Space to Grow: Greening Chicago Public Schoolyards

Everett McKinley Dirksen Elementary School

Master Plan Spring 2013
Master Plan
for Elementary School Campus Improvements

Everett McKinley Dirksen Elementary School

Prepared for: Chicago Public Schools
125 South Clark Street
Chicago, Illinois 60603

Approved: 

Openlands

Healthy Schools Campaign

Capital Architect and Design Manager

Completed by:
Chandi Aldena
Sydney Karpowich
Quan Liu
Alexander Taft

Course:
Landscape Architecture Studio 8
Landscape Architecture 6605-8
Spring 2013

Faculty Advisors:
Professor Lois Brink
Instructor Eric Crotty

University of Colorado Denver
College of Architecture & Planning
Campus Box 126 Denver, Colorado

Funding for this project was provided through a grant from Openlands.
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Introduction</td>
<td>1</td>
</tr>
<tr>
<td>The Challenge</td>
<td>1</td>
</tr>
<tr>
<td>City Infrastructure</td>
<td>1</td>
</tr>
<tr>
<td>The Solution</td>
<td>2</td>
</tr>
<tr>
<td>The Intent</td>
<td>2</td>
</tr>
<tr>
<td>Part 1: Assessing the Present Situation</td>
<td>3</td>
</tr>
<tr>
<td>Section 1: History and Culture of the O’Hare Neighborhood</td>
<td>3</td>
</tr>
<tr>
<td>Section 2: History of Dirksen Elementary</td>
<td>5</td>
</tr>
<tr>
<td>Section 3: Demographics of Dirksen Elementary</td>
<td>6</td>
</tr>
<tr>
<td>Section 4: The Stakeholders</td>
<td>7</td>
</tr>
<tr>
<td>Section 5: School Culture and Programs</td>
<td>9</td>
</tr>
<tr>
<td>Section 6: Physical Condition of Dirksen</td>
<td>11</td>
</tr>
<tr>
<td>Section 7: Storm Water &amp; Drainage</td>
<td>13</td>
</tr>
<tr>
<td>Section 8: Needs and Desires</td>
<td>15</td>
</tr>
<tr>
<td>Part 2: The Master Plan</td>
<td>19</td>
</tr>
<tr>
<td>Possible Elements</td>
<td>20</td>
</tr>
<tr>
<td>Spatial Diagrams</td>
<td>21</td>
</tr>
<tr>
<td>Lessons Learned</td>
<td>24</td>
</tr>
<tr>
<td>Organizational Concept</td>
<td>25</td>
</tr>
<tr>
<td>Schematic Design</td>
<td>26</td>
</tr>
<tr>
<td>Smart Tools</td>
<td>31</td>
</tr>
<tr>
<td>Part 4: Appendix</td>
<td>33</td>
</tr>
<tr>
<td>Photo Survey Results</td>
<td>33</td>
</tr>
<tr>
<td>Design Development Documents</td>
<td>37</td>
</tr>
<tr>
<td>Storm Water Analysis</td>
<td>60</td>
</tr>
<tr>
<td>Challenge Course Elements</td>
<td>61</td>
</tr>
<tr>
<td>Playground Equipment</td>
<td>62</td>
</tr>
</tbody>
</table>
Everett McKinley Dirksen Elementary School

Project Introduction

The Challenge

Studies show that a well-planned and equipped exterior play area enhances the learning environment resulting in improved learning and achievement. Such play areas provide physical and mental challenges that translate to improved health and cognitive abilities. One of the principle goals of schools is to provide a focus for the community - a place to gather and to meet, a place to enjoy, a place that enhances the community’s appearance.

Chicago Public Schools (CPS), as with many urban school districts, is the second largest landowner in the city. The district has 400,000 students housed in 681 buildings. The district is faced with under utilized resources coupled with financial issues while striving to improve the quality of K-12 education. With the implementation of the Full School Day which started last fall, CPS brought back recess. The 2013 draft capital budget proposes a the multi-year investment to ensure that schools have new or improved playlots. The playgrounds compliment recess and the newly proposed full day Kindergarten. CPS is also in the process of consolidating it’s resources in order to better serve its students.

“Every child in every neighborhood in Chicago deserves access to a high quality education that prepares them to succeed in life. For too long, however, children in certain parts of Chicago have been cheated out of the resources they need to succeed in the classroom because they are in under utilized, under-resourced schools. By consolidating these schools, we can focus on safely getting every child into a better performing school close to their home.” -- Barbara Byrd Bennett

City Infrastructure

Chicago built a stormwater conveyance system in 1856 to control runoff and reduce flooding. Like most cities in this era, Chicago built one underground system that combines both wastewater and storm water. However, as the city has grown, more and more hard surfaces, such as rooftops and roadways exist resulting in increased levels of runoff particularly during floods. The city infrastructure has not kept up with urbanization and when storm water volumes exceed the system’s capacity the combined sewers overflow and release untreated waste and storm water into the Chicago River. This practice harms the health and habitat of the river. As the Metropolitan Water Reclamation District of Greater Chicago (MWRD) begins efforts to reduce storm water, greening schoolyards is an excellent opportunity to develop a larger innovative schoolyard model that supports the use of schoolyards as effective community and recreation resources by designing and implementing effective play and learning spaces critical to addressing child and community health.
The Solution

Space to Grow: Greening Chicago Schoolyards is a three-year campaign with a long term goal to transform Chicago schoolyards into safe and sustainable places that support student health and wellness, address the city’s green infrastructure needs, engage the broader community, and support play, learning, physical activity, interaction with nature and environmental awareness. Openlands and Healthy Schools Campaign, in partnership with Chicago Public Schools and others will develop a sustainable schoolyard planning, financing and construction model that leverages funding from a variety of public and private sources including green infrastructure dollars.

