



Schoolyard Planning and Design in New Jersey

Enhancing Outdoor Play and Learning

August 25, 2007

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**We wish to thank Bernie Piaia and Susan Kutner of the Office of Facilities,
Department of Education for their gracious support of the Working Group.**

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Schoolyards

“Parks, playgrounds, urban wilds, and community gardens have long been important to Bostonians, but schoolyards were simply too degraded to register in the mind’s eye. Today, schoolyards are being acknowledged as perhaps our most important urban open space. Centrally located, open to neighborhood residents, and integrated into the educational system, schoolyards have truly become grounds for celebration.” The Boston Schoolyard Initiative”

It is time to abandon the *“ill-conceived notions of substituting high-stakes testing, indoor sedentary play, physical education classes, and organized sports for recess and free play”* “
The Developmental Benefits of Playgrounds” J. L. Frost
Association of Childhood Education International

Background for this Report

The Department of Education (Department), Office of Facilities, has reached out to the Center for Architecture and Building Science Research (Center) at the New Jersey Institute of Technology and the Education Law Center (ELC) to assist with the development of guidelines for the design of outdoor spaces for all school construction projects under the jurisdiction of the Department. An advisory committee consisting of designers, educators, engineers and others familiar with the subject was convened by the Center in the Spring of 2006. Committee comments are addressed to outdoor space planning in urban, suburban and rural schools - Abbott and non-Abbott districts - for both new facilities and redesign of existing facilities.

We believe that the process of identifying and acquiring adequately sized school parcels by the state and local districts must be organized in a way that gives full weight to the importance of outdoor space, including schoolyards, parking and related needs. While it is not the mission of this working group to grapple with issues of land acquisition, we do not believe that the current policies regarding land acquisition – particularly in the Abbott districts - support the creation of adequately sized outdoor areas. *A detailed analysis of the opportunities of a proposed site to accommodate the full range of outdoor space needs in addition to the school building should be undertaken prior to the acquisition of any site.* Unless this procedural change in the site planning and acquisition process is instituted by the New Jersey Schools Development Authority (NJSDA) schoolyard space is likely to remain less than optimal.

This report is presented for consideration by the Department. We also recommend that the 2003 report – Where Do Our Children Play, the Importance and Design of Schoolyards- published by the New Jersey Appleseed Public Interest Law Center, become an integral part of the Department guidelines. Schoolyard Planning and Design in New Jersey builds upon and embraces much of the analysis and recommendations contained in the Appleseed report. We also recommend a careful review of From Playgrounds to Play/Learning Environments published by the Virginia Department of Education (2003).



The Problem

The outdoor spaces associated with a public school should provide a well designed and adequately sized schoolyard as well as adequate parking, circulation and loading areas. Unfortunately all too many of our existing schools and some of our newest schools, particularly in urban and other densely settled areas, provide neither a sufficient area for schoolyards or parking. Even when available areas are ample, schoolyard design is often perfunctory, with little attention given to the research or best practices on schoolyard design.

Urban schoolyards - and many suburban schools - rarely have gardens or green space. This contributes to what Richard Louv author of Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder calls “nature-deficit disorder”, a “disorder” believed to be the experience of all too many school children in urban and suburban settings.

Inadequately designed and sized schoolyards also send a symbolic message to the

residents of the neighborhood adjacent to the school about the value of play and the value of pleasing design.

The design and construction of schoolyards with little more than off the shelf manufactured play equipment, with few specialized areas for play/learning, and without integration into the pedagogical program of the school is wholly inadequate to provide for the cognitive, physical, social and developmental needs of our students. Schoolyards can and must be more than simply places for children to run around during recess.

The larger problem is that American culture does not value play, as evidenced by the dismissive saying that something is only ‘childs play’. Until enough parents, educators and policy makers recognize the importance of childs play, schoolyards will not be designed to maximize the developmental needs of our children. And what might be worse, designing schoolyards in appropriate ways does not guarantee that educators will value the

schoolyard enough to actually use it as a fundamental component of learning.

Part of the devaluation of play results from an increasingly risk averse society. Fear of liability and lawsuits often trumps common sense when considering schoolyard design. Some schools have even banned ‘tag’ or running to prevent injury. Broward County, Florida has signs at its 137 elementary schools advising children not to play without adult supervision, and not to run on the playground (Chris Kahn, “In pursuit of safety, teeter-totters and swings are disappearing from playgrounds,” Sun-Sentinel, July 18, 2005)

The widespread recognition of the epidemic of obesity among children is in part related to the absence of play at school – as well as at home. Some 70% of today’s mothers played outdoors every day; only 31% of kids today play outside daily ¹. In the past forty years the percentage of children and adolescents who are overweight or obese has doubled to approximately 15% ².

