WHITTIER

ELEMENTARY

SCHOOL:

A Master Plan for Elementary School
Campus Improvements

Prepared For: Denver Public Schools
900 Grant St.
Denver, Colo

Faculty Advisor: Lois A. Brink, Associate Professor of Landscape Architecture

Completed By: [Signature]
Graduate Student of Landscape Architecture

As part of a course:
Finding Common Ground
Exploring the Urban Experience
Fall Semester 1999
University of Colorado @ Denver
College of Architecture & Planning
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P.O. Box
Denver, Colo.
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Approved By:

<table>
<thead>
<tr>
<th>Carleane English, Principal</th>
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<tr>
<td>CDM Representative,</td>
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<tr>
<td>Project Manager, Construction Services</td>
<td>Date</td>
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<tr>
<td>Supervising Foreman, Grounds</td>
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Introduction to the Master Plan

"If we continue to provide children with tawdry and second rate grounds during the formative years, we must not, as a society, be surprised if these young people construe this as an indication of the way we value them.” -Bill Lucas, “Grounds for Change: Learning Through Landscapes”

The University of Colorado has entered onto an agreement with Denver Public Schools to conduct a trilogy of graduate level courses in Landscape Architecture that focus on improving elementary school grounds. Whittier elementary school is one of the schools participating in the program this fall. Each school is assigned to a graduate student who will develop a comprehensive multi-focused master plan and accompanying goals. This master plan will not only propose improved recreational opportunities for students, but will incorporate hands-on learning through outdoor classrooms and gardens. Additionally, enhancing the school, as a community resource and restoring civic pride in the community are valuable aspects of the master plan.

“Playgrounds are intended to facilitate children’s cooperative play, sensory play, social interaction, exploration and their manipulation of the environment.”

-Mark Groves

The resulting master plan and report should be considered an in-kind service to the school. Professional firms producing such a document would charge $5,000.00 at a minimum. Schools that are successful in acquiring funding for the first phase of their master plan will continue on as part of a detailed design studio this spring and be assisted during construction as part of a design-build course in late spring/early summer.

I am extremely excited to be working with Whittier Elementary School and its community. In every step of this process I have tried to solicit community input and encourage involvement as a means of fostering a sense of ownership in the vision for Whittier elementary school.
Site Inventory

- Project location

Whittier Elementary School is located at 2480 Downing Street, along the southern edge of the Whittier Neighborhood in Denver, Colorado. Whittier's first subdivision, the Case addition, was filed right after the Civil War in 1868, making the neighborhood at 132 years old one of Denver's oldest neighborhoods. It is diverse in both its ethnic and economic make-up and has been racially mixed for over 100 years. The original Whittier School used to sit south of the gym on what is presently the grass playing field. It sat facing Marion Street and the area across from the school was a residential subdivision. Marion Street right of way was vacated and the residences were torn down and the dirt baseball fields that are in the schoolyard now occupy this area.

The original building was torn down in 1965, however, and the only remnant of the grand, architectural style of the original building is the gymnasium that was an addition to the original building and was built in 1920.

The present main building of Whittier Elementary School was built as an addition in 1964 just prior to the original building being torn down.
- **Campus safety**

“Children love to play - especially outdoors. The outdoor environment provides unique opportunities for play and learning. However, children can only benefit from playing outdoors if it is safe.” - NYPIRG’s Playground Safety Report

The entire play area is enclosed by a recently installed, 7', chain link, fence. Access points are on the south, north and west of the area and through the building.

![North playground entrance](image1)

![South playground entrance](image2)

**Figure 1** These pictures show the entrances to the playground and the new fence

There is no access to the site from Lafayette Street. Safety of the children while they are on the playground is the responsibility of their teacher and the playground supervisor. Visual inspection of the play equipment found only one area of concern. On the trapeze rings are some cross members that can pose an injury risk, however, they are also out of the reach of the children.

![Play equipment, from berm](image3)

The safety surface that the children fall onto and is supposed to protect them from injury is inadequate. This surface consists of about 3-4" of gravel “squeegee”, but is required to have a depth of 12". When asked if he had any concerns about vandalism the Facilities Manager stated that is not really a problem due to the new fence, but every Monday he had to clean up refuse left behind by weekend users. He also did not mention having problems with graffiti.
• Circulation-Pedestrian and Vehicular

The building is designed in two large wings and is roughly L shaped. It occupies the northeast corner of the site and the two wings of the building stretch south and east. The main entrance to the school is in the Northeast corner of the building and is kept locked. Access is obtained by calling the office.

Pedestrian circulation is via sidewalks that surround the site adjacent to the streets. The west access point provides for pedestrians via a blacktop surface used for hopscotch. The North access is via a sidewalk adjacent to the south side of the building that runs from the east end to the main play area. The south access to the site is through the fence directly on to the large grass field.

Vehicle circulation is external to the site via city streets except for the faculty parking lot, which occupies the Northeast corner of the site. The streets carry heavy traffic flows, especially Downing Street, that are dangerous to the children and present a significant safety threat when they are trying to enter onto or leave the Whittier campus.

"As the world becomes a more dangerous place and children's freedom to roam decreases, so the school grounds, as a safe open space, become even more important - a special place for generations of special people." - Wendy Titman

"Special Places; Special People"
Executive Summary

"Schools need to be arenas of love and caring rather than being designed, constructed and administered as prisons."

- Anne Taylor

The goals for this master plan are as follows:

1) **Update equipment and bring all aspects of the schoolyard into compliance with current standards.** There are many areas of the grounds that are deficient in their outlay. In addition, most, if not all, of the equipment is very old and also illegal according to current standards. This will be discussed later in the report.

2) **Provide the children with a safe, supportive environment where they have opportunities to learn and apply knowledge gained as well as having a fun place to be.** Providing many diverse experiences and situations will provide opportunities for interactive learning. Non传统al play equipment and places like school gardens allow children to learn about natural systems and processes through hands-on experiential means.

3) **Emphasize the history of the neighborhood.** Experiences like the historic walk can teach the children about the history of the area. Factual accounts of people from the area can help the children gain a sense of place. These things can also give the children a tangible sense of what they can accomplish;" If they can achieve that, then so can I."

4) **Provide the community of Whittier with a link in the system of pedestrian trails and parks.** The community has expressed interest in having an open space that they can utilize in this area of the neighborhood. They have a good system of parks and trails in the north and east areas of Whittier that this could become a part of.

"Through play, children (and bigger people too) learn a great deal about the variety and complexity of the world and about themselves as self directed learners."

- Jones and Prescott

"Our idea is to bring the world to the children on their own school grounds" -Swansea Elementary School Playground Committee

"What they need to do includes making things, then taking them apart and completely rearranging all the parts. And having hideaways and meeting places and lookouts with vistas and places that can be transformed instantly." -Tony Hiss and Ed Koren, "Child's Play"

"Playgrounds are much more than places to blow off steam...they should engage the creative and expressive mind."

- Landscape Architecture Magazine 1999
The area of the building that is occupied by the office and administration offices upstairs and the cafeteria down stairs is an addition that was built in 1973. The last addition to the building was added to the south end of the 1964 addition.

- **Neighborhood Context**

  Whittier elementary school occupies the city block bounded on the West by Downing Street, on the north by 25th Street, on the East by Lafayette Street and on the South by 24th Street. The total land area occupied by the school building and the grounds is 3.35 acres.

- **Drainage**

  The site as a whole slopes generally from 24th street on the South, North to 25th street. The slope across the site is about 2%-5%. There is basically no East-West drainage. The South-North drainage presents problems only in the area of the large gravel field southeast of the building. Water that falls on the field generally runs North, collects at the North end of the field where it meets the asphalt play surface and then runs West carrying with it large amounts of the gravel field surface which then gets deposited on the asphalt play surface and in the faculty parking lot.
The Facilities Manager when asked about other drainage problems on the site pointed out two areas where water collects when it is present. The reason that it collects here is because the original grading has receded or sunk and the asphalt poured over it now has low spots in it.