A sustainable schoolyard is a safe and sustainable center for community life where children can play, learn and interact with nature, as well as a physical space that addresses the city’s green infrastructure needs. While each schoolyard will be designed to meet the needs of the specific school and community, elements will likely include gathering spaces (big and small); a community gateway; multi-purpose fields; hard surfaces for games and educational elements; a natural habitat; an edible garden; and, public art.

The Intent

This school-community design model will be developed out of sustainable schoolyard pilots in three Chicago schools. This work will be done through a master planning approach that involves students, parents, teachers and the broader community in developing a comprehensive plan for the schoolyard. This report was part of a University of Colorado, Department of Landscape Architecture design studio conducted over an eight-week period in the Spring of 2013. This studio was funded in part by Openlands.

The master plan is a written report and set of schematic drawings set forth the structure for future campus improvements. Each school has a vision that speaks to the desires of the school and surrounding community. The vision is further delineated into goals that identify the major components for implementation. These goals are defined through the use of text and imagery. A programmatic list of uses is also developed. Lastly, each master plan sets forth the aesthetic ordering system or systems that will be used in the design phase to organize programmatic uses. As a pilot project this report is a hybrid of both master plan and a set of schematic design drawings which will provide a framework for fund raising and future construction.
Section 1: History and Culture of the O’Hare Neighborhood

O’Hare neighborhood, located in the Northwest corner of Chicago, is a multicultural community near the O’Hare International Airport. The community was not heavily developed until after World War II and the expansion of the airport. In the 1840’s, families started to settle in the area. German immigrants moved into the area and established a church and cemetery there called, St. Johannes. 1942 marked the opening of Douglas Aircraft, an American aerospace manufacturer that built cargo planes for the war. After the war, however, the facility became a commercial airport, named for aviator Edward H “Butch” O’Hare, O’Hare International Airport. Everything was removed except for St. Johannes Cemetery. The city began to annex parts of DuPage County to better connect the airport to the city, including the forest preserve areas.
The Kennedy Expressway (completed in 1956) further connected the link between the airport and the rest of Chicago. O’Hare, meant to be a small bedroom community for airport workers soon turned into a very family oriented community because of increased nearby land values.

The Ukrainian population of O’Hare neighborhood grew substantially after the war, moving from the original Ukrainian neighborhood into Northwest Chicago. In 1977, after twenty years of fund raising and construction, St. Joseph’s Ukrainian Catholic Church was opened, a trademark of the O’Hare neighborhood. As more people began to move into the neighborhood, high-rise apartment buildings, 2 and 3 flat units meant smaller occupancies quickly turned into family units.

Population (2010 Census): 12,756

Community Origin:
- Polish: 32.0%
- Italian: 25.6%
- German: 13.4%
- Irish: 7.5%
- Greek: 3.8%
- English: 2.0%

Demographics:
- White: 77.18%
- Hispanic: 9.5%
- Black: 3.16%
- Asian: 8.29%
- Other: 1.87%
Part 1
Assessing the Present Situation

Section 2: History of Dirksen Elementary

Dirksen Elementary is named after Everett McKinley Dirksen, an American politician representing the Republican Party. During his time as Senate Minority Leader, he played a key role in helping to write and pass the Civil Rights Act of 1964 and the Open Housing Act of 1968, both landmark civil rights legislation.

Dirksen Elementary was built in 1971 to serve 400 prekindergarten through 8th Graders. A one story module was constructed in 1972, closing off the back of the building and creating an interior courtyard. Currently, a module classroom located on the south eastern side of the lot houses four more classrooms.

“I came of immigrant German stock. My mother stood on Ellis Island as a child of 17, with a tag around her neck directing that she be sent to Pekin, Illinois. Our family had opportunities in Illinois, and the essence of what we’re trying to do in the civil rights bill is to see that others have opportunities in this country.”

- Everett Dirksen

Time Magazine

Historical documents detailing the importance of educational success at Dirksen Elementary (photos courtesy of Dirksen Alum facebook)
Section 3: Demographics of Dirksen Elementary

Total Student Population (2012-2013)
782 students enrolled

Student Population Statistics:
Low Income: 74.8%
Special Education: 12%
Students with Disabilities: 12.9%
English Language Learners: 48.3%

Student Demographics (2012-2013)
White: 69.1% (highest)
Hispanic: 12.5% (second highest)
Asian
Black
Native American
Other

Average Daily Attendance (2012-2013): 96.1%

“We strive to ensure that all students achieve individual academic success and become lifelong learners.”
— Chicago Public Schools

Dirksen School Zone (Source Chicago Public Schools)
### Part 1: Assessing the Present Situation

**Section 4: The Stakeholders**

Students: Dirksen received a Level 1 rating in the 2012 Progress Report. Level 1 is the highest rating at CPS. Currently, the school is not on probation.

#### Growth Details

<table>
<thead>
<tr>
<th>Grade</th>
<th>Reading</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd</td>
<td>45.2%</td>
<td>43.7%</td>
</tr>
<tr>
<td>4th</td>
<td>48.6%</td>
<td>57.5%</td>
</tr>
<tr>
<td>5th</td>
<td>49.2%</td>
<td>46.6%</td>
</tr>
<tr>
<td>6th</td>
<td>54.3%</td>
<td>65.2%</td>
</tr>
<tr>
<td>7th</td>
<td>50.6%</td>
<td>45.2%</td>
</tr>
<tr>
<td>8th</td>
<td>44.2%</td>
<td>40.4%</td>
</tr>
<tr>
<td>All Grades</td>
<td>48.7%</td>
<td>50.4%</td>
</tr>
</tbody>
</table>

