KNAPP

ELEMENTARY

SCHOOL:

A Master Plan for Elementary School
Campus Improvements - Revision 1

Completed By: Jill Gaschler

Faculty Advisor: Lois Brink

Landscape Architecture Vertical Studio
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LA6700
University of Colorado at Denver
# Table Of Contents

**Introduction**
- Project Description
- Location/Background
- Constituent Groups

**Master Plan**
- History/Future Improvements
- Inventory of On-Site Uses
- Adequacy of On-Site Uses
- Surrounding Uses
- Conceptual Plan
- Goals and Their Program Elements

**Implementation**
- Phasing
- Budget Estimate

**Appendices**
- A - Knapp Student Charette Votes
- B - Detailed Cost Estimate
- C - Contact Histories & Knapp Contact List
- D - Test Scores & Westwood Demographics
- E - Academic Reference Materials
- F - DPS Design Data & Knapp ECE Play Equipment
- G - Safety Checklist
- H - Houston SPARK Precedent Data
- I - Miscellaneous
Project Description
For the UCD landscape architect students, the mandate was to embrace the value of a plural paradigm: to coalesce aesthetics, human behavioral patterns, environmentalism, and education within the design of a school playground. Initially, the UCD students explored urban space and school grounds through readings on these topics as well as research of existing case studies. The second phase applied that knowledge to the design of each elementary school. Also critical within this phase were meetings between the UCD student and constituent groups. The end product is a Master Plan for Knapp Elementary School.

Location/Background
Knapp is one of 86 elementary schools in the Denver Public School system. As shown at right, it is located at 500 South Utica in the vicinity of South Sheridan Boulevard and Morrison Road, Denver CO.

Six hundred and seventy children attend Knapp within the early childhood education (ECE) to 6th grade program. There are 75 teachers, para-professionals, and administrators for the school.

The student body at Knapp is from the surrounding Westwood Neighborhood which is bounded by Sheridan, Alameda, Federal, and Mississippi. Many Knapp students are from low-income households; approximately 86% of the students receive free school lunches. The Westwood Neighborhood is 58.2% Latino, 34.9% non-Latino White, 2.5% African-American, 2.3% Asian/Pacific Islander, and 2.2% Native American. Many Knapp students are primarily Spanish-speaking and attend English as a Second Language classrooms with either English or Spanish as the dominant language.

Knapp’s 1999 test scores for reading show 32% unsatisfactory, 48% partially proficient, 3% proficient, and 0% advanced. Math scores for the same period show 35% unsatisfactory, 32% partially proficient, 3% proficient, and 0% advanced.

Constituent Groups
Students
The Westwood Student body is approximately 75% Latino, 15% non-Latino White, and 1.5% African-American. Forty-six percent of these students live in poverty. The 670 students attending Knapp Elementary are comprised of approxi-
mately 150 ECE students and 520 K-6 students. Of those, approximately forty-nine grade 2 and grade 5 students from Ms. Lopez’s and Ms. Kenderas’ classes, respectively, participated in separate 1-hour design charettes.

Each charette began with a brief discussion of architecture and landscape architecture and their relative building materials. Next, the children looked at 25 color images of play equipment, outdoor spaces, trees, rocks, water, etc., to select their favorites.

The second grade students voted for three images each (1st, 2nd, and 3rd favorite) whereas the fifth grade students selected two images each. The image board and vote counts from the charette are present in Appendix A.

The general results showed that water, green turf, and large rocks were convincing favorites among the fifth grade students. Results from the second grade students were more evenly distributed and were thus inferred to represent variety as the desired element.

The charette concluded with the students drawing pictures of playgrounds featuring both elements already part of the school grounds as well as elements desirable as additions to Knapp. Among preferred playground equipment were tetherball, ringers, swings, slides, turf fields, and monkey bars. Less typical elements included tree houses, water slides, and wildlife. Grass was prevalent in many pictures as were trees and flowers, although to a lesser degree.
Parents
Single parents and teenage parents are not uncommon at Knapp since 48.4 percent of Westwood Neighborhood births are to unwed mothers and the teen birth rate is 121.8 per thousand (versus 64.0 in greater Denver). Parents participated in the Master Plan through the Collaborative Decision-Making Unit (CDM) and Parent Teacher Student Association (PTSA) meetings. The forum favored presentation of playground design goals and current status of the project rather than charette or brainstorming activities. Parents raised the issues of shade, pedestrian and vehicular access to the proposed west and north entrances, parking, cost, and implementation. Additionally, parents familiar with Barnum and Westwood Neighborhood Associations addressed the potential for participation by those groups.

