Master Plan for Elementary School Campus Improvements

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

Approved: __________________________, __________
Openlands Date

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Healthy Schools Campaign Date

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Capital Architect and Design Manager Date

Completed by:
Amina Adnan
Wen Jiao
Hans Flinch
Hunter White
Aleksandra Sunde
Graduate Students of Architecture & Planning

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Faculty Advisors
Professor Lois Brink
Instructor Eric Crotty

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

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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 underutilized 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 underutilized, 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 fundraising and future construction.
Part 1
Assessing the Present Situation

Section 1: The Location

Morrill Elementary is located in the Chicago Lawn neighborhood in southwest Chicago. The school is bounded by W. 60th Avenue on the north, S. Rockwell St. on the west, S. Maplewood Avenue on the east and W. 61st Avenue on the south. The school is surrounded by residential tertiary streets on all sides. The main commercial street is 63rd Street. The closest major thoroughfare is S. Western Ave. which connects to the north at Interstate 55, leading to inner city Chicago.

Section 2: History of the School and Neighborhood

The Chicago Lawn neighborhood is in the heart of what is called the “bungalow belt”. Its 80,000 houses are mostly one-and-a-half-story single-family homes, rectangular and made of brick, the roofs low-pitched with wide overhangs. Most were built for the working class in the 1920’s and Chicagoans are beginning to embrace the craftsmanship of these homes and many were recently listed in the National Register for historic preservation.

The neighborhood’s historic race relations and residential settlement are strong forces in the community where the housing market and institutional discrimination are very influential in shaping the social and cultural makeup of the neighborhood. Local organizations and individuals involve themselves in a variety of activities to maintain diversity, including fighting for affordable housing, policing the community, and anchoring economic investment.
Morrill Math & Science School is a public, neighborhood school, serving more than 800 students in grades preschool to eighth. Many of the students go on to graduate from Gage Park High School, but more students each year are being accepted into selective enrollment high schools such as Whitney Young and Jones College Prep.

The school was named after Donald L. Morrill. Morrill was born in Maine in 1860. After graduating from Brown University, he went on to become principal of two Chicago schools, Von Humboldt and Andersen, from 1885 to 1889. He also served as an attorney for the Chicago Board of Education from 1891 to 1889, President of the Board, and an Illinois appellate court judge.

-- Donald L. Morrill web site

What began in 1876 as a model community on marshland outside the city evolved into a flourishing, suburb-like neighborhood by the 1930's. Once known for the race riots that erupted when Rev. Martin Luther King, Jr. marched here in 1966 for open housing, Chicago's Southwest Side communities are now very diverse. No longer predominantly white and Catholic, there has been a dramatic increase in the Latino and African-American populations.

“El respeto por la fe de los demás está en el mismo plano que la cultura.”

-- César Chávez

Chicago Lawn -- known as Marquette Manor-- was transformed from a farming community and in 1903 300 acres of prairie was built into a huge public park. Over the next 15 years, a field house, lagoon and golf course were built, and nearly 90,000 trees and shrubs were planted, all to create a massive recreational resource that is still one the areas biggest attractions: Marquette Park 'the playground of the southwest side'.

From 1990 to 2000, Chicago Lawn’s population grew by 20 percent, reaching 61,412 while many Chicago neighborhoods saw their populations shrink. The growth was the result of heavy residential turnover as the non-Hispanic white population dropped 72 percent, to 10 percent, while the African-American population doubled to 53 percent and the Latino population rose to 35.1 percent.

-- New Communities.org

**Section 3: Demographics of the Community**

Chicago Lawn and its surrounding communities is arguably the most culturally diverse cluster of neighborhoods on Chicago’s south side. With upwards of 60,000 residents, the African American and Hispanic populations have an equal footing with 49.26% and 45.19% respectively, while the Eastern European heritage is now a minority of only 4.35% Caucasians still living in the Marquette Park community (wikipedia).
Part 1
Assessing the Present Situation

Donald L. Morrill Elementary School

Neighborhood housing is largely made of single-family units with 18,498, with a reported 17,046 occupied housing units, leaving nearly 1,500 units vacant as of 2010. There exists a rough split between rented and owned units with 8,239 and 8,807 respectively compared to the greater Chicago area that is split 34% and 65% This illustrates the fact that the Lawn neighborhood economic stability is far below the average of the city.

Judged by the number of boarded up houses dispersed throughout the neighborhood, it is no surprise that nearly 20% of the population is below poverty level and households with public assistance is just about 10%. The median household income in the Chicago Lawn neighborhood is $35,000 compared to the City of Chicago which is $47,000.