**Subgroup Growth**

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Reading</th>
<th>Mathematics</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>47.0%</td>
<td>44.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>50.9%</td>
<td>50.5%</td>
</tr>
<tr>
<td>White</td>
<td>52.7%</td>
<td>42.9%</td>
</tr>
<tr>
<td>Students with Disabilities</td>
<td>51.6%</td>
<td>48.4%</td>
</tr>
<tr>
<td>Eng. Language Learners</td>
<td>50.9%</td>
<td>50.2%</td>
</tr>
<tr>
<td>Free and Reduced Lunch</td>
<td>50.9%</td>
<td>National Average</td>
</tr>
</tbody>
</table>

**Teacher Collaboration**

**Parent-Teacher Partnership**

<table>
<thead>
<tr>
<th>Score</th>
<th>COMPLETELY</th>
<th>MOSTLY</th>
<th>A LITTLE</th>
<th>NOT AT ALL</th>
<th>NO RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>26</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**School Safety Survey**

<table>
<thead>
<tr>
<th>Score</th>
<th>COMPLETELY</th>
<th>MOSTLY</th>
<th>A LITTLE</th>
<th>NOT AT ALL</th>
<th>NO RESPONSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>66</td>
<td>20</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Courtesy of schoolreports.cps.edu and cps.5-essentials.org
**ISAT Results**

ISAT scores were reported for Grades 3-8 at Dirksen Elementary School in 2012. On average, Dirksen’s scores were higher than the state average in Math, Reading and Science.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Math (Dirksen)</th>
<th>Math (State)</th>
<th>Reading (Dirksen)</th>
<th>Reading (State)</th>
<th>Science (Dirksen)</th>
<th>Science (State)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 3</td>
<td>90%</td>
<td>88%</td>
<td>78%</td>
<td>76%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>93%</td>
<td>88%</td>
<td>87%</td>
<td>76%</td>
<td>86%</td>
<td>80%</td>
</tr>
<tr>
<td>Grade 5</td>
<td>89%</td>
<td>84%</td>
<td>81%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 6</td>
<td>86%</td>
<td>85%</td>
<td>83%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grade 7</td>
<td>93%</td>
<td>85%</td>
<td>79%</td>
<td>82%</td>
<td>74%</td>
<td></td>
</tr>
<tr>
<td>Grade 8</td>
<td>85%</td>
<td>67%</td>
<td>84%</td>
<td></td>
<td>80%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Illinois State Board of Education
Section 5: School Culture and Programs

School Mission

“Our school community mission is to provide educational programs that support all, including special education and ELL, students’ literacy enrichment by committing to a high quality academic instructional program. All students will have an extensive opportunity to learn the skills of effective communication, analytical thought and creativity, All students will develop into adults who value and promote education and who contribute generously to our society.”
School Vision

The Everett McKinley Dirksen School’s vision is to provide an environment for all students not only regular education students but including special education and ELL students, to realize their full potential and take an active and responsible role in their own learning.

Programs and Activities

Mandated by the Chicago School Reform Act each school must establish a Bilingual Advisory Committee (BAC) as part of the state’s Transitional Bilingual Education and Instructional Programs.

The goal of the BAC is to help parents of ELLs develop leadership skills for effective participation in schools and advocate on behalf of all ELLs.

The BAC is recognized as a standing committee of the Local School Council. As a standing committee, the BAC reports to them regarding bilingual education.

- Math Help
- Reading Help
- Science Fair Help
- After School Program
- Basketball Teams
- Cross Country Team
- Garden Program
Part 1
Assessing the Present Situation

Section 6: Physical Condition of Dirksen

Dirksen was built in 1971, and an annex was added in 1972. Below, are original drawings for the building. Although the school isn’t as old as other schools in the Chicago Public School District, it is over capacity and over used. Leaving the interior and exterior of the building in need of major work.

“The childhood environment constitutes an enormous workshop of the senses and is an integral part of learning and an active element in it. It is difficult to design flexible, changeable spaces that are continually altering and simultaneously, to provide these places with an identity.”

-- The Third Teacher
Site Inventory

- Main entrance
- ADA Entrance
- ECE, Pre-k, and Kindergarten pick up area
- ECE playground
- West Foster Ave
- Dumpsters
- North Delphia Ave
- 40 year old annex
- Playground
- Parking Lot
- Module
- Teacher Parking Lot
Part 1
Assessing the Present Situation

Everett McKinley Dirksen Elementary School

Site Information

The ADA entrance is located on the Southwest side of the building in the annex. In order to enter through that door, you must go through the parking lot and walk a short distance along a path between an apartment complex and the school.

The only vehicular access is in the middle of the school site into the parking lot. The parking lot is used by faculty and staff. Currently contains more parking spaces than necessary. Parents normally park on the street and pick up their child, or stop along West Foster Ave to drop them at the front entrance. The school administration strongly advises against this due to the high volume of traffic along Foster. The main service areas are along the western side of the building. Dirksen has 5 dumpsters on site and are located near the entrance to the parking lot.

Section 7: Storm Water & Drainage

Calculations and documentation were done as per the agreement with the IEPA for the Illinois Green Infrastructure Grant. According to calculations, with the installation of the BMPs included in the design, the stormwater runoff will be significantly reduced, as will the impermeable area of the site. The water quality of the water leaving the site will also improve because of the filtering through the permeable concrete and CA-7 stone in the detention areas and many others the water will filter through as it infiltrates the ground help clean it. The volume of water that this project will retain is as follows:

Givens

1. It rains approximately 27.1 inches per year in the Chicagoland area. This project disturbs 101,175 sf. of surface area (2.4 acres).
2. 2-year storm, 1-hour duration (3 in/hr).
3. Type A hydrograph (duration = time of concentration).
4. The pavement acreage includes the property side of the crown of all four streets surrounding the site.

