Building Schools on Brownfields: Lessons Learned From California

This article examines the issues confronting school districts across the United States when they must decide where to locate new school buildings. Considering the realities of a high-priced urban real estate market, the lack of "green" space on which to locate new schools, and local budgetary concerns, the author provides insight on how school districts should proceed during the school siting process and address property contamination issues to ensure schools are safe, public health is protected, and communities are involved.

231.1581 Introduction*

More than 3.5 million children in the United States attend derelict schools or ones that need to be replaced. A report by the United States Government Accountability Office, formerly the General Accounting Office, claims that one third of all public schools in the country are in need of major repair or replacement.[1] The problem varies along class and racial lines. The largest proportion of schools reporting deficient conditions—leaking roofs, inadequate plumbing, limited infrastructure to support new technologies—are located in urban centers and serve primarily minority and low-income students.[2]

The need for new schools not only is the product of an aging infrastructure; it also is being fueled in many school districts by chronic overcrowding and sharply rising enrollments. In our largest cities—Chicago, Los Angeles, New York—many school systems are "bursting at the seams" and students find themselves trying to learn while crammed into spaces never intended as classrooms, such as gymnasiums, laboratories, libraries, lunchrooms, and even closets.[3]

In the next decade thousands of new schools will be needed to relieve overcrowding and accommodate the 200,000 additional students who will enter the nation's classrooms each year.[4] The need to design and build new schools has not gone unheeded. Voters in a number of cities and states have passed large bond issues to pay for school construction and renovations. Using a mix of local and state funding, school districts have spent $20 billion annually on school construction projects since 1996, with new school building accounting for roughly half of the spending. The construction industry forecasts continued growth.

But many school districts, particularly those in urban and fast-growing areas, have been forced to confront the hard realities of the real estate market in deciding where to locate new schools. The cost of land in many cities is escalating, and in densely populated areas there are few large, vacant, uncontaminated properties with "for sale" signs on them. The problem is compounded by school building guidelines. Many state education departments recommend or mandate minimum acreage requirements for school sites. The Council of Educational Facility Planners International, for example, recommends at least 10 acres of land plus one acre for every 100 students for an elementary school and larger sites for middle and high schools. Under this formula, a typical elementary school with five hundred children would require 15 acres for classroom and office space, parking, and playgrounds to support more diverse educational programs. In many older, built-up communities the only parcels of land large enough to satisfy acreage requirements are likely to be sites where factories or warehouses once stood, which may be contaminated from past activities.

School siting can be complicated further by local budgetary concerns. For cash-pressed city governments, developed sites that yield property revenues are more attractive than school buildings because school property is not taxable. Even in situations where city governments have developed comprehensive lists of possible school sites, municipal officials have not hesitated to sell off property to private sector developers, leaving school districts with fewer alternative sites to construct schools.[5]

The dynamics of urban real estate markets, thus, explain in part why urban school districts have built or are intending to build schools on contaminated properties. In some communities, however, there

* This article was written by Robert Hersh, the brownfields program director for the Center for Public Environmental Oversight (CPEO). He has an extensive record of research on brownfields policy, land use, community involvement, and risk theory, and has published extensively on these topics. He can be contacted at bhersh@cpeo.org. The research in this report was made possible by a grant from the United States Environmental Protection Agency (under agreement R 829329-01-0) to the CPEO, a project of The Tides Center.

[1] United States General Accounting Office, *School Facilities: Conditions of America's Schools* (2000).

[2] American Society of Civil Engineers, *Report Card: Schools* (2004).

[3] Citizens' Commission on Planning for Enrollment Growth, *Bursting at the Seams* (1995).

[4] National Center for Education Statistics, *Projections of Education Statistics to 2013* (2003).

[5] J. Ponessa, Education Law Center, *Breaking Ground: Rebuilding New Jersey's Urban Schools* (2004).

ISBN 1-55871-369-7

may be no alternative to so-called "brownfield" sites. Under federal law, a brownfield site refers to "real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." [6] In Los Angeles, for example, residential communities have been built on extensive former oil and gas production areas. Given the legacy of contamination in these areas, if brownfields sites were excluded as options for school construction, new schools would not be built in these communities. Another reason school boards may consider brownfield sites is that land prices have increased faster than the funds available to school districts. As such, clean sites, or greenfields, may be priced beyond the resources of the school district.

There are, of course, alternatives to brownfields sites for school construction, but they may be politically unfeasible. One alternative is to site the school on undeveloped property, but this may run counter to a locality's comprehensive plans and may not be the location where the school is most needed. School districts can use eminent domain to acquire property and to demolish existing homes and businesses for new school construction. This policy, however, can have steep economic and political costs for school boards, and runs counter to the notion embraced by many groups that new schools should help to reinvigorate community life and strengthen local ties, not displace local residents and businesses.

For districts that need to build new schools, the central question is how to provide students with safe and nurturing facilities when the only available land consists of sites that might be contaminated by past agricultural, commercial, or industrial activities. This report will consider what safeguards are in place to ensure schools built on brownfields are safe for children. It also will examine the site selection process, from the initial identification of potential school sites to the selection of the preferred site. In addition, the report will discuss the roles parents, school officials, and other community stakeholders play in this process and identify the competing pressures and institutional constraints shaping their participation. And because the mission of school boards is educating children, not dealing with environmental cleanups, we will consider what types of assistance and regulatory oversight school boards require to conduct effective environmental assessments to ensure new schools are not built on sites that have been inadequately assessed and pose potential threats to children.