-- United States Census Bureau

New Programs, Sports Bodes Well for Morrill
- Joe Boyle, 3.20.2012

Principal Michael Beyer said the staff at Morrill has unique challenges and it mirrors the problems facing society today: unemployment and underemployment. Many parents or guardians are in and out of work due to the economy, said Beyer. But a major factor in Morrill’s struggles the past few years has been the foreclosure crisis.

“We have a 30 percent mobility rate,” explained Beyer. “And that means 30 percent of the student body changes year from year...”

“It is hard to sustain some consistency and maintain growth when you have that much change.”

Morrill students show off their new bracelets. (photo courtesy of Morrill Elementary Facebook page)
Section 4: The Stakeholders

Students: The school received a level 2 rating, which is a middle rating at CPS. This rating is based on the school’s score on the Performance Policy. The school is on probation and must achieve a level 1 or Level 2 rating for two years in a row to be removed from probation. That being said, student performance is recognized as average according to computer-based tests which measure how much students learn in a year. Figures 2 & 3 show the percentage of students at Morrill who made expected gains on the Scanton test last year (note—the national average is 50%). — schoolreports.cps.edu

Morrill students presenting their “community” artwork. (photo courtesy of Morrill Elementary Facebook page)

Teachers and Staff

Morrill has struggled over the years to establish a trusting and collaborative relationship among its teachers, although in the past year the school has seen significant improvement among teachers and their ideas of trust among themselves. From 2011 to 2012 performance in the category of trust went from ‘very weak’ to ‘weak’ but on a scoring basis, trust performance nearly doubled with 60% of teachers saying that they feel okay expressing feelings, worries and frustrations with other teachers and that teachers respect other teachers that take the lead in school improvement efforts. While 68% of teachers felt that they were respected by others.
Part 1
Assessing the Present Situation

Community

Principal Michael Beyer has preached addressing parental involvement but that there is still a “whole laundry list of things to do.” The school’s community performance score is weak with main issues to address are parents feeling welcome at the school, parents sensing that school staff care about their students, and providing a sense of opportunity to participate in school decisions. One way that Beyer has attempted to keep the community in the ‘loop’ on happenings at Morrill is to keep an active Facebook page.

“In what ways can we understand differences, to better understand and connect?”

-- Michael Beyer, Principal

Safety

Morrill is located in a community that has a long history of turbulence that is still very active today. The Chicago Lawn neighborhood—Marquette Manor has gained notoriety for racial strife imposed by outside groups. There is a history of open housing marches (i.e. MLK march) that has resulted in a series of protests.

Today parents, students and teachers acknowledge that they do not feel safe at school or in the surrounding neighborhood. In a 2012 survey parents said that they do not feel that their kids are safe going to and from school, that they are not safe at school and that bullying is a problem at the school. Figure 5 displays the weak safety results at Morrill.
Section 5: Site Inventory and Assessment

91% of Morrill school grounds is made up of hard surfaces that form a barrier to absorption and make stormwater management on-site next to impossible. These impermeable surfaces contribute to the high levels of runoff and the maximization of water that man-made drainage systems can’t handle. The plethora of asphalt and concrete is cause for poor water and air quality on-site. The site is mostly flat, leading to inadequate drainage and pooling after rain events.

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<thead>
<tr>
<th></th>
<th>Area (sq. ft)</th>
<th>% of Total</th>
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<tbody>
<tr>
<td>Total Area of School Property</td>
<td>152,136</td>
<td>100%</td>
</tr>
<tr>
<td>School Building</td>
<td>41,837</td>
<td>27%</td>
</tr>
<tr>
<td>Parking Lot (Asphalt)</td>
<td>41,837</td>
<td>27%</td>
</tr>
<tr>
<td>Asphalt Play Areas</td>
<td>45,641</td>
<td>30%</td>
</tr>
<tr>
<td>Concrete Areas</td>
<td>6,846</td>
<td>4%</td>
</tr>
<tr>
<td>Rubber</td>
<td>3,043</td>
<td>2%</td>
</tr>
<tr>
<td>Planted Learning Garden</td>
<td>5,325</td>
<td>4%</td>
</tr>
<tr>
<td>Other Planted Areas</td>
<td>7,607</td>
<td>5%</td>
</tr>
</tbody>
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General Surface Areas

Site aerial of existing conditions source Morrill master plan application.
Drainage

Implementing best management practices (BMP) at Morrill can help protect Chicago’s lakes, streams and groundwater from storm water-related pollution. BMP to be included in the design proposal are porous concrete, rain gardens, an underground detention basin, and other subjects like trees & engineered wood fiber. According to our calculations, stormwater runoff will be significantly reduced, as will the impermeable area of the site. The quality of water leaving the site will improve with extensive filtering opportunities through the permeable materials and mediums.
Calculations and documentation were done as per the agreement with the IEPA for the Illinois Green infrastructure Grant.