1 Clements, Rhoda. *An Investigation of the status of Outdoor Play*. Contemporary Issues in Early Children 5(1) 2004

2 Hedley, A. A., C. L. Ogden, C. L. Johnson, M. D. Carroll, L. R. Curtain, and K. M. Flegal. 2004. *Prevalence of Overweight and Obesity among U.S. Children, Adolescents, and Adults, 1999-2002*. Journal of American Medical Association 291: 2847-2850.

Core Recommendation

The state, in partnership with school districts, design professionals and local communities must insure – through education, financial resources and regulation - that schoolyard design, construction and operation reflects the best practices and latest research on the importance of well-designed outdoor areas for the cognitive, physical, social, emotional and developmental needs of our children. This includes insuring both high performance design and integration with the

academic program that maximizes opportunities for active use of the schoolyard during the day and throughout the school year.

Adequate parking for staff and visitors must continue to be considered as part of the site planning and acquisition process but should be subordinate to children’s needs for outdoor activity in those cases where sufficient land acquisition or design constraints does not allow for optimal creation of both schoolyards and parking.

We believe that the Department can provide valuable guidance to New Jersey school districts through the development of outdoor space guidelines. However development of guidelines, while necessary, is insufficient to achieve the goal of creating high performance schoolyards without a vigorous effort to provide training and technical assistance to all parties involved in the design process. This training can be provided directly by the department or through organizations and individuals throughout New Jersey with the necessary interest and expertise.

Implementation Strategies

1. The Department of Education through regulations should require district Boards of Education to develop a districtwide policy to govern the planning and design of outdoor space to accommodate all grade levels and all sports. The policy should include recommendations for incorporation of curriculum into outdoor space and development for time in scheduling for outdoor play, especially for younger children. This policy should be part of the district’s Long Range Facility Plan.

2. During project development for each school, the Department should require

appropriate planning and design of outdoor space that reflects the district’s policy and considers the specific circumstances and needs surrounding the location of the building. This should include requirements for community input, security considerations, priorities for outdoor play space, accessibility for special needs students, and sports activities. A demand and supply management plan should be developed to minimize the number of parking spaces for the site.

3. The Department’s Facilities Efficiency Standards must be updated to include guidelines for outdoor space.

4. Legislation for school facilities funding should include necessary requirements for public-private partnerships, leasing arrangements, and mixed use projects.

5. The Department should provide training programs for district policy development and for project planning for schoolyards.

Current status of schoolyards:

Nationally there are no established standards for schoolyard size, design or function, with the exception of a variety of criteria – from as many as five different national organizations - for schoolyard and play equipment safety.

Nor is there a comprehensive data base of New Jersey schools – existing, under construction or planned - that catalogues or analyzes the size, configuration and functioning of outdoor spaces.

Department regulations require that pre-school construction provide 100 square feet per child of outdoor play space for each child using that space at one time. Section 6A-26:6.4(d) of the Administrative Code stipulates that all school sites require sufficient acreage for outdoor recreation as follows:

“Multi-purpose physical education fields and for pre-school through grade 5 school facilities, a playground required to support the achievement of the Core Curriculum Content Standards as defined by the number of physical education teaching stations applicable to the school facility pursuant to the facility efficiency standards and the approved programmatic model.”

New Jersey Core Curriculum Content Standards include standards for “Comprehensive health and physical education”. However they do not contain explicit standards for outdoor play and learning except as noted above, nor do they specify the minimum time required for physical education or recess. (Many schools provide 150 minutes of physical education and/or health instruction to students per week. All of this may be provided indoors.)

By September 2007 school districts must implement a policy consistent with the New Jersey Department of Agriculture Model School Nutrition Policy. N.J.A.C2:36-1.7 (b). The model policy sets the following minimum requirements: a commitment to providing students with “the opportunity to engage in daily physical activity:” and the scheduling of physical education or recess “before lunch whenever possible.”

While there is no comprehensive information on the prevalence of recess in New Jersey, there appears to be a national trend to cut back or eliminate recess. This cutback is ostensibly done in order to ‘fit in’ academic and testing requirements despite some research which suggests that student performance is enhanced when recess is offered.



Furthermore, the process by which schoolyards are designed often occurs with little input from students, educators and the community at large, and without a full appreciation of the importance of schoolyards in the development of children of all ages.



The importance of schoolyards

- *Creative thinking*
- *Problem solving*
- *Ability to cope with tension and anxiety*
- *Ability to use tools*
- *Language development*

An ever-growing body of research continues to demonstrate the critical importance of play in the cognitive, interpersonal, emotional and physical development of children. In “Where Do Our Children Play?: The Importance and Design of Schoolyards,” New Jersey Applesseed and Dr. Selim Iltus presented extensive research and detailed the findings supporting the significance and impact of properly designed schoolyards, and the prospective harm that stems from lack of access to such schoolyards. They determined that play is linked positively to:

- Creative thinking
- Problem solving
- Ability to cope with tension and anxiety
- Ability to use tools
- Language development

The principal findings of “Where Do Our Children Play?” in summary are:

1. Play and recreation are necessary developmental activities, essential for the appropriate cognitive and social development of children.

- **Cognitive Skills:** Play fosters creativity, enhances thinking capacity, and can improve a child’s intellectual performance

- **Language Skills:** Play creates rich opportunities for the use of language, such as in peer negotiations, and telling stories utilizing elements of the play environment
- **Ability to focus:** Physical activity during the school day can improve a child’s ability to focus, improve attention levels and thus boost academic performance
- **Social and Emotional Development:** Play situations develop leadership and decision making skills, promote better understanding of peers, sociability, (taking turns, sharing, respecting other’s perspectives, learning rules), and the ability to resolve conflict. It also fosters ability to function on a team, the lack of which leads to anti-social behavior and pathologies. Mastering new challenges contributes to self-esteem.

2. Outdoor play and natural environments facilitate children’s cognitive and social developmental processes.

- They create increased opportunities for creativity and social interactions
- Schoolyards with natural elements provide greater opportunity for dramatic and creative play and





activities requiring both planning skills and physical strength.

- Exercise affects the brain's chemistry, making it more efficient, and creating connections that stimulate learning.
- Access to recreational facilities can decrease violent crimes among youth.

3. Outdoor play and exercise benefit physical health and motor development

- The 1996 Surgeon General's Report stated that physical activity reduces

the risks of hypertension, type 2 diabetes, obesity and cardiovascular disease, among other chronic diseases.

- Better outdoor play environments enhance the development of motor, locomotive, balancing and eye-hand-foot coordination skills.
- Play not only improves childhood development but reduces long term community health costs through the reduction of chronic disease.
- Regular participation in vigorous physical activity enhances children's belief in themselves, their self esteem and their confidence in their capacity to meet situational demands. These qualities in turn improve academic and social performance. The lack of access denies children these opportunities.
- Picture a healthy space, one that moderates mood swings, calms, creates a sense of well-being and less stress. No doubt you pictured a natural environment. Schoolyards should incorporate such natural elements, while providing safe easy access to natural light and settings. Lack of such access increases mood volatility, depression, lethargy and carbohydrate cravings.
- Students exposed to the most daylight have higher test scores.

4. Outdoor settings provide effective alternative learning environments

- Hands-on, experiential learning enhances teaching science, math,

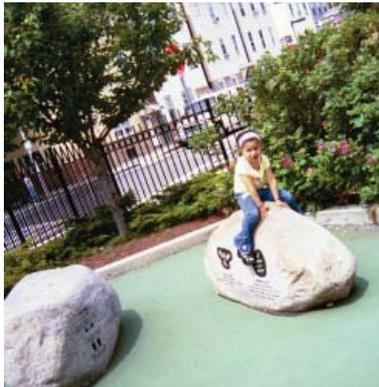
as well as multi-disciplinary approaches and problem-solving.

- Without gaining an appreciation of natural environments and their significance for human life at an early age, adults will not make as intelligent decisions about the environment.
- Perceived safety threats decrease parent's willingness to let their children play outdoors. Providing safe outdoor schoolyards would address this issue and let children in such neighborhoods experience the health and developmental benefits of outdoor play.

5. In addition to these important outcomes other research has shown:

- The transformation of a portion of an asphalt schoolyard to green areas with streams, ponds and flowers led to more positive social relationships and more creative play
- Natural light is essential in the provision of Vitamin D at appropriate latitudes and times of the year
- Exposure to sunlight bouncing off of leaves stimulates children's brains and actually helps brain development more than light reflecting off of a flat wall

These myriad benefits that arise out of well designed and actively used schoolyards are particularly important at a time when the amount of time that children play outdoors outside of school seems to have declined significantly, according to several studies in the United States and Britain.



Teaching and Learning

The Boston Schoolyard Initiative, a public private partnership created to retrofit Boston playgrounds describes the opportunities for using the playground for teaching and learning as follows:

“Schoolyards are different from parks and playgrounds. Their proximity to schools demands a higher degree of interactivity and they offer us the opportunity to combine recreation, creative play, and academic learning. A student for whom English is a second language, or who is under-performing in a text-based environment, may blossom in an outdoor classroom where hands-on activities are the rule. Measuring the schoolyard’s metes and bounds will add a “real world” application to the

study of mathematics. Planting and caring for a tree adds a living three-dimensional element to biology. Birdfeeders in the schoolyard inspire observation and classification that is intimate as well as instructional. No textbook will equal the thrill of watching a real bird snatch sunflower seeds from a class-constructed feeder. Experiential learning is a proven teaching methodology that has groups of students problem-solving and critically thinking in ways that will benefit them throughout their academic and working lives.”

New Jersey has no state requirements or policy to encourage formal teaching and learning to take place in schoolyards. Those decisions are left to the school

district and individual school. While no data is available documenting the extent of outdoor teaching and learning that currently occurs in New Jersey schools, the advisory committee members are unaware of any school district or school that actively and comprehensively promotes outdoor learning in schoolyards.

The Virginia Department of Education publication cited earlier gives examples of schoolyard activities and physical features that can promote learning for children of various ages.

Using the equivalent of New Jersey Core Curriculum Content standards (entitled Standards of Learning), the following excerpts from the Virginia examples are shown:

English, Oral Language, Reading, Writing, & Research

Activity Example	Appropriate for Grades	
	K-1	2-5
Story telling circle	◆	◆
Imprint short verses of poetry or quotes in various places		◆
Imprint letters of the alphabet		◆
Imprint vowels only	◆	
Build a platform for oral presentations	◆	◆

History, Geography, Economics, & Civics

Activity Example	Appropriate for Grades	
	K-1	2-5
Embed an engraved stone or emblem in the ground showing directions of the compass	◆	◆
Imprint important dates in history on different levels of a play structure		◆
Have a rotating large globe of the earth	◆	◆
Imprint patriotic symbols (mountains, bald eagle, etc.) and/ or colors		◆
Imprint a penny, nickel, dime, and quarter on a hard surface	◆	◆

Science, Investigation, Reasoning, Logic, Force, Motion, Energy, Matter, Life Processes, Earth/ Space Systems, Cycles & Changes & Resource

Activity Example	Appropriate for Grades	
	K-1	2-5
Make a weather station		◆
Have windsock showing motion and wind direction	◆	
Imprint natural shapes (leaves, animal tracks, rocks, minerals, etc.)	◆	◆
Have small pool of water within school site to study liquid, solid, and gas (evaluation) and provide enticement for wildlife	◆	◆
Plant shrubs, trees, groundcovers, and flowers to produce outdoor rooms, color, texture, fragrance, shade, and wildlife habitat	◆	◆
Arrange stationary balls in an open area to represent the solar system. Have some balls that are movable (meteorites, asteroids, etc.)		◆
Emphasize earth's resources used to make the play area (steel structures - iron, plastic-oil, wood-trees, mulch-trees, etc.)	◆	◆
Place thermometers to measure Fahrenheit and Centigrade		◆
Construct a sundial	◆	◆

Mathematics, Numbers, Computation, Estimation, Measurement, Geometry, Probability, Statistics, Pattern, & Algebra

Activity Example	Appropriate for Grades	
	K-1	2-5
Imprint geometric shapes (and different colors) within or on a hard surface	◆	◆
Imprint +, -, =, >, < symbols at appropriate points - use numbers or shapes to enhance	◆	◆
Arrange play equipment so as to emphasize geometric shapes and forms	◆	◆
Imprint 10's, 100's, 1000's on different levels	◆	◆
Imprint feet, yards, inches on a flat surface (perhaps even fractions of an inch) - The metric system may also be displayed	◆	◆
Place three dimensional objects to represent numbers or shapes	◆	
Imprint the numbers I-99 on a hard surface	◆	
Imprint the multiplication and division tables		◆

Physical Education, Exercise, Kinds of Movement, Dances, Ball Handling, Balancing

Activity Example	Appropriate for Grades	
	K-1	2-5
Woodland trails	◆	◆
Arrange low-balance beams to emphasize shapes and slight height changes	◆	◆
Create berms for rooling, sliding boards. age group separation, and evaluation interest	◆	◆
Create a maze on concrete	◆	
Create a sand area for digging and exploration	◆	
Imprint the Hop Scotch pattern	◆	◆

Art & Music

Activity Example	Appropriate for Grades	
	K-1	2-5
Create an outdoor art terrace	◆	◆
Build a sculpture garden	◆	◆
Install wind chimes	◆	◆
Build a wall to display artwork tiles	◆	◆
Stretch elastic material over supports (barrels, etc.) to create "drums"	◆	



The School and the Community

As can be seen from the Virginia examples, outdoor learning is more than simply learning about the outdoors. The teaching of mathematics, language, science, geography, drama, art and music – and more – can be enhanced through use of the schoolyard.

The schoolyard is also a critical component of community life. Many communities in New Jersey have a significant shortfall in the amount of park and open space land available and accessible for use by children. For example according to the Trust for Public Land more than 50 percent of Newark children under age 18 do not live within one quarter-mile of a usable park.

A well designed architecturally inviting schoolyard open for community use, becomes an important community asset. This must be balanced with security requirements to protect students from harm during and after school.

Yet schoolyards that are designed to achieve a fortress look – with walls and or high security fences – can reinforce a perception that they are dangerous places to be avoided when possible.

Schoolyards that are designed with trees and vegetation reduce the heat island effect in urban areas, leading to lower temperatures in the summer. Schoolyards that utilize non-toxic, recycled and recyclable materials also contribute to reducing the significant asthmatic and other health and environmental burdens in many neighborhoods.

Schoolyards that contain artistic or other representations of the community's history, heritage and architectural vernacular provide important educational resources while enhancing community use and image. It has also been suggested that community ownership of schools (and schoolyards) reduces vandalism.





Maximizing the benefits of play/learning

It is easy to summarize the benefits of play/learning. It is harder to develop a comprehensive approach to insure that students are provided the opportunity to engage in appropriate types and amounts of play during the school day.

We believe that the following elements are all necessary to provide the kind of play experience that will lead to the benefits described in this report.

1. Schoolyards that are designed to provide both adequate space and specialized features to support a wide variety of play and learning experiences must be available to all children.
2. The educational community at the state and local levels should recognize

that outdoor play is an essential element of pedagogy, and should be given substantial attention in design and programming decisions.

3. Training and support to educators needs to be provided and institutionalized so that well designed schoolyards are used throughout much of the year in both structured and unstructured activities.

While this report necessarily focuses primarily on item 1, we strongly urge the Department to use these guidelines as a springboard for addressing items 2 and 3. The committee is ready and willing to offer our support to the Department in this effort.

Redesigning Existing Schoolyards



While this publication primarily addresses new schoolyards, the redesign of existing schoolyards is essential to meet the goals established in this report.

A number of large cities, including Denver, Boston, and New York City have programs to systematically redesign obsolete schoolyards. These programs are typically designed as partnerships between school districts, city governments, community groups and philanthropic organizations.

The Department should develop a program to support the redesign of existing schoolyards.

Such a program should contain elements that have proven successful in other cities as mentioned above including:

- Public private partnerships
- Student involvement in design
- A competitive process to select schools to be funded
- A local community organizer to coordinate involvement by all segments of the community
- Close coordination with educational staff to maximize opportunities for use of schoolyard for formal learning
- Documentation of best practices and lessons learned to be shared amongst all schools involved in the redesign process



The Planning Process and Design Process

Any planning process can only be effective to the degree to which the outcomes can be fully integrated into the decision making for delivering new and renovated schools. That does not occur at this time.

Achieving the goal of creating high performance schoolyards requires a deliberate and inclusive planning process. The following recommendations are offered with this goal in mind:

- All districts should develop a set of objectives for their outdoor play spaces. These objectives should ideally be created through the Long Range Facility Planning Process (LRFP) and augmented through individual project planning. In the absence of guidance from the LRFP a more intensive objective/goal setting process will need to be established as part of the project planning process and ultimately incorporated into the LRFP.
- A starting point for determining minimum site size includes calcula-

ting the sum of the building footprint, schoolyard, one or more playfields, secure parking, and green space.

- Schoolyards should include where possible a multipurpose area that may be used for field games and organized play. Such activities may include touch football, soccer, field hockey, softball, or little league baseball. Regulation sized fields for any of these activities, although desirable, are not necessary when land is just not available.
- The planning process should be closely coordinated with the municipal master plan and with the staff of the local government.
- The planning process should be designed with the active participation of all stakeholder groups – teachers, maintenance staff, community residents, municipal and district officials, youth groups, crime watch programs and students.
- Opportunities to participate in the design process should be provided to students at all grades to enrich the educational experience of students while improving the ultimate design of the project.
- An interdisciplinary team of professionals – educators, architects, landscape architects, engineers, municipal officials and others should guide, not dominate, the process.
- Opportunities for partnerships with community groups, community development corporations, and private or public employers should be sought at the planning stage. These partnerships can provide capital assistance, as well as ongoing maintenance and program support.



- Participants in the planning process should be familiar with this document and have had specialized training in schoolyard design provided by the New Jersey Department of Education.
- The planning process should be closely integrated with the pedagogical philosophy and goals of the district and school. The planning process should center first on providing space for activities that support the Core Curriculum Content Standards in physical education. It can then be extended to include science, language arts, social studies and math. Finally, the planning process should address the quality of life issues of the students, faculty and community.
- Periodic public meetings of the stakeholder group should be scheduled at times and in locations conducive to public participation.
- The final design shall include both an analysis of the maintenance requirements and costs of the area and the resources required to insure that adequate maintenance and operation of the area will occur.
- The planning and design process should maximize the unique topographic, climatic and locational aspects of the site to create a schoolyard that is representative of the environmental, architectural and historic attributes of the area. (For example, a schoolyard developed on a brownfields site can incorporate a small area showing the prior underground brownfields condition – providing a unique learning opportunity.) In fact, a section of the schoolyard or the entire yard may reflect an environmental, architectural or historical theme consistent with the context of the area.
- The use of natural materials – water, dirt, vegetation, animals, wood – should be given first priority in design.
- Sites where space is at a premium should consider courtyards and schoolyards above parking or other structures. Larger sites should consider creation of meadows or other environmentally rich landscapes rather than simply planting grass over the site.
- The schoolyard should be a tool for learning itself – by incorporating physical features such as sundials, maps designed into the play surfaces, murals, and labeling of materials, flora and fauna.
- The design process should consider leaving one or more areas of the schoolyard ‘undesigned’ so that the users can assess the functioning of the schoolyard and add – or remove – additional equipment or features. This may be able to occur through involving the community in the construction or reconstruction of the schoolyard through a ‘community build day’.

Area requirements for young children

Possibly the most contentious and difficult decision in schoolyard design is the overall size of the schoolyard. Land costs and availability, relocation issues, access to nearby school or community play areas, tradeoffs with building footprint and parking needs, educational philosophy, scheduling of recess, opportunities of use of courtyards and rooftops, equity with other schools and community culture and tradition all influence this decision.

A memo prepared by the Center in 2005 concludes that most states and districts do not have firm square footage regulations for schoolyards. Among the jurisdictions that do, the most commonly recommended square footage per child for K-8 schools in the schoolyard at one time (not the enrollment of the school) is 75 square feet per student, according to the National Program for Playground Safety at the University of Northern Iowa. Among the jurisdictions surveyed playground recommendations ranged from 30 square feet per student in New York City to as much as 122 square feet per student in the Los Angeles Unified School District, with Ohio at 50-75 square feet and Orange NJ at 80 to 90 square feet.

An analysis by the Center of schoolyard areas for seven elementary and middle schools recently constructed by the NJSDA shows schoolyards ranging



from as little as 7 to a high of 216 square feet per student. The mean area is 70 square feet.

Since programming the number and duration of recess/lunch times can vary from school to school and year to year, schoolyard area determinations are made in part based on assumptions about such variables. Fortunately since recess periods can be changed, the capacity of the schoolyard to accommodate all students can be optimized regardless of what is built. More specialized spaces, such as outdoor classroom or amphitheater areas also need to be planned to provide flexible use, while reflecting the pedagogical program of the school.

Our recommendation is that schoolyard size should be based on functional needs and performance goals. Once a preliminary design is developed based on these needs and goals, if there is a significant variance from a 70-90 sq ft per student average, special justification would have to be provided to the Department.





- Sand and water play
- Ponds
- Indoor/outdoor areas
- Areas for children with special needs
- Lining up areas
- Covered pavilions and roof overhangs

Playgrounds are outdoor extensions of classrooms, providing many of the same opportunities as indoor spaces. Play spaces should provide for a variety of developmentally appropriate activities and include storage for curriculum equipment as well as loose play equipment.

Functional requirements

It is not enough to provide adequate gross area to have a high performance schoolyard. Specialized spaces or zones accommodating children of different ages, engaged in a variety of play and learning activities need to be provided.

These zones include:

- Organized games and sports
- Play structures
- Floor and game tables
- Fantasy play/drama
- Outdoor classrooms
- Art and performance spaces
- Natural areas and gardens, with varied ecosystems (eg. beach, forest, meadow)
- Quiet areas
- Social activity spaces

Wherever possible spaces should be designed to be flexible and adaptable for use during different functions or by groups at different times. For example given New Jersey's climate, creating areas with roof overhangs, porches, and small covered structures in the schoolyard can provide places where children can play/learn in rainy or chilly weather.

Play areas for toddlers and pre-school should be physically separated from play areas for older children while retaining some visual tie. K-5 playgrounds should typically be accessed from or near the cafeteria. Pre-K should be accessed from or near the classroom. Student drop off and pick up also play a role in location. Play areas should accommodate special needs students. The use of texture, color, and sloped walkways can assist special needs students and provide a richer environment for all students.

Designs should consider culturally, architecturally and historically sensitive features, colors and textures that reflect the community and regional context. Gardens that are actively used by students and maintained by students and staff should be included in all schoolyards.

Transitional areas such as porches, decks and mezzanines are encouraged to provide greater flexibility in the availability and use of outdoor space

The development of green rooftops for play space should be given full consideration.

Designs should consider culturally, architecturally and historically sensitive features, colors and textures that reflect the community and regional context.

Environmental, health, safety and community considerations

Acoustical measures are necessary. The center should not be located near noise sources such as major highways, street intersections, railroad lines, power lines, or airport flight paths without mitigation. If proximity to high levels of noise is unavoidable, acoustical measures are necessary.

The play space area must not be exposed to fumes or dust emissions from industrial enterprises and operations, transportation vehicles, furnace and incinerator exhaust, mists from cooling towers, or other similar sources. Avoid placing centers near exhausts from food processing, waste handling operations, loading docks, or similar sources of unpleasant odors.

The location of the play space must allow for the safe arrival and departure of children from the school facility.

The location must be free of hazards including fountains, wells, open pools, unprotected edges, drop-offs and cliffs, and dangerous equipment. Play areas must not have open drainage ditches or openings to storm sewer systems.

Play space should be located to maximize community access to facility after hours and should provide least intrusive and least restrictive barriers to access play spaces by the community.

The play space location must be readily identifiable and accessible to emergency response personnel.

Green space should be provided around the school; building from sidewalk-to-sidewalk should be avoided. Green space provides for informal instructional spaces and landscaping areas. Landscaped areas may be included in various curricula such as art, science, languages and social studies.

If a courtyard is provided as a result of building design, every attempt should be made to utilize it for educational purposes. Courtyards can provide protected play areas, gardens, or instructional spaces. Care should be taken to prevent visual or noise distractions for the adjacent indoor instructional areas. Access to storage, water, maintenance equipment, and electrical supply is needed in courtyards.



Play Equipment



Equipment should be designed to engage the child in use of imagination, role playing and physical activity. The less structured and more oriented to large muscle movement and activity, the better. Manufactured play equipment, while increasingly colorful and multi-functional essentially provide students with static play experiences. The equipment is generally not designed to provide students with opportunities to modify or adapt the equipment to their learning needs. As such the opportunities for true learning with manufactured equipment are minimal. As such we do not recommend the use of manufactured play equipment except as a limited component of a diverse range of adaptable play areas.



Guidelines for Middle and High School

Schoolyards and outdoor areas for middle and high school grade levels need a master plan of their own with special consideration to the relationship to the school building.

An education program developed by the staff and administration for the site should identify the experiences and activities that will take place outside the school building. Basic principles for design of outdoor space should include discussions of the need for organized sports, social gathering space, natural areas for environmental education, community activities, and open space for exercise, running and physical education activities.

Access for the students from the school to the outdoors is important. Direct access from the locker room is the preferred arrangement. Additional parking space must be considered if spectators are anticipated for sports activities or after-school activities. An additional challenge must be the accessibility to all areas for students with disabilities.

Additional design considerations should include:

- Barriers and perimeter outlines
- School property line boundary designation

- Stable, paved pathways to allow all students to reach outlying areas
- Lighting
- Adequate trash can placement
- Bicycle racks
- Storage areas for equipment
- Clear sight lines over entire schoolyard and field areas for supervision
- Signage indicating age-appropriate equipment
- Easy access for maintenance trucks and equipment

Middle School

Middle school age children present a particular problem. Their schedules should allow for some outdoor recreation time in addition to physical education. The space allowed should be larger than the area allotted to younger students and should be less constrained. Open space for pick-up games and running should be part of a design. These students are usually not involved in interscholastic sports so access to fields is more limited but structured competitive sports still require the availability of fields. An amphitheater is ideal for this age group.



Outdoor time is important and some developmentally appropriate equipment should be provided during the school day or lunch time and could include:

- Rope or chain climbers on angles
- Climbing apparatus
- Horizontal bars and ladders
- Sliding poles
- Balance beams (no higher than 12 inches off the ground)
- Benches and chat areas that allow for gender separation
- Built in chess boards

This age group should be included in schoolyard design discussions. Even if space is limited, middle school students have definite ideas about their needs for recreation and relaxation.

High School

The National Federation of State High School Associations (NFHS) as the governing body for standards for athletic fields and interscholastic playing requirements provides the necessary guidelines for just about any sport likely to be played in a structured school setting. These guidelines are too extensive to be repeated here but are available in the “Court and Field Diagram Guide” published by NFHS. The guide also includes ball and equipment specifications, recording keeping, and youth level sport field layouts (examples, Little League and Pop Warner football).

The design of athletic programs presents a challenge for schools striving to accommodate increasing numbers of participants and activities. Lack of space for fields is especially problematic in urban areas.

Natural grass remains the standard for sports fields, but new developments in synthetic turf technologies have created multiple options where there is a shortage of land for fields. Grass is difficult and expensive to maintain properly because constant use is hard on high-traffic areas. Even though the initial expense is greater for artificial turf, the cost of upkeep can be significantly reduced.

Universal Design to Benefit Special Needs Children

The positive benefits of play areas can only occur if the environment is designed to benefit all users. Children come to school with a wide range of needs and the challenge of designing a play area is to match those needs. A schoolyard or building designed to accommodate, to the maximum extent possible, children of a range of developmental needs, mobility, and perceptual acuity is often described as universal design.

The Americans with Disabilities Act (ADA) is a comprehensive civil rights law that prohibits discrimination on the basis of disability. The ADA requires that newly constructed and altered state and local government facilities, places of public accommodation, and commercial facilities be readily accessible to, and usable by,

Parking

Developing parking guidelines that can fit all New Jersey schools, or even all urban districts is daunting. The current NJSDA guidelines provide for .8 spaces for each teaching station in PreK through 8 schools, with adjustments for high schools, for access to public transportation and density of the community. The parking ratios are based on teaching stations, not on full time staff housed at the building. Full time staff can be as much as 50% greater than the number of teach

individuals with disabilities. The Recreation Advisory committee of the U.S. Architectural and Transportation Barriers Compliance Board has guidelines on accessibility and playground equipment. The guidelines specify the minimum level of accessibility required in the construction and alteration of play areas covered by the law. (<http://www.access-board.gov>)

Play areas should offer some stable paths paved with engineered wood, fiber, rubber mats or other material to access wheelchairs. Transfer stations on equipment will aid physically-challenged children to get off and on play structures. Wide paths, wheelchair parking spaces adjacent to the play areas, wider platforms and walkways help children using wheelchairs or crutches. Different textures and colors for paths and handrails can help visually-impaired children.

ing stations. In addition neither 'urban', 'low density' or 'public transportation' is defined, and at many sites honest disagreements will occur concerning the applicability of these terms.

Presently NJSDA's approach is based on their comfort level for the cost of the land and is driving decisions about the amount of necessary space for parking. While the NJSDA standards are a useful approach to providing guidance for



parking supply, we propose a policy that calls on the local school district to develop a demand and supply management plan to minimize the number of parking spaces to be provided on site. We also strongly recommend that greater weight be given by the local school board and Department to space requirements for playgrounds over those for parking, should significant tradeoffs need to be made.

Adequate and secure parking must be provided, especially in urban areas subject to high crime. Parent volunteers may be coming from the local neighborhood or taking public transportation, but teachers, administrators and other professionals will be coming from outside the neighborhood, the district, or even the state. Parking should include a number of spaces for visitors.



A survey should be undertaken of staff housed or anticipated to be housed at the facility to determine residential location, mode of travel and opportunities for car pooling and use of mass transit. If it is unknown who the staff at a new facility will be, the district should survey staff at similar schools to estimate the number of staff who are likely to travel other than by single occupancy vehicle. Districts should analyze the feasibility of programs to reduce automobile trip demand, including the use of transit passes, computerized or other techniques to encourage car and van pooling, discussion with New Jersey Transit to modify or change the routings and frequency of service, and the possible institution of financial



incentives for staff, to reward those who take advantage of alternative means of transportation.

Alternative parking locations in the area shall also be identified, including on street parking and long term leasing of nearby parking areas, as well as shared parking with facilities that may have excess capacity. While on-street parking should be given full consideration it can be problematic in some neighborhoods due to safety issues and supply limitations.

Provisions for overflow parking for special events or community use on schoolyards or at neighboring locations shall be incorporated into the analysis.

Underground and shared parking in mixed or shared use buildings or sites are strongly encouraged.

The Department should develop procedures to verify that the district has undertaken all possible actions – including but not limited to those discussed above - to reduce parking demand and to secure parking off site before approving any district plan.



Schoolyard cost guidelines

A survey of other states done by the Center last year concluded that no state had cost guidelines for playgrounds.

We recommend that in line with other states, no specific cost guidelines be developed. Rather the cost of the schoolyard is and should be part of the overall budget for the project. Tradeoffs between schoolyards and other budgetary expenses should be made using a systemic planning and design process intended to maximize value while achieving performance and other objectives for the project. Following these guidelines should lead to schoolyards that are cost effective.



The Next Steps

This report outlines a series of steps that should be undertaken to improve the quality of outdoor spaces at New Jersey schools.

In order for these sweeping changes to occur the committee recommends the following actions be undertaken.

1. A widespread review of this report by offices within the Department of Education that are responsible for pedagogy as well as facilities.
2. Incorporation of the report recommendations and strategies into appropriate departmental guidelines and regulations after adequate public review.
3. An initiative to create an ongoing working group with representatives from school boards, teachers, administrators, students, parents, academics, community members and design professionals to guide the department and other state agencies – the SDA, Department of Environmental Protection, Department of Community Affairs, and Department of Transportation among others - in best ways to implement these recommendations
4. Outreach to the private sector, foundations, public interest groups, media and the legislature to gain their support
5. The creation of a web site or section of an existing web site to provide support for the various constituencies to more effectively implement these recommendations.