Calculations

1. Modified Rational Method – Qp = C * Ca * I * A, where:
   - Qp = peak rate of runoff
   - C = runoff coefficient (pavement = .95 & grass = .30)
   - Ca = antecedent precipitation factor (1.25)
   - I = rainfall intensity – 3 in/hr
   - A = area in acres (pavement = .45 & grass = .01)
   Pavement Qp = 1.6 ft³/s
   Grass Qp = .15 ft³/s
2. Volume = ft³/s * seconds = ft³
   Pavement volume = 345,600 ft³
   Grass volume = 3240 ft³
3. City of Chicago required release rate = .30 ft³/sec/ acre or 1080 ft³
4. Volume-storage = inflow – outflow
   Pavement - 345,600 ft³ – 1080 ft³ = 344,520 ft³ of storage
   Grass - 3240 ft³ – 1080 ft³ = 2160 ft³
   344,520 ft³ – 2160 ft³ = 342,360 ft³ of total storage required.
Dirksen has extremely poor drainage on site where the slope does not exceed 2 percent. The rain and storm water pools in most areas of the schoolyard, parking lot, and turf. This makes the playground slippery and lawns muddy. An analysis of water on and off site was completed, as well as locating underground pipes to the best our ability from the given survey. The strategy is to filter and store around 3500 acre feet of water underground before letting it run into storm sewer system.
Part 1
Assessing the Present Situation

Section 8: Needs and Desires

Students and teachers filled out a survey to decide program elements that they would want included in the schoolyard design. Some of top picks among both students and teachers were a challenge course, basketball court, climbing structure and swings.

Photo Survey Results

Students, teachers, and staff were surveyed to assess what their programmatic interests were for the playground. Students were asked to imagine their ideal playground. Next, they were given 19 images related to the design of playgrounds from which they chose 4 they would like to have incorporated into the Dirksen playground design. While the survey was being completed, there were discussions of each picture about what they like, do not like, and why. The following results show the desires of parents and students which are visually represented in the Wordle/Word Cloud on page 20. Survey Results within the Dirksen Master Plan document.

Wish List

A collection of student drawings submitted to University of Colorado Denver graduate students for input into designing Dirksen’s schoolyard

Proposed map provided by students and teachers for schoolyard
Part 1

Assessing the Present Situation

Stakeholder Workshops

On Thursday April 12th, an all day community workshop was set up by Openlands to solicit stakeholder input for the work that the CU graduates had prepared to date. Students prepared three boards of their work to date. The schedule was as follows:

- 7:30 - Eric Crotty, Chandi, Alex, Syndney and Quan arrive at Dirksen to set up
- 10 am parent meeting in the Dirksen Library
- Teachers meet in their grade level teams throughout the day. Team Meetings begin at 8:45 and go hourly until 10:45 and resume again at 12:25.
- 3:30 – 4:30 Student Council Meeting somewhere in the day too.
- 5:00 Exit interview with Principal

Stakeholders were given dots and sticky note pads to share ideas and identify elements they liked and disliked. Blue dots represent elements they do not like and yellow green dots are elements they liked. Play equipment catalogues where also available for review.

Teachers - Wave A

"In the school garden I would like to enjoy the classrooms or lunch. It would be so nice to do projects and have class outside."
-- Jane Mahas, student

"We can work as a team to accomplish a vegetable garden. It would also be nice to have a track for exercise"
-- Ewa, student

"This whole neighborhood plays basketball and we always have to go to gyms to play. Most of them are far away."
-- Arnel Grozdonic, student
Teachers - Wave B

Student Council

Assessment
Vision

This master plan creates space for play, learning and community life. The design integrates all available space within the school boundaries to incorporate the following five design principles: culture, education and technology, environment, play and safety.

Culture: The design celebrates the cultural diversity of the students.

Environment: The design creates hands-on experiences for scientific discovery.

Education & Technology: The design incorporates smart tools to encourage interests in math, science, and literacy.

Play: The design promotes physical and mental health by improving the recreational opportunities.

Safety: The design will improve the circulation and access while maintaining a safe and secure school campus.

Goal

The goal of this master plan is to create an innovative design that incorporates play, learning and community to support the school vision for education and inclusion of all students at Dirksen. The design will provide students with opportunities to learn the skills of effective communication, analytical thought and creativity. The spaces are designed with both the students and their families in mind; creating an engaging landscape for the Dirksen community.

Concept Diagram
Possible Elements

We developed a list of possible program elements to be included in the schoolyard makeover. The list was developed in accordance with Dirksen’s school vision and what is currently being taught at the school, as well as the results from the photo survey. CPS developed a list of possible program elements that are approved for schoolyards, which are included in this list as well.

<table>
<thead>
<tr>
<th>PLAY</th>
<th>EDUCATION/TECHNOLOGY</th>
<th>SAFETY</th>
<th>ENVIRONMENT</th>
<th>CULTURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Track and field</td>
<td>Mobile classroom</td>
<td>Visual/noise buffer</td>
<td>Learning Garden</td>
<td>Gateway</td>
</tr>
<tr>
<td>Four square</td>
<td>Science plaza</td>
<td>ADA entry</td>
<td>Rain garden</td>
<td>Parent gathering</td>
</tr>
<tr>
<td>Hopscotch</td>
<td>Outdoor classroom</td>
<td>Teacher parking</td>
<td>ECE garden</td>
<td>space</td>
</tr>
<tr>
<td>Play equipment</td>
<td>ECE mentoring area</td>
<td></td>
<td>Butterfly Garden</td>
<td>Mural</td>
</tr>
<tr>
<td>k-2 Swings</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basketball court</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Challenge course</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Climbing structure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECE play area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes from teachers and students on proposed spatial diagrams (Photo taken by Sydney Karpowich)
Everett McKinley Dirksen Elementary School

Part 2

The Master Plan: Creating the Future

Spatial Diagrams

Protected Schoolyard

The Protected Schoolyard design places the outdoor classrooms and basketball court in the middle of the schoolyard. The ECE play area remains in the central courtyard with minimal change. With the addition of a second module, it was thought that it could work in the front of the school on the Northwest side. That area is currently only used during recess, and most of the time it can't be used because it gets so muddy. During the presentation, teachers felt the parking was too far away and preferred to have the basketball court closer to the edge of the schoolyard to monitor what was going.
Transformed Backyard