Administration
Individual meetings with Dr. Katherine Adolph, Principal; Ms. Renee Cisneros, Paraprofessional and CDM Co-Chairperson; Mr. Tom Hunter, facility manager; and CDM and PTSA meetings provided administrative contact. Input covered general improvement strategies for game areas, sculpture gardens, community inclusion, shade, drainage, amount of equipment, special education class use, and circulation.

In addition to Knapp Elementary School Administration, Professor Lois Brink and the UCD students met with DPS Facility Management staff where Professor Brink explained the nature of the project from the perspectives of UCD, DPS, and the individual schools. In addition, DPS Facility Management staff Mr. Don Moon and Ms. Susan Ouelette participated in a round-robin critique of UCD student Master Plan site plans in early November.

Teachers & Paraprofessionals
Almost all of Knapp’s teachers are bilingual and able to teach both English and Spanish language classes. Teachers providing input included Ms. Lopez, grade 2; Ms. Romero and Ms. Cisneros, ECE; Ms. Kenderas, grade 5; Ms. Stewart, physical education (PE); Ms. Graham-Haradon, Art; and others who attended CDM and PTSA meetings.

Suggestions for improvements to existing spaces included re-organization of asphalt play activities to distance them from the building and to provide more efficient play areas for basketball, volleyball, and tetherball. Mitigation of muddy and icy areas was also addressed. Possible new uses and elements included an outdoor classroom, edible gardens, small garden spaces for individual classes, spaces for art display, shade, trees, benches, and plant materials.

The teachers were enthusiastic, generous, and creative in their contribution. The gist of their input emphasized habitability, addition of "green" spaces, and inclusion of varied spaces:

“Play environments have to be far more complex and replete with possibilities than they have been up to now.”
Robin C. Moore, 1974

Larger Community
Contact was made with Ms. Ramona Martinez, City Council; Ms. Jan Bell, Southwest Improvement Center (SWIC); and Ms. Carol Jensen, Westwood Neighborhood Association. SWIC and Westwood offered use of space in the SWIC center, offered written support, and inclusion on the community meeting agenda to further connect with the community.
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History/Future Improvements
Knapp Elementary, dedicated on September 5, 1956, was named in honor of Warren E. Knapp, a Denver school principal for twenty-nine years. Born in Westmoreland New York on January 22, 1850, he attended Whitestown Seminary in New York and Cornell University. Prior to arrival in Denver in 1884, he was a principal in New York State. In Denver he served as the Franklin School principal for 13 years, the Arapahoe County Superintendent of Schools for five years, and as principal of Cheltenham School in Denver for 16 years until his accidental death on October 14, 1918.

The Architect of record for Knapp Elementary is Charles Gordon Lee. The first school principal was Miss Carrie M. Petersen. The construction budget totalled $1,011,000 including $759,600 to general contractor A.A. & E.B. James Company, $184,400 to mechanical contractor Bell Plumbing and Heating, and $67,000 to electrical contractor Howard electrical Company.

The eight-classroom building expansion is in progress and scheduled for completion prior to the start of school in fall 2000. The addition is slated ECE use. Additionally, roof decking and window replacements are imminent.

Knapp additionally received a grant from the Denver Broncos/Phil Long Ford for a playground addition to be built in summer 2000. The playground design and volunteer build will be coordinated through Denver Urban Gardens.

Inventory of On-Site Uses
General Surface Areas
The existing surface areas, excluding the play equipment surfacing installed in summer 1999, are expressed in square footages (sf) as follows:

<table>
<thead>
<tr>
<th>Irigated Turf</th>
<th>Soft Surface</th>
<th>Asphalt</th>
<th>Concrete</th>
<th>Crusher Fines</th>
<th>Landscaping</th>
</tr>
</thead>
<tbody>
<tr>
<td>154,091</td>
<td>109,005</td>
<td>72,983</td>
<td>18,780</td>
<td>12,074</td>
<td>1,925</td>
</tr>
</tbody>
</table>

Including the building, the sites totals are 415,629 sf legal, 419,831 sf actual. A plan drawing of Existing Site Conditions follows on the next page.

