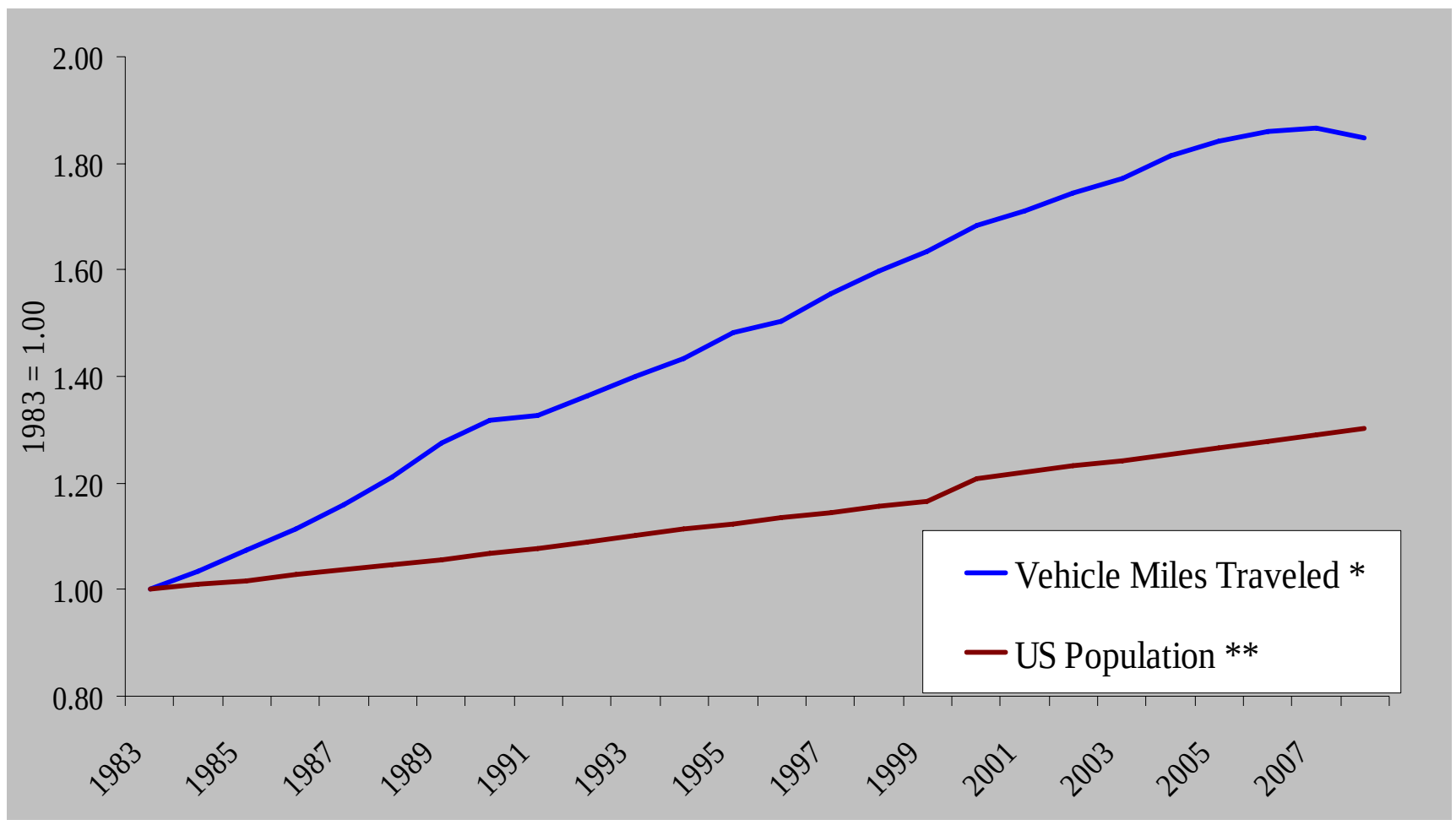
Where you put the School Matters

- 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

Vehicle travel has grown faster than population



* Source – US DOT, Traffic Volume Trends, (12 Month Moving Average, April 1983 to April 2008)