The issue of building schools on brownfields does not pertain only to urban school districts. While national data on school siting locations are not readily available, at a more aggregate level it is clear that a large number of schools each year are built at the edge of expanding suburban areas on former agricultural lands.[7] These former arable fields, nurseries, and orchards, however, can be contaminated not only from routine pesticide applications but also at particular locations on the properties, known as mixing areas, where pesticide applications were prepared. The scope of this rural brownfield problem is not known, but in California, one of the few states that requires regulatory oversight of school siting and has data on site assessments conducted at potential school sites on former agricultural lands, more than 400 potential rural school sites have been assessed. One in seven has required some form of cleanup—typically removal of contaminated soil—for the site to be used as a future school.[8] This report will consider how these seemingly innocuous rural school sites are investigated, what type of environmental assessments are conducted, what shortcomings have been documented, and how environmental assessments at such sites can be improved.

This report considers what can be done to ensure more effective regulatory oversight and community involvement in school siting decisions. It also examines the consequences of past school siting practices and what measures need to be taken to address schools that were built on contaminated properties. One recent study found that in five states—California, Massachusetts, Michigan, New Jersey, and New York—1,100 schools have been built within a half mile of federal or state hazardous waste sites, a situation the report argues puts at risk more than 600,000 children who attend those schools.[9] While the report took a broad brush approach, its major contention, that past siting practices in some cases have put students at risk, is supported by evidence from the field. Contamination from past industrial activities, for example, has been discovered at 11 existing schools in Los Angeles alone during excavation for

[6] Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC 9601(39). More information on brownfields is available at EDDG Section 153:1.

[7] School Planning and Management, *School Construction Report* (2004).

[8] Interview with Angela Alfaro, Glendale, Calif., California Department of Toxic Substances Control (2003).

[9] Center for Health Environment and Justice, *Creating Safe Learning Zones: Invisible Threats, Visible Actions* (2002).

ISBN 1-55871-369-7

new classrooms and gymnasiums.[10] Given the largely unregulated and lax disposal practices for hazardous wastes when many of our schools were built, it is small wonder such problems are discovered at existing schools. As part of the discussion of brownfields and schools, the report will identify what policies are needed to systematically identify and clean up schools built on contaminated properties and how school districts can learn from past failures to create more transparent and safer school siting practices.

To address these questions, the report focuses on the experiences of school siting and brownfields in California. California is one of two states (Illinois is the other) that has passed legislation requiring the state environmental regulatory agency to review environmental assessments on properties where school districts propose to construct schools. Thus many of the problems outlined above—environmental audits of potential school sites, locating schools on rural brownfields, and dealing with contamination discovered at operating schools—have been grappled with in California by community members, politicians, school district officials, and state regulators during the past four years. Perhaps nowhere in the country is there a more pressing need to get schools up and running for hundreds of thousands of underserved students and for an exploding school age population. And perhaps nowhere in the country has the environmental aspects of school site selection at times been such a colossal failure and so politically contentious, leading to extensive legislative and institutional reforms. As in so many areas, California is a policy leader in the school siting issue, and the state's experiences, both its successes and its shortcomings, can serve as a starting point for national reforms.

(a) The School Site Selection Process

To begin the discussion of school siting practices, the power and mandated responsibilities inherent in school districts should be considered more broadly. School districts are legal entities created to fulfill the state's responsibility to provide public education opportunities for children. Thus in most states, school districts are an extension of the state and are financially independent from the local municipality.[11] This independence means school districts can levy taxes to purchase school sites and have the authority to go into debt to the limit permitted by statute for both operating expenses and capital expenditures.

School district autonomy also applies to planning and site acquisition. No state requires school districts to cooperate with local government during the site selection process or any other process in school planning. The independence of school districts sets it apart from local government review processes except for securing zoning approval for a new school site. School districts typically must submit a request to the local municipality for appropriate zoning changes when securing a site for a school building. This gives the local government an opportunity to comment on the selection of the particular site as well as its appropriateness to the overall development of the area. In certain states, however, as in the case of California, if local planning jurisdictions object to the acquisition or impose local zoning ordinances on school construction, school districts may override by a two-thirds vote most local zoning ordinances, including inconsistent municipal plans, provided the override is not arbitrary or capricious.

This brief discussion is meant to emphasize two points. First, state legislative ordinances guarantee school districts independence in all phases of policy and governance from local government, making collaborative, long-range planning for school construction more difficult between these two local jurisdictions. The lack of coordination makes it harder for school districts, as well as community stakeholders and parents, to take into account the costs and benefits across possible sites (including brownfields) at the outset of the school siting process. These typically could include the cost of land and environmental cleanup, the cost of infrastructure provision, the economic development benefits tied to school construction, the effect of new schools on business and worker location decisions, the replacement of nuisance lots—liquor stores, motels, vacant lots—with schools that can provide community benefits, etc. One argument for building schools on brownfields—apart from providing better schools in needed locations—is that the schools can serve as learning and service centers for the entire community, providing a full range of services like day care, health care, libraries, and recreation opportunities, and by so doing help to revitalize poorer urban neighborhoods.[12] But without careful

[10] California State Auditor, *Los Angeles Unified School District: Its School Site Selection Process Fails to Provide Information Necessary for Decision Making and to Effectively Engage the Community* (1999).

[11] K. Alexander and M. D. Alexander, American Public School Law, 4th Ed., Wadsworth Publishers (1998).

[12] C. E. Beaumont and E. G. Pianca, National Trust for Historic Properties, *Historic Neighborhood Schools in the Age of Sprawl: Why Johnny Can't Walk to School* (2000); S. Bingler, L. Quinn, et al., National Clearinghouse for Educational Facilities, *Schools as*

ISBN 1-55871-369-7

planning, school districts and municipalities are unlikely to identify what sort of trade-offs communities find acceptable when brownfields sites are considered for new schools.

Second, school districts, as special jurisdictions created by the state, have a narrow and focused mission to provide education for children and youths and will consider a potential school site through the lens of how it can materially affect the educational program and opportunities for students. In the realm of site selection and brownfields, the school district leadership—usually the school board members who will vote on school siting—often do not have the professional skills or the technical expertise to evaluate environmental assessments of potential school sites. How then are environmental hazards at potential schools sites identified, how are they assessed, and what entities evaluate the risks posed and the extent of cleanup required if school construction proceeds on the site?