- Demographics

At first glance, the neighborhood surrounding the school appears to be primarily single family, residential properties, built around the turn of the century. A closer look reveals the fact that many of these old homes have fallen into disrepair and have been subdivided into many apartments or torn down to make way for higher density, short term housing. This observation is supported by the high percentage of Whittier Elementary School students eligible for free or reduced lunch (80-90%). Typical of most Denver Public Elementary Schools, Whittier offers classes from early childhood education through the fifth grade level. The student body, although somewhat variable from year to year, consists of 80% African American, 15% Hispanic, 5% White, 1% American Indian, and 1% Asian, with a total enrollment of approximately 238 students. When asked about the school’s capacity the secretary gave a “best guess” of 400 students.
Conclusions

The Playground area at Whittier Elementary School has lots of room to accommodate the amount of students and various uses that it is programmed for at this time. Unfortunately space is about all the playground has. It lacks proper equipment and safety measures to keep the children out of harm’s way. Not only is much of the equipment down right illegal given the current standards, it is not user friendly.

Obvious needs include new play equipment and a source or sources of shade. This should be provided by a gazebo of some sort or simply by strategic planting of more trees. This would provide the playground supervisor with some shelter while keeping an eye on the children. Another need is to separate the play area from any adjacent asphalt.

"... and that natural areas or green spaces need to be incorporated into playgrounds. Underlying this design theory is the belief that contact with natural areas, both plant and animal life, is necessary to normal childhood development.” - Holbert, 1999
- **Proposed additions/improvements**

There are no proposed additions to the building at this time. The improvements to the playground that we hope to implement are pending.

- **Maintenance**

The grounds at the school are well maintained. The areas adjacent to the West, and the North of the building, the large playing field South of the building and the street frontage on the south are all irrigated. The irrigation on the North, however, ends roughly where the faculty parking lot entrance is. The Facilities Manager performs maintenance.

- **Equipment**

The playground equipment itself is all very old and out of compliance with current codes. There is also not enough of it there. This statement is based on the information from the, **Facility Management’s Elementary School Playground Selection Criteria**. (See Appendix) According to my calculations there is only enough equipment to provide play for 56% of the student body. Also keeping in mind that the actual number of students at Whittier is far below its actual capacity the need for more and newer equipment is apparent. As stated before, there are also serious safety issues that need to be addressed. Many of the pieces of play equipment have inadequate fall zones and are very close to one another.
“Play is an all at once-everywhere activity, so setting up slides right next to swings is like chopping a stream into pieces” -Tony Hiss and Ed Koren, "Child’s Play"

There are also no ADA compliant pieces of equipment on the playground. The ECE playground equipment is separate from the other children’s play equipment, however, as noted elsewhere; there is a need for swings for the younger children.

![ECE playground](image1)

![24th & Downing, looking east](image2)

**Figure 2** These pictures show the ECE play structure in its context. Note the extreme separation from the rest of the playground and lack of swings.

The main play equipment area is adjacent to an area of asphalt, to the west, and the squeegee that provides the safety surface for the equipment gets kicked onto the asphalt. This creates a dangerous situation where the children can easily slip or fall and injure themselves.

![squeegee on asphalt](image3)

![water collects here](image4)

**Figure 3** Both of these pictures show a significant amount of gravel on the asphalt.

A grass field, south of the building, partially surrounds the play equipment area on the east and on the south sides. There is a 4’ fence that separates the play equipment from the grass field.
The fence however is too close to the equipment and raises safety issues of its own. Most of the use of the field occurs east of the play equipment because there are no obstacles in this area. South of the play equipment there are a few mature pines and locust trees that provide shade to this part of the field. Also directly south of the play equipment is an earthen berm that was added when improvements were attempted in the 1970’s.

The trees were also planted at this time. East of the grass field are dirt fields that can be used for baseball or other sports. The backstops are currently used mainly for what the children call “wall ball”.
Parking- There are currently 72 parking spaces here. There is service access to the north of the building from 25th street. According to the new standards approved by the board of education in January of this year, the required amount of parking spaces is 36. This should be kept in mind in case there is any need for future building expansion. This expansion could take place in the faculty parking lot with no loss of recreational space.

- Conflicting uses

There is a community garden on the Southeast corner of the site that occupies approximately ½-3/4 acres. The garden is surrounded by a 7’ tall, chain link, fence that separates it from the schoolyard. Although the garden is on school property there is no access from the schoolyard into the garden itself. It was learned from speaking with Denver Urban Gardens (DUG) that this garden is a very old one and does not need to be as big as it is. They agreed that the children and school could easily use half of this.
Defining the School's Vision

"Imagine a classroom with the sky as a ceiling and the earth as a floor. This classroom without walls is bustling with activity as young scientists explore the world of bugs and leaves, gardens growth, actors rehearse their play on a windy stage, artists sketch shadows and light, and linguists name the landscape with a thousand words.”

- Kirk Meyer, Boston Schoolyard Initiative

- Constituent groups

The constituent groups for this project are as follows:
1) The students of Whittier Elementary School
2) The faculty and staff of Whittier Elementary School
3) The residents of the Whittier Neighborhood

- Needs and Desires

"Play is not a frivolous thing—it is a very basic human need.”

-Susan Goltsman

Some of the needs of Whittier Elementary School, such as that of new equipment, have been discussed previously. There are other specific needs that have been stated; a new sidewalk for the south side of the gymnasium and regrading of the service area and south asphalt has been requested. Something also needs to be done about the drainage of the dirt ball fields so that they don’t flood the faculty parking area. There is also a need for a school garden or creative learning area. The ECE teacher has expressed a strong desire to have some swings put in for her young students. Things that the students and faculty would like to see will be covered in the Pictorial Survey section.

"The design was developed with input from the local community, the play area integrates children of varying abilities and the goal was not simply to provide a space physical stimulation but to create an environment that encourages social and intellectual development as well.”

-Susan Goltsman, ASLA Moore, Icafano, Goltsman, Inc.

The needs and desires of the Whittier neighborhood also must be addressed. In the master plan for the Whittier Neighborhood it is stated that the community would like to “Connect bicycle access, parks, schools, recreation and the libraries in an integrated parks and open space plan.” Whittier Elementary School’s new landscape plan has been conceived with this in mind. (See appendix) Another desire expressed in the neighborhood master plan is, "Highlight Whittier’s history through historic signage and markers in parks.” This is addressed with the Historic Marion Street Walkway in the school’s master plan.
• Pictorial Surveys

The main tool that was used to determine what the students and faculty of Whittier School do or do not want on their new playground was a pictorial survey. The students and staff were all surveyed on a single day with the surveyor proceeding from class to class until the survey was complete. The way the survey was carried out was as follows:

1) All participants were given a packet (for our purposes the “packet” was a ziploc bag) of the following 19 pictures;

![Pictorial Survey Images]

2) Participants were asked to choose the five pictures that best described the things that they would like to see on their new playground and lay them out in front of them.

3) Participants were then asked to put all the remaining pictures back in their packets. (To avoid any confusion)

4) The surveyor then held each picture up and asked the participants to hold up their hands if they had chosen that picture as one of their five.