** 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

Home

Recreation

Workplace

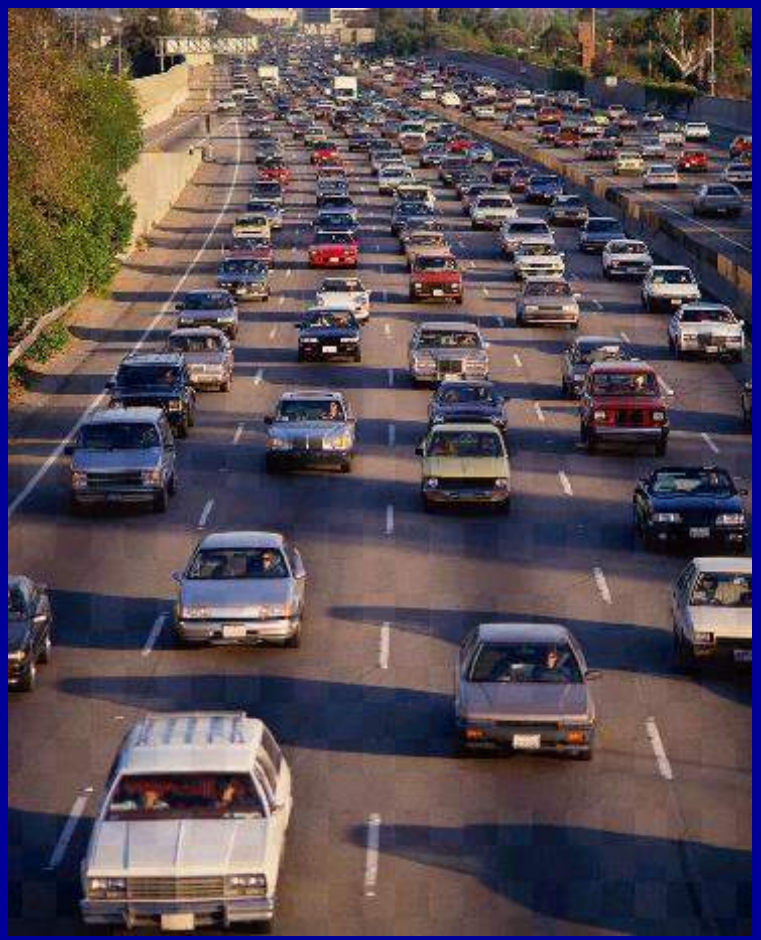
Moms Become Cab Drivers

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.



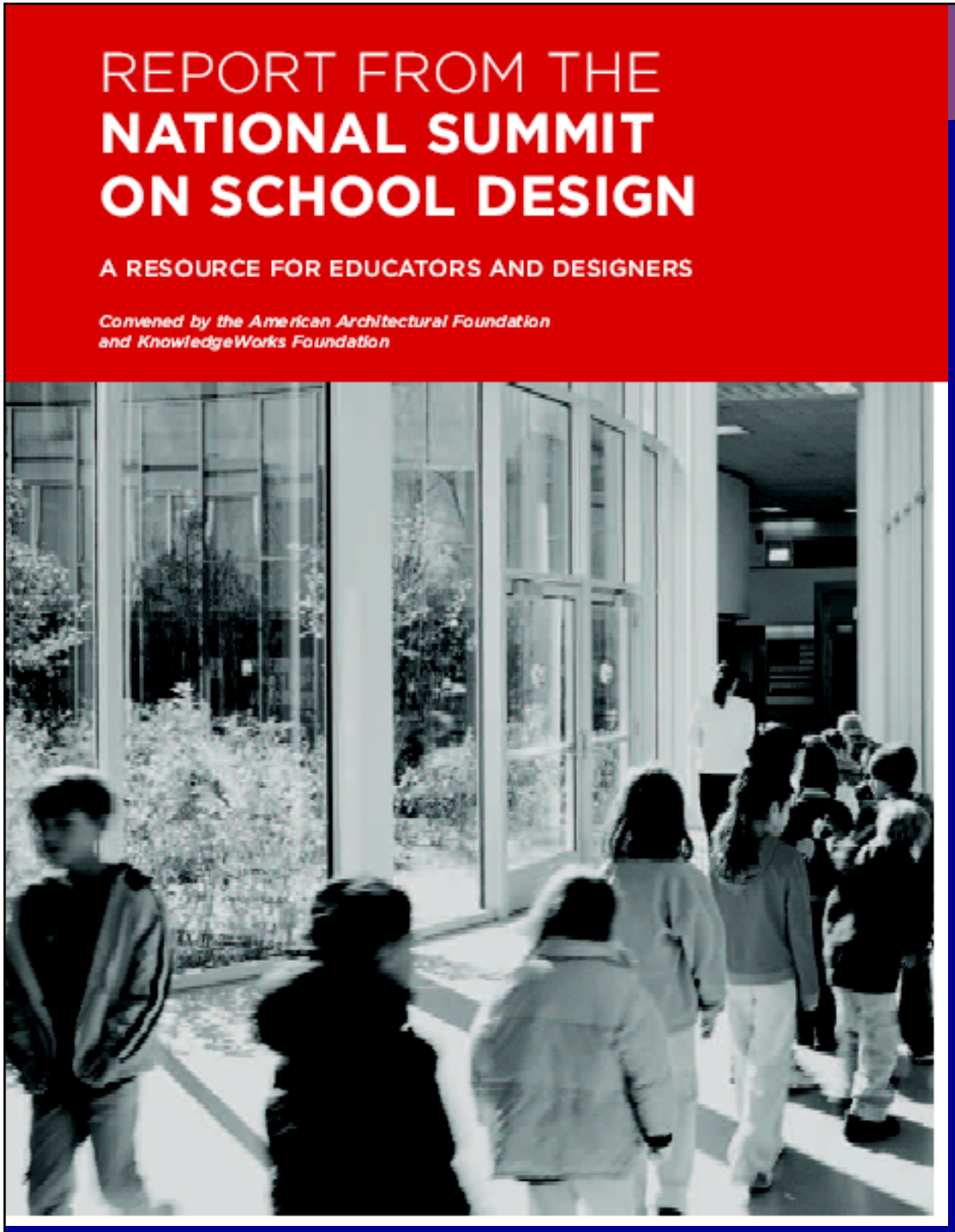
* STPP "Driven to Spend", 2004.