This design creates an open transformed schoolyard, all the things the students want and need are located in the back of the school, lending to a new “backyard”. Concerns during the presentation, however, were that the parking in the front of the building would be too small for the number of spaces needed. Both teachers and parents wanted protected pathways for students traveling to the mobile classrooms.
Part 2

The Master Plan: Creating the Future

Final Spatial Diagrams

Based on the feedback received from the faculty and students, a new spatial diagram was designed. During the presentation, we learned that the back of the building was never part of the initial construction (pg. 18) and that it should be torn down and a new annex should be built because it is past the CPS 25-year module/annex standard. We designed with that in mind, making the back of the building a 2 story annex and keeping the current module. We moved the parking to the southwest end of the site allowing a nicely sized area for play and learning.
Lessons Learned

After much deliberation of whether or not Dirksen should get a new school, rent a school nearby, or get 4 modules put on site, CPS decided to add a new module on the southeast edge of the playground this summer, and in 2-3 years tear down the annex. The annex will be a 3 story addition, adding a multitude of square footage for Dirksen. The information was brought to our attention a week before final documents needed to be turned into Openlands and CPS, and the students were charged with creating a new spatial diagram addressing this. However, our initial vision and goals are still very evident in the new diagram and hopefully our plan will be implemented in some way in the new schoolyard at Dirksen. Nevertheless, the news of a new annex is great news for Dirksen faculty and students. The overcrowded school will soon find much more room to breathe.
Organizational Concept

To guide us through the design process, we chose Polish and Russian textiles to inspire and design our layout and structures at Dirksen. The O’Hare neighborhood is historically Eastern European and has remained so, while welcoming in a number of different cultures and ethnicities into the neighborhood and school. The Polish textile tradition reflects the historic intertwining of cultures in the region. As a result, there are many different patterns, techniques, styles, and textures that fall within the well-known Polish textile and pottery tradition.

These specific patterns also relate to Dirksen’s mascot, the Senator. Although it is a trojan, similarities in the shape are found within these patterns. The curvilinear nature of the patterns influenced the path system that Dirksen desperately needed on site. The leaf shapes influenced shade structures and specific pockets within the ground for gardens and areas to relax and sit.

CU Denver students talking with the Dirksen student council (photo taken by Lois Brink)
Schematic Design

Using the information collected from the presentation and first hand site knowledge gained from the visit to Dirksen Elementary, a detailed plan was designed and drawn. The next few pages go into detail the specific areas of the schoolyard.

Green Infrastructure

2. Four (4) BMPs are featured in the design submittal: Porous Concrete, Rain Garden, Underground Detention Basin, and Other (Trees & Engineered Wood Fiber).

- a. Porous Concrete: There will be approximately 5,574 sf of permeable concrete in the center of the schoolyard and 5,432 sf of poured rubber playground surfacing in & around playgrounds. Both materials act under the same principle of being permeable to freely infiltrate water into underlying aggregate bases to collect water and convey to an underground aggregate detention system.

- b. Rain Garden: The rain garden was designed to be approximately 2,345 square feet in area. It is located on the west side of the site, on the south side of the main entrance of the school. The rain garden contains very permeable soil/sand mixture with underlying aggregate base to convey water to an underground aggregate detention system.

- c. Underground Detention System: The artificial turf field will have an average of 3 feet of aggregate detention underneath the approximately 9,456 square feet of turf. This area contains the bulk of the provided & required detention for the site.

- d. Other (Trees & Engineered Wood Fiber): Per the IGIG agreement 10 trees are proposed in a berm area which utilizes on-site material instead of exporting the material. There will also be engineered wood fiber with underlying aggregate to collect the rainwater and convey it to the underground detention system.

According to calculations, with the installation of the BMPs included in the design, the stormwater runoff will be significantly reduced, as will the impermeable area of the site. The water quality of the water leaving the site will also improve because of the filtering through the permeable concrete and CA-7 stone in the detention areas and many others the water will filter through as it infiltrates the ground help clean it.
Everett McKinley Dirksen Elementary School

Part 2

The Master Plan: Creating the Future

Illustrative Enlargements
Outdoor classroom area. A berm adds seating as well as another play element to the schoolyard. The shade structure helps define the classroom.

The students were very adamant about having a basketball court. The court is standard size for high school. The area also includes 2 tether ball areas.

Creating a track was one of the most important aspects of the schoolyard. Although the shape of the track is unique, it is a 200 meter track. The center is an additional field for activities.

The mobile classroom will have vertical living walls on all sides. This will soften the visual appearance of the mobile units and offer an interactive way for kids to learn more about plants.

Dividing the play areas for ECE, primary and intermediate students was important.
Everett McKinley Dirksen Elementary School

Part 2

The Master Plan:
Creating the Future

Illustrative Enlargements

The natural play area is a garden to explore native plants and learn about ecology.

A large gateway that also acts as a shade shelter defines the new kindergarten and ECE entrance, as well as an entry into the back of the schoolyard.

Hopscotch and foursquare will be painted on concrete for more opportunities of play.

Concrete bench seating will be placed around the schoolyard.

A new path connects the main entrance of the school to the back of the school. The new path will be much safer for students walking to the mobile classroom.
The northeast corner of the school will house a Learning Garden. A Learning Garden is a modular planter system that includes planter beds, art poles, and a shade structure. This area will be used to grow edible plants and can also serve as an outdoor classroom and community gathering space.

Two additional Astroturf fields will be located in the front of the building. This allows for more play space during recess, and easy access for gym classes to go outside. This design is based on the organizing concept.