5) The results were then tallied as to how many times each picture was chosen. The children were tallied separately as male and female but the teachers were tallied as a group. The results follow: It should be noted that the total number of students is a function of the total number of votes, not the actual number of students in the school. If , however you take the actual number of students(238) and compare it to the total number of votes received for each picture it is easy to determine what the children most wanted.
• **On-Site Observation**

Landscape Architects learn many things about their projects during on-site visits. It is necessary to make these visits to directly observe conditions occurring on the project site. The site, for the purposes of this master plan, is the schoolyard at Whittier Elementary School. Direct observation of the site is a good way to evaluate many things. Firstly, the condition of the play equipment is obviously of great importance. The site context and condition of the grounds, such things as where are the trees, and what kinds are they, if there are any, are also important. The Landscape Architect also takes into account many things that may not be apparent to the untrained observer. A few of these are: how much sun is there on the site, where is it and how does it hit the site, where is the shade, is it filtered or heavy, is there an opportunity to utilize green spaces or is the site covered in hard surfaces, is the site a comfortable and supportive place or is there a lot of traffic or other sorts of off-site distractions that must be mediated, is there any shelter on the site, from the sun, from the wind and other elements or is it necessary. Which way does the wind blow across the site? All of these kinds of observations are important in evaluating a site and its potential. Most of the observations made on, and evaluations of, the Whittier schoolyard are discussed in other parts of this document. The site analysis is an example of this. One thing learned about Whittier Elementary School is it is fortunate to have a large schoolyard. This provides opportunities that simply do not exist at many other Denver metro area schools. Many of the children attending DPS schools would like to have a soccer field or a baseball field or the proposed courtyard or the school garden but do not have the space for any of these amenities, much less all of them. There are restrictions placed on the design due to the small size of their schoolyards. That said, the development plan for Whittier must be sensitive to the needs and desires of its primary users. Cramming all kinds of uses into the site simply because they will fit is not a very sensitive or sound design premise.

• **Interviews**

Much of the information gathered for this document was done so through the use of personal interviews. These were conducted of the students, the faculty and staff of the school and citizens of the neighborhood. Things that were learned are discussed throughout the master plan. Specific examples are “We need a sidewalk here.” From the playground supervisor Karen Weaver or “We really need some swings”, from the ECE teacher. All of this information is elsewhere in this document.

• **Photos and Drawings**

In addition to the pictorial surveys, a few of the teachers at Whittier Elementary School had their students give me drawings of what they would like to see on their playground. Swings were a popular item as were flowers. In perhaps a residual influence from their own playground, many students also included the travel rings. Other popular items were a pool and a school store. Included are several of the drawings done by the children. All of the photos can be found in the appendix.
“Children relate to the outdoors in a special way...adult’s favorite childhood memories occurred in natural areas.”  —Sebba, 1991

“As childhood becomes more restricted, opportunities for interaction with nature and natural experience are even more critical.”  —Carolyn Francis

“Day Care Outdoor Spaces”
• **Goals**

“At base, play was a creative act, much like art.”

-Mikyoung Kim

The goals of the landscape plan are to incorporate the needs and desires of the primary users, the children and the faculty of Whittier Elementary School, as they have been learned through the process of personal interviews, on site observation and the pictorial survey. The desires of the neighborhood are also accommodated but this was taken care of after the needs and desires of the primary users. The goals are:

1) Provide the students with a primary and a secondary play structure
2) Provide an area for a soccer field
3) Provide a pavilion or other shade structure
4) Separate uses so that conflict is avoided
5) Provide the students with a garden

“Playgrounds are intended to facilitate children’s cooperative play, sensory play, social interaction, exploration and their manipulation of the environment.”

-Mark Groves

“The outdoors has weather and life, the vastness of the sky, the universe in the petals of a flower.” -Greenman, 1988

6) Make the site a learning landscape

“On the school grounds, children can participate in the concrete experiences that underlie superior concept development and creative problem solving in mathematics, engineering, science and social studies. Natural areas and gardens that have been incorporated into playgrounds can easily be used for science study.” -Taylor, 1993

7) Re-establish Marion Street as a pedestrian thoroughfare and connection to the community. Create a sense of pride and ownership among the members of the community.

“Children work on the projects around schools, but Cozart has extended the program to include adults as well. After each project is finished, community members – with their newfound skills – maintain the trees and gardens.” -Karen Tenusack,

“Greetings from Harlem”

8) Establish signage or similar means along Historic Marion Street Walkway to highlight the history of Whittier Neighborhood.
Master Plan

Land use relationships

A copy of the master plan follows. The land use relationships are shown here.

Program of uses

The program of uses was set up so that a teacher or playground supervisor would be able to view the entire playground and thereby be able to look after any activity on the playground. Some things were moved so that most of the intensive uses would happen in the same general area. Also, the ECE play structure was moved closer to the rest of the uses so that these children could feel like they are more a part of the whole playground experience. At present the ECE play structure is placed away from the rest of the playground and although it is required to be separate from the other uses the ECE students should be made to feel like a part of the larger playground experience.

Design intent

Many of the uses on the Master Plan are made apparent by their titles. Examples of these are the intermediate and primary play structures. An explanation of programmed uses that are not readily apparent follows.

Natural area and Nature Path

These elements are designed as places of less intensive use. The ground plane planting should be mainly a turf or sod forming grass. Bluegrass, of course, is the old stand by, and is already present, but other grasses like Buffalo or Blue Gramma should be looked at for their drought tolerance and as a corollary to this, their ability to teach the children and neighbors about the unique beauty of natural ecosystem of Colorado. Pampas grass or a similar tall grass species could be used as accents or gateway plantings at either end of the path. Existing trees should be all that are needed. The intent is for an open area, reminiscent of the prairie, with picnic tables and a small path. Small xeriscape gardens filled with indigenous and drought tolerant plants could be placed as educational accents to the picnic tables. Here people could gather and sit to have a more intimate experience than that found elsewhere on the playground.

Berm thing

The intent of this element is as a place where children can elevate themselves above the surrounding playground. It also is designed to be a visual separation between the exit from the school and the playground so that as the children exit the building they will have to get past the berm thing to “discover” what is in the play area. Another possible use could be as viewing bleacher, of sorts, for activity occurring in the adjacent open space or asphalt play area. This last use is the design intent of the second berm thing adjacent to the wall ball field. It extends north as an extension of the seat wall to the small open area found there.
On the plan there are 4 asterisks in circles. These are symbols designating gateways. There is already an historic gateway at the southwest corner of the site that could be moved to one of these spots. This gate could serve as a model for the other three or inspiration for these should be drawn from the original Whittier school or, as a connection to the community, other historical buildings or architectural styles found in Whittier neighborhood. Another source for inspiration could be historically significant people, past or present, from the neighborhood, for instance, John Greenleaf Whittier gateway, after whom the neighborhood was named, with a short bio-plaque about that person.

**Loose Parts**

The design intent of the areas designated Loose Parts is basically as an area where various odds and ends like wood, bricks, tires, cinderblocks or other “loose parts” of this nature create a playground experience that can be manipulated and that provides for a variety of activities. This is an area that lacks any formal programming but instead allows the children to create their own experience, which in turn could teach them any number of things. Danish architect, C. Th. Sorensen, originally put this idea forward when he invented what he called Adventure Playgrounds. Since then many writers such as Claire C. Cooper, in a 1970 article about adventure playgrounds in “Landscape Architecture”, have supported this idea. In a 1972 article called “Loose Parts”, Simon Nicholson promoted the use of playground equipment that could be manipulated and could provide for a variety of experiences.

**Circulation**

Circulation in and through the schoolyard is pedestrian and occurs on the sidewalks. The exception to this is the pedestrian circulation along the axis of the Historic Marion Street Walkway, which is designed to be a remnant of the original vehicle right of way and laid out as a street with a surface of brick pavers and curbs of flagstone.

**Aesthetics**

The aesthetic interpretation of the design elements of the playground should be consistent with the historical theme of the master plan and be sensitive to the historical nature of the Whittier neighborhood.

**Phasing**

If it is necessary due to economic or construction realities to implement this master plan in phases they should be carried as follows:

**Phase 1) Cost: Approx. $205,000**

Demo and remove old asphalt surface south and east of building. Demo and remove old play equipment that is being disposed of and move equipment that is being salvaged (i.e. travel rings) to its new position on the playground as set forth in the master plan. Install new asphalt surface adjacent to play area and building. Install new play equipment. Erect shade structure for playground supervisor. Pour sidewalks 1 and 2. Install Bermy thing directly south of gym and sod it, along with the adjacent open space.
Phase 2) Cost: Approx $160,000
Grade field east of school building and install seat wall. Build bermy thing adjacent to seat wall and wallball field. Install sidewalk. Install Irrigation. Sod soccer field.