Implications for Household Budgets

American Academy of Pediatrics (2009)

Policy Statement: The Built Environment: Designing Communities to Promote Physical Activity in Children

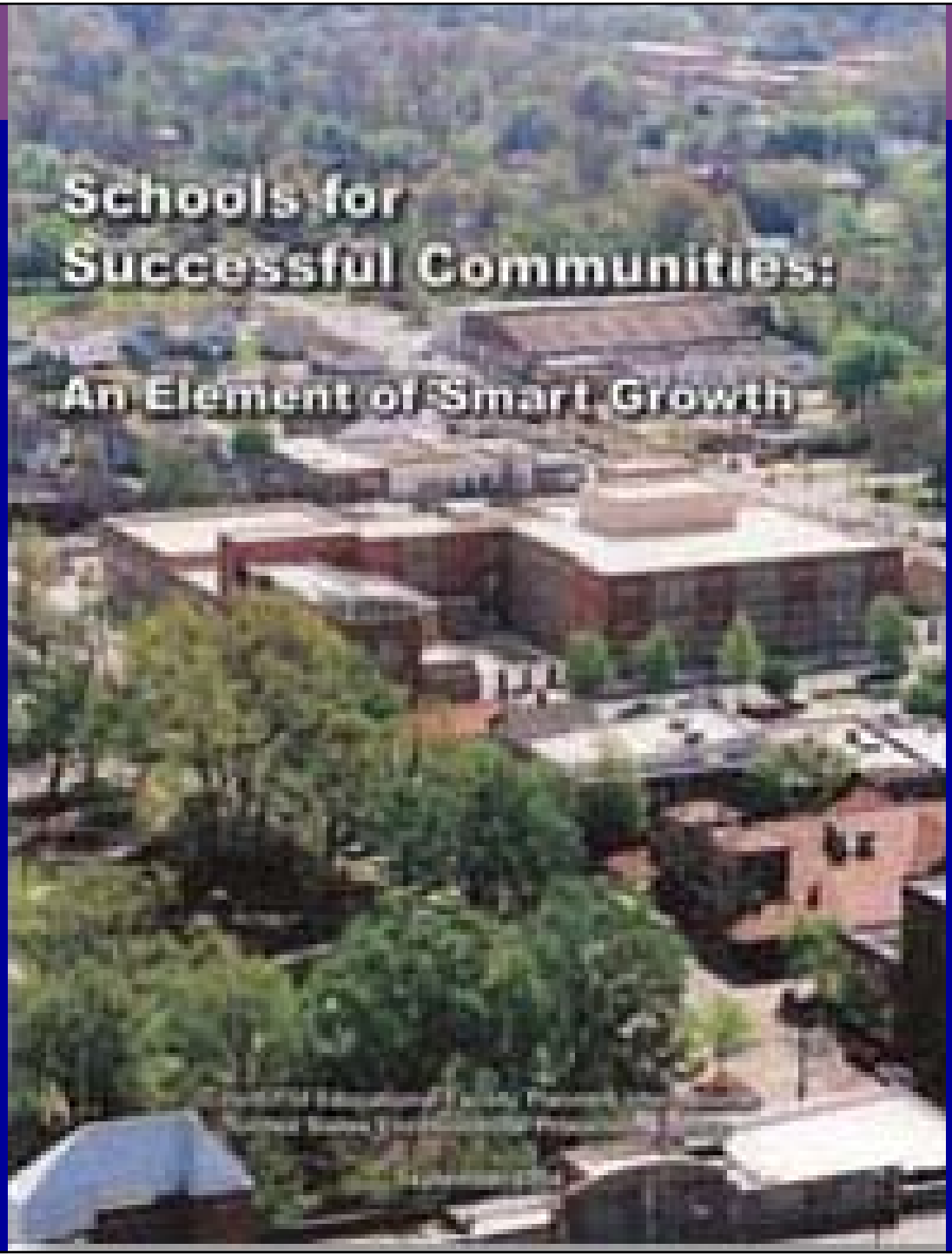
- "An estimated 32% of American children are overweight, and physical inactivity contributes to this high prevalence of overweight."
- "The most universal opportunity for incidental physical activity among children is in getting to and from school."
- "Factors such as school location have played a significant 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."