**Givens:**
1. It rains approximately 27.1 inches per year in the Chicago land area. This project disturbs 152,136 sf. of surface area.
2. 100-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 - $Q_p = C \cdot C_a \cdot I \cdot A$, where:
   - $Q_p$ = peak rate of runoff
   - $C$ = runoff coefficient (pavement = .95 & grass = .30)
   - $C_a$ = antecedent precipitation factor (1.25)
   - $I$ = rainfall intensity - 3 in/hr
   - $A$ = Area in acres (pavement = 2.93 & grass = .20)
   - Pavement $Q_p = 10.44 \text{ ft}^3 / \text{s}$
   - Grass $Q_p = .22 \text{ ft}^3 / \text{s}$
2. Volume = $\text{ft}^3 / \text{s} \cdot \text{seconds} = \text{ft}^3$
   - Pavement volume = 37,584 ft$^3$
   - Grass volume = 792 ft$^3$
3. City of Chicago required release rate = .30 ft$^3$/sec/acre or 1080 ft$^3$
4. Volume-storage = inflow - outflow
   - Pavement - 37,584 ft$^3$ - 1080 ft$^3$ = 36,504 ft$^3$ of storage
   - Grass - 792 ft$^3$ - 1080 ft$^3$ = -288 ft$^3$
   - 36,504 ft$^3$ - 288 ft$^3$ = 36,216 ft$^3$ of total storage required
Part 1

Assessing the Present Situation

**Play Equipment**
Playground equipment is located on the east side of the school and sits atop a rubber play surface which is about 3,000 square feet and occupies about 2% of the site. The site inventory found that there was not enough equipment to accommodate the current number of kids (800+). There exists no swings and there is no age specific equipment.

**Playing Field**
The surrounded playground area is paved asphalt (roughly 46,000 sq.ft.) with few designated zones. The asphalt is in poor condition and is a less safe option for field surface play. The only basketball hoop does not stand upright and does not have a net. More so, one hoop does not serve the capacity for the number of kids using the basketball court.

**Vegetation**
The school does not have a grass playing field leaving the only planted spaces along the building edge and the only tree plantings in the tree lawns outside the actual school grounds. There is a community garden that is under construction and will incorporate more interaction with vegetative processes however there is still an unbalanced ratio between vegetated and hardscaped space.

**Accessibility**
The only ADA accessible ramp to the school building is located on the south side of the school within the schoolyard boundaries. All other entrances have at least 4 steps up to the door. Although the playground is relatively flat, the uneven pavement and concrete are challenging to manipulate over especially when water pools after a rain event.

**Vehicular Access**
The parking lot is located on the northeast side of the building. The lot is surrounded by a low-standing iron fence with two entry points. The northeast entrance into the school building is located directly off of the parking lot. This entrance is a main entrance where visitor check-in is located as well as the main administrative offices.

**Service & Maintenance**
The main service areas are located between the under construction community garden and a secondary east side entrance into the school. It will be difficult to alter this location, so the design will need to consider maintaining the current service access, separating the other uses and establishing a buffer between the areas.

Meetings with parents for their ideas on their new schoolyard design. (Photos taken by Amina Adnan & Lois Brink)
Section 6: Needs and Desires

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 Morrill 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 Morrill Master Plan document.

Photo Surveys

Parents

“Que seran el fin de semana el parque.”
--- Student

“Principalmente lo primero es cercar alrededor de toda la escuela para mas seguridad.”
--- Parent

“Estoy emocionada y lo que se haga con este espacio. Lo voy a apoyar nuestros hijos y escuela que los necesitan.”
--- Parent

Students

The “word cloud” was generated from the survey results received from the community constitutes.