Playground Equipment
A kindergarten/primary playground, formerly adjacent to what is now the ECE building addition, will be replaced with an ECE playground. Some of the displaced play equipment is now available for relocation: one four-bay swing set with 11 swings (2, 3, 3, and 3 swings/bay), one set of ringers, and one climbing apparatus (1.5’ high s-shaped).
A playground for older children located adjacent to the parking lot will be removed for parking lot improvements. Of the displaced play equipment, the four-bay swing set and one s-shaped climbing apparatus are available for relocation.

The lower central playground, installed summer 1999, includes a climbing/slide structure appropriate for primary users. Monkey bars and play bars are adjacent for intermediate users.

**Playing Field**
The turf playing field, installed summer 1999, measures 75,193 sf. This field can accommodate simultaneous non-regulation soccer and baseball. Two backstops are in place at the southwest and southeast corners of the field. The southern edge and southwest corner of this field exhibit drainage problems.

**Track**
A square crusher fines track, installed summer 1999 rims the turf playing field. Run-off from the turf is eroding the western and southwestern portion of the track.
Asphalt
Two main asphalt areas exist: a smaller area adjacent to the upper play equipment and a larger, central area adjacent to the lower play equipment. Total square footages are 4,358 and 34,453, respectively. The upper area, much of which will be replaced with the building addition, includes two tether ball poles, four four-square games, four hopscotch games, two nine square grids, and several unidentified small game courts. The lower asphalt area includes four tether ball poles, one volleyball court, one basketball court, eight four-square games, two hopscotch grids, and several unidentified small game courts. Totals are as follows:

<table>
<thead>
<tr>
<th>Tether Ball</th>
<th>Four Square</th>
<th>Hopscotch</th>
<th>Basketball</th>
<th>Volleyball</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>12</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

Soft Surface
Two large, level soft-surface squeegee areas are on site with undefined uses. One is adjacent to the upper asphalt area, the second is adjacent to but above the grade of the parking lot. Neither is programmed nor is any current use evident.

Plant Materials
The site has five main turf areas: 1. a large turf playing field mentioned above; 2. on the north and east street perimeters; 3. adjacent to the upper play equipment; 4. occupying a 10,600 sf triangular section on grade with the lower playground in the elbow of the building; and 5. along the slope separating the upper and lower playgrounds. Tree inventory includes six pine, one russian olive, ten ash, one aspen, and five unidentified deciduous. Various small shrubs occur throughout the site, particularly on the north and east street perimeters. Two four-tiered perennial beds bracket the north stairs on Alaska.

Vehicular Access and Parking
The existing 38-space parking lot combines with 6 head-in spaces adjacent to the southern building to total 44. No handicapped spots are available. Additional on-street parking is available on Utica Place and Alaska. Fire access begins through the main curb cut entrance on Utica Place and continues along the southern building edge onto the asphalt of the lower playground. The fire lane is gated adjacent to the gymnasium/cafeteria entrance.

Handicapped Accessibility
The gymnasium entrance on the south of the building and an entrance on the west of the building are accessible. Extant playground equipment is not accessible.
Adequacy of On-Site Uses

Safety

There is little exterior lighting on the grounds aside from street lights, some flood lighting on the building and one or two pole lights. At a minimum pedestrian walkways, entrances, parking areas, and steps should be lighted for safety. Building walls toward the center of the campus should be lighted in effort to reduce spray-paint tagging. In addition, lighting to enhance the appearance of the building and campus is desirable. Lights should be equipped with timers and motion-sensors depending upon their use. In addition, lights should be directed to avoid annoying neighboring property owners.

Equipment

Much of the older play equipment fails current safety standards. With the building addition and new parking lot, most of the older play equipment will be removed leaving the new, lower central playground.

The amount of new equipment on the site is inadequate. As many as 200 students occupy the playground at once during lunch break. The students are separated into three groups for lunch recess: kindergarten; grades 4, 5, & 2; and grade 3. Therefore, separate and age-appropriate play areas must be available to accommodate 200 students.

The ECE equipment will meet safety requirements but may not adequately serve the growing body of ECE students.

Parking and Access

Pedestrian and vehicular access conflict at the main (west) entrance. The access needs separation for both safety and to create a pleasant arrival to the school grounds. Proposed DPS parking improvements to this area address this conflict.

A gap beneath the chain link fence on the eastern edge of the site is used as an entrance, although it is not formally recognized. This entry point is functionally useful and should be included.