Recommendations:

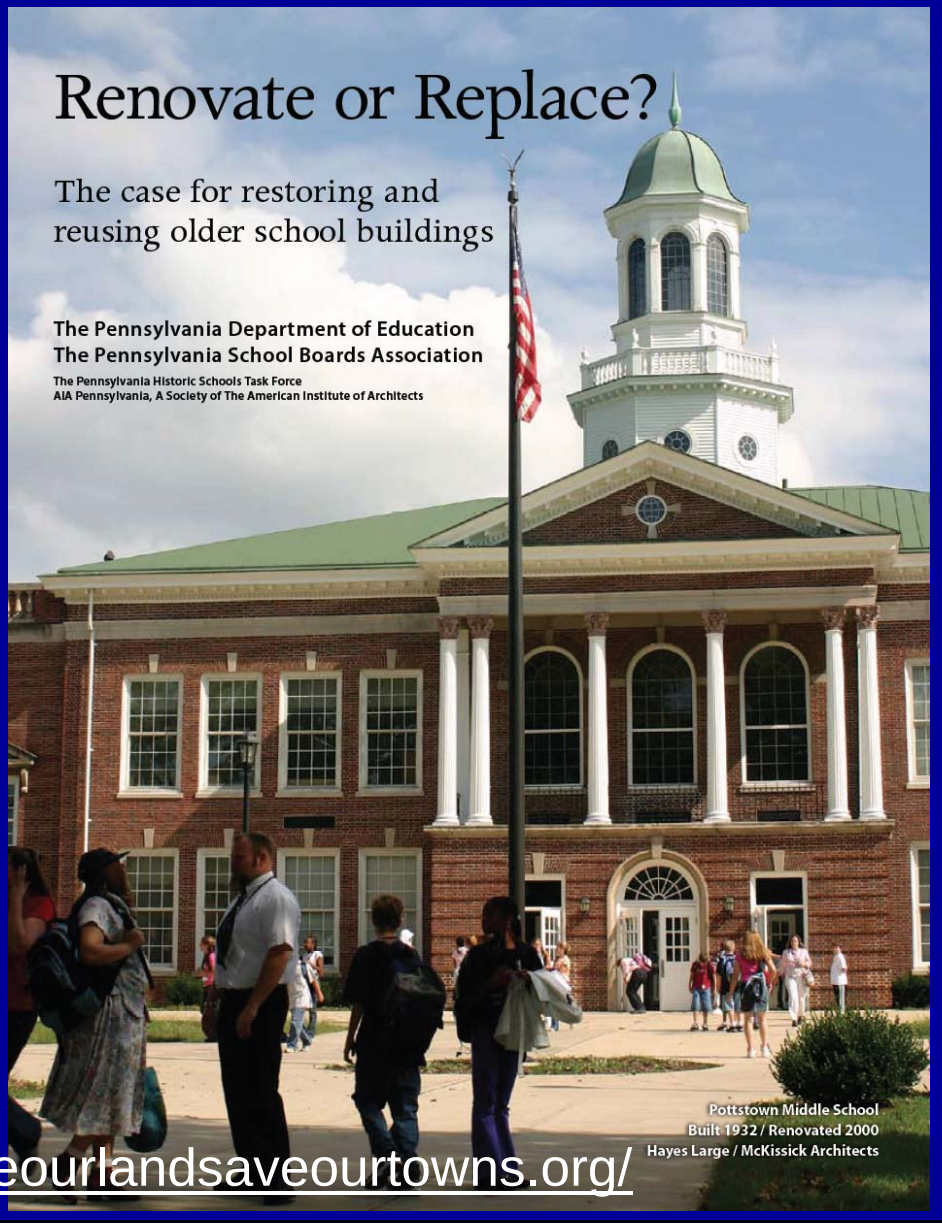
-- Smaller schools

-- Schools that are centers of the communities they serve.