The Senator mascot adds additional school spirit to the schoolyard. The Astroturf will be prefabricated with all the designs and rolled out on the field.
Part 2
The Master Plan: Creating the Future

Smart Tools

Living Walls
The image to the right utilizes the module in a much more interesting way. Adding vertical gardens to parts of the module soften the hard lines of the building and offer more opportunities for students to learn about plants.

Woolly Pockets
Woolly Pockets are made from 100% recycled plastic water bottles that easily hang on indoor and outdoor walls. The pockets would be a perfect and easy way to gradually add a lush dimension to the module.
Photochromatic Paint

Photochromatic materials change color with changes in light intensity. Usually they are colorless in a dark place and when sunlight or ultraviolet radiation is applied, molecular structure of the material changes and it exhibits color. When the relevant light source is removed, the color disappears.

PlantSmart Digital Plant Care Sensor

These sensors measure sunlight, temperature, moisture, soil conditions and provides feedback. The feedback is given when you plug the device into a computer. The sensor works in shrubs, vegetable gardens, trees, grasses, flower and many other types of plants. Teachers and students could monitor the school plant life more closely using this tool.
Part 4: Appendix

- Parent/Student Photo Survey Results
- Design Development Documents
- Stormwater Calculations and Specifications
- Challenge Course Elements
- Playground Equipment
DIRKSEN: SURFACES

PERVIOUS SURFACE

IMPERVIOUS SURFACE

Appendix 36
DESIGN DEVELOPMENT DOCUMENTS

ISSUE DATE: May 16, 2013

EVERETT MICKINLEY DIRKSEN ELEMENTARY SCHOOL

8601 W Foster Ave

Chicago, Illinois 60656

Everett McKinley Dirksen Elementary School

Appendix

VICINITY MAP

SHEET INDEX

01. COVER SHEET
02. GENERAL NOTES
S1. SITE BASE
S2. DEMOLITION PLAN
S3. LAYOUT AND DETAIL PLAN
S4. HORIZONTAL SURFACES PLAN
S5. GRADING PLAN
S6. STORMWATER PLAN
S7. SUBSURFACE PLAN
S8. STORMWATER DETAILS
E1. LEARNING GARDENS ENLARGEMENT
E2. PAINTED GAMES ENLARGEMENT
D1. SITE DETAILS 1
D2. SITE DETAILS 2
D3. SITE DETAILS 3
D4. PLAY STRUCTURE DETAILS 1
D5. PLAY STRUCTURE DETAILS 2
D6. PLAY STRUCTURE DETAILS 3
P1. PLANTING PLAN
P2. PLANTING ENLARGEMENT 1
P3. PLANTING ENLARGEMENT 2
P4. PLANTING ENLARGEMENT 3
P5. PLANTING DETAILS

Completed For:

Chicago Public Schools
135 South Clark Street
Chicago, IL 60603

Approve:

David Lucas, Dirksen Principal

Approve:

Openlands

Approve:

Healthy Schools Campaign

Approve:

CDM Representative

Approve:

FJM, CPS Facility Mgmt.

Approve:

Grounds Superintendent, CPS Facility Mgmt.

Funded by Openlands
Appendix

SITE MAP:

1. EXISTING INFORMATION SHOWN ON THE DOCUMENTS WAS PROVIDED BY THE OWNERS OR RETRIEVED FROM DOCUMENTATION AVAILABLE IN THE PUBLIC DOMAIN. CONTRACTOR SHALL VERIFY ALL EXISTING INFORMATION AND CONDITIONS.
2. AN ALTA SURVEY IS REQUIRED TO BE COMPLETED FOR THE AREA WITHIN THE LIMITS OF WORK FOR THIS PROJECT. SURVEYOR SHALL LOCATE ALL UTILITIES ON SITE.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND AUTHORIZATIONS REQUIRED TO PERFORM THE WORK.
4. CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS FOR WORK REQUIRED IN THE PUBLIC RIGHTS-OF-WAY.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ACCESS TO THE SITE AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
6. CONTRACTOR SHALL PROVIDE FOR ADEQUATE SAFETY AT ALL TIMES DURING THE CONSTRUCTION PERIOD.
7. CONTRACTOR SHALL ENSURE THE SAFETY OF THE GENERAL PUBLIC.
8. CONTRACTOR SHALL COMPLY WITH ALL OTHER REQUIREMENTS RELATING TO SITE DEVELOPMENT.
9. CONTRACTOR SHALL REPORT ALL DISCREPANCIES IN PLANS VERSUS FIELD CONDITIONS IMMEDIATELY TO LANDSCAPE ARCHITECT PRIOR TO CONTINUING WITH ANY PERIOD OF WORK.
10. CONTRACTOR SHALL NOTIFY LOCATION OF EXISTING UTILITIES ON SITE PRIOR TO COMMENCING CONSTRUCTION AND NOTIFY LANDSCAPE ARCHITECT OF ANY CONFLICTS WITH PROPOSED IMPROVEMENTS.
11. CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING UTILITY COMPANIES TO CONFIRM THE LOCATION OF UTILITY LINES IN THE PROJECT AREA.
12. EXISTING CONDITIONS WITHIN THE LIMITS OF WORK REQUIRED TO BE REMODELED ARE report by the CONTRACTOR.
13. CONTRACTOR IS RESPONSIBLE FOR THE COST OF REPAIR TO UTILITIES, EXISTING LANDSCAPE, PUBLIC AND PRIVATE PROPERTY DAMAGED BY THE CONTRACTOR OR THEIR SUBCONTRACTORS, OPERATING DURING CONSTRUCTION.
14. EXISTING UTILITY LINES WITHIN THE LIMITS OF WORK SCHEDULED TO REMAIN SHALL BE PROTECTED IN ACCORDANCE WITH LOCAL JURISDICTIONAL REQUIREMENTS.
15. PROJECT SPECIFICATION AND STANDING AREAS SHALL BE RETURNED TO EXISTING CONDITIONS ON OR BEFORE COMPLETION OF THE WORK AND ACCEPTANCE BY THE OWNER.
16. CONTRACTOR SHALL REMOVE ALL CONSTRUCTION SUPPLIES, MATERIALS, TOOLS AND TEMPORARY STRUCTURES FROM THE SITE UPON FINAL ACCEPTANCE OF THE WORK BY THE OWNER. ALL CONSTRUCTION DEBRIS AND RUBBISH SHALL BE REMOVED FROM THE SITE NEARLY THE CONTRACTOR.
17. CONTRACTOR SHALL COMPLY WITH ALL LOCAL JURISDICTIONAL ENVIRONMENTAL STANDARDS.
Appendix
Appendix

1. Excavation information shown on the documents was provided by the owner or retrieved from documentation available to the public. Drawings are representative of construction conditions, and not as built.