To compete effectively in the real estate market for appropriate sites, some school districts give primary responsibility for site selection to staff with professional experience in real estate and asset management. While there is no uniform site selection process across the country, in most cases school district officials typically will prepare a study area proposal for a new school based on an analysis of demographic data related to projected population growth and overcrowding and engage in initial feasibility studies. The school district then will convene public meetings in the targeted area to solicit community views of potential sites. Typically the next step is to review and evaluate the proposed sites according to a limited set of factors: site location and size, proximity to students the school will serve, high or low land costs, high or low relocation costs if applicable, and the likelihood of having to use eminent domain. At this point in the process, district staff recommend a preferred site to the school board for further investigation. If the board of education approves the recommendation, school district staff and consultants then will undertake due diligence investigations to assess the suitability of the property for its use as a school facility.

(1) Due Diligence

In the jargon of real estate, due diligence requirements are accepted real estate practices that are part of buying and selling property. These investigations include ordering a preliminary title report for the property and examining the title for any easements (that is, use restrictions) on the property that might adversely affect the proposed school use; investigating any potentially costly onsite requirements such as grading hilly areas and/or offsite requirements to develop the property into a school facility such as road widening, side walks, etc.; and most importantly in the context of siting schools on potentially contaminated lands, due diligence requirements set out what sort of environmental investigation is needed to determine if a site is polluted from past uses. This preliminary environmental site assessment generally is called a Phase I site assessment. (For more information about Phase I site assessments, see EDDG Section 111:201)

To satisfy due diligence requirements, a comprehensive Phase I assessment will reference and interpret a variety of sources of information, including but not limited to the following:

- a title search to identify previous owners and users;
- aerial photographs dating as far back in time as possible to ascertain prior uses of the property;
- regulatory lists, both state and federal, to identify reported leaking underground storage tanks, generators of hazardous waste, and releases of hazardous substances, both onsite and offsite within a one-half to one mile radius;
- information on site geology to assess the potential for migration of contaminants, potential impacts to ground water, etc.;
- regulatory agency files to determine current conditions and pending enforcement actions;
- a site visit to discover signs of potential hazardous conditions, discolored soils or paving, leaking drums, standing water;
- interviews with owners and employees to understand the nature of the business being conducted on the premises; and
- a review of operating plans, hazardous materials, or waste handling programs also may be appropriate.

A Phase I typically is conducted by an environmental consultant and its objective is to identify potential environmental liabilities associated with the property. If the initial site assessment does not rule out the possibility of contamination, a more detailed site assessment, a Phase II, typically is required, which includes site sampling and an initial risk as-

Centers of Community: A Citizens' Guide For Planning and Design (2004).

ISBN 1-55871-369-7

sessment (for more information about Phase II site assessments, see EDDG Section 111:601). After the environmental assessment and other due diligence investigations are completed, the district staff typically will hold a second round of community meetings to review the information and answer questions about the preferred site. If the community does not mount strong political opposition to the site at this time, the board typically will approve the site for a new school.

There are, of course, other ways to structure a site selection process. Sometimes to diffuse tensions about the siting process and to build political support among local agencies and community groups, school districts may opt to appoint a site selection team consisting of administrators, the architect selected to design the project, community members both with and without children in the district, members of the local construction unions, public officials, and teachers. A site selection team typically will meet with the community to educate them about site selection and the criteria used to evaluate sites, ask local residents to identify possible locations for schools and provide the team with information about each site, conduct initial feasibility studies and then solicit the views of community representatives about the top ranking sites, and identify a preferred site and an alternative site for further study. The site selection team will conduct due diligence investigations, hire a consultant to undertake an environmental assessment and further feasibility studies as outlined above, and then recommend a preferred site to the local board of education.

The site selection process does not necessarily end after the school board approves a site for school construction or expansion. In many cases, the school district then must satisfy multiple demands of state agencies. In California, for example, the state's Department of Education (CDE) must approve school sites for districts seeking state funding to build or modernize schools. Without CDE approval, the school district can not submit their applications for funding to the State Allocation Board, the state agency that funds school construction projects.

(2) Site Evaluation Standards

Under the California Education Code, each new or expanded public school site must be evaluated according to certain specific "Site Evaluation Standards" set by the state legislature and CDE.[13] These include but are not limited to environmental standards about the site. CDE has promulgated twelve standards to help school districts identify and evaluate various potential school sites. These include:

- accessibility (access and dispersal roads),
- availability (title clearance, minimize condemnation of buildings and relocation of residents),
- cost (reasonable costs for site preparation including drainage, driveways, parking, removal of existing buildings and grading),
- environment (free from air pollution, dust, smoke and from sources of noise),
- location (strategically located to minimize student travel),
- political implications (public acceptance, receptivity of city and/or county planning commission, negative environmental impacts),
- public services (fire and police protection),
- safety (which is discussed more fully below),
- size and shape (net acreage consistent with CDE recommendations and room for future expansion),
- soils (seismicity of the site is acceptable),
- topography (level, with adequate surface and subsurface drainage), and
- utilities (availability of utilities or feasibility of bringing utilities to the site).

CDE consider numerous safety factors and recommends school districts avoid sites that are within two miles of an airport, close to high voltage power lines, located in a flood plain or an active fault zone, or within 1,500 feet of a pipeline carrying hazardous materials including natural gas. It also urges school district officials to take into account the risks of siting schools on or adjacent to landfills and the proximity of the site to current or former chemical plants, dump areas, fuel storage facilities, oil fields, refineries, and agricultural areas where pesticides and fertilizer have been used heavily.

Other safeguards exist in addition to the CDE standards. Under California law, school districts must make a written determination to CDE that the proposed site is not any of the following:

- the site of a current of former hazardous waste disposal site or solid waste disposal site unless, in the case of a former solid waste dis-

[13] *See* Cal. Educ. Code Section 17211.