Schools for
Successful Communities:
An Element of Smart Growth

State Solutions

- 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

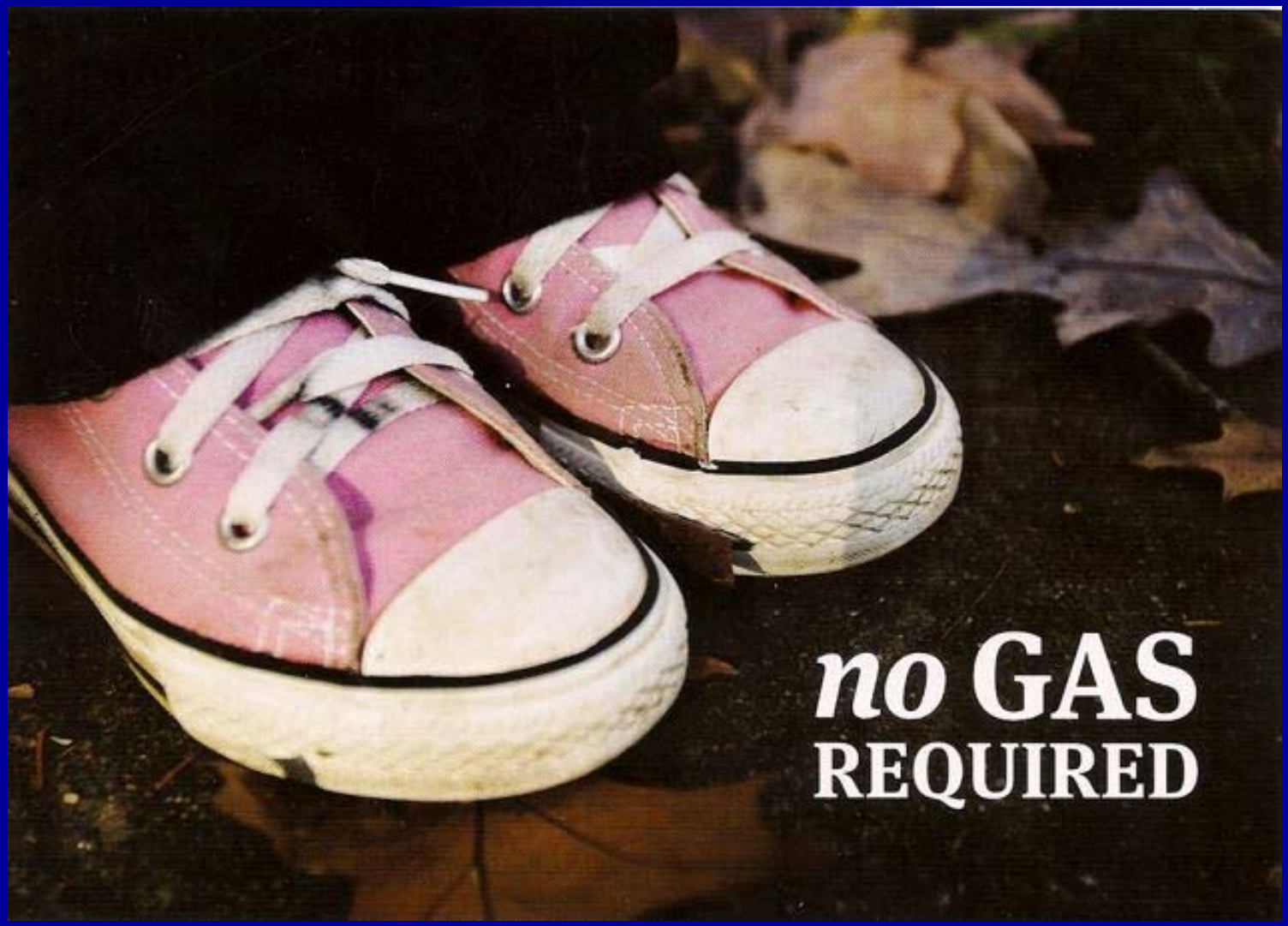
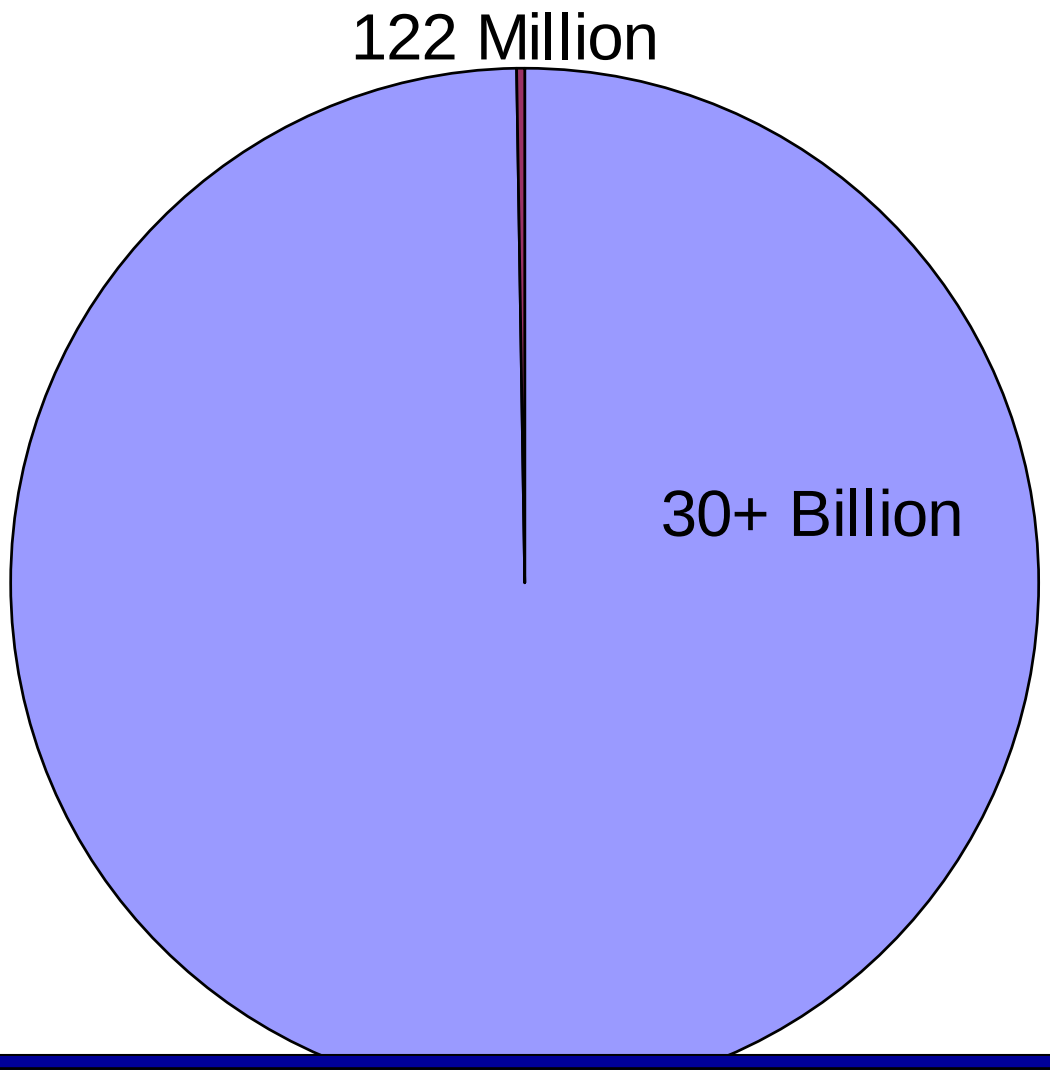