The current 44 parking spaces fail to meet the minimum standard of 1.5 spaces/classroom for schools over 500 students. Given Knapp’s current 30 classrooms plus 8 in the addition, the parking requirement jumps to 57 spaces minimum. The parking allocation for schools under 500 students is 2.5 spaces/classroom which would total 95 spaces for Knapp. In addition, at least 2 handicapped spaces should be added. The 57 spaces seem to forget paraprofessionals, administration, and visitors and 95 spaces seem excessive. DPS parking lot improvements are planned totaling 70 spaces.
Drainage

Drainage problems persist at various areas of the site. Run-off from the upper playground, shown at right, erodes the hill between the upper and lower areas of the site. Additionally, a muddy path between the central, lower playground equipment and the turf playing field should be mitigated. Perhaps most pressing, the southern edge and the southwest corner of the turf playing field installed summer 1999 exhibit drainage problems on the turf. Run-off from the turf is eroding the western and southwestern portions of the crusher fines track installed summer 1999.

New drainage plans, minimizing run-off from the upper playground, are included in the drawings for the building addition. Furthermore, Knapp’s facility management and Denver Public Schools Office of Construction Services are aware of existing problems and have taken steps toward the mitigation with the new building addition.

Nevertheless, since the southwestern corner of the turf is a low spot on the site, further mitigation may be desirable. One landscape design solution would be to shorten the turf field (on the west end), relocate the backstop eastward, and install a wet plants habitat area. The turf’s current dimension, 75,193 sf, is well above Construction Services minimum turf area goal of 31,500 sf. Even without shortening the field, the water could be harvested either on surface or subsurface and chanelled to an adjacent wet plants area. Each solution not only mitigates the drainage problem but also creates a plant ecosystem pursuant to playground variety.

Shade

The playground lacks adequate shade. Although the trees previously mentioned in the plant materials section provide shade, none is located within the dominant play areas on the playground. The 10,600 sf triangular turf area is cool and shaded; however, noise and distraction to the adjacent classrooms prohibit regular use.

Ambience

The playground has some positive elements like the treed triangle next to the building, new turf, and the bright new equipment. Yet overall, the barren entry,
the empty expanses, the institutional materials, and the lack of plants or other softening elements create no welcome, no interest, no wonder. The playground fails to give rise to the senses.

“*The need is to create an environment which not only provides for the developing child’s educational needs, but where a special ambience is created which signifies that young people are cherished, respected, and considered.*”

*Eileen Adams, 1993*

**Surrounding Uses**
The site is bounded by single family residential housing on four sides. Across Utica Place to the west and Alaska to the north housing fronts to the school. To the south housing backs to and abuts the site. To the east housing backs to the site but an alley separates the two. Virginia Avenue and Bingham Place dead end at the east site boundary and begin again on the to the west of the site across Utica.

**Conceptual Plan**
Redesign of the playground will stimulate play as well as catalyze learning in the landscape: both are afforded through traditional play equipment and non-traditional, pluralistic elements. Inclusion of outdoor learning activities encourages observation and creative thinking. The redesign seeks to accommodate differences in gender, learning style, and personality through creation of various kinds and sizes of spaces. The design strives to include math, science, language, and art within a hands-on outdoor environment. The naturalized site improvements promote knowledge of and respect for nature, biology, and ecology through increased visitation, understanding, and interaction with wildlife, plants, and natural processes.

The larger community will benefit not only through the gains of its children, but also through the site’s design as a community focal point. The redesign mitigates functional deficiencies of the grounds, including safe play, drainage, parking, and pedestrian safety. In addition, the increased respect shown to the school grounds reflects the value of Knapp Elementary as a whole.

These objectives are consolidated in the following five goals:

1. **Promote participatory, hands-on-learning through outdoor settings,**
2. **Actualize the school as a community resource and focal point,**
3. **Improve the quality and quantity of outdoor recreation/play opportunities,**
4. **Create a safer and more functional campus,**
5. **Improve the overall appearance and ambience of school and grounds.**

The conceptual plan and its proposed elements are presented in a plan drawing on the following page. Construction of the building addition, ECE playground, and additional parking improvements are currently being implemented through DPS. In addition, the lower central playground is an existing element. All other elements are proposed as part of the conceptual design plan.
Goals and Their Program Elements
Some program elements (e.g., outdoor classroom, art displays) contribute to more than one goal. If so, the element will be fully described under the goal to which it contributes most strongly. The element will be listed as a contributing element under other goals.

1. Promote participatory, hands-on-learning through outdoor settings.

Interactive Zone
An important aspect of environmental education is understanding that plants are part of living communities. It is the system or relationships of all organisms-flora and fauna-to their environment that is essential. A plant community lets children see an intricate system where the soil, geology, weather, plants and animals are deeply dependent upon each other.