For more information on the photo survey that was completed, refer to the Master Plan Appendix.
Stakeholder Workshops

On Friday April 13th, 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 Lois Brink, Eric Crotty and Wen, Hunter, Amina and Alek arrive at Morrill to set up
- 9:00 AM—Meet with the parents/community organizations.
- 12:30 – 1:30 – Meet with students
- 12:21 – 12:25 — Introduction to Teachers How do we want our school grounds to look, feel, and work? OpenLands / University of Colorado will briefly introduce themselves and explain the process for sharing feedback.
- (Lunch to go)
- 2:45-3:30 PM — Open invitation for additional feedback from teachers - Faculty and Team will share feedback with OpenLands and Lois Brink and team from University of Colorado
- 3:30 – 4:30 Exit interview with principal

Due to the number of parents who arrived (over 40) two subgroups were created to stimulate conversation, interaction and the sharing of ideas. 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 like.
Group B

Community boards with comments - photos of workshop session in progress - the line drawing if you could crop that from the photo - caption, “parents design of special place between the filed house and the school

Teachers

Teacher workshops were set up in the school atrium to allow for informal discussion during the afternoon of a teacher in service day. Teacher comments we more verbal given the informal nature of the workshop.
Section 7: Spatial Concepts

Of the three concepts presented during the stakeholder workshops, Performance Play was the most popular.

The stakeholders were attracted to the “Performance Play” diagram for main features like the amphitheater space for educational and community gathering, and turf field for activities like soccer, softball and running. Stakeholders were attracted to elements from the other diagrams like the running track from the “Wild Play” scheme that has a track going all the way around the building and the community was drawn to the idea of age specific play areas which is represented in the “Performance Play” option.
Performance Play

• Outdoor theater and gathering spaces
• Designated athletic spaces
Part 2

The Master Plan: Creating the Future

Introduction

There are five components to this master plan that are intimately intertwined in the development of the playground:

- The Vision and Goals;
- The List of Programmatic Elements;
- The Spatial Concept;
- The Organizational Concept;
- The Illustrative Plan;

The “vision and goals” speak directly to the needs and desires of the school and surrounding community for their new schoolyard. The “vision” briefly states what the design intent of the schoolyard is. The “goals” outline how the vision is executed and the way that it will feel and what will happen there.

The list of possible elements quantifies the physical things and spaces that make-up the schoolyard site. The “spatial concepts” diagrammatically describes how the programmatic elements spatially relate to one another and to the surrounding context. The “organizational concept” sets up a method for organizing the programmatic elements on site. Like the spatial concept, it is also diagrammatic in nature. Finally, the illustrative plan depicts the outcome within the defined framework offered by the spatial and organizational concepts.

Together, these five components become the driving force for the actual design of the playground. Since these components are derived from the initial research and analysis, they strongly address the needs and concerns of the school and surrounding community. And, as such, they are the seeds and the soil from which a fruitful, thoughtful design grows.

Vision

Morrill Schoolyard will be an anchor to the Chicago Lawn neighborhood providing a safe, inspiring, prideful learning environment for the entire community.

Goals

To design a schoolyard that fosters community; a playful learning environment where students, parents and teachers can feel safe to exercise, grow food, learn, and connect with nature. By enhancing stormwater management we can create opportunities for monitoring water on site, propagate habitat and biodiversity, foster healthy living and increase the amount of greenspace that is currently non-existent.

Concept Diagram

The Concept diagram (figure 1) is an interpretation of the needs and desires expressed by students, teachers and parents for an improved schoolyard. The center represents the values, curriculum and community foundations that Morrill Elementary School can provide as an anchor for the community. It is balanced by the forces of the outer circumference that exhibits the pride and character of the Chicago Lawn. These positive objectives are described as key values of playfulness, integration, safety and activity. When Morrill and the community comes together with the same objectives there is a productive balance that can benefit the neighborhood as a whole.
“We are tearing out the asphalt; planting grass, trees and shrubs; adding benches and playground equipment when appropriate and turning these areas (schoolyards) into campus (community) parks”

-- Mayor Dailey

List of Possible Elements

Gateway and welcoming signs

Traditional Play Equipment
- Early Childhood Education
- Primary
- Intermediate
- Challenge course
- Hard Surface Play
  - Four square (4)
  - Tether ball (2)
  - Hopscotch
  - Basketball (2 courts, 1 flexible play space)
  - Running track (wraps around the school)
  - Challenge Course

Educational elements
- Map of Chicago
- Inspirational quotes

Soft Surface Play
- Grass playing field - softball / baseball, soccer
- Volleyball

Gathering Areas / Gardens
- Vegetable garden
- Habitat / native plantings
- Quiet reflection space
- Parents’ garden and gathering space
- Outdoor classroom
- Amphitheater space
- Bioswales
- Rain Garden
  - Hard Surface Areas
    - Walkways
    - Amphitheater space
    - Main gathering & plaza with shade pavilion

Art Features
- Art seat wall
  - Inspirational quotes in walkways

Storm Water Infrastructure Elements
- Porous concrete in schoolyard
- Porous rubber surface in play equipment areas
- Underground detention
- Rain garden
Part 2
The Master Plan: Creating the Future

Final Spatial Diagram

The Performance Play diagram turned out to be the preferred spatial concept by students, teachers and parents. Parents were most excited about elements like a gathering plaza between the field house and the main building where they could socialize with each other in a sheltered area. The plaza was also favored by students who liked the idea of having a place outside to each lunch and play chess at the game tables just outside the cafeteria.