2. Accurate information regarding the site conditions, utilities, and existing features on the site shall be determined by the Contractor.

3. Contractor shall be responsible for obtaining all permits and approvals required to perform the work.

4. Contractor shall provide all necessary equipment and tools required to perform the work.

5. Contractor shall comply with all local, state, and federal regulations related to site development.

6. Contractor shall be responsible for cleaning and removing debris from the site at all times during the construction process.

7. Contractor shall provide a secure site at all times during the construction process.

8. Contractor shall ensure the safety of the general public.

9. Contractor shall report all occurrences related to site development, including any unexpected findings to the owner.

10. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

11. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

12. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

13. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

14. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

15. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

16. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

17. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

18. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

19. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

20. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

21. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

22. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

23. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

24. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

25. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

26. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

27. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

28. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

29. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

30. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

31. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

32. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

33. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

34. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

35. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

36. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

37. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

38. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

39. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

40. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

41. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

42. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

43. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

44. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

45. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

46. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

47. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

48. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

49. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.

50. Site conditions are subject to change. The owner reserves the right to approve or reject any site changes.
Appendix

Everett McKinley Dirksen Elementary School
NOTES FROM LANDSCAPE STRUCTURES, INC. (MANUFACTURER)

THIS PLAY ARE & EQUIPMENT IS DESIGNED FOR AGES 5–12 YEARS

IT IS THE MANUFACTURERS OPINION THAT THIS PLAY AREA
DOES CONFORM TO THE ADA ACCESSIBILITY GUIDELINES
(ADAG), ASSUMING AN ACCESSIBLE PROTECTIVE SURFACING
IS PROVIDED, AS INDICATED, OR WITHIN THE ENTIRE USE
ZONE.

THIS CONCEPTUAL PLAN WAS BASED ON INFORMATION
AVAILABLE TO US, PRIOR TO CONSTRUCTION. DETAILED SITE
INFORMATION INCLUDING SITE DIMENSIONS, TOPOGRAPHY
EXISTING UTILITIES, SOIL CONDITIONS, AND DRAINAGE
SOLUTIONS SHOULD BE OBTAINED, EVALUATED, & UTILIZED IN
THE FINAL DESIGN. PLEASE VERIFY ALL DIMENSIONS OF PLAY
AREA, SIZE, ORIENTATION, AND LOCATION OF ALL EXISTING
UTILITIES, EQUIPMENT, AND SITE FURNISHINGS PRIOR TO
ORDERING. SLIDES SHOULD NOT FACE THE HOT AFTERNOON
SUN.
Notes from landscape structures, Inc. (manufacturer)

This play area & equipment is designed for ages 5-12 years.

It is the manufacturer's opinion that this play area does conform to the ADA accessibility guidelines (ADAAG), assuming an accessible protective surfacing is provided, as indicated, or within the entire use zone.

This conceptual plan was based on information available to the US prior to construction. Detailed site information including site dimensions, topography, existing utilities, soil conditions, and drainage solutions should be obtained, evaluated, and utilized in the final design. Please verify all dimensions of play area, size, orientation, and location of all existing utilities, equipment, and site furnishings prior to ordering. Slides should not face the hot afternoon sun.
NOTES FROM LANDSCAPE STRUCTURES, INC. (MANUFACTURER)

THIS PLAY AREA & EQUIPMENT IS DESIGNED FOR AGES 5-12 YEARS

IT IS THE MANUFACTURERS OPINION THAT THIS PLAY AREA DOES CONFORM TO THE A.O.A. ACCESSIBILITY GUIDELINES (ADAAS), ASSUMING AN ACCESSIBLE PROTECTIVE SURFACING IS PROVIDED, AS INDICATED, OR WITHIN THE ENTIRE USE ZONE.

THIS CONCEPTUAL PLAN WAS BASED ON INFORMATION AVAILABLE TO US, PRIOR TO CONSTRUCTION, DETAILED SITE INFORMATION INCLUDING SITE DIMENSIONS, TOPOGRAPHY, EXISTING UTILITIES, SOIL CONDITIONS, AND DRAINAGE SOLUTIONS SHOULD BE OBTAINED, EVALUATED, & UTILIZED IN THE FINAL DESIGN. PLEASE VERIFY ALL DIMENSIONS OF PLAY AREA, SIZE, ORIENTATION, AND LOCATION OF ALL EXISTING UTILITIES, EQUIPMENT, AND SITE FURNISHINGS PRIOR TO ORDERING. SLIDES SHOULD NOT FACE THE HOT AFTERNOON SUN.
Appendix

GENERAL LANDSCAPE NOTES:

1. All plant beds are to be mulched with 3” thick layers of shredded organic material. Mulch shall be in place by the end of April and shall be kept in place throughout the growing season.