Phase 3) Cost: Approx. $90,000

Phase 4) Cost: Approx. $80,000
Grade and install Historic Marion Street Walkway. Install art elements. Plant trees and shrubs. Demo and remove asphalt in service area and regrade. Install asphalt in service area.
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Prepared by:
DPS, GPDLand UCD
### Denver Public Schools

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Prepared by: DPS, GPDLand UCD
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Prepared by:
DPS, GPDLand UCD
Appendix:

The purpose of this appendix is to show the many parks of the Whittier Neighborhood and their relationship to the schoolyard at Whittier Elementary. The new schoolyard could give the citizens of Whittier a public open space in an area where there is not one now and become part of an open space system for the citizens of Whittier to enjoy.
Appendix:
This appendix has all of the pictures taken of the Whittier Elementary School schoolyard
South Playround entrance
North Playground entrance
grass play surface
site of requested pedestrian/ADA access
Play equipment from berm
faculty parking from east
garden from south
asphalt play area east of GYM
entrance to community garden
berm
Grass Playing Field
grass playing field
gravel washed off the playing field
Appendix:

This appendix is an independent study project called "School in the Yard" and is included to help explain how the pictorial survey was carried out as well as a little explanation into the possible meanings of the pictures and how to interpret the results.
Karen Holbert
May 12, 1999
The College of Architecture and Planning
University of Colorado at Denver
Independent Study, Bromwell Elementary School
Instructor: Lois Brink
Spring 1999
people with different needs and different objectives, none of which can be ignored without the design suffering.

Therefore, the remainder of this paper will be an exploration of the variables involved in playground design. The exploration will begin with a short history of school yard design. Then the current strategies for successful design will be summarized. After that, the practicalities particular to designing a school yard will be looked at. Last, a survey of the employees and children at Bromwell Elementary School will be described and its results will be interpreted. Through all of this, the interplay between theory and reality will be discussed, with emphasis on the effect they have on each other.

**HISTORY OF PLAYGROUND DESIGN**

Using school grounds as an educational tool is not a new concept. Educators and designers have been interested in school playgrounds or outdoor spaces as a medium of education since the turn of the century. (Gridley, 1997, p. 25) It was at this time that the “Gary” plan was in vogue. Named after Gary, Indiana, it was a plan based on the ideas of Friedrich Froebel, who believed that the school grounds should be incorporated into the learning experience. He believed that schools should have gardens, and in 1910, approximately 80,000 schools in the United States did have a garden. (Gridley, 1997, p. 25)

In the 1950’s, John Dewey advocated using school grounds for learning. He believed that children learned best by direct interaction and that made school yards natural learning tools. (Taylor, 1993, p. 172)

In the 1930’s, Danish architect, C. Th. Sorenson invented Adventure Playgrounds. In them, children use odds and ends (wood, wire, cinderblocks, tires, bricks, etc.) to create their own spaces and structures. This idea has been widely accepted in Europe, but it has not been incorporated into mainstream America, (Greenman, 1988, p. 177) even though it was successfully tested in Minneapolis in 1950. (Cooper, 1974, p. 198) The idea has been kept alive, however, by numerous writers, one of which is Claire C. Cooper who wrote an article about Adventure Playgrounds for “Landscape Architecture” in 1970. The concept has also been borrowed for use in other playground design ideas. In 1972, the article “Loose Parts” by Simon Nicholson was awarded the Bradford Williams Medal by the Society of Landscape Architects. (Nicholson, 1974, p. 227) Nicholson promoted the use of playground equipment that could be manipulated and that provided for a variety of activities.

Regardless of the cries for change, most schoolyards remain desolate. The following statement published in 1974 is still accurate today. “Unfit for human habitation” is a description of school yards voiced by a growing number of students, teachers, and parents, who want to see these asphalt yards transformed into places where children can play and learn creatively, rather than destroy each other.” (Moore, 1974, p. 621)
Wouldn't you want the location to allow for a variety of activities and experiences? It's not surprising then that many of today's playground theorists promote variety and complexity of design. Variety allows children to find a stage to play out their impulses of the moment. (Moore, 1974, p. 626.) Also, variety and complexity are thought to stimulate mental activity and relieve boredom, a cause of inappropriate behavior. (Tifman, 1994, p. 102, 120)

Children are different and have different preferences for play. For example, some children prefer the outdoors and heavily vegetated areas, and some don't. (Sebba, 1991, p. 404) This may be one reason that researchers studying children's preferences come out with such varying research results. (Cohen, 1990, p. 750) (Groves, 1993, p. 52)

![Fig. 4](image1)

Sharon Stine, a Professor at California State Polytechnic University in Pomona, uses a checklist to insure that the playgrounds she designs have sufficient variety and complexity. She checks that the design has the following polarities: accessibility (such as the ground) and inaccessibility (giving children spaces that contain vantage points, wherein things are not accessible, except by viewing); the active and the passive (or quiet areas); areas that contain challenge and risk and areas that contain repetition and security; hard surfaces and soft surfaces; natural areas and manmade areas; the open-ended (activities which do not have goals) and the closed (activities with goals and rules); permanence and change; private and public; and simple (objects which have a single use) and complex (objects that can be used in a variety of ways). (Stine, 1997, 25-40)

![Fig. 5](image2)

Leland Shaw, a playground designer and professor at the University of Florida, supports using a variety of spaces, such as small, enclosed spaces, large open spaces, small spaces without boundaries, and large enclosed spaces. (Shaw, 1987, p. 193) He believes children especially enjoy small, defensible spaces, which are spaces with only one entrance or exit. (Shaw, 1987, p. 193) He promotes the use of a variety of juxtaposed surface heights, believing they maximize children's interaction and the enjoyment of their playground space. Examples are slides, ramps, cattle walks, tunnels, ladders, etc. Also, he supports a variety of surface finishes, allowing children "to experience different tactile sensations." (Shaw, 1987, p. 204) but not at the expense of safety. (Shaw, 1987, p. 205)

**Loose Parts and Adventure Playgrounds**

The term "loose parts" comes from "How Not to Cheat Children: The Theory of Loose Parts," by Simon Nicholson, a very influential article published in 1971. He
replaced with tire play structures. (Weinstein and Pinciotti, 1988; cited in Gridley, 1997, p. 23) Results from another study reinforce this finding. [Susa and Benedict, 1994: cited in Gridley, 1997, p. 23] In another study, "Both boys' and girls' preferences for a play site were predicted by the perceived adaptability of the site." (Groves, 1993, p. 57)

Incorporating Green Spaces:

Some researchers believe that children relate to the outdoors in a special way. [Sebba, 1991, 404-5] and that natural areas or green spaces need to be incorporated into playgrounds. Underlying this design theory is the belief that contact with natural areas, both plant and animal life, is necessary to normal childhood development. Natural areas inherently meet children's needs and are preferable to a manufactured childhood environment. [Titman, 1994, 11, 27] Natural areas are inherently non-objective and can be manipulated. They provide adventure, in the form of hiding, tree climbing, and many other activities. [Titman, 1994, p. 107] "The outdoors has weather and life, the vastness of the sky, the universe in the petals of a flower." [Greenman, 1988, p. 175] Researchers point to the fact that adult's favorite childhood memories occurred in natural areas. [Sebba, 1991, 401] [Titman, 1994, p. 6-7]

However, studies indicate that increased urbanization has resulted in children spending less time in the natural world. [Huttenmoser, 1995, 403-5] [Hillman, 1990; cited in Titman, 1994, p. 71] There exists "an increasing disconnection between children and the outdoor environment." [Moore, 1990 and Louv, 1990; cited in Gridley] 1997, p. 27] Playground designers point out that school grounds may be one of the only outdoor environments to which children have access. [Titman, 1994, p. 56]