Another element of the plan that stakeholders favor is the designation of sport play areas like the grass field where instead of playing soccer on an asphalt surface (which is currently the case) they will be able to play on a youth regulation dimensioned field. The field can also act as a flexible place where other play can take place. Parents, students and teachers were partial to having two full-sized basketball courts. One court will also function as space for other activities like four square and hopscotch.

And lastly, what set this plan apart from the “Wild Play” and “Smart Play” options was the theater space that extends off of the field house. This is a special place where outdoor learning can take place as well as provide opportunities for community movie viewing, and music performances.

Incorporated into the plan were borrowed elements from “Wild Play” and “Smart Play,” to include the track around the building and separate traditional play areas for ECE, Intermediate and Primary equipment.
The Organizational Concept

Fibonacci Sequence

As a guiding element, we selected the Fibonacci series spiral, or golden mean, as the representation of Morrill’s math and science curriculum. The Fibonacci Sequence is a numerical sequence that mathematically describes the logarithmic spiral found in many natural elements and marvels frequently occurring in nature – from the structure of a nautilus shell to the scales of a pine cone or center of a sunflower. This organizational concept merges the subjects of math and science with nature, creating the opportunity for a dynamic learning landscape.

The school building is architecturally rich, but it remains disconnected from the site that it sits on. The things that make a building and its site “well shaped” include the orientation of the schoolyard and the buildings on it, to the features of the grounds on which it is situated. The Fibonacci proportions allowed for a symbiotic relationship that connects the elements inside to those outside in the schoolyard. The landscape design synthesizes a complex list of possible elements with an enriched relationship between the neighboring community allowing Morrill to become an anchor for Chicago Lawn.
Part 2
The Master Plan: Creating the Future

Schematic Design

The Schematic Design depicts the outcome within the defined framework offered by the spatial and organizational concepts. While construction development is not tied to the illustrative plan, as in the case of construction details and site plan; it can provide a vision forward as the master plan process for the Morrill Schoolyard vision grows.

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.
Illustrative Enlargements

Main Gathering Plaza

The gathering area, just to the left of the field house, occupies the special place in between the school entrance and the field house. Concrete seat walls provide a canvas for student chalk art. Game tables are installed for lunch, socializing and for playing chess. The shade structure over the central sitting area will provide refuge from the hot sun and pouring rain.

The hard-surface is scored with lines that lead to context markers which point out various cultural centers, museums and educational landmarks throughout Chicago. Parents have their own place to the front right of the field house where they can sit and socialize under shade and enjoy the flowering garden.

Theater Space

The theater space extends off the back of the field house. This is a special place where outdoor learning can take place as well as provide opportunities for community movie viewing, and music performances.

The space incorporates a stage with an overhead awning that feathers off of the field house. Concrete steps allow for flexible seating for viewing activities on stage or simply as a place to sit and socialize.

The stakeholder's desire for lockers is also accommodated in the space to the right of the stage. The small lockers are in close proximity to the sport play areas so items can be stored while students play.
Part 2

The Master Plan: Creating the Future

Quiet Place

This is a place where students who prefer less active play can act more independently in a contemplative space surrounding by vegetation. There is a map motif of Chicago on the ground which is a legend to the bigger context map that extends from the main gathering plaza.

Hard Surface Play Area

The southeast corner of the school yard accommodates several different hard surface play that includes basketball, tether ball, and 4 square. There are 4 basketball hoops to allow for full court games but the court to the right can accommodate half court play to allow other game activities. Inspirational quotes by Michael Jordan, Muhammad Ali, and other famous athletes are engraved in the paths surrounding this area.
ECE Area

Early childhood development students have their own area. It is completely fenced in for safety and has an ADA accessible ramp and play surfaces. A habitat garden lines the north and east edge of the play space.

