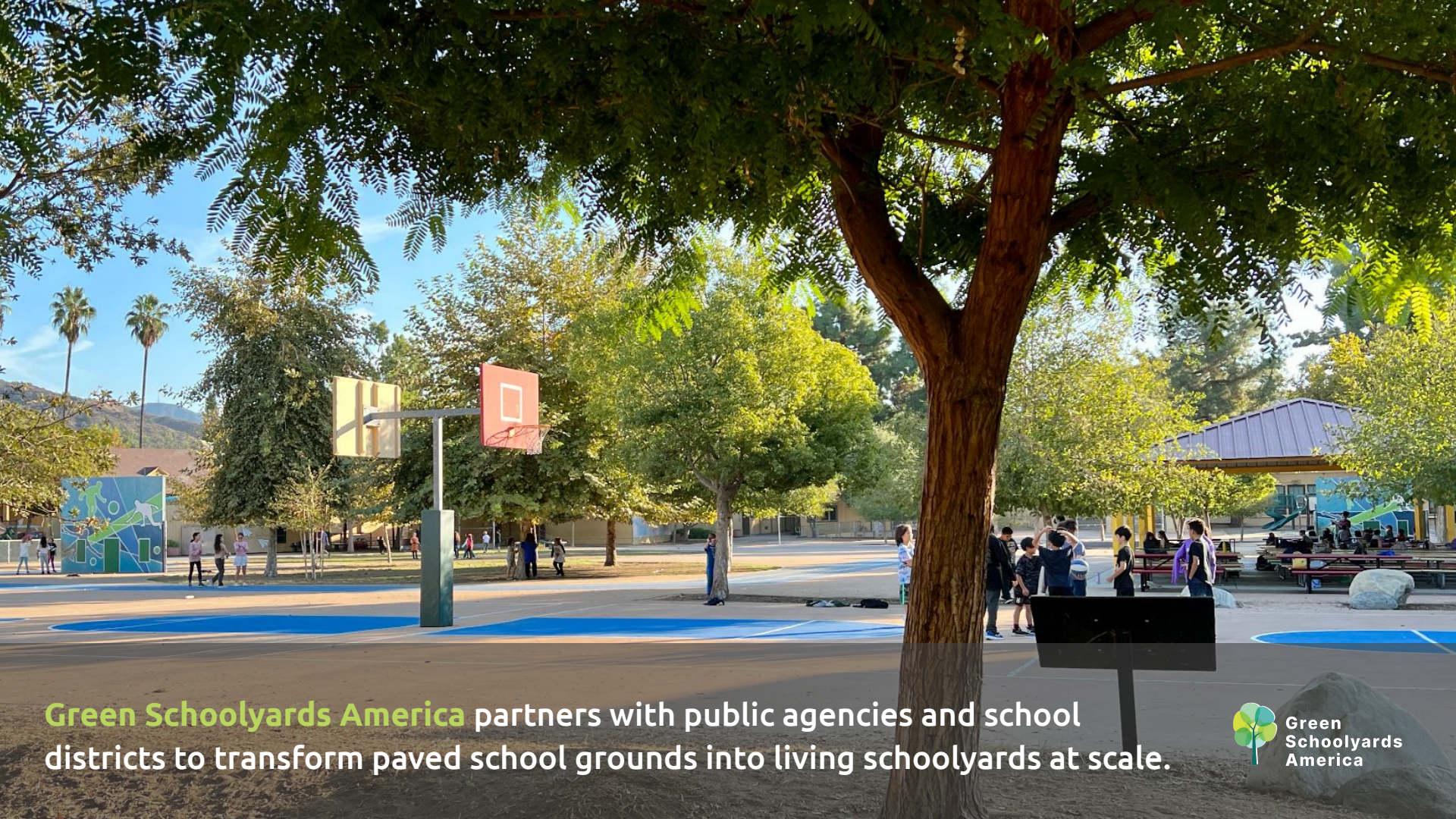
# Breaking Down Barriers to Schoolyard Greening

## Recommendations for LAUSD

**LAUSD Green Schools and Climate Committee**
March 25, 2026

Green Schoolyards America



**Green Schoolyards America** partners with public agencies and school districts to transform paved school grounds into living schoolyards at scale.

Green Schoolyards America

# CALIFORNIA SCHOOLYARD FOREST SYSTEM®

**An initiative to increase tree canopy on public school grounds across California to protect students from the impacts of climate change**

CAL FIRE SINCE 1885

DEPARTMENT OF EDUCATION STATE OF CALIFORNIA

Ten Strands
Connecting Education, Environment, and Community

Green Schoolyards America

# California Department of Forestry and Fire Protection (CAL FIRE)

## Urban and Community Forestry Program

Henry Herrera – Southern California Urban Forestry Supervisor

# Introduction

- CAL FIRE's Green Schoolyard Initiative
- State and federal funding (IRA)
- CAL FIRE has invested approximately $55 million across 51 LAUSD schools

# Grant Awards to LAUSD

- Two Green Schoolyards Childcare Facilities Grants
- $3,000,000.00 and $2,915,637.39
- Three childcare facilities for each grant, nearing completion of all six campuses

# TreePeople GSY CAL FIRE Grant

- Awarded $14,255,157.00
- 425,000 SF of concrete/asphalt removal
- 928 planted trees
- 69 outdoor classrooms
- 11 LAUSD campuses
- 2 Hacienda – La Puente USD campuses
- 3 Lynwood USD campuses

# Cedarlane Dual Language Academy at Hacienda – La Puente USD

## Concept Development Plans

- 19,200 SF of asphalt removal
- 4,600 SF of high – water use lawn removal
- 23,800 SF of native garden and outdoor learning
- 80 native and climate – resilient trees

## Approved 100% CD Plans (in construction)

- 18,500 SF of asphalt removal
- 6,500 SF of high – water use lawn removal
- 25,000 SF of native garden and outdoor learning area
- 82 native and climate – resilient trees

# Lindbergh Elementary School at Lynwood USD

## Concept Development Plan

- 10,000 SF of asphalt removal
- 10,000 SF of planting and outdoor learning area
- 41 native and climate – resilient trees

## Approved 100% CD Plans (in construction)

- 11,200 SF of asphalt removal
- 6,800 SF of high – water use lawn removal
- 18,000 SF of planting and outdoor learning area
- 46 native and climate – resilient trees

# Miles Ave. Elementary School at LAUSD

## Concept Development Plans

- 33,900 SF of asphalt removal
- 20,570 SF of grass play field
- 10,180 SF of native planting area
- 45 native and climate - resilient trees
- 3,000 SF of outdoor classroom space

## Revised Plans due to LAUSD Project Costs

- 16,000 SF of asphalt removal
- 15,530 SF of grass play field
- 1,200 SF of native planting area
- 19 native and climate - resilient trees
- No outdoor classroom space

# Campus Costs

Cedarlane ES (Hacienda – La Puente USD- $709,162.21

Lindbergh ES (Lynwood USD)- $431,713.68

*Miles Ave. ES (LAUSD) - $1,487,725.24

# Addressing Barriers

- Appointing the Eco-Sustainability Office as the single point of contact for green schoolyard partners
- Designating $3 million of funding, via credits or reimbursements, to support project related costs
- Establishment of TIGER Team to work with greening partners on schoolyard greening projects to address barriers.
- Updating LAUSD's lead paint and associated asphalt removal protocols to reduce costs

# Future Funding

- Aliso Canyon Recovery Fund (AB 157)
- $13.5 million for TK-12 school campuses in parts of the San Fernando Valley (ex. Reseda, Van Nuys)
- Application period April 1- May 29, 2026
- $50 million in Prop. 4 funding in fall, 2026 & fall, 2027

# Thank you

# THE NEED

Across LAUSD, ~500,000 students attend school every day on ~6,000 acres of land.