The slope adjacent to the new east entry is unsuitable for most uses because it is steep and somewhat too removed from the main circulation of the playground. In addition, it links to other plant
ed areas of the playground thus contributing to a mini wild-life corridor on the site. The space will include good host species for caterpillars, nectar flower species for butterflies, materials for habitat improvement, and interpretive signage for classroom and public use.

**Wet Plants Habitat**
A water-loving plant garden will be a welcome addition to the southwest corner of the new turf. The garden will demonstrate a different ecosystem than the other gardens and will show how multiple species of plants with like needs co-exist. Inclusion of this ecosystem will help with the drainage problems as well as provide an opportune spot for a water-loving plant community.

**Art Displays**
Podiums, panels, and banner poles will strategically dot the entire site for the display of art from both the students and the larger community. Potential focal points include the Gathering Place, west gateway, east and southeast building entrances, and the Classroom Gardens.

**Classroom Gardens**
The intent is to provide small garden plots for the classrooms. ECE plots would be adjacent to the ECE classrooms of the building addition. Other gardens plots would be adjacent to the outdoor classroom. Classroom gardens provide opportunity to learn ecology, math (growth rates/water use), logic (cause/effect), language, etc. Thoughts include making plaques-like an arboretum-with the Latin and common names on them, pressing plants, journaling, etc.

**Outdoor Classroom**
The design includes a semi-enclosed, shaded space capable of accommodating approximately 30 students and a teacher. The space can be used both for traditional gathering and teacher presentation and for non-traditional teaching using outdoor elements and environs. It provides a “camp” from which outdoor learning projects can be initiated, regrouped, and summarized.

“As a basic ecological concept, “diversity” is the key parameter in most environmental studies curricula, so it is one point of union between adult and childhood agendas, where the ecology of play and the learning of ecology come together in a common setting.”

Robin C. Moore, 1974

“...rather than short-right-answer worksheets and recitations, they participate in the concrete experiences that underlie superior concept development and creative problem-solving in mathematics, engineering, science, and social studies.” (On building and equiping a solar greenhouse.)
2. Actualize the school as a community resource and focal point.

*Gathering Place*

Our society tends to segregate age groups creating barriers. Yet, “school yards are frequently located in the center of neighborhoods away from busy streets, readily accessible to residents, young and old. They represent potentially neutral territories at the social interface of school and community where the culture of the future and the culture of the present—childhood and adulthood—intersect. There is no reason why “dead asphalt” cannot be converted into living space.” (Robin C. Moore, 1974.)

Inclusion of a Gathering Place helps Knapp realize the goal of “school as focal point” within the community. The Gathering Place includes game tables, shade, and seating and is likely the single most welcoming element for the community as a whole. The game tables allow for structured play; the areas as a whole allows for quiet, unstructured play. The Gathering Place is centrally located for easy supervision of the playground and for symbolically placing community at the heart of the school.

*Cultural Display*

Cultural Displays within the Interactive Zone will acknowledge and celebrate the hispanic culture that makes up the majority of the Westwood neighborhood and Knapp Elementary. The inclusion of elements from the larger culture will contribute to Knapp’s presence as a community resource.

*Arrival Corridor*

The east entrance functions as the primary entrance to the site. As such, merits attention not only to safely separate vehicles from pedestrians, but also to contribute to Knapp’s importance as a place of learning and as a community resource.

*Contributing Elements for Goal 2: Gateways and Entry, Art Displays*

3. Improve the quality and quantity of outdoor recreation/play opportunities.

*Traditional Play Equipment (ECE, Primary, & Intermediate)*

Central Playground: The primary and intermediate play areas have been relocated to the center of the playground for easier monitoring as well as for separation of ECE, primary, and intermediate play. As construction of the building addition and associated parking occurs, existing play equipment judged by DPS as safe and age-appropriate will be relocated to the Central Playground. Primary and intermediate play equipment are clustered at the west and east ends of the Central Playground, respectively.

“Play is a significant part of children’s social education. Play is important, not just for the growing child’s physical well-being, but for its social, emotional and intellectual development. How might we provide for these different aspects by creating opportunities for different kinds of play activities? Where can they imagine themselves to be on a desert island, a high mountain or a jungle? How easy is it to find small protected spaces to dress up and play out imaginary scenarios?”