Parking Area

Staff and parent volunteers can park their vehicles in the newly arranged parking lot. There are 46 regular parking spaces and 4 ADA accessible spaces. A habitat garden welcomes staff and visitors to the main office entrance.
Appendix

Part 3: Appendix

- Parent/Student Photo Survey Results
- Stakeholder Presentation Boards
- Design Development Documents
- Smart Education Tools

Elementary School Photo Survey

Imagine the possibilities! What are your five favorite elements? Are there other ideas?

1. Tire Track
2. Shade Structure/Cactus de Seda
3. Mesa de Juego
4. Rock Wall/Roques
5. Learning Garden/Árbol de Aprendizaje
6. Open Plan/Cámaras para Reclutar
7. Garden/Garden
8. Track and Field/María de Jesús
9. Art Wall/Pared de Arte
10. Student/Estudiantes
11. Nancy and Carlos, Las palabras y frases
12. Cathedral Garden/Jardín Catedral
13. Challenge Course / Carrera de Obstacles
14. Reading/Enseñanza
15. Reading/Enseñanza
16. Game Table/Mesa de Juego
17. Play Equipment/Opciones de Juego
18. Hanging/Goles
19. Outdoor Classroom/Sala de Clases al aire libre
20.
**Photo Survey Results**

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**TOTAL**

|       | 240 | 241 | 0.5 | 0.49 | 486 |
Donald L. Morrill Elementary School

Appendix

Presentation Boards

Morrill

Official school name:
Donnel L. Morrill Math & Science Elementary School

Address:
601 S. Roosevelt Dr
Chicago, Illinois 60626
Phone: (773) 338-9295
Fax: (773) 338-6214

www.morrillữan.org

Principal: Zacse Michael S. Bowers

Other: Math Mentor - Assistant Principal

Important Information

- Attendance boundaries: See school zone map
- Language services: N/A
- Title I eligible: Yes
- ADA accessible: Yes
- Transiit CTA: CTA Bus Routes: 38, 50, 45

Population by Race

- Black: 39,286 (40.1%)
- Hispanic: 7,971 (8.2%)
- Asian: 1,551 (1.6%)
- White: 6,001 (6.3%)

Source: 2000 Census

Place of Birth and Citizenship

- Mexico: 9,640 (10.0%)
- Puerto Rico: 3,971 (4.1%)
- Canada: 1,551 (1.6%)
- China: 1,067 (1.1%)
- United States: 65,520 (68.0%)

Source: 2000 Census

Population by Zip Code

- 60629: 39,286 (40.1%)
- 60626: 7,971 (8.2%)
- 60625: 1,551 (1.6%)
- 60624: 6,001 (6.3%)

Source: 2000 Census

Population by First Ancestry

- Mexico: 9,640 (10.0%)
- Puerto Rico: 3,971 (4.1%)
- Canada: 1,551 (1.6%)
- China: 1,067 (1.1%)
- United States: 65,520 (68.0%)

Source: 2000 Census

Railroads

- Chicago & North Western
- Chicago, Aurora & Elgin

Source: 2000 Census

Legend

- Firehouses
- Hospitals
- Library
- Police Facility
- U.S. Post Office
- Schools
- Cemetery
- Parks
- METRA Lines
- Railroads
- Blue Line Subway
- Blue Line Elevated/At-Grade
- Brown Line
- Brown, Purple Lines
- Green Line
- Green, Orange Lines
- Pink, Brown, Purple, Orange Lines
- Pink, Brown, Purple, Orange, Green Lines
- Orange Line
- Purple Line
- Red Line Subway
- Red Line Elevated/At-Grade
- Red, Purple Lines
- Red, Purple, Brown Lines
- Yellow Line

Source: 2000 Census

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Presentation Boards
Principalmente lo primero es cercar alrededor de toda la escuela para mas seguridad

Estoy emocionada y lo que se haga con este espacio lo voy a apoyar nuestros hijos y escuela que los necesitan

Que seran el fin de semana el parque

 survey results [words: the bigger the word, the more you wanted it]

concept diagram [how we designed what you told us]

what you wanted us to know...

[student survey]

Appendix

Stakeholder Presentation Boards

Donald L. Morrill Elementary School

29
NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. THIS PLAY AREA & EQUIPMENT IS DESIGNED FOR AGES 5 TO 12 YEARS.
4. IT IS THE MANUFACTURER'S OPINION THAT THIS PLAY AREA DOES CONFORM TO THE A.D.A. ACCESSIBILITY GUIDELINES.
5. 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.
6. CHOOSE A PROTECTIVE SURFACING MATERIAL THAT HAS A CRITICAL HEIGHT VALUE OF AT LEAST THE HEIGHT OF THE HIGHEST ACCESSIBLE PART/FALL HEIGHT OF THE ADJACENT EQUIPMENT (REFER TO LOCAL SAFETY CODES).