Research (and observation) indicates that many children love to be in the natural world. In one study, green space was the only element of a playground universally liked by children. [Moore, 1974, p. 629] In this study, "children included about the same number of natural elements on their drawings as adult-made elements." [Moore, 1974, p. 632] The children's desire for grass was the second favorite thing on the playground, behind swings. [Moore, 1974 p. 636] Another study showed that boys had a decided preference for green spaces. [Groves, 1993, p. 58] Another research study indicates children prefer natural environments to built environments. [Titman, 1994, p. 27]
For Shaw, in addition to having a sense of place, playgrounds should be unified environments. This means connecting all the spaces physically, so that they all flow, and all the spaces are used. Some areas on the playground are key areas and some are supporting areas. Key areas contain related structures that provide multiple choices of use. The key places are next to neutral spaces. Pathways and connectors become very important, allowing more distributed use of the playground. They should be diverse in size and shape. They should cross each other at points, and they should not dead-end but loop around. This allows the user to keep moving forward. [Shaw, 1986, p. 192]

**Asking Questions:**

Many professionals agree that asking the users of the playground what they want is essential to a successful design. [Hart, 1986; Moore, 1985; Moore and Young, 1978; all cited by Gridley, 1997, p. 36-7] [Titman, 1994, p. 110]. These users include the administration, the teachers, the maintenance workers, and the students. One idea is to have designers do the kind of research that environmental psychologists do, on a more limited level. [Sommer, 1969; cited in Gridley, 1997, p. 35]. This would eliminate the problem encountered by many designers of finding sufficient information on environmental behavior, but discovering that it is of little practical benefit. [Marcus and Moore, 1975; cited in Gridley, 1997, p. 35]

In addition to generating a better design, asking children for their ideas and then using those ideas gives the children a sense of ownership in the property, which can translate into better care of it. This may mean less vandalism of school property. [Titman, 1994, p. 88]. It can also show the children that their opinions are valued. However, if questioning the children is simply a pretense, then the reverse occurs. [Titman, 1994, p. 88]

**THE PRACTICALITIES INVOLVED IN SCHOOL YARD DESIGN**

Many practical considerations are involved in the design of any site, such as drainage, access to sunshine, shelter, surfaces, etc. These, of course, are also important in the design of playgrounds. However, other practicalities exist that are of special importance to school grounds or to the theories used to create them. These will be explored below.
small channels were cut into the asphalt near a pond, creating a delta. After a year of use, the delta was covered with asphalt because the water was destroying part of the asphalt. [Moore, 1974, p. 639] She blamed the maintenance crew, but one has to wonder about the prudence of the design.

Money:

Money is also a major consideration in most school yard design. Unfortunately, loose parts are more expensive than fixed parts and have more problems with vandalism. [Shaw, 1987, p. 206] Loose parts are more expensive to maintain and build. [Shaw, 1987, p. 206] In order to keep children from fighting over the loose parts, a sufficient number have to be kept available, and because they will be used extensively, they have to be of good quality. [Titman, 1994, p. 123] Also, plant material is more easily destroyed than metal, resulting in more frequent replacement.

Adult Needs:

Another practical consideration not addressed by many of the design theories is the comfort and the needs of the adults on the school grounds. Where are they going to sit? What kind of shelter do they have, and what kind of vantage point is provided for watching the children? It is important to remember that it is the adults who keep children safe while they are on the playgrounds, and keeping children safe is enormously important to everyone.

Other:

Other design considerations, which have not been mentioned yet, are also important. One of these is the destruction of school yard property by children. Destruction occurs in part from children being rambunctious. Other destruction is from theft, arson, and vandalism. Last, but hardly least in importance, is safety. The safety of the children must be thoroughly considered.

RESEARCH RESULTS FROM BROMWELL ELEMENTARY SCHOOL

This last section is a description of the methods and of the results from a survey given to the children, teachers, administration, and custodian workers of Bromwell Elementary School. Participants in the survey were given nineteen pictures, depicting a variety of scenes found on playgrounds. They were told that the object of the exercise was for them to design a playground using their favorite scenes. They were then asked to pick their five favorite pictures and glue them to a piece of paper. The teachers, the custodians and the administrators were also asked to separate out pictures of those scenes they would not like to see in a school playground. Almost the entire school participated, 246 students in fourteen classes, 15 teachers (one from
believe the picture represents. However, I really don't know if that is what the survey participants saw. In this respect, a follow-up, consisting of one-on-one interviews, would have been helpful.

The pictures will be discussed individually, in the order of their popularity with the children. The children’s preferences will be compared with the adults’ preferences in order to obtain a more rounded picture of the requirements of a successful school yard design. Also, the test results will be reviewed to see what kind of information they provide for judging the merits of the various design theories.

**Water**

One hundred thirty one of the children (53%) chose this picture of water. It was the most popular single picture. Teachers and administration also liked it. It ranked fourth in terms of popularity with the teachers, being chosen by eight teachers (53%). The principal chose it, too. However, neither person from the maintenance department wanted it. In fact they chose it as something they would prefer not having on the playground.

![Image of water](image15.jpg)

*Fig. 15*

Although many of the teachers liked the idea of having water on the playground, some expressed concerns. One teacher commented that she would have wet students after recess. Two teachers worried about safety, one saying she could support it only if it was separate from the rest of the playground. At least one child was also concerned about safety. She told me she liked the water, but she was afraid she would be pushed in. That comment might have been dismissed as sweet but silly if I had not heard two other girls talking about how they would throw mud pies at.

These concerns about safety and maintenance illustrate one of the problems of implementing the concept of "loose parts" on a school yard. Children chose the picture imagining that they would be able to play with the water freely. Adults look at it and see the need for restrictions. Anything that lessens the availability to the water...
These numbers are interesting in a variety of ways. First, there is a strong similarity in the percentage of children and adults who would choose to have play equipment on their playground. Both groups of people like it, showing that common ground does exist between the parties. This consensus was not a typical finding in this survey. Generally, teachers preferred scenes that supported curriculum activities, and these scenes were not nearly as popular with children.

Second, the popularity of playground equipment indicates that physical activity is the most important aspect of a playground to children. They want to run and climb and swing and stretch. This would appear to be their overriding desire.

Third, 69 percent of the children who demonstrated a desire to have this type of play equipment would only chose one piece of it, indicating that kids prefer variety on the playground.

Last, since one piece of equipment is from Bromwell and one piece is not, then these figures can be used to judge how much of a factor the children’s familiarity with the picture was. Interestingly, the picture of play equipment from another school was slightly more popular than play equipment from Bromwell, indicating that familiarity with the picture did not, in itself, produce popularity for the picture. Next, it should be noted that the pictures from Bromwell were, as a group, more popular than the pictures that were from other places. If all the pictures were equally popular, then the pictures from Bromwell would have been chosen approximately 324 times. Instead, they were chosen 401 times, indicating that the design has a favorable opinion by the children.

Sandbox

This picture represents the opportunity to play with sand. However, since there is a roof on the sandbox, it could also depict shade or shelter.

Ninety-eight children (40%) selected it, and it was the most popular choice of the teachers. Ten of fifteen picked it, or 73 percent. One teacher commented that it was especially good for young children but was nervous that the older children may
administration to select the archway, and neither maintenance member chose it.

The archway's popularity gives credence to those designers who believe playgrounds need a sense of place. For the children at Bromwell, this element produced a strong attraction.

It is also interesting to note that this picture with its strong man-made element (the plants being dormant) was more popular than the pictures that contained more natural elements only when the pictures used in the survey were in black and white. In those classes that used color pictures, the approval rating for this picture dropped from 37 percent to 28 percent, and three pictures containing a high percentage of natural elements were more popular than this picture. Those three pictures were those of the shelter, the bushes and the trees.

**Baseball Field**

This picture became part of the survey because it represents a large open space and organized sporting activities.

Seventy-nine children (32%) chose this picture. This is the last statistically significant positive choice by the children. Four teachers picked it, or 27 percent. One custodian selected it, as did one secretary. It will be discussed in greater detail later in this paper.

**Rocks**

This picture was in the survey because of the rock's educational value. It was hoped that the results would help evaluate the popularity of using school grounds as an educational tool.