ISBN 1-55871-369-7

posal site, the school district governing board concludes the wastes have been removed;[14]

- a hazardous substance release site identified by DTSC;[15] or
- the site of one or more pipelines, situated underground or aboveground, which carry hazardous materials, substances, or wastes, unless the pipeline is used only to supply natural gas to that school or neighborhood.[16]

School districts also must consult with the local air pollution control district or air quality management district in order to identify facilities within a quarter mile of the proposed site that might reasonably be anticipated to emit hazardous air emissions or handle hazardous materials or wastes. To gain approval from CDE, the school district must determine no such facilities were identified, or if they do exist the associated health risks will not threaten public health at the site or that corrective measures will be taken that will mitigate risks from the emissions prior to occupancy of the school.[17] These findings must be submitted to CDE as part of the site approval process.

To reiterate, in California three parallel sets of safeguards should have prevented school sites from being located erroneously on contaminated sites or on properties burdened by other types of environmental hazards. The first safeguard, as we discussed above, is common real estate practices or due diligence requirements. For the vast majority of industrial or commercial property transactions, a Phase I site assessment is conducted to identify possible contamination at a site. The second set of environmental safeguards is tied to state funding for school construction, and thus provides strong incentives for school districts to follow CDE's evaluation standards in their site selection process and to pay particular attention to safety issues, including the presence of contamination at a site. And finally, the state's education code prohibits schools from being built on certain sites unless mitigation has been undertaken. Yet these safeguards did not prevent new school facilities from being built on contaminated properties in Los Angeles and in other areas of California during the 1990s when school districts across the state, and particularly the Los Angeles Unified School District (LAUSD), the second largest school district in the country, were under enormous pressure to find and develop sites for new school facilities in a short time. In the next section, we will look at the steps in the process that led to these siting fiascoes.

[14] Calif. Educ. Code Section 17213(a)(1)
[15] Calif. Educ. Code Section 17213(a)(2).
[16] Calif. Educ. Code Section 17213(a)(3).
[17] Calif. Educ. Code Section 17213(b).

(b) When Safeguards Fail

(1) The LAUSD Story

In the mid-1990s, LAUSD embarked on the largest school construction in its history. With a population of approximately 750,000 students and at projected growth rates, LAUSD forecasted a shortage of about 200,000 seats in the next two decades.[18] In 1997, Los Angeles voters approved a local bond measure, Proposition BB, providing $2.4 billion for the repair and upgrade of existing LAUSD school facilities and the construction of new facilities to reduce school overcrowding. A year later in November 1998, voters throughout the state approved a bond measure, Proposition 1A, which provided $2.3 billion for school facilities modernization and $2.9 billion for new school construction statewide. This bond measure also allocated $278 million for LAUSD, designating funds for the construction of new facilities to relieve overcrowding at elementary schools. School districts competed for Proposition 1A funds, which require a 50 percent match from the district.

With record amounts of construction monies, LAUSD put forward an ambitious master plan in 1998 to build 51 new schools over the course of the decade. Typically, a school district will consider at least five alternative sites in each case, which means LAUSD had to identify and consider roughly 500 sites in the initial phase of their plan. According to a number of stakeholders interviewed for this report, LAUSD was overwhelmed by these demands, had insufficient resources for the effort involved, and did not have an adequate long-range plan or a set of consistent criteria to work effectively with community residents to move forward on selecting locations of new schools.

While district staff were facing these challenges on the ground, the school district's bureaucracy began to implode. Over a two-year period, four different superintendents came and left, many key staff members resigned, and a major reorganization of the district into eleven local districts created tremendous uncertainty. As one activist put it, LAUSD was under such time pressure to identify potential sites so they would not lose state funding that they had consultants select sites by driving around target areas speci-

[18] Los Angeles Unified School District, *Strategic Execution Plan* (2003).

ISBN 1-55871-369-7

fied by the district's demographers or derive alternative sites based on the input of local residents or workers. In view of these ad hoc attempts to find sites quickly, community meetings and hearings to discuss alternative sites often would become blood baths, according to one participant. Advocates of a particular site might pack the hall with fellow supporters so site selection decisions often were the result of political pressure, not a careful consideration of the benefits and needs of the community. Such decisions often were based on cronyism that focused on the kind of deal the district could get on the land rather than on the extent to which the school was needed in a particular community, how it would improve educational opportunities for students, or how it could help jump start a community development effort. These criticisms of the LAUSD approach to site selection extended beyond the activist community. The district, in a moment of self-criticism, found little progress had been achieved in the first few years of the construction program, reporting "no new schools site had been selected, and few new buildings had begun design."[19]

In an attempt to speed up the acquisition of sites for new schools, LAUSD used an expedited process that excluded community participation until after the site had undergone extensive feasibility studies. At nearly half of the 51 school projects identified in the 1998 master plan, LAUSD opted for an expedited process under which consultants or district staff identified a single site rather than a list of alternatives and did not solicit site suggestions from the community. An expedited process was used when the site did not involve displacement of homes or businesses and the district believed it needed to act quickly. While this practice enabled LAUSD to be more opportunistic in the real estate market, the expedited process prevented the district from gaining valuable information and suggestions about alternative sites from local community residents and information about past uses and environmental conditions of various sites. As one community representative put it, LAUSD staff or consultants would arrive at a meeting purportedly to discuss alternative sites and then announce why they were moving ahead with a specific site and assert that no school would be built in the neighborhood if there was community resistance to the predetermined location.