2. All plant beds are to be kept free of weeds and other vegetation.

3. All plant beds are to be kept free of debris and other materials.

4. All plant beds are to be kept free of equipment and other materials.

5. All plant beds are to be kept free of equipment and other materials.

6. All plant beds are to be kept free of equipment and other materials.

7. All plant beds are to be kept free of equipment and other materials.

8. All plant beds are to be kept free of equipment and other materials.

9. All plant beds are to be kept free of equipment and other materials.

10. All plant beds are to be kept free of equipment and other materials.

11. All plant beds are to be kept free of equipment and other materials.

12. All plant beds are to be kept free of equipment and other materials.

13. All plant beds are to be kept free of equipment and other materials.

14. All plant beds are to be kept free of equipment and other materials.

15. All plant beds are to be kept free of equipment and other materials.

16. All plant beds are to be kept free of equipment and other materials.

LEGEND - PROPOSED FEATURES

ORNAMENTAL TREE

LARGE SHRUB

SMALL SHRUB

GRASS

PERENNIAL

PLANT MATERIALS LIST - DIRKSEN ELEMENTARY SCHOOL (STORMWATER GARDEN)

| KEY | QTY | BOTANICAL NAME | COMMON NAME | SIZE | REMARK
|-----|-----|----------------|-------------|------|-------
| SYRE | 1 | Gleditsia triacanthos | Honeylocust Tree | 3’-4’ Cali G.L.B. | 12’ H.
| LARGER SHRUBS | | | | | |
| CEDEC | 1 | Euonymus alatus | Burning Bush | 6 Gal. | Planted 2 D.C.
| CGSE | 1 | Lonicera × purpurea | Mexican Honeysuckle | 6 Gal. | Planted 2 D.C.
| CPE | 1 | Cornus sericea ‘Flame’ | Red Stem Dogwood | 6 Gal. | Planted 2 D.C.
| SML SHRUBS | | | | | |
| PA | 5 | Potentilla × grandiflora | Perennial Peony | 6 Gal. | Planted 3 D.C.
| GRASSES | | | | | |
| FCS | 5 | Panicum virgatum ‘Prairie Storm’ | Prairie Grass | 1 Gal. | Planted 5 D.C.
| AS | 7 | Andropogon gerardii | Bluestem Grass | 1 Gal. | Planted 5 D.C.
| GADD | 6 | Chamomile x ‘Aurea’ | Yellow Chamomile | 1 Gal. | Planted 5 D.C.
| PV | 3 | Panicum virgatum ‘Tall Grass Seed’ | Tall Grass | 1 Gal. | Planted 5 D.C.
| PEERENNIALS | | | | | |
| AM | 1 | Antirrhinum majus ‘Ladybird’ | Snapdragon | 1 Gal. | Planted 2 D.C.
| NJT | 4 | Dianthus × derivatus ‘Pink’ | Pink Delphinium | 1 Gal. | Planted 2 D.C.
| MC | 25 | Verbena officinalis ‘Blue’ | Blue Vervain | 1 Gal. | Planted 2 D.C.
## General Landscape Notes

1. Garden beds are to be landscaped with plants appropriate to the educational setting and climate.
2. Native plants shall be used in all landscape areas.
3. All bed edges are to be properly maintained and should conform to the planting depth of individual plant species.
4. All organic mulch shall be applied evenly and thoroughly.
5. All plant materials are to be properly tagged.

### Plant Materials List - Driscoll Elementary School (Natural Play Garden)

<table>
<thead>
<tr>
<th>Key</th>
<th>Qty</th>
<th>Botanical Name</th>
<th>Common Name</th>
<th>Size</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ornamental Trees</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>P. cort. Chilton</td>
<td>Chilton Pear</td>
<td>2½ Gal - 6 ft</td>
<td>13 ft</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>A. Nobilis</td>
<td>Norway Maple</td>
<td>2½ Gal - 6 ft</td>
<td>13 ft</td>
</tr>
<tr>
<td><strong>Large Shrubs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2</td>
<td>Ilex verticillata</td>
<td>Blackhaw Viburnum</td>
<td>5 Gal - 6 ft</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>A. arborescens</td>
<td>Locust</td>
<td>5 Gal - 6 ft</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>P. nigra</td>
<td>Purple Crape Myrtle</td>
<td>10 Gal</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td><strong>Small Shrubs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>P. virginiana</td>
<td>Russian Sage</td>
<td>5 Gal</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td>7</td>
<td>1</td>
<td>A. x grandiflora</td>
<td>Tiny Ten Muhly Grass</td>
<td>3 Gal</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>G. paniculata</td>
<td>Little Miss Blue Mesdames</td>
<td>3 Gal</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td><strong>Perennials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Echinacea purpurea</td>
<td>Purple Coneflower</td>
<td>1 Gal</td>
<td>3' Q.C.</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>P. amabilis</td>
<td>Blue Titania</td>
<td>1 Gal</td>
<td>3' Q.C.</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>A. coccinea</td>
<td>Tall Bluestem</td>
<td>1 Gal</td>
<td>3' Q.C.</td>
</tr>
<tr>
<td><strong>Grasses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1</td>
<td>P. tenue</td>
<td>Indian Grass</td>
<td>1 Gal</td>
<td>3' Q.C.</td>
</tr>
<tr>
<td><strong>Small Shrubs</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>P. virginiana</td>
<td>Russian Sage</td>
<td>5 Gal</td>
<td>Plant 3 Q.C.</td>
</tr>
<tr>
<td><strong>Perennial Grasses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>M. bradburiana</td>
<td>Indian Grass</td>
<td>1 Gal</td>
<td>3' Q.C.</td>
</tr>
</tbody>
</table>

### Appendix

58
Storm Water Analysis

Area prone to flooding

Area prone to flooding

Area prone to flooding

Area used for recess. High traffic has turned grass into muddy area.
Appendix

Challenge Course Elements

Spider Web Climber, available from Landscape Structures

Mobius Climber, available from Landscape Structures

Curved Track Ride, available from Landscape Structures
Playground Equipment

These are some options for the new playground. By placing the equipment around the schoolyard, specific play structures will be used by certain grades. All of these products are supplied by Landscape Structures.