Seventy-two children (29%) selected the rocks, a figure that is statistically insignificant. Observation has shown, however, that children often perch on them while in the playground.
a good soccer field. The activities the fields represent may be the reason for their popularity. Additionally, children could have a preference for different types of space. Some children could prefer large open spaces to small, enclosed areas. To test this hypothesis, the designs were reviewed to see how often these fields were found in the same design with the pictures of bushes, which are small, enclosed areas. The two types of pictures were found on the same design 25 times. Pictures of bushes should have been found on designs that contain a field a total of 34.32 times. (At least one picture of a bush was found in 26 percent of the designs. Then adjust that figure because one choice had already been taken – the field. That figure becomes 20.8 percent. At least one picture of a field shows up in 165 designs. Therefore, multiply 165 by 20.8.) These statistics proved to be only a weak indicator that different children have a distinct preference for one type of space over another or the activities those areas support.

When choosing from black and white photographs, this one was the most popular picture containing an abundance of plant life, which in this instance was turf. Other pictures with a high percentage of plant material include two pictures of bushes, "the shelter area", "the trees", "the wild field", and "the garden." None of the pictures with an abundance of plant material were particularly popular when shown in black and white. However, when shown in color, the children responded to them strongly. For example, when the children selected from color pictures, 55 percent of the children selected at least one of the two pictures of bushes. When the children selected from black and white pictures, only 17 percent of the children chose one. When children used black and white pictures to create a playground, the baseball field was chosen by 32 percent of the children. When they saw the baseball field in a color picture, showing the field was mostly brown, only 21 percent of the children picked it. However, the approval of this grass field did not change when the pictures were in color.

**Tires as Play Equipment**

This picture was chosen because it is an alternative form of play equipment and because the tires provide a certain amount of privacy and enclosure. However, some children found it difficult to determine what this was a picture of. The picture, after being copied, was not particularly clear. A couple of children asked if it was a tire swing. Nevertheless, sixty-seven children or 27 percent chose it for their design. Two teachers picked it or 14 percent. One secretary chose it, and one custodian. These figures are statistically insignificant.
was chosen by 51 students (21%), a figure that is a weak indicator of its lack of popularity. Five teachers (33%), one of the custodians and one of the secretaries selected this picture as part of their design. This is a fairly high approval rating from the adults.

Although often maligned, children do use the asphalt surfaces at Bromwell Elementary School, playing foursquare, tetherball, basketball and an impromptu game with a tennis ball, bouncing it off the side of the building. However, these surfaces are not as popular as other areas.

A follow-up survey, one-on-one would have been helpful to determine the extent that the painting on the asphalt changed the participants’ opinion of it. One teacher wanted a world map and a United States map incorporated into the playground. This remark may have been in response to the picture on the asphalt. One teacher, however, put it on the list of what that teacher did not want to see on a playground.

The Hill

![Image of the Hill](image)

This picture was chosen for use in the survey because it is such a barren spot right now. Of course, this picture is a poor representation of what will occur there in the future, but right now, it is just like the picture shows, little more than compacted dirt with a path through it.

However, even in its present state, 48 children (20%) chose it. Some children have used it by pretending to be archeologists, even going so far as to create a kit of archeological tools. Their teacher loved their idea and would like to see a recycled dig site on the playground. Used in this way, the hill is highly interactive and quite definitely a “loose part.”

None of the teachers chose this picture. However, since it will become a naturalized area, with plenty of plantings, this result does not seem particularly important. The popularity of what this hill will become may be better judged by the pictures that contain a wild field and trees.

A Shelter

This picture represents an area that is essentially passive, a resting area, a shelter from the elements, shade, and an area with a high percentage of natural elements.
The principal and both custodians chose it as a picture they would not want to see on a school playground. Perhaps it seems too secluded and dark. Follow-up is necessary for ascertaining precisely what was objectionable in this picture.

**Wild Field**

This picture was chosen for the survey because it contains natural elements in a decidedly non-manicured condition. This area would be useful as part of the science curriculum.

It ended up being quite unpopular with the children. Only 36 children (15%) picked it. Even when the children saw it in color, only 21 percent selected it.

Four teachers (27%) picked it, a figure that is statistically insignificant. However, two commented on its potential as a learning tool. One secretary also chose it. One school custodian commented that it looked messy, indicating how members of the maintenance staff would tend to view truly naturalized areas.

**The Garden**

A garden was probably the most maintenance intensive picture presented to the participants. The picture was included in the survey because of a garden's usefulness as a teaching tool.
adults chose it, however, and it received the same type of comments as the other photograph with children in the bushes.

![Playing in the Dirt](image)

Concluding sentence: This picture was chosen because it shows children playing in the dirt, a not uncommon activity that is similar to children playing in a sandbox. Apparently, I am the only one who saw the similarity.

Only three children (1%) selected this photograph. None of the teachers or staff picked it.

**CONCLUSION**

School playground design is complex. Different users have divergent interests and goals. Children need challenges and stimulation, but they also have to be kept safe. Play tends to be untidy, but members of the community want schools to maintain a sense of order. Expectations may be high, but the budget may be small, and maintenance of the design may be limited.

However, a successful design can touch children in powerful ways. They may feel more valuable. Their behavior on the playground can improve. Their emotional ties to the school community may be strengthened, and they may develop a stronger environmental morality. If the school grounds are used as part of the curriculum, then the kids can become more interested in learning. For designers who want their work to have a positive impact, I can think of no better vehicle than school playground design.


---, "Open Space Learning Place: School Yards and Other Places as Communal Resources for Environmental Education, Creative Play, and Recreation."


List of Illustrations


Figure 2 - Stine, Sharon. Landscapes for Learning: Creating Outdoor Environments for Children and Youth. New York: John Wiley, 1997, 32.

Figure 3 - Bromwell Elementary School, Denver, Colorado

Figure 4 - Bromwell Elementary School, Denver, Colorado

Figure 5 - Bromwell Elementary School, Denver, Colorado

Figure 6 - Stine, Sharon. Landscapes for Learning: Creating Outdoor Environments for Children and Youth. New York: John Wiley, 1997, 36.

Figure 7 - Stine, Sharon. Landscapes for Learning: Creating Outdoor Environments for Children and Youth. New York: John Wiley, 1997, 28.

Figure 8 - Bromwell Elementary School, Denver, Colorado

Figure 9 - Stine, Sharon. Landscapes for Learning: Creating Outdoor Environments for Children and Youth. New York: John Wiley, 1997, 184.

Figure 10 - Bromwell Elementary School, Denver, Colorado


Figure 12 - Stine, Sharon. Landscapes for Learning: Creating Outdoor Environments for Children and Youth. New York: John Wiley, 1997, 4.

Figure 13 - Bromwell Elementary School, Denver, Colorado

Figure 14 - Bromwell Elementary School, Denver, Colorado

Figure 31 - Titman, Wendy. *Special Places, Special People: The Hidden Curriculum of School Grounds*. Godalming, Eng.: WWF, 1994, 44.

With this reality in mind, when the parents and faculty of the school decided to renovate the school grounds, they wanted to incorporate the school into the community and the community into the school. To alleviate the problem of neighbors who do not have a children in the school, Bromwell treats the “transition” of territory differently from most schools by creating places for the school community to interact with the neighborhood community.

THE PLAYGROUND TEAM
The Bromwell project was implemented by Lois Brink a Landscape Architect, and Associate Professor of Landscape Architecture at the University of Colorado at Denver. The project was developed in three parts.
The first part started in 1993, with a group of graduate students from UCD’s graduate program in Landscape Architecture and a group of fifth graders meeting to cooperatively develop five conceptual designs.

From 1994 to 1998 a funding strategy was designed and implemented. In the spring of 1998 two classes at the University were assigned to this project. One class was devoted to developing the design while the
third phase is the implementation of the Community Garden. As of April 1999, only phase one has been installed.

ENTRANCE
There are two ways to enter into the playground; one is from the school, and the other is from Columbine Street, to the south. Once you enter the playground from the school you may not enter the school again, as the door locks behind you. The school entrance is less interesting because you cannot move back and forth through it. To re-enter the building you must walk around the school. Entry from the south is a much more interesting connection. (Figure 3.) It involves an arched walkway, which invites pedestrians off the street and onto school grounds. The entrance is unique because in the past it has been standard practice to isolate schools from their neighbors. This strategy works well to connect the school to the community.