The lack of transparency that characterized LAUSD's site selection process, and the overwhelming need to push sites through the process to avoid jeopardizing state school bond monies, influenced how the district acted on environmental assessments of potential school sites. In 1995, the California Department of Toxic Substances Control (DTSC) discovered that LAUSD was constructing a new middle school across the street from a state superfund site. The Jefferson New Middle School was being built in the heart of Los Angeles' old industrial core. The school had been built on land polluted by toxic chemicals from an nearby chromium-plating plant as well as industrial wastes from a World War II-era munitions plant. Despite the risk of encountering contamination at a large brownfield site, LAUSD had decided to build this new school to accommodate the growing school-aged population in the area. LAUSD used its legal authority and expertise to assess and self-certify the clean up at the school, but subsequent investigations under DTSC's oversight claimed the new middle school site never had been properly characterized for contamination prior to acquisition and construction, and that many questions remained unanswered regarding cleanup activities that had been performed at the site prior to construction of the school.[20]

A state audit of LAUSD revealed the school district had built 13 schools on or in close proximity to sites containing hazardous substances. Perhaps the most well known example of a school siting process gone terribly wrong is the Belmont Learning Complex in Los Angeles. In that instance, LAUSD planned to build a joint-use development including affordable housing, community service centers, retail establishments, and a high school campus on a 35-acre site in downtown Los Angeles. The site recommended by LAUSD staff and approved by the school board had been used to dispose of waste oil and contained oil pipelines and sits on top of the extensive Los Angeles oil field. The presence of contamination was recognized but not adequately communicated to the school board or to the local community. According to the state audit, "Staff did not advise the board that if it acquired the site, the board would violate the state law prohibiting school districts from building schools on hazardous waste disposal sites or on sites that contain pipelines carrying hazardous waste." The audit goes on to say in a particularly excoriating passage that staff from LAUSD's environmental branch "underreported environmental and safety hazards because of pressure from branch managers

[19] Los Angeles Unified School District, *Strategic Execution Plan for the Delivery of New Schools* (2001).

[20] California Department of Toxic Substances Control, *Schools White Paper 14* (1999).

ISBN 1-55871-369-7

and others in the district" and that "the district does not consider important criteria recommended by CDE or assess whether building on a site would violate the law before selecting a single site to study for feasibility."[21] Construction on the school nevertheless began in 1998, but was halted within a year after the extent of the environmental hazards at the site became more widely known. Almost $150 million dollars has been spent on the site, making it the most expensive school in America, and it remains unfinished.

(2) Rio Del Norte Elementary School

While perhaps not at the same scale as Los Angeles, other school districts in the state also discounted the possibility of contamination found in environmental assessments at proposed school sites. The Rio Del Norte Elementary School site in a rural area of Ventura County is a particularly instructive example of how school districts use, and misuse, environmental assessments in their decision making process.

In the summer of 1999, the Rio school district in Oxnard was planning to build an elementary school on a 10-acre parcel of land. The land had been donated to the school district by a developer and stood in the middle of a new housing development. The school site and the surrounding residential area had been used for agricultural purposes from at least 1945 to 1989, and the primary crops grown on the site were row crops and strawberries. The property was vacant until 1993 when it was purchased by a local developer.

In keeping with the due diligence requirements in effect at the time, the school district hired a consultant to conduct a Phase I site assessment. The investigation used the customary sources to evaluate areas of potential environmental concern: aerial maps, a database search of standard government environmental records, building records, a visual inspection of the site, and interviews with the former owner. During the site visit, the consultant noticed stained soils adjacent to two 55-gallon drums of an oil-based substance and noted that "based on the information and the fact that the property had not been used for agricultural purposes for at least six years, concentrations of agrichemicals on the property are not expected to exceed background levels for areas of Ventura County with similar past land use."[22] The report, hedging its bets, cautioned that "verification of residual pesticide and herbicide concentrations within the onsite soils can be achieved only through a program of soil sampling and laboratory analysis."[23] In the end, the report concluded the potential for subsurface contamination on the property at concentrations that might require cleanup was "moderate" due to two factors: stained soils in the southwest corner of the property and the 45 years of agricultural land use on the property.

For the school district, the Phase I did not raise any red flags, and it decided to hold a groundbreaking ceremony for the new school within a week or so of receiving the Phase I report. At this point, with the fallout from Belmont and other schools in Los Angeles, the school district, anticipating future regulatory reforms for school siting, asked DTSC to certify the site in time for the groundbreaking ceremony in a few days time. The district wanted DTSC certification before it sent the approval packet to CDE to get in line for state funding, and as one DTSC official who worked on the site noted, "the district wanted it yesterday." After reviewing the Phase I, DTSC ordered the school district to take soil and ground water samples of the site. The testing found elevated levels of dichlorodiphenyltrichloroethane (DDT), persistent organochlorine pesticides, and toxaphene down to a depth of a one foot. Instead of a groundbreaking ceremony, the school district found itself liable for cleanup costs because there is no provision in the federal superfund law or in California waste laws to allow the current owner to recover costs from past owners or operators when the contamination occurred through normal agricultural practice. The school district entered into a cleanup agreement with DTSC and was required to excavate approximately 5,000 cubic yards of contaminated soil. The cleanup costs amounted to roughly $1 million.

(3) Shortcomings of Site Selection Process

The examples from LAUSD and the Rio school district are instructive. Despite the three layers of safeguards discussed above to ensure new schools were built on environmentally clean land—due diligence requirements, CDE evaluation standards, and statutes prohibiting school construction on certain sites—the pressures to build new schools and the incentives for school districts to get in the state fund-

[21] California State Auditor, *Los Angeles Unified School District: Its School Site Selection Process Fails to Provide Information Necessary for Decision Making and to Effectively Engage the Community* (1999).

[22] *Phase 1 Environmental Assessment, Vacant Rio Elementary Property*, Environmental Assessment Specialists (1998).

[23] *Id.*

ISBN 1-55871-369-7

ing queue ahead of other school districts led certain school districts to discount the possibility of environmental contamination at a school site and do little to aggressively investigate data gaps in the Phase I assessments.