Many school grounds include acres of barren asphalt that exacerbate the impacts of the climate crisis on children.

Green Schoolyards America

# Los Angeles Unified School District

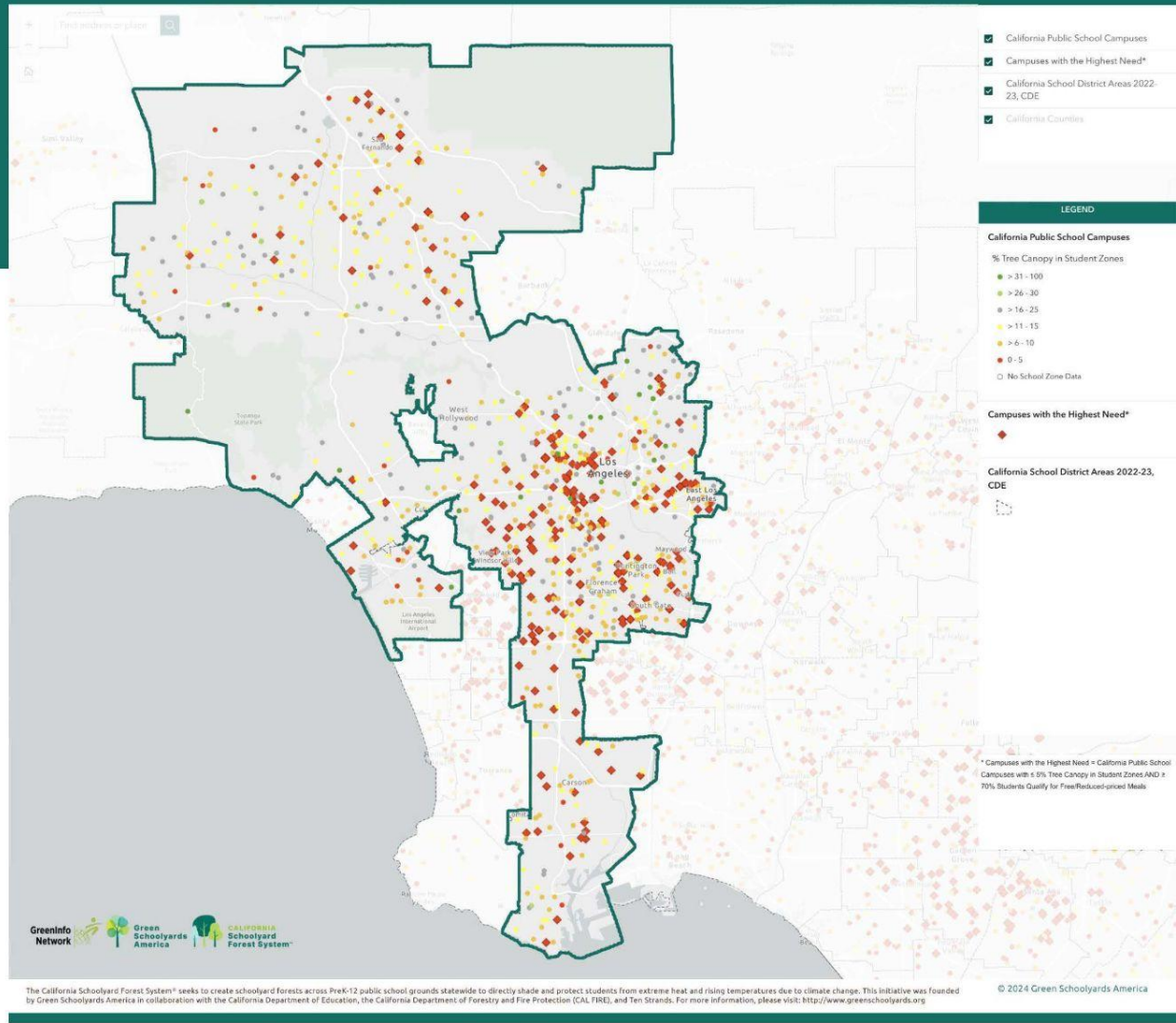
## Percent Tree Canopy Cover in Student Zones on Public School Grounds

California Schoolyard
Tree Canopy Equity Study

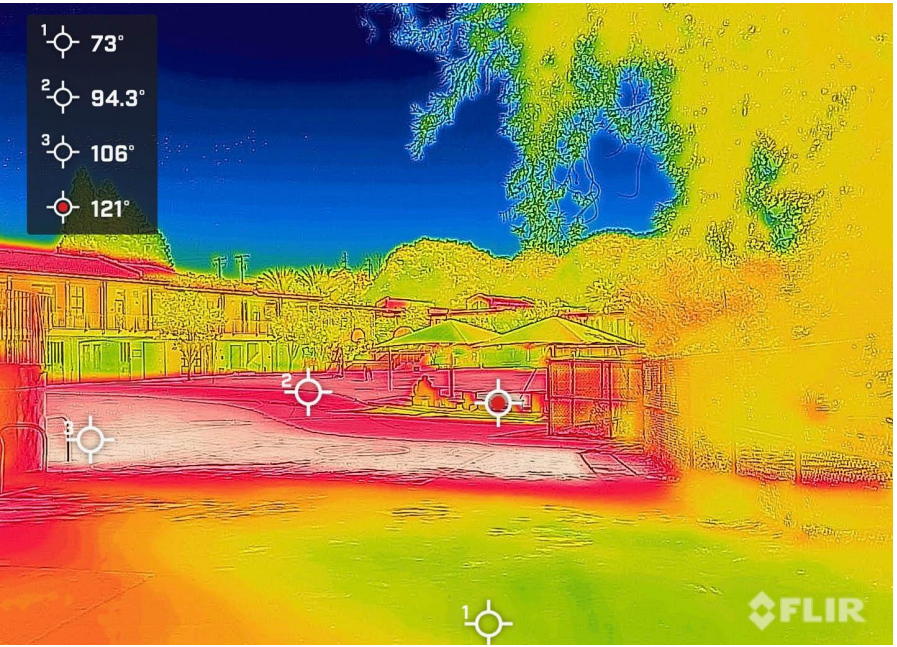
September 2024

Citation:

Gamson Danks, S., Chiesa, A., Knoppke-Wetzel, V., McKenna, L., Ashenmiller, B. (2024, September). *California Schoolyard Tree Canopy Equity Study: Part 2.* Green Schoolyards America. greenschoolyards.org.com/tree-canopy-equity



# Shade Trees





**As temperatures rise, tree canopy is becoming essential to make outdoor spaces livable and useable for children.**

The asphalt surface shown above was 33°F COOLER with shade from the adjacent tree!

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# THE SOLUTION

**Living schoolyards**, including schoolyard forests, are a scalable, nature-based solution that protects vulnerable children from the impacts of climate change while improving their health, learning, and environment.

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# Pilot Schoolyard Forests in California

## 2 Pilots

- E. 122nd Street, LAUSD
- Parkway Elementary, SCUSD

## Goals

- Identify barriers and test scalable approaches to creating schoolyard forests with student engagement
- serve as models for the districts and others.

## Funding

CAL FIRE (California Department of Forestry and Fire Protection)

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CALIFORNIA Schoolyard Forest System®

# 122nd St Elementary, LAUSD



**12,000 sf  44 trees**

+ shrubs, pollinator garden, logs, stumps, boulders, pathways

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# Parkway Elementary



**15,000 sf  58 trees**

+shrubs, pollinator garden, logs, stumps, boulders, pathways

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# Schoolyard Forest Pilots | Cost and Timeline Comparisons

| | Parkway Elementary (SCUSD) | | 122nd St Elementary (LAUSD) | |
|---|---|---|---|---|
| **Project** | **15,000 square feet (0.35 acres) , 58 trees** | | **12,000 square feet (0.28 acres), 44 trees** | |
| | **TIMELINE** | **COST** | **TIMELINE** | **COST** |
| **Site selection** | 1 month | *Included in GSA staff time* | 1 month | *Included in GSA staff time* |
| **Agreement** | 5 months | *Included in GSA staff time* | 11 months | *Included in GSA staff time* |
| **Concept design with community engagement** | 2 months | $22,600 | 6 months *( before Agreement was signed)* | $37,180 |
| **Construction documents** | 3 months | $58,500 | 12 months | $12,820 |
| **Construction** | 3 months *(except logs)* | $232,000 | 6 months | $206,000 |
| **District fees** | n/a | $0 | n/a | $33,760* |
| **GSA staff time** | n/a | $75,000 | n/a | $111,000 |
| **TOTAL** | **14 months** | **$388,100** | **30 months** | **$400,760** |
| **COST PER SF** | | **$25.90/sf** | | **$33.40/sf** |

*LAUSD fees to cover LAUSD's staff time for design reviews, construction management, inspections, and site assessment oversight were reduced to $ 15,009 after the Board passed a resolution to allocate bond funding to cover LAUSD staff time in order to reduce fees for greening partners.

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# CASE STUDIES

## Cesar Chavez, OUSD

Trust for Public Land

- 620 students in total
- 65 trees planted
- 14,000 sf of asphalt removed
- Garden, pathways, outdoor classroom, natural materials, and play elements.

**Project area**: 1.3 acres

**Project cost**: ~$1.6 million in 2021

(~2.1 million in 2026 with cost escalation)

**Timeline**: 3 years

BEFORE

AFTER

NEW STUDY

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# What Do Schoolyard Forests Really Cost?

## Comparisons for Schoolyard Forests, Asphalt, Grass, and Artificial Turf

This report is intended to assist school district leaders, particularly facilities and grounds maintenance staff, as they plan for the long-term stewardship of their schoolyard forests by providing recommendations and a breakdown of installation and maintenance costs compared to those for grass, asphalt, and artificial turf.


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**PUBLISHER**




Photos by Green Schoolyards America unless otherwise noted.


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# Why do LAUSD Projects Take Longer and Cost More?

## Agreement Template

Development Agreement designed for large LAUSD-led building projects, not appropriate for third-party schoolyard greening initiatives.

## Partner Role and Authority

Greening partners lack project authority despite being accountable to the grants for costs and delays. LAUSD maintains strict control over project without much liability for cost and timeline overruns.

## LAUSD Fees

LAUSD charged upfront fees—unlike other districts—with no incentive to limit costs, while the Greening Partners must cover cost overruns.

## Bureaucratic Approvals

Fragmented decision-making across multiple staff and departments resulting in inconsistent reviews, a non-stop cycle of revisions, and delays.

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# Why did the LAUSD Projects Take Longer and Cost More?

## Testing and Remediation

LAUSD soil and asphalt testing and remediation requirements need to be revisited to be more risk-calibrated.

## Technical and Design Standards

LAUSD standards are rigid, outdated, and favor expensive, over-engineered elements (e.g., concrete) over more sustainable options.

## Construction Inspections

The LAUSD Inspector—assigned late with limited project familiarity and trained for large DSA projects—applies continuous, open-ended inspections to small landscape projects instead of a milestone-based approach.

## Labor Compliance

Designed for large, district-led construction projects not for small greening projects.

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# RECOMMENDATIONS

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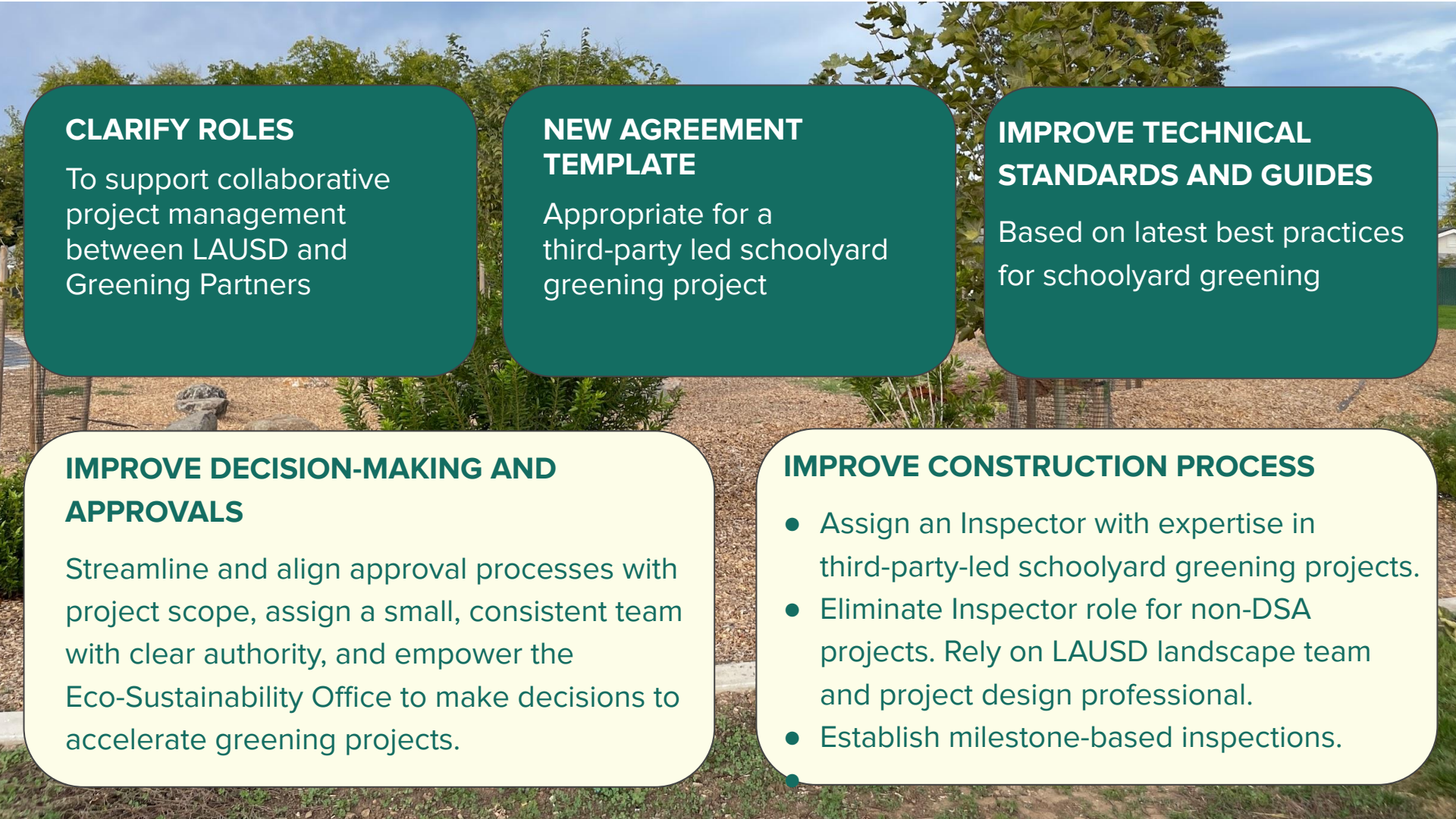

## CLARIFY ROLES

To support collaborative project management between LAUSD and Greening Partners

## NEW AGREEMENT TEMPLATE

Appropriate for a third-party led schoolyard greening project

## IMPROVE TECHNICAL STANDARDS AND GUIDES

Based on latest best practices for schoolyard greening

## IMPROVE DECISION-MAKING AND APPROVALS

Streamline and align approval processes with project scope, assign a small, consistent team with clear authority, and empower the Eco-Sustainability Office to make decisions to accelerate greening projects.

## IMPROVE CONSTRUCTION PROCESS

- Assign an Inspector with expertise in third-party-led schoolyard greening projects.
- Eliminate Inspector role for non-DSA projects. Rely on LAUSD landscape team and project design professional.
- Establish milestone-based inspections.

Green Schoolyards America

**Alejandra Chiesa,** MSc, MLA
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# Thank you!

# What Do Schoolyard Forests Really Cost?

## Comparisons for Schoolyard Forests, Asphalt, Grass, and Artificial Turf

This report is intended to assist school district leaders, particularly facilities and grounds maintenance staff, as they plan for the long-term stewardship of their schoolyard forests by providing recommendations and a breakdown of installation and maintenance costs compared to those for grass, asphalt, and artificial turf.

## Introduction

Many school districts cite maintenance costs as a major barrier to establishing schoolyard forests at scale. However, information on maintenance costs is lacking or overestimated. This report provides school district administrators and leaders in California—in particular, facilities and grounds maintenance staff—with information on costs and recommended practices for sustaining schoolyard forests over time, compared with costs for grass, asphalt, and artificial turf.

When considering long-term costs, it is important to note that nature-filled spaces with trees offer significant benefits to students, teachers, and communities. In contrast, paved areas not only forego opportunities to support health and learning but also worsen the impacts of climate change, such as heat and flooding.

In addition, schoolyard forests can lead to significant cost savings for school districts, including lower energy costs by shading buildings and reducing urban heat (Tsoka, 2021), higher student enrollment, and fewer student absences (The Big Sandbox Learning Project, 2024). Those cost savings are not included in this study but may be significant enough to offset maintenance costs.

## Methods

To gather information for this report, we reviewed scholarly articles and conducted interviews with urban forestry experts, school district maintenance leaders, and tree and landscape contractors in California. Installation and maintenance costs were calculated for a hypothetical yet realistic schoolyard forest model featuring large, medium, and small tree species. These costs were compared with those for grass, asphalt, and artificial turf over 40 years. The costs used are based on best practices and information from experts, district staff, and contractors, including those we interviewed for this study. In addition, this study relies on our organization's extensive experience building green schoolyards, including two schoolyard forest pilot projects in Los Angeles and Sacramento.

### BENEFITS OF SCHOOLYARD FORESTS

Research shows that schoolyard forests offer many learning benefits for students, including increased academic performance, opportunities for hands-on learning across all subjects, and inspiration for environmental stewardship that can be carried into adulthood. In addition, schoolyard forests and nature improve students' physical and mental health by supporting physical activity, protecting them from heat, decreasing stress levels, and fostering play and social-emotional learning (Latané, 2023).

# Why Maintenance?

To ensure that the investment in a schoolyard forest pays off, it is essential to (1) select tree species well-suited to the region and site and (2) plant them under conditions that support long-term health. And, as with any infrastructure investment, schoolyard forests also require ongoing management and maintenance, particularly during the early stages of establishment.

Some maintenance activities can be supported by students, teachers, and community volunteers. Teachers can incorporate simple tasks—such as weeding, planting, watering, and tree monitoring—into the curriculum and daily student activities, enriching learning across many subjects and increasing engagement, play, and health.

However, it is not always feasible for students and volunteers to meet all maintenance needs. School and grounds maintenance staff must still allocate time and resources to basic maintenance tasks and to certain specialized tasks, such as formative pruning and pruning mature trees, which often require contracting professional services.

## Reduces long-term costs and liability

By planning for and investing in proper maintenance practices, school districts can significantly reduce long-term expenses and liabilities associated with tree failures, removals, and extensive pruning needs at maturity. In addition, a tree's decline should be planned for; older trees can be removed and replaced with new trees on a schedule before they become a liability or prohibitively expensive to remove.

## All investments require maintenance

In addition, it is important to dispel the misconception that asphalt and artificial turf do not require maintenance. Although maintenance is less frequent than for young trees or grass, asphalt requires sealing every 3 years and full resurfacing every 20 years to prevent cracks from becoming tripping hazards that impact accessibility. Artificial turf requires regular maintenance—including disinfecting, decompressing, adding infill, and repairing patches—and replacement every 8 to 10 years.

# Phases of Tree Growth

Maintenance tasks associated with schoolyard forests vary depending on the phase of a tree's growth. For this study, we analyzed maintenance costs across three phases—establishment (years 0–3), juvenile (years 4–15), and mature (years 16–40)—based on typical needs for each stage. In practice, tree growth is a continuum, and the duration of these phases can vary by species and site conditions.

This study calculates costs only through the first 40 years of a tree's life, well-cared-for trees can live far longer, continuing to provide environmental and community benefits for many decades beyond the period analyzed.

### PHASES OF TREE GROWTH

**Establishment Phase (Years 0–3)**

The establishment period encompasses the first few years after planting. The highest mortality occurs during this period, and appropriate measures should be taken to increase tree longevity and survival. Young trees are more susceptible to environmental stressors, such as extreme heat or cold, and need more regular watering. Root development occurs during this period and plays a critical role in the tree's future health, as roots absorb nutrients and water and anchor the tree. This is also the period when minor formative pruning adjustments are most impactful, ensuring proper branching and structure at maturity.

**Juvenile Phase (Years 4–15)**

This period is characterized by extensive height growth and canopy development, but trees remain small enough for pruning and tree removals to be performed in-house by district staff.

**Maturity Phase (Year 16–40+)**

If best management practices are followed during the preceding phases, minimal maintenance is required during maturity, and in most cases, irrigation is no longer needed except during extended droughts.

# Maintenance Tasks

Key maintenance tasks associated with a schoolyard forest include irrigation or watering, mulching, pruning, weeding, and inspections. These tasks change depending on the phase of tree growth.

## Irrigation or Watering

Ideally, tree-planting projects include an efficient irrigation system to ensure the trees survive during establishment, when water needs are highest. If no irrigation system is installed, regular handwatering targeting the root zone is essential during establishment. Experts recommend starting with weekly irrigation and, as the tree becomes established, decreasing frequency and increasing volume of water. Once established, irrigation requirements depend on species, planting site, climate, and soil conditions. Once a tree is mature, watering is typically only needed during periods of drought. Handwatering can be done by students, teachers, or community volunteers.

## Mulching

Experts recommend maintaining a 3- to 4-inch layer of mulch around the base of trees to enhance water retention, prevent soil compaction, and reduce weed competition. It is also important to ensure that mulch is not directly against the trunk. Mulch typically needs to be replenished every 6 to 12 months to maintain appropriate cover.

## Weeding

Keeping weeds under control in a schoolyard forest is important because weeds compete with young trees for water, nutrients, and light, slowing root development and reducing survival rates. Once trees are established or mature, weed control becomes less critical, as their deeper roots and larger canopies allow them to out-compete most weeds naturally.

## Pruning

Formative pruning during the establishment phase and conservative structural pruning during the juvenile phase can be performed by school district grounds maintenance staff with appropriate training. Pruning done correctly in the early stages reduces the need for extensive, costly pruning later in maturity and helps prevent major tree failures. Formative and structural pruning may also be done by contracted certified arborists, depending on the district's staff capacity and expertise. For safety and liability reasons, pruning and removal of mature trees is usually contracted out to professional tree companies that possess the right equipment and training to perform those activities.

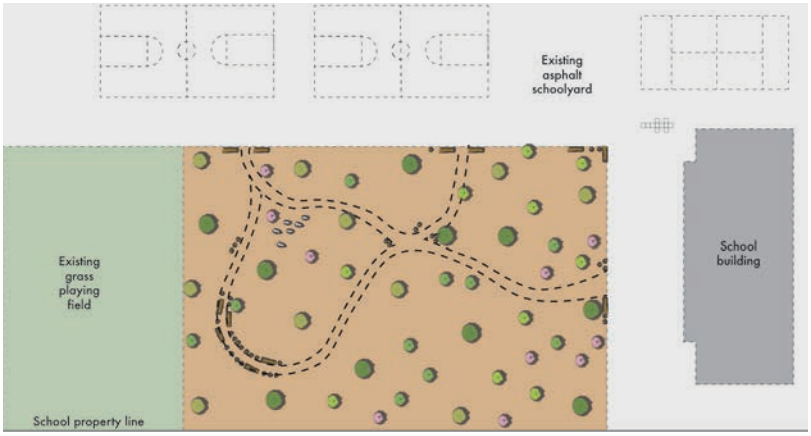
## Inspections

Inspections performed by certified arborists are critical to ensuring proper growth, preventing future problems, and reducing liability. The frequency of inspections by certified arborists will depend on the capacity and training of district staff, as well as on whether they can perform critical tasks in-house with minimal guidance (e.g., formative and structural pruning, irrigation adjustments, and monitoring of mulch levels and tree health). Once the trees reach maturity, annual inspections by a certified arborist are recommended to continue monitoring tree health and growth and to direct potential corrective actions. Students can also perform certain monitoring tasks as part of their instruction. For example, arborists can help create checklists and photo examples of pests and common tree problems for students to track over time.

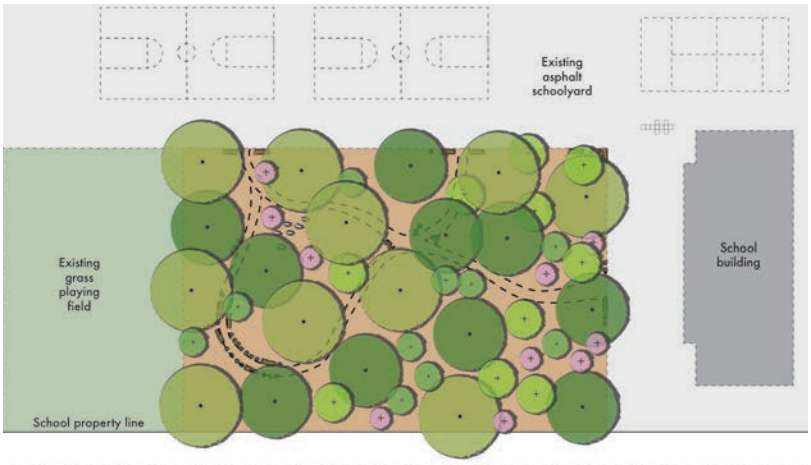
# Schoolyard Forest Model

The costs used in this study are based on a hypothetical yet realistic schoolyard forest model developed by Green Schoolyards America based on schoolyard forest pilot projects in Los Angeles and Sacramento. The model includes a total of 50 trees, a mix of large, medium, and small climate-adapted species, planted in a contiguous 15,000-square-foot unpaved area with a 3-inch layer of mulch throughout and a water-efficient irrigation system.

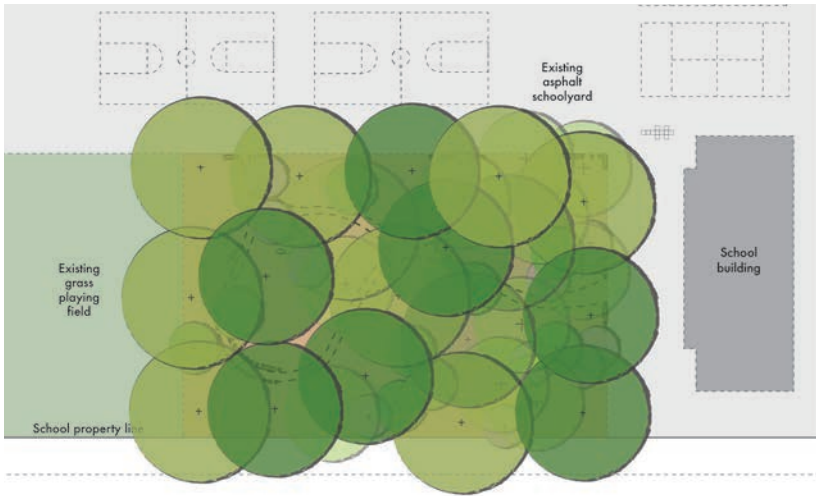
## At planting




## After 15 years




## After 40 years




## Legend


*Schoolyard forest model design developed by Lauren McKenna and Alejandra Chiesa, Green Schoolyards America.*

# Installation Cost Comparisons

The Installation Costs Comparisons table below compares the total initial costs for developing a 15,000-square-foot schoolyard forest with the costs of installing grass, asphalt, and artificial turf. The table breaks down the total costs into installation costs and soft costs. Soft costs include project management, community engagement, design, permitting, insurance, testing and inspections, and other administrative costs.

| | SCHOOLYARD FOREST | GRASS | ASPHALT | ARTIFICAL TURF |
|---|---|---|---|---|
| **Construction** | **$151,910**<br>Includes trees, mulch, irrigation system, pathway, boulders, stumps, and logs | **$82,500**<br>Includes soil preparation, irrigation system, and sod | **$181,500**<br>Includes asphalt over 6 inches of compacted aggregate base | **$288,750**<br>Includes artificial turf with sand infill over 5 inches of compacted aggregate base |
| **Soft Costs** | **$60,764**<br>40% of construction | **$20,625**<br>25% of construction | **$45,375**<br>25% of construction | **$72,188**<br>25% of construction |
| **TOTAL** | **$212,674** | **$103,125** | **$226,875** | **$360,938** |

**FIGURE 1. Installation Costs Comparisons**. Compares installation costs for a schoolyard forest, grass, asphalt, and artificial turf in a 15,000-square-foot area. For more detailed information on assumptions and data sources, refer to Appendix Table 1.

## ASSUMPTIONS

To make the comparison of installation costs between project types as fair and consistent as possible, we applied the following assumptions and exclusions:

- Each project type is assumed to be installed in a 15,000-square-foot flat, unpaved area requiring only minor soil preparation.
- We excluded all edge treatments—such as concrete bands, fences, or redwood borders—because these vary widely depending on adjacent materials.
- We excluded demolition and off-haul of significant soil quantities. These may be required for asphalt and artificial turf installations to accommodate compacted base aggregate, depending on the existing grade.
- We excluded installation of an irrigation system for artificial turf, although it is often recommended to help reduce surface temperatures.
- We assumed higher soft costs for the schoolyard forest—40% of construction, compared to 25% for the other surfaces—to reflect the added community and student engagement as well as the more intensive design work needed to ensure long-term success in the selected location.

## FINDINGS

**Artificial turf has the highest total installation cost** at $360,938, followed by asphalt at $226,875, the schoolyard forest at $212,674, and grass at $103,125.

# Schoolyard Forest Maintenance Costs

The Schoolyard Forest Maintenance Costs table below breaks down the estimated 40-year maintenance costs for the schoolyard forest model–50 trees in a 15,000-square-foot area, calculated for each phase of tree growth. The maintenance costs are divided among three major components:

- **Materials**: Includes costs for replacement trees, mulch, water/irrigation, and miscellaneous repair items.
- **District Labor**: Covers internal staff costs for tasks like mulching, pruning, weeding, checking and adjusting the irrigation system, and performing basic repairs.
- **Contractors**: Primarily for specialized services such as certified arborist inspections, inventory, and the pruning and removal of mature trees.

| SCHOOLYARD FOREST | **Establishment** Years 0 to 3 | **Juvenile** Years 4 to 15 | **Maturity** Years 16 to 40 | **Total Cost** over 40 years |
|---|---|---|---|---|
| **Materials** | **$11,598** | **$40,896** | **$81,550** | **$134,044** |
| Replacement trees | $1,200 | $1,800 | $2,500 | $5,500 |
| Mulch | $7,650 | $30,600 | $63,750 | $102,000 |
| Water | $1,248 | $2,496 | $2,800 | $6,544 |
| Miscellaneous repairs | $1,500 | $6,000 | $12,500 | $20,000 |
| **District Labor*** | **$23,400** | **$70,200** | **$45,000** | **$138,600** |
| *Mulching, pruning, weeding, tree removal and replacements, repairs, and other management costs. | | | | |
| **Contractors** | **$7,200** | **$14,400** | **$146,625** | **$168,225** |
| Tree inspections, inventory, and management | $7,200 | $14,400 | $30,000 | $51,600 |
| Pruning of mature trees | n/a | n/a | $104,125 | $104,125 |
| Removal of mature trees | n/a | n/a | $12,500 | $12,500 |
| **Maintenance Cost of Schoolyard Forest (Total)** | **$42,198** | **$125,496** | **$273,175** | **$440,869** |
| **Average Cost per Year** | **$14,066** | **$10,458** | **$10,927** | **$11,022** |

**FIGURE 2. Schoolyard Forest Maintenance Costs.** Summarizes maintenance costs per phase for a 15,000-square-foot schoolyard forest with 50 trees. For more detailed information on assumptions and data sources, refer to Appendix Table 2.

## FINDINGS

**The schoolyard forest's average yearly maintenance costs are higher during establishment** and then decrease in juvenile and mature phases.

District labor accounts for the majority of expenses during the establishment and juvenile phases as staff perform basic, frequent tasks. Costs shift to contractors in the maturity phase to cover specialized services like mature tree pruning and removals.

# Maintenance Costs Comparisons

The Maintenance Costs Comparisons table below provides a 40-year summary of the long-term maintenance costs for a 15,000-square-foot area for the four different schoolyard surface types: schoolyard forest, grass, asphalt, and artificial turf. The costs are broken down into three main components: materials, district labor, and contractors, showing both the total 40-year cost and the average annual cost for each surface.

| | SCHOOLYARD FOREST | GRASS | ASPHALT | ARTIFICAL TURF |
|---|---|---|---|---|
| **Materials** | **$134,044** | **$510,064** | **$0** | **$150,000** |
| | Replacement trees, mulch, water, miscellaneous tools, and irrigation repairs | Water, fertilizer, miscellaneous tools, mowing equipment, and irrigation repairs | Materials are usually provided by contractors. | Infill top-ups, cleaning supplies, minor repairs including equipment repairs; specialized equipment is usually provided by contractors. |
| **District Labor** | **$138,600** | **$250,500** | **$12,300** | **$288,000** |
| | Mulching, pruning, weeding, tree removal and replacement, repairs, and contractor management | Mowing, edging, trimming, fertilizing, aerating, and contractor management | Contractor management | Disinfecting, spraying, redistributing infill using groomers, and contractor management |
| **Contractors** | **$168,225** | **$112,500** | **$465,000** | **$652,000** |
| | Tree inspections, inventory and management, pruning, and removals of mature trees | Removal of old sod, soil prep and installation of new sod | Crack filling and resealing every 3 years and resurfacing every 20 years | Major repairs, infill replenishment every 2-4 years, annual decompaction, deep grooming, professional cleaning, and full replacement every 10 years |
| **Total** | **$440,869** | **$873,064** | **$477,300** | **$1,090,000** |
| **Average Cost per Year** | **$11,022** | **$21,827** | **$11,933** | **$27,250** |

**FIGURE 3. Maintenance Costs Comparisons Over 40 Years.** Compares total and yearly average maintenance costs for a 15,000-square-foot schoolyard forest with grass, asphalt, and artificial turf. For more detailed information on the assumptions and data sources, refer to Appendix Tables 2–5.

## FINDINGS

**Over a 40-year period, the schoolyard forest has the lowest total maintenance cost** for a 15,000-square-foot area. This is significantly less than the costs for the other surface types, with artificial turf being the most expensive, followed by grass, and asphalt.

## Maintenance Costs Comparisons Over 40 Years by Project Component

The Maintenance Costs Comparisons chart below provides a 40-year summary of the long-term maintenance costs for a 15,000-square-foot area, broken down by the four schoolyard surface types and three main components for each project type: materials, district labor, and contractors.

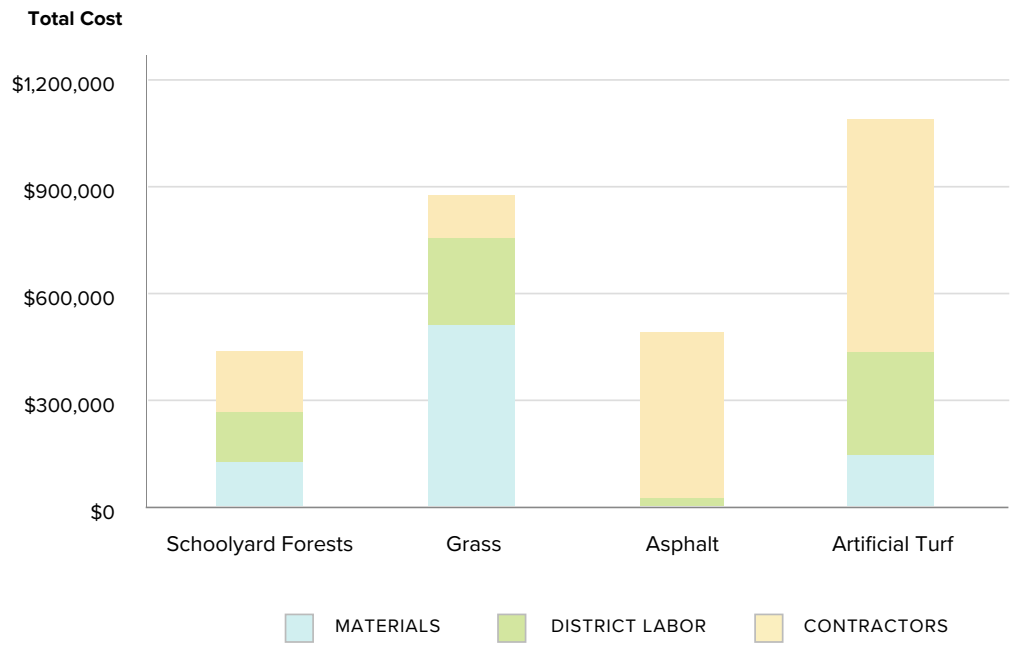



**FIGURE 4. Maintenance Costs Comparisons Over 40 Years by Project Component.** For more detailed information on assumptions and data sources, refer to Appendix Tables 2–5.

### FINDINGS

The 40-year total costs, broken down by component (materials, district labor, and contractors), show significant variation across the four project types:

- Artificial turf has the highest costs for contractors, given that it requires replacement and specialized maintenance equipment.
- Grass has the highest material costs, mostly due to irrigation water.
- Artificial turf and grass have the highest district labor costs, while asphalt has the lowest because maintenance and replacement are mostly handled by contractors.
- Finally, schoolyard forests are the least expensive project type overall, with the costs for materials, district labor, and contractors being relatively balanced across all three components.

## Comparison of Cumulative Costs Over 40 Years

The Comparison of Cumulative Costs Over 40 Years graph below shows the total financial outlay in today's dollars over the entire period of the study, combining the initial installation cost (Year 0) with the sum of all subsequent maintenance costs. The graph presents the cumulative costs in undiscounted, current-dollar terms, meaning the values have not been adjusted for inflation or for net present value.

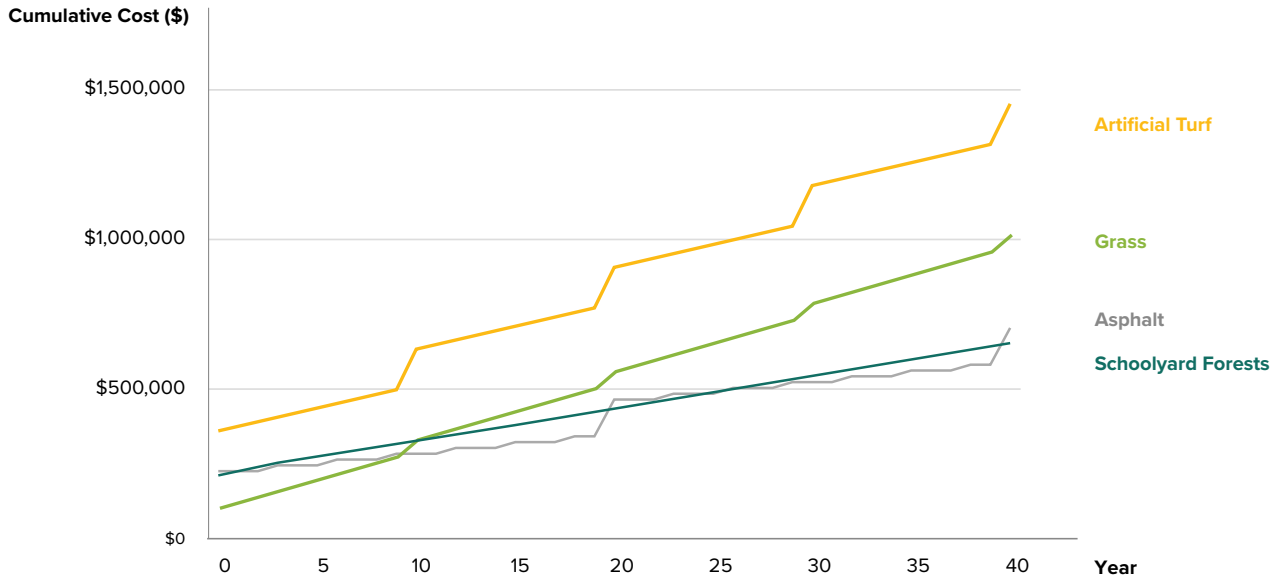



**FIGURE 5. Comparison of Cumulative Costs Over 40 Years.** Compares cumulative costs, including installation and maintenance over 40 years, for each project type in today's dollars.

### FINDINGS

A comparison of cumulative costs between 15,000 square feet of schoolyard forest, grass, asphalt, and artificial turf over a 40-year period starting in Year 0, with implementation costs, shows that:

- **Schoolyard forests are the most cost-effective option** over the 40-year period, with the lowest overall cumulative costs ($653,543).
- Asphalt is the second least expensive option ($704,175), driven by resealing and high replacement costs.
- Grass, despite having the lowest initial installation cost, ranks second overall ($976,189) due to its high annual maintenance costs.
- Artificial turf is the most expensive option ($1,450,938), due to its high initial cost and recurring replacement costs.

## Net Present Value Comparison of Cumulative Costs Over 40 Years

The Net Present Value Comparison of Cumulative Costs graph below shows the net present value (NPV) over 40 years for all four project types using a standard 3% discount rate. NPV is a financial metric used to calculate the current-day value of costs or benefits that occur in the future. The principle is based on the time value of money, which holds that a dollar today is worth more than a dollar received tomorrow (due to factors like inflation and potential investment returns). NPV discounts future cash flows to their present value, allowing for a standardized, accurate comparison of long-term projects such as schoolyard development.

The discount rate is the rate used to calculate NPV. In the context of long-term public or social infrastructure projects, a 3% rate is often used because it approximates the real (inflation-adjusted) risk-free rate of return on public investments over a long time horizon. Using a low, consistent rate, like 3%, helps standardize the 40-year cost comparison across the different surface types in the study.

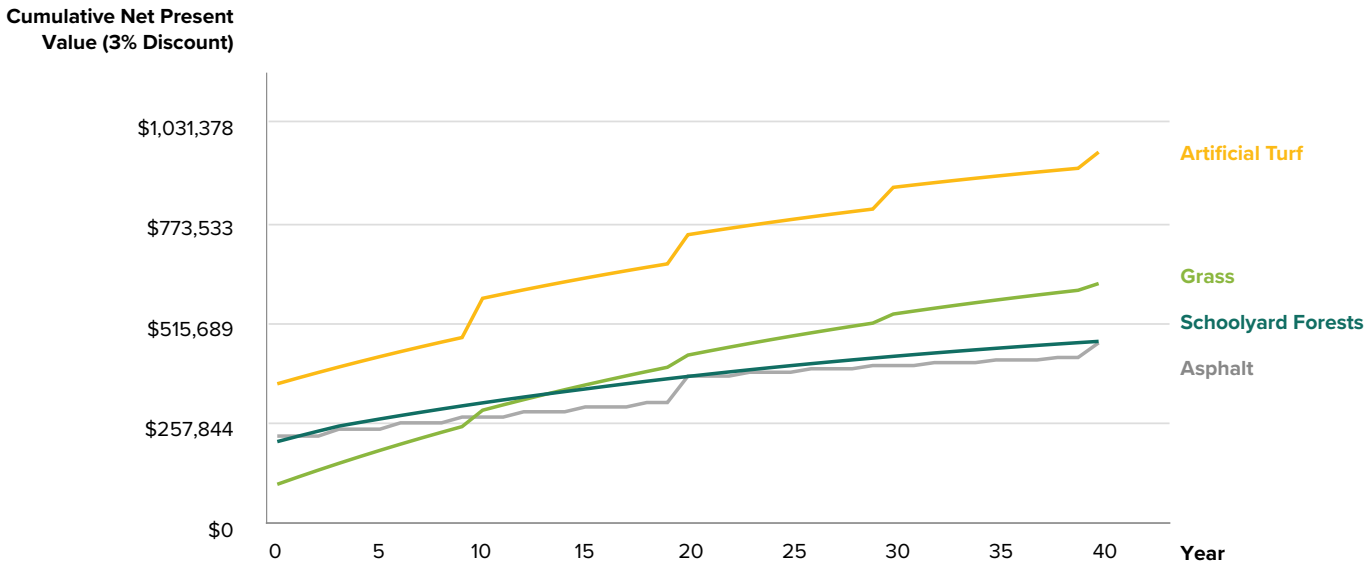



**FIGURE 6. Net Present Value Comparison of Cumulative Costs Over 40 Years.** Compares cumulative costs, including installation and maintenance over 40 years, for each project type applying a 3% net present value (NPV) discount rate.

### FINDINGS

When applying a 3% NPV discount rate and comparing cumulative costs over 40 years, we see that:

- **The cumulative NPV of asphalt is slightly lower than the NPV for schoolyard forests** by the end of 40 years.
- Asphalt was the least expensive option ($466,070), on par with schoolyard forests ($469,856). However, the difference—$3,786—is minimal and, for practical purposes, represents a break-even outcome between the two options.
- Grass, despite having the lowest initial installation cost, ranked second overall ($618,244), while artificial turf was the most expensive ($955,397).

# Conclusion

Our analysis shows that schoolyard forests—compared to grass, asphalt, and artificial turf—have the lowest installation and maintenance costs over 40 years, while providing the most benefits. In addition, while this analysis uses a 40-year timeframe, a well-designed and properly maintained schoolyard forest will continue providing benefits for many decades beyond that horizon.

While school districts need a variety of surface types to support sports and other student activities, plain, unshaded grass, asphalt, and artificial turf should not remain the default choices for our school grounds. The use of those materials should be intentional and limited. Artificial turf, in particular, poses well-documented challenges, including extreme surface heat, high lifecycle costs, and complex maintenance requirements.

The success and long-term value of a schoolyard forest depend on thoughtful design and consistent care. Selecting climate-appropriate species, properly placing trees, and following best planting practices are critical to ensuring the investment is both effective and cost-efficient. Ongoing monitoring and management—particularly during establishment and early growth—is essential for managing risk and preventing future liabilities and increased costs.

Integrating student engagement into the design, planting, and stewardship process further strengthens the value of schoolyard forests. When students help create and care for nature-filled spaces, they develop curiosity, pride, a sense of ownership, and a deeper connection to place and community.

It is also important to note that this study focuses solely on costs—it does not account for other benefits schoolyard forests generate, which may offset maintenance costs. These include reduced energy use for air conditioning, lower absenteeism (particularly due to asthma and heat), and increased enrollment. Reductions in truancy and increases in enrollment translate into higher state funding for school districts (Grunewald, 2024).

We recognize that many school districts struggle to maintain existing schoolyard surfaces of any kind due to general-fund constraints and often defer major repairs until bond funds become available. Unfortunately, bond funds rarely cover routine upkeep. This creates a reactive cycle of decline and reconstruction that runs counter to the proactive, steady stewardship model that schoolyard forests and other nature-based spaces require. To break this cycle and realize the full value of schoolyard forests, state agencies and districts should adopt a long-term maintenance strategy that includes dedicated funding for stewardship, staff training, and periodic assessments by certified arborists.

Establishing these supports—along with clear design standards and community engagement practices—will enable districts not only to implement schoolyard forests effectively but to sustain them as resilient, long-term assets that deliver meaningful educational, environmental, health, and community benefits while costing less to implement and maintain than grass, asphalt, or artificial turf.

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### CALIFORNIA SCHOOLYARD FOREST SYSTEM

The California Schoolyard Forest System® seeks to create schoolyard forests across PreK-12 public school grounds statewide to directly shade and protect students from extreme heat and rising temperatures due to climate change. This initiative