NOTES:
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
2. DO NOT SCALE DRAWING.
3. ALL DIMENSIONS ARE CONSIDERED TRUE AND REFLECT MANUFACTURER'S SPECIFICATIONS.
4. IT IS THE MANUFACTURER'S OPINION THAT THIS PLAY AREA DOES NOT CONFORM TO THE A.D.A. ACCESSIBILITY GUIDELINES.
5. 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.
6. CHOOSE A PROTECTIVE SURFACING MATERIAL THAT HAS A CRITICAL HEIGHT VALUE OF AT LEAST THE HEIGHT OF THE HIGHEST ACCESSIBLE PART/FALL HEIGHT OF THE ADJACENT EQUIPMENT (REFER TO LOCAL SAFETY CODES).
We must learn to live together as brothers or
or perish together as fools.
—Martin Luther King, Jr.

I am building a fire, and every day I train, I add more fuel. At last the right
moment, I light the match. —Mia Hamm

NOTES
ALL TEXT TO BE 1" TALL
FONT IS HELVETICA LIGHT OBLIQUE
ALL TEXT IS SANDBLASTED INTO CONCRETE AT A DEPTH OF 3/4"
ALL TEXT FOLLOWS CURVE OF SIDEWALK
LANDSCAPE ARCHITECT TO VERIFY PLACEMENT ON SITE

NOTHING OF VALUE COMES WITHOUT BEING EARNED. —MICHAEL JORDAN
NOTES

ALL TEXT TO BE 18" TALL

FONT IS HELVETICA LIGHT OBLIQUE

ALL TEXT IS SANDBLASTED INTO CONCRETE AT A DEPTH OF 3/4"

ALL TEXT FOLLOWS CURVE OF SIDEWALK

LANDSCAPE ARCHITECT TO VERIFY PLACEMENT ON SITE

QUOTE KEY

1. “We must learn to live together as brothers or perish together as fools.” - Martin Luther King, Jr.
2. “Obstacles don’t have to stop you. If you run into a wall, don’t turn around and give up. Figure out how to climb it, go through it, or work around it.” - Michael Jordan
3. “I am building a fire, and every day I train, I add more fuel. At just the right moment, I light the match.” - Mia Hamm
4. “Success is no accident. It is hard work, perseverance, learning, studying, sacrifice and most of all, love of what you are doing or learning to do.” - Babe
5. “Nothing of value comes without being earned.” - Michael Jordan
6. “Imagination is more important than knowledge.” - Einstein
7. “I hated every minute of training, but I said, ‘Don’t quit. Suffer now and live the rest of your life as a champion.’” - Muhammad Ali
8. “We are what we repeatedly do. Excellence, therefore, is not an act but a habit.” - Aristotle
9. “El respeto por la fe de los demás está en el mismo plano que la cultura.” - Cesar Chavez
**A) Shade Structure Plan**

- ROOF MATERIAL TO MATCH FIELD HOUSE
- TS 1/4" x 4" x 4" STEEL FRAME
- WELD TO CENTER SUPPORT BAR
- WELD TO 6" SPACER
- WELD TO ADJACENT STEEL FRAME
- WELD TO 12" x 12" PLATE
- 45° CURB CUT FOR DRAINAGE
- 1/2" THREADED ROD BENT AS SHOWN
- REINFORCE WITH 4 - #5 VERT. WITH #5 HORIZ. AT 18" OC
- WELD TO SUPPORT COLUMN
- ALL MODULAR PANELS ANGLED 5° TOWARD NORTH FROM CENTER SUPPORT BAR
- EXPOSED STEEL FRAME
- (ROOFING MATERIAL NOT SHOWN)

**B) Shade Structure East Elevation**

- SCALE: 1/2" = 1'-0"

**C) Shade Structure Section**

- SCALE: 1/2" = 1'-0"

**Appendix**

48
Appendix

1. CATCH BASIN

- Frame and Grate
- Finish Grate, Slope to Drain
- Mortar
- 2-3 Courses of Brick
- Optional Mortar Cdt
- Gr. Agg Fill
- Varies 600mm (2-0"") Min.
- Concrete Fill, 16 Slope
- Outlet Pipe
- Grd Base, Rnv. As Rnv.
- Prepared Subgrade

2. TRENCH DRAIN

- Reinforced Concrete Slab Sloped to Drain
- Note: Depth of Trench Drain Varies - Slope Bottom to Drain Towards Outfall Pipe at 1/4 Inch Per Foot Min.
- Trench B-1000 x 20
- Trench C-1000 x 30
- Trench Trench with Frame & Grd. Cover
- 6" Thk. 4000 PSI Concrete with 6 Mil Vapor Barrier
- Reinforce Trench Drain with 7 #4's Continuous and #4 Stirrups with 8 Inch Leg at 12 Inches O.C.