Based on these examples, four shortcomings can be identified with the site selection process in place during the 1990s, before sweeping reforms took place:

(1) *Inadequate due diligence on the part of school districts.* Without the involvement of lending institutions in acquiring property for school construction, school boards have less incentive to perform rigorous due diligence. By requiring site investigations as a condition for loans on acquiring property, banks and other lenders have served as de facto environmental detectives. To protect their own investments and to avoid liability, lenders have played a key role in the discovery of contaminated properties, helping to ensure proper site characterization and cleanup are performed. But in California the acquisition of property for schools was funded by public money, without the involvement of lending institutions. It would appear due diligence was not conducted with the same scrutiny as would be the case in private property transactions.

(2) *School district self-certification of cleanups.* A major flaw in the system is when school districts have the responsibility and authority not only to clean up site contamination, but also to certify the cleanup has been properly completed before the school facility is constructed. School districts often do not have expertise in site assessment and cleanup and there may well be conflicts of interest within the school district. As the California Legislative Audit documented, pressures to get a school up and running to meet enrollment needs may influence how contaminated sites are characterized and how school districts interpret probabilistic information contained in site assessments, thus leading to poor siting choices and less stringent cleanups.

(3) *Withholding information about site conditions from the local community.* One of the more troubling findings in the LAUSD audit was that information about environmental hazards at proposed sites was not provided to local communities and the general public if it was thought to be too threatening. Public discussion about health risks at contaminated sites are inevitably contentious because what is determined to be an acceptable risk when contamination is left on site is as much a political and ethical matter as a technical one, particularly at sites proposed for schools. Community residents need relevant information to decide if a local school proposed for a contaminated site will be safe for their children.

(4) *Problematic Phase I site assessments on former agricultural lands.* According to DTSC staff interviewed for this report, the ambiguity and lack of specificity in the site assessment for the Rio Del Norte example was not atypical at the time. Reviewing other Phase I assessments for school construction on agricultural parcels, DTSC staff found a number of problems, both with the Phase I standard and the way in which the standard was used by school districts. According to DTSC reviewers, the information collected in Phase I often was much too general and consultants would "never go into detail" about past uses of the land. More information about cropping patterns or the location of potential hot spots, such as chemical mixing areas, was needed. Moreover, consultants rarely, if ever, interviewed the right people, such as long-time maintenance workers who might have had first-hand knowledge about the use of pesticides and fertilizers. These employees would have been able to point site assessors to potential hot spots, such as mixing or disposal areas. One DTSC official said that of the 200 site assessments the department reviewed in 1999 and 2000, the "vast majority" were not sufficient and were sent back to the consultants for more information to derive a more complete picture of past uses. Consultants placed too many caveats on the data describing past uses and often were unwilling to go out on a limb and use their professional judgment to draw more firm conclusions about site environmental conditions or what additional testing was needed. This hedging ultimately was counterproductive for school districts and communities. It gave school districts officials the wiggle room to interpret a Phase I in such a way as to minimize potential contamination. It also acted as an obstacle for those school district officials who wanted a more rigorous characterization of site conditions through further investigations, including sampling. Some school districts, such as Rio Del Norte, ended up paying considerable cleanup costs when the district's preferred site was subject to greater regulatory

ISBN 1-55871-369-7

scrutiny. But for many school districts, an agricultural past use where pesticide application was thought to be within legal restrictions was considered to be "a get home free card" allowing the property to convey with no red flags about contamination.

(c) Reforming School Siting in California

By 1999, DTSC had identified thirteen schools in the greater Los Angeles area that had been built on contaminated land. These discoveries, coupled with the harsh criticism of LAUSD by the Joint Legislative Audit Committee's report, added to the mistrust in many communities about the district's ability to conduct thorough and accurate environmental assessments and to build schools that are safe for students and staff. The problem was not confined to Los Angeles. As school district officials and their real estate consultants testified during numerous state legislative hearings on school site acquisition practices, it became increasingly clear the system was flawed significantly. For many, the root of the problem was that school districts had the responsibility and authority both to investigate and clean up contamination as well as certify that remediation had been properly completed prior to the actual school site acquisition. The hearings raised troubling questions about potential conflicts of interest in this decision-making process, and they raised concerns about the prevalence of site contamination at existing schools.

(1) 1999 Legislative Reforms

In an effort to correct these deficiencies, in 1999 then-Gov. Gray Davis signed into law two bills that changed the way California school districts investigate and acquire school sites.[24] Since Jan. 1, 2000, DTSC must be involved in the environmental review of proposed school sites to ensure the selected properties are free of contamination, or if the site was previously contaminated, that it is cleaned up to a level that is protective of the children and staff who will use the new school. All proposed school sites that will receive state funding for acquisition and/or construction are required to go through a comprehensive environmental review and cleanup process subject to DTSC oversight.

The mandate not only requires DTSC to review Phase I and Phase II investigations (which are called preliminary endangerment assessments or PEAs in California), but gives the department broader authority to investigate asbestos, lead, and underground storage tanks. Thus, under the statute DTSC has the ability to be more of a one-stop-shop for environmental site review.

(2) Preliminary Endangerment Assessment Process

Under the new law, DTSC has 30 days to review the Phase I report and make its determination. If the department concludes the site is suitable for acquisition, it will issue the school district a "no further action letter." If a Phase I report is lacking sufficient detail or deficient in any way, DTSC must tell the school district what further information or investigations are needed for the department to makes its determination. If the Phase I reveals potential contamination, school districts either can contract with a qualified environmental site assessor to conduct a PEA or choose not to proceed with the site. The goal of a PEA is to determine whether there has been a release of a hazardous material at a site or whether a naturally occurring hazardous material is present that could pose a potential threat to public health or the environment. Typically, site sampling is conducted to identify the specific contaminants and to estimate the extent of the pollution. A risk evaluation, using the results from the environmental sampling, is conducted to estimate the potential threat to children's health or the environment. Because children are involved, all proposed school sites must be suitable for residential land use, DTSC's most protective cleanup standard.