Eileen Adams, 1993

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

Jones & Prescott, 1978

Additional new equipment should be added to accommodate the number of student users. In addi-
tion, connection to the turf should be created to mitigate mud and shade is paramount.

ECE Playground: The ECE Playground will be located immediately adjacent to building addition which will house the ECE classrooms. ECE equipment has been selected and is included in Appendix E.

Shade Triangle
This existing shady, triangular area on grade with the Central Playground is underused due to its proximity to the building. Although one of the most tranquil on site, this space remains an unavailable haven. This area will be replanted very formally with emphasis on occupation of the east half. The redesign will promote quiet, unprogrammed used for peaceful play, such as watching or reading.

Asphalt
The tether ball, four-square, volleyball court, basketball court(s), hopscotch, and other games will be reconfigured on the existing asphalt surface.

Contributing Elements for Goal 3: Interactive Zone, Classroom Gardens, Wet Plants Habitat

4. Create a safer and more functional campus.

Shade/Enclosure
Shade in hot weather and enclosure in cool weather will be provided primarily through built structures and trees. Built structures are fundamental to the Gathering Place and the Outdoor Classroom. Trees are fundamental to the following areas: Gathering Place, Outdoor Classroom, Classroom Gardens, ECE Playground, Central Playground, Shade Triangle, and extant grass hill between playground levels.

Parking
Not only is the current parking lot too small and without handicapped spaces, but the building addition also demands more parking spaces. In addition, the current configuration is unsafe for the pedestrian. The current DPS redesign provides adequate spaces, handicapped parking, and improved safety through separation of pedestrian and vehicular access.

Contributing Elements for Goal 4: Traditional Play Equipment, Shade Triangle, Gathering Place,
Arrival Corridor

5. Improve the overall appearance and ambience of school and grounds.

Gateways and Entry
There will be three main entries to the campus. The design of these entries will encourage the flow of children to gathering/play areas in the schoolyard and ultimately to the main building entrances used by the school. The west entry will be redesigned as the primary gateway to the grounds, with the east and north entries functioning as secondary entrances. This space will provide a welcoming school entry for parents and students that separates vehicular and pedestrian traffic. Additionally handicapped access to this area will be improved.

Contributing Elements for Goal 5: All others
Phasing
Tree planting occurs concurrent with the associated program element installation.

Phase 1
- Initiate Lower Central Playground Gathering Place
- Reconfigure asphalt games
- Relocate displaced equipment
- Initiate north, west, and east Gateways

Phase 2
- Arrival Corridor
- Interactive Zone with Cultural Display
- Outdoor Classroom
- Classroom Gardens (lower level)
- Complete Lower Central Playground

Phase 3
- Wet Plants Habitat
- Complete Gateways
- Classroom Gardens (ECE)

Phase 4
- Add Art Displays not yet in
- Slope between playground levels
- Verify health of Classroom Gardens and Wet Plants Habitat
# Budget Estimates

**Phase I** $176,767
- Initiate Central Playground Gathering Place
- Reconfigure asphalt games
- Relocate displaced equipment
- Initiate north, west, and east Gateways

**Phase 2** $111,677
- Arrival Corridor
- Interactive Zone with Cultural Display
- Outdoor Classroom
- Classroom Gardens (lower level)
- Complete Lower Central Playground

**Phase 3** $50,563
- Wet Plants Habitat
- Complete Gateways
- Classroom Gardens (ECE)

**Phase 4** $22,200
- Add Art Displays not yet in
- Slope between playground levels
- Verify health of Classroom Gardens and Wet Plants Habitat

**Total** $361,207

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Implementation
Appendix A

Knapp Student Charette Votes
Second grade received blue, red, and yellow stickers signifying 1st, 2nd, and 3rd place favorites, respectively.

Fifth grade received red and green stickers [labelled Red(1) and Green(2)] signifying their 1st and 2nd place favorites, respectively.

**Yellow-2**

- Blue-1
- Yellow-2
- Red(1)-1

- Blue-1
- Yellow-1

- Red-3
- Red(1)-1
- Green(2)-5

- Red-1
- Yellow-1

- Blue-2
- Red-1
- Red(1)-1

- Blue-1
- Yellow-1

- Red(1)-2
- Red-1
- Red(1)-6

- Blue-1
- Yellow-1

- Red(1)-9
- Green(2)-1

- Blue-2
- Red-1
- Yellow-1
- Green(2)-5
Knapp Elementary School Design Precedents
Appendix B

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