Image courtesy of: www.saferoutesinfo.org

Annual Spending: School Construction vs. Safe Routes



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

YMCA

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

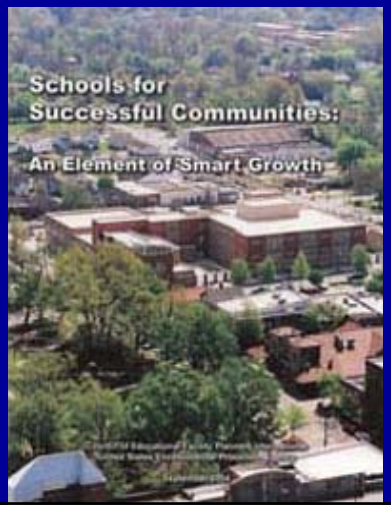
3 million sq. ft. of retail space, 10 million sq. ft. of office space

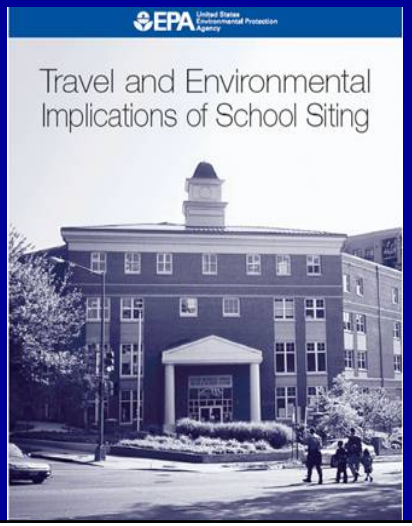
Westerly Creek Elementary School

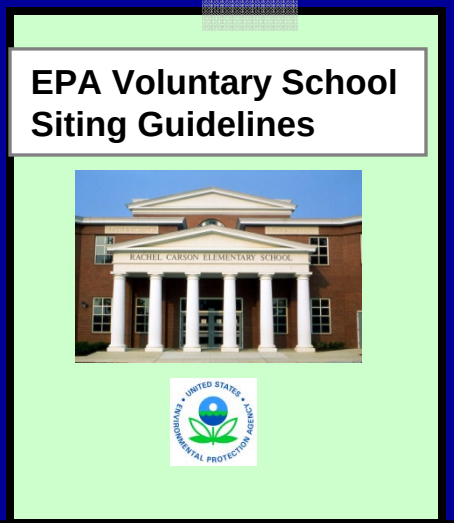
Odyssey Charter School

EPA Work on School Siting

- Further research on effect of urban form and 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 provision on school siting:
  - Directs EPA to create voluntary school siting guidelines







Resources

- 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
- EPA's Smart Growth & Schools Site: www.epa.gov/smartgrowth/schools.htm
- National Trust for Historic Preservation: nthp.org/issues/schools/index.html
- Council of Education Facility Planners International (CEFPI) teamed with EPA to publish "Schools for Successful Communities"
  www.epa.gov/smartgrowth/pdf/SmartGrowth_schools_Pub.pdf

Thanks

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Walk to School Day

A map showing the "Walking School Bus" routes for Earth Day, April 22, 2008.

Families should feel free to join up along the walking school bus routes. And if families south of Franklin develop their own route, send a description to Alex Jonas for inclusion on this map.

272 views - Public
Created on Apr 11 - Updated Apr 12
By Alex J
1 ratings - 1 comments

- Caroline & Normandy "Bus Stop"
  8:30 a.m. Caroline and Normandy bus stop; travel sou
- Brewster & Caroline "Bus Stop"
  8:35 a.m. Arrive at the corner of Brewster and Caroline
- Leighton & Worth "Bus Stop"
  8:35 a.m. Leighton and Worth Avenue bus stop; travel
- Baden & Caroline "Bus Stop"
  8:40 a.m. Corner of Baden and Caroline; two groups c
- Franklin & Wire "Rally Point"
  8:45 a.m. Arrive at the corner of Franklin and Wire. Ra

RSS View in Google Earth