Before a PEA can be undertaken, the statute requires school districts to sign an Environmental Oversight Agreement (EOA) with DTSC. As the name implies, an EOA is an agreement, not an enforcement order, and it provides a formal mechanism for a school district to perform a PEA under DTSC oversight. As part of the process, DTSC will assign a project manager as the technical contact to assist the school district through the implementation of the PEA and advise the district if there are any shortcomings with the PEA. DTSC project manager also will oversee the PEA risk assessment and provide public participation support.

Because LAUSD and other school districts were criticized for lack of community outreach in school siting, DTSC oversight brought mandated changes to the way the public is involved. Under the California Health and Safety Code, public participation activities during a PEA are meant to be an integral com-

[24] A.B. 387, S.B. 162.

ISBN 1-55871-369-7

ponent of the site mitigation process.[25] Prior to beginning a PEA, public participation specialists at DTSC will help a school district prepare a community profile that determines the level of community interest, community knowledge about the site, mechanisms for establishing communication, information needs, and the best way to notify the community before sampling begins. The magnitude of public participation activities will differ from site to site depending on community interest and site conditions. Should further action at a site be required following completion of a PEA, the school district, again with the help of DTSC, must develop a formal community relations plan that solicits community concerns, suggestions, and comments throughout the site mitigation process.

If an approved PEA concludes the proposed school site is contaminated and cleanup is required, the school district either can clean up the property under DTSC oversight or decide to eliminate it from further consideration. If the school district elects to proceed with a cleanup, it must do the following: prepare an estimate of the cost of investigation and cleanup of the proposed site; assess the benefits of selecting the proposed site compared to alternative sites; obtain the approval of CDE to acquire the site; and evaluate the suitability of the proposed site in light of alternative sites recommended by CDE.[26]

(3) Cleanup Agreements

If the school district decides to acquire the site or proceed with construction, it is required to enter in a voluntary cleanup agreement with DTSC. Most further actions at proposed school sites have been excavation and removal of contaminated soils or subsurface methane contamination. Before conducting a removal action, the school district is required to prepare a Removal Action Workplan (RAW). The RAW is a remedy selection document and can address contamination across the entire site or focus on a portion of a property, such as removing lead-laden soil around a building. When the cleanup is complete and DTSC is satisfied the cleanup goals have been achieved, the department will issue a letter to the school district certifying the cleanup meets state standards. For those sites where the cleanup includes long-term operation and maintenance (O&M), the school district and DTSC will enter into an O&M agreement before site certification. The O&M agreement is an enforceable document that requires the school district to implement an approved O&M plan under DTSC oversight.[27]

(4) Creation of Schools Property Evaluation and Cleanup Division

To implement the new legislation, the state funded a significant number of additional new staff to address schools. In May 2000, DTSC's Site Mitigation Program established a separate division, the Schools Property Evaluation and Cleanup Division. The new division has faced steep challenges in implementing the new law. For many school districts the new law means an additional and unwelcome layer of regulation. Given the need to build schools in the state, the lack of clean and appropriate sites in many urban areas where schools are most needed, and the competition for limited state funding, school districts have argued the additional time needed for external review, as well as the transaction costs, would hinder their ability to get in line for state bond funds and thus delay much needed new school construction.

School districts in California, as elsewhere, are powerful political players and have lobbied state officials and legislators to change existing laws and policies. For example, in September 2000 a new measure was signed into law that modified the public review of PEAs.[28] The law requires districts to provide notice to residents in the "immediate area" of a site subject to a PEA before work begins on the site. DTSC suggests the term "immediate area" should refer to an area in the line of sight of the proposed project. While this streamlines the public review process, it arguably provides less opportunity for community groups outside the "line of sight" to become appraised of the environmental analyses conducted on site. The law also streamlined the process by enabling school district to jump directly to a PEA without first preparing a Phase I.

(5) Funding Issues

Funding issues for cleanup have been a source of contention since the program was implemented. To help integrate cleanup with site acquisition and planning, the California Education Code was amended effective Jan. 1, 2003, to provide state funding for response actions at school sites where DTSC has required cleanup. In addition to new construction

[25] Cal. Health & Safety Code Section 2536.1(h)(1).

[26] California Department of Toxic Substances Control, School Property Evaluation and Cleanup Division, *New Environmental Requirements for Proposed Schoolsites* (Fact Sheet) (2001).

[27] *Fact Sheet #4: Further Action/Response Actions at School Sites*, California Department of Toxic Substances Control (2002).

[28] A.B. 2644.

ISBN 1-55871-369-7

and site development grants, the state allocation board may provide up to 50 percent of the total costs for evaluation and response actions as determined by DTSC. These include the costs to prepare the cleanup plan, DTSC oversight costs, and the cost to implement the cleanup, excluding costs associated with O&M. Under the amended code, financial hardship districts can receive funding up to 100 percent of the total evaluation and response action costs. Other changes in the law specify that a new construction grant may be used to pay for cleanup costs related to hazardous substances at a new or existing school.

(6) Assessment Results

Despite the resistance of school boards and recent cuts in its operating budget, the school division of DTSC completed assessments at more than 1,000 school sites between January 2000 and June 2003. As Figure 1 shows, of the 1,133 assessments, 642 were Phase I assessments, 431 were PEAs, and 60 were removals or remedial actions. Of the 642 Phase I assessments conducted, slightly less than half led to "no further action" determinations, with the remainder requiring a PEA. From the data it is unclear how many school districts at this point dropped the site from further consideration. However, the data do show that at the PEA stage, 73 percent of assessments led to a "no further action" declaration. Of the 118 PEAs that required a remedial or removal action, it is unclear how many school districts opted to continue with the site acquisition process. Despite the perception that the program was onerous and delayed new school building, cleanup activities were required on only 60 school sites during the two and a half years of the program.