3. POURED RUBBER SURFACE

- 50mm (2'') Porous Shielded Recycled Rubber Pavement w/ Proprietary Binder, Placed on Graded Crushed Aggregate As Per Manuf. Spec.
- Color Topping as Specified
- 15mm (1/2'') Top Layer
- 100mm (4'') Evenly Graded Aggregate Base As Per Manuf. Spec.
- Filter Fabric
- Washed CA-7

4. SYNTHETIC TURF ON DRAINAGE BASIN

- 200mm (8'') Free Draining Agg. As Per Manuf. Spec.
- Synthetic Turf
- 30mm (1/4'') Dual Lift Porous Rubber Filler Cushion As Per Manuf.
- Top Lift over Grade Beam
- 10x1200mm (4x4'') P.T. Wood Nailer Attached
- 15mm DIA. x 200mm (5/8' DIA. x 8'') J Bolt, 60mm (2 3/8"") Turf Stapled to Nailer
- 300x300mm (12x12'') Conc. Curb w/ Rebar As Req.

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
Appendix

SPECIFIED MULCH AMENDED SOIL PER PERENNIAL BED SPECIFICATIONS. PREPARE BED EQUAL LENGTH PLANT CENTER 3’
Smart Education Tools

WEATHER: RAIN

Chicago Precipitation
On average Chicago is one of the cooler cities in the United States and receives more rain and snow than a typical American city.

38" - average annual snowfall in Chicago.
36.3" - average annual rainfall in Chicago.
89.7" - snowiest year in Chicago history was 1978-1979 with 89.7 inches of snow.
9.8" - least snowiest year in Chicago history was 1920-1921 with 9.8 inches of snow.

EDUCATIONAL OPPORTUNITIES

HYGROMETER-Soil Moisture

AMBIENT MOISTURE SENSOR
WEATHER: SOLAR ENERGY

Temperature Records and Yearly Averages
Chicago receives 54% of all possible sunshine on a yearly basis.

Chicago receives on average 84 days full sun, 105 days partial sun, total days with sun 189

The average annual temperature for Chicago is 49.1 degrees.

The average annual daily high is 58.3 degrees.

The average annual daily low is 39.8 degrees.

EDUCATIONAL OPPORTUNITIES

AMBIENT TEMPERATURE
UVA / UVB RADIATION

GROUND TEMPERATURE
WEATHER: WIND

Chicago is known as the Windy City but is not among the top 10 Windiest Cities in the United States.

Average wind speed 10.3 mph

EDUCATIONAL OPPORTUNITIES

WIND TURBINES: Energy Output

WIND CHIMES-Wind Direction

ANEMOMETER- Wind Speed
Motion

http://www.youtube.com/watch?v=F9s803lJo58

http://www.youtube.com/watch?v=PyKg6N9QoMlTa

http://www.youtube.com/watch?v=cFHXw1mOyuPs

Noisy

Sonic Sensor

http://www.youtube.com/watch?v=sSvWrdGCBBk

Touch

A touchscreen is an electronic visual display that the user can control through simple or multi-touch gestures by touching the screen with one or more fingers.

http://www.youtube.com/watch?v=xK1sEI4kI

http://www.youtube.com/watch?v=J4wWaMfNuM

PHOTOCROMIC MATERIAL

Photocromic materials change reversibly 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.

- Façade, playground, benches...
- “The playground is purple, come and put on your sunscreen!”
LIGHT, SUNLIGHT AND UV

- Secret Rainbow
  http://vimeo.com/48444666
- Sunlight Installation
  http://vimeo.com/36600072
- Greeting to the sun
  http://vimeo.com/10527930

WILDLIFE

WILDLIFE – DIGITAL TIGER

At night projections from moving cars are shone on the buildings. Each car projects a video of a wild animal whose movements are programmed to correspond to the speed of car as the car moves, the animal runs along it speeding up and slowing down with the car, as the car stops, the animal stops also. The framerate of the movie corresponds to the speed of the wheel rotation, picked up by a sensor.

http://vimeo.com/20552197