LESSONS
The south entrance is also part of the “Learning Landscape” program of the playground.
Bromwell Elementary’s metal archway provides not only entry, but also uses the canopy to create constellations, (Figure 4.) which can be studied by the students. Because this element depends upon explanation, to see the constellations, (Figure 5.) the design result is ineffectual to the uninformed. For this reason a manual for the teachers is being created, to inform the teachers on identifying the constellations. Begging the question, should you need a “guidebook” to understand the meaning of a landscape? Or does this limit
Bromwell Elementary playground is divided into three teaching "rooms", which are to teach: first, the solar system area, which contains the archway and the entrance plaza; second, is the ecosystem garden that will be planted with indigenous plants; third, is an area which explores geology. Because these areas are always accessible to the children, they are allowed to explore the playground by themselves and interpret the area on their own personal level.

SOLAR SYSTEM

The main plaza motif is an abstraction of our solar system that is set in concrete; (Figure 6.) it uses metal rings and granite circles to suggest orbits and planets. This seems to have been an area that was designed in plan, and has lost some of its allure in three dimensions. Perhaps this is because for the most part it is viewed in plan even when you are standing there. Some planets have been elevated to add relief; however, they are only used as seating and do not engage the children to investigate the concept of the solar system. (Figure 7.) The plaza that does not allow for an exact interpretation of how our solar system works. This is one section where learning relies heavily on teaching by the instructors. It has become a tool for the teachers, not a plaything for the children.

ECOSYSTEM GARDEN

Adjacent to the solar system plaza is the future location of an ecosystem garden. Because of a lack of funding this garden has not yet been installed, even though it is part of Phase one. (Figure 8.) Despite this problem it has become the most interesting part of the playground in its unbuilt condition. As it is now, the area is just an open bed of soil. It contains one boulder and two Ponderosa pines, one alive and one
know if this was their idea or someone pointed it out to them, but either way it has inspired their curiosity of geology. This is where the didactic ideas of elementary education can benefit from the result of this design. The children have heard the geology lecture and can transcend that information by using the playground to further their understanding of geology and its processes.

TRADITIONAL PLAY STRUCTURES
Because this space is also a playground, traditional play structures were installed. Yet, there are some interesting twists even for theses. The play structure to the east is handicap accessible. Ramps were designed to allow wheel chairs to the play structures. Able-bodied children use these ramps as well, using the ramp platforms to jump from and climb. (Figure 10.) These ramps also allow parents to assist their children without climbing all over the equipment to reach their children.

Design implementations were also made to allow the small children to enjoy the equipment. For example tires set under the ring structure, this detail allows even the shorter children to use the large play equipment. This level of detail, understanding the size of children and their interests, is strong in this design.

SCALED FOR CHILDREN
The grading reflects the design teams sensitivity to the scale at which children are comfortable. One example of this is a knoll that was created as future seating to the outdoor stage area. (Figure 13.) Even though the grade change is no more than two feet, children love to run up and down this knoll. When asked why they enjoyed running on top of the knoll, they couldn't verbalize their reasons, other than it was
fun. Which proves the point, sometimes it just feels right.

Another part of the playground that feels right is the boulder and ponderosa pine in the Ecology Garden. The way the boulder and tree relate to the building allows for the sense of enclosure. The children use this area to distance themselves from others because it feels enclosed, but in reality it is wide open on the south side allowing for playground monitors to see them.

CONCLUSION
Bromwell Elementary’s Learning Landscape is an ambitious project because it is multi-faceted in its intentions. This project redefines the purpose of the school landscape in the community and uses the landscape to teach. For these reasons alone this project is a worthwhile endeavor. What the designers have learned and how they can implement this into new designs for elementary school playgrounds will be interesting to see in the future.

Bromwell playground is used daily. Yes, it has a captive audience, but it also brings people off the street to enjoy the experience. By enticing neighbors to use the playground the designers have achieved their goal of sharing the school grounds with the community. The second and third phases will further strengthen this intent.

Figure 14: The learning aspects of the “Learning Landscape” are misdirected in their approach.

By using the developmental philosophy of education, which directs learning in a didactic manner, the design loses impact. As a teaching tool the solar system area and boulder area seem to function the way the designers intended. However, by using the curriculum as the base for the design, opportunities were missed. The design became less effective because the intent was to reinforce a curriculum, not allow for experience to guide learning. This point is proven in the unfinished ecological garden.
Appendix:
This appendix includes various forms and tools that were helpful in analyzing the data that was gathered during the site inventory and analysis phases of the master plan.
SITE INVENTORY

In the first blank on each question enter the number of pieces of equipment. On the second blank list the number of pieces which are ten years old or more. If no one at the site knows when the equipment was installed assume it to be older than ten years. On the third blank list the number of children accommodated. Some play activities are rated with the assumption that a few children will be waiting turns. On composite equipment, made up of many events, rate each piece. When specific equipment is not listed find the nearest generic type or list them in the blank spaces.

SITE: Whiffier

INSPECTOR: B. Wieder

DATE: 9-17-00

NUMBER OF CHILDREN:
Kindergarten
First through Third Grades
Forth and Fifth Grades
Sixth

<table>
<thead>
<tr>
<th>Number / Number 10 or more years old</th>
<th>Number of children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slides</td>
<td>Units times two.</td>
</tr>
<tr>
<td>Wide Slides</td>
<td>Units times four.</td>
</tr>
<tr>
<td>Swings</td>
<td>Seats.</td>
</tr>
<tr>
<td>Climber</td>
<td>One per 4 feet of edge.</td>
</tr>
<tr>
<td>Horiz. Ladder</td>
<td>Units times three.</td>
</tr>
<tr>
<td>Horiz. Bar</td>
<td>Units (2 for long bar).</td>
</tr>
<tr>
<td>Fire Pole</td>
<td>Units.</td>
</tr>
<tr>
<td>See Saw</td>
<td>Units times two.</td>
</tr>
<tr>
<td>Merry-go-round</td>
<td>One per 1.5 ft. diameter.</td>
</tr>
<tr>
<td>Balance Beam</td>
<td>Units times two.</td>
</tr>
<tr>
<td>Spring Toy</td>
<td>Seats.</td>
</tr>
<tr>
<td>Hemisphere climber</td>
<td></td>
</tr>
<tr>
<td>Chain climber</td>
<td></td>
</tr>
<tr>
<td>Tether Ball</td>
<td>Units times four.</td>
</tr>
<tr>
<td>Hop Scotch</td>
<td>Units times three.</td>
</tr>
<tr>
<td>Four Square</td>
<td>Units times five.</td>
</tr>
<tr>
<td>Ball Wall</td>
<td>Units times four.</td>
</tr>
<tr>
<td>Basketball</td>
<td>Units times seven.</td>
</tr>
<tr>
<td>Football</td>
<td>Units times seven.</td>
</tr>
<tr>
<td>Soccer</td>
<td></td>
</tr>
</tbody>
</table>

Game areas are used differently by each age group, i.e. a football field is rarely used by 1st graders and heavily used by 4th graders. The multipliers below are general guidelines. Inspectors should adjust for observed use patterns.

Add all numbers in the last column and compare with the total number of children on the playground to determine if there is at least one and one-half play opportunities per child.
PLAYGROUND SAFETY SITE ASSESSMENT

Copyright (c) 1990  Jay Beckwith

SITE: Whittier Elem School

INSPECTOR: ________

DATE: 9-12

TIME REQUIRED: ________

YES  NO

A. GENERAL CONCERNS

1. Can the playground be viewed from the street?  
2. Are street, open water, ditches, etc. fenced?  
3. Is wheelchair access provided?  
4. Are drinking fountains operational and clean?  
5. Does the size of the equipment match the users?  
6. Is adequate drainage provided?  
7. Is equipment free of vandalism?  
8. Is shade provide by approved structures or trees?