In broader economic terms, the time and costs of environmental review of new school projects can be put in sharp contrast with the costs associated with inappropriate school siting decisions in the past. As Figure 2 shows, the cost of a Phase I is quite modest compared to the millions spent on new school construction and can be completed in less than two months. DTSC review typically will add another month to the process and imposes a small oversight fee. Similarly, the costs of a PEA and the time required to conduct it is minimal compared to the resources school districts devote to site acquisition and construction. Arguably, an effective school siting program can help school districts avoid costly mistakes when they site a school on a contaminated property. Even excluding the Belmont Learning Complex from the equation, the LAUSD expects to spend more than $30 million on cleanup costs alone at eight schools, including the Jefferson New Middle School, that were sited on or near contaminated properties.[29] This calculation does not take into account the social costs to communities, the political costs to school boards, and the lost educational opportunities for students.

Figure 1: DTSC School Site Assessments

	Jan. 2000-June 2003
Phase I Assessments	642
PEAs	431
RAWs/RAPs/RIs	60
Phase I Assessments	
No Action	313
PEA Required	329
PEAs	
No Further Action	313
Further Action	118
RAWs/RAPs/RIs	
Completed	39
Active	21

Source: DTSC Schools division

Figure 2: Time and Costs for Environmental Review for New School Projects

	Cost range	Duration
Phase I Assessment	$4,500 - $6,500	4 to 6 weeks
PEA	$70,000 - $200,000	4 to 10 months
Removal Action Workplan (RAW)	$10,000 - $75,000	2 to 7 months
Remedial Action Workplan (RAP)	$150,000 - $1.5M	8 to 20 months

Source: LAUSD

(7) Limitations of the Reforms

California's legislation to ensure new schools are sited safely is a very good first step and one that other states could use as a basis for school siting regulation. However, the legislation leaves some major gaps in DTSC authority to investigate the environmental conditions of proposed school sites. The legislation as it currently is interpreted authorizes DTSC to look for contamination on the proposed

[29] Based on information from a personal communication with LAUSD.

ISBN 1-55871-369-7

school site but not for contamination on properties adjacent to the proposed site, and it does not give the department authority to address other offsite hazards that may affect the environmental conditions of the school environment, such as emissions of hazardous air pollutants from stationary or mobile sources.

Perhaps a more serious limitation of the law is that DTSC does not have the authority to evaluate environmental conditions at existing schools. DTSC can assess existing schools only if they have been invited to do so by a school district, typically after a contractor has discovered something during excavation or if a temporary measure, such as a cap on a landfill, fails and is noticed by parents or children who then demand the school district to take action. For DTSC staff and others interviewed for this report, the lack of authority to investigate existing schools was the most serious limitation of the school program. In their view, many schools are likely to have UST problems and contamination in maintenance yards, areas for fueling buses, in-house auto shops, etc. Yet school districts are unlikely to come forward due to the potential costs associated with cleanup, the transaction costs, and the public participation requirements of the state's cleanup statutes. Clearly, DTSC and others need to convince school districts that the department's approach is not punitive but rather consultative.

Another limitation of the current program is the public's inability to obtain information early in the school siting process about contamination and health risks at a proposed school. Potential hazards typically are not presented to the community when selecting sites for initial review. The legislation does not mandate that the public have the opportunity to review a Phase I or comment before DTSC issues a no-further-action letter declaring a site is appropriate for a school. Therefore, the public is not made aware of site conditions and it cannot supply missing information or influence how the site should be characterized.

More broadly, there are conflicts of interest that have in the past and may continue to make the environmental part of the site selection process less important than other site considerations— air quality, cost, location, traffic access, and size. One way to deal with these trade-offs and to encourage more open deliberations is to hold public comment periods throughout the school siting process and to institute citizen advisory groups to liaise regularly with school districts and regulatory authorities.

(d) Conclusion

At this point, only California and Illinois have passed legislation that requires the state regulatory agency to be involved in the environmental review of properties on which a school district proposes to construct a school. There is a need for other states and localities to follow California's lead. To ensure effective site assessments and cleanups at proposed school sites, a regulatory framework needs to include site certification by the state regulatory agency, considering not only releases of hazardous substances but also naturally occurring hazards such as asbestos and radon; fund school districts to conduct site assessments and cleanup; create incentives for long term monitoring of site conditions; and provide meaningful opportunities for community involvement. School environmental assessments also should consider the potential for vapor intrusion, that is, the migration of volatile chemicals from the subsurface into overlying buildings, athletic fields, and even constructed playgrounds. Vapor intrusion increasingly is seen as the new frontier for environmental response and should be factored into decisions about where to build schools (for more information on vapor intrusion, see EDDG Section 231:1525). And finally, to avoid many of the problems that surfaced at LAUSD, the financing of school construction should be modified so that, like private financing for commercial construction, it encourages environmental responsibility rather than reward hasty and ill-informed school siting decisions.

In California and in other states, a number of issues related to school siting and brownfields will require attention in the coming years and should be the focus of additional research and outreach efforts. How can state regulatory agencies work more effectively with school districts to establish an approach for evaluating existing school sites? How can we create effective screening mechanisms in the absence of integrated environmental data? What kinds of resources and funding should be devoted to help school districts assess and cleanup brownfield sites for schools, particularly cases of financial hardship? And finally, how can school districts and other local jurisdictions collaborate more effectively so sites with environmental hazards are recognized and, if need be, dropped from consideration at the outset rather than being caught by a regulatory agency late in the day, after a considerable amount of resources and effort have been expended?

ISBN 1-55871-369-7

Appendix

Individuals and community groups interviewed for the report:

Maya Akula
Angie Alfaro
Martha Arguella
Angelo Bellomo
Tina Diaz
Gilbert Estrada
Sharon Fair
Bahram Fazeli
Eloy Flores
Peter Garcia
Tom Hayden
Randi Jorgensen
Anna Lasso
Treva Miller
William Owen
Philip Perez
Paul Ruther
Hamid Saebfar
O'Neal Spizer
Robina Suwol
Allison Tom
Jane Williams
United Parents of Southgate

[§231.1581(d)]

ISBN 1-55871-369-7