B. GROUND COVER

1. Is fall protection provided under all play equipment?  
2. Is the loose fall material 12" deep?  
3. Does fall material extend at least 8" from equipment?  
4. Is the fall material non-compacted?  
5. Is rubber mat one inch thick for every four foot of equipment height?  
6. Does the fall ________ inch swing beam height?  
7. Is there provision for keeping the swing area free of conflicting traffic?

C. C.P.S.C. COMPLIANCE

1. No openings between 4" and 7"?  
2. No "V" entrapments present?  
3. Are there 38" high non-climbable rails on all decks?  
4. No protrusions which extend more than their diameter?
YES NO

D. RISK MANAGEMENT

1. Are spin arounds and see-saws removed?
2. Decks lower than 66" high or equipment less than 104"?
3. Is grass area free of holes and protruding sprinkler heads?
4. Are walks and ball courts free of trip hazards?
5. Trash dumpsters "child proofed"?
6. Soccer goals firmly anchored and in good condition?
7. All chain link fencing and backstops sound and free of barbed edges?
8. Are metal slides shaded?
9. Are Merry-go-rounds, pivot type see-saws, concrete pipe, and glider type swings removed?
10. Are basketball goals of the non-climbable "gooseneck" type?

E. MAINTENANCE

1. Are swing bearings and chains in good order?
2. Are "S" hooks closed and swing seats intact?
3. All equipment anchored according to specification?
4. Is wood sound, smooth, free of splinters and excessive checks?
5. Trees properly pruned and in good condition?
6. Benches sound, smooth, and free of sharp corners?
7. Are there holes or protruding irrigation heads in grass area?

F. SUPERVISION

1. Is play equipment centralized for easy supervision?
2. Are separate areas provided for younger kids?
3. Are chain nets on basketball rims removed?
4. Is the physical education? is scheduling between recess and P.E. free of conflict?
5. Is "Safety Awareness" part of every child's curriculum?
6. Is the list of Playground Rules fewer than ten?
7. Is record kept of parent concerns about the playground?
8. Is the student/staff ratio adequate?
9. Is there a safety training program for yard supervisors?

If NO is checked in any of the above please provide detail on additional sheets.

See back for 6-10

7) see attached
WHITTIER ELEMENTARY SCHOOL
Playground Rules

General Rules
1. No jumping over any fences.
2. No throwing sand.
3. No pushing, shoving or aggressive horse playing.
4. If balls go outside the playground area, let an adult know.
5. Put your equipment away. Don’t leave it out on the playground.
6. No one is to play on the little playground unless given permission.
7. Be respectful to other students.
8. No “budging” in line anywhere on the playground
9. When the bell rings, you are to line up and wait for your teacher. There is to be no
   horse playing on the black top area and no pushing and shoving in line. Do not open
   the doors until your teacher comes outside.
10. There is to be no chasing each other on the playground.
11. Be sure to use the bathroom before you come outside to play.
12. Do not bring any food outside.

Swings
1. Swing by yourself.
2. Do not push another student.
3. Do not jump off the swing.
4. Do not twist the chains on the swings.

Ringers
1. Do not climb up on the top.
2. Do not pull anyone while swinging.
3. Do not hang from the ringers by your legs.

Slide
1. Only one person at a time
2. Do not go down backwards
   or on your stomach
3. Don’t get in the way of another
   person on the slide.

Hulahoops
1. 4/5th graders only
2. Use only on back top area.
3. Do not throw them in the air.

Wall Soccer
1. If someone interferes with your game, do the kick over again.
2. There is no such thing as “sleepy judge”.
3. Side kicks are allowed.
4. When the ball is served up, the first two kicks by each player may not go over the
   black line on the bricks or over the wire fence.
5. The ball must hit the brick area. If it hits the metal stand by the door, it counts as a
   good kick.

Football
1. When the bell rings, the game is over. No more plays are to be made.
2. You are not to discuss the game after the bell rings, and do not bring talk about the
   game inside the building.
3. There will be 2 football monitors. If there is a question on a play, the monitors decide.
   If they can’t decide, the play is done over.
4. NO TACKLING
DENVER PUBLIC SCHOOLS
INTERDEPARTMENTAL COMMUNICATIONS
WHITTIER
Facility Management's
Elementary School Playground Selection Criteria

<table>
<thead>
<tr>
<th>Priorities</th>
<th>Numeric Point Value Assigned</th>
<th>Gradation of Numeric Point Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Full Plan</td>
</tr>
<tr>
<td>1. Master Plan developed (any source)?</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>2A. Lack of playground equipment (or availability of equipment)?</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Children/Play equipment capacity</td>
<td>5670</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Equipment</td>
</tr>
<tr>
<td>2B. Present equipment SAFETY levels?</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>2C. Soft Surface</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>3. Compliance with ADA Regulations?</td>
<td></td>
<td>Little – No Compliance</td>
</tr>
<tr>
<td>A. Sector/Magnet School (Level 1)?</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>B. All other schools.</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>4. Equipment age and Compliance with Current Codes?</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>5. Soft play areas (grass/sodding)?</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: Total Possible Points for a NON-Sector School = 80 Points only.
Total Possible Points for a SECTOR School = 90 Points only.

66.2 + 5 = 66.7
DENVER PUBLIC SCHOOLS
WHITTIER ELEMENTARY SCHOOL
Interdepartmental Communication

TO: Mike Langley, Executive Director, Facility Management
FROM: Carleane English, Principal, Whittier School
DATE: May 24, 2000
SUBJECT: Master Planning of Playground

School: Whittier Elementary School
School Sponsor: Carleane English
Phone: (303) 861-1310 (school); (303) 470-8247 (summer)
Fax: (303) 764-7983
Requirements: Our swings and other playground equipment date back to the turn of the century. We need a complete update and redesign.

Priors: We have put our energies into trying to secure our playground with adequate fencing.
Funding: None collected as of this time although a concerted effort (businesses, private donations, etc.) has not yet been made.

Statement: Ironically, this concern has been brought to our CDM’s attention by a parent who was concerned about the safety and appearance of our playground equipment. Whittier will lend whatever support possible to participate in this worthy project.
DATE 5-24-00  NUMBER OF PAGES 2
TO  Mike Langley  FROM  Carleane English
COMPANY/DEPT  FACILITY MANAGEMENT  SUBJECT Playground Planning

MESSAGE:


TO: Board of Education

THRU: Chip Zullinger, Superintendent
Craig Cook, Chief Operating Officer

FROM: Mike Langley, Executive Director, Facility Management

DATE: December 27, 1999

SUBJECT: Parking Specifications for Schools

Purpose.

To receive approval for the above item which will be subsequently ratified at the next legislative meeting of the Board of Education. This request is in accordance with the procedures contained in the memorandum subject: General Obligation Bond Ratification Process, dated November 18, 1998.

Facts on the Issue.

Currently the DPS standard for parking spaces at elementary and middle schools is one [1] space per classroom plus 10 additional spaces. This is the same as required by Denver Zoning Regulations.

As we continue to develop new schools and school additions, there exists justification for increasing this standard. A paper on the issue of increasing parking spaces [attached] was previously staffed with all Assistant Superintendents. If approved and if adequate land exists, the new parking standards would be incorporated into all General Obligation Bond projects and annual pavement projects.

Recommendation.

The new parking specifications be as follows:

   Elementary Schools
   1  per classroom
   .5 per ECE-3 classroom [additional]
   15  Support and Supplemental Staff
   5  Visitors

HC parking spaces are included in totals given in this standard.
Middle School

1 per classroom
27 Support and Para-Professional Support Staff
5 Visitors

Process.

This communication will be forwarded to all School Board members by January 7, 2000. In the absence of any members objection, the President of the Board of Education will approve and sign this request on Friday, January 14, 2000. At the next legislative meeting the signed approval will be presented, for ratification, to the Board of Education.

THE NEW ELEMENTARY AND MIDDLE SCHOOL PARKING SPECIFICATIONS ARE APPROVED FOR USE AT NEW AND EXISTING SCHOOLS.

[Signature]
Elaine Cantz Berman
President, Board of Education

1/6/00

ML/ml
Bond/ParkingSpecs
CC: Laird Wendt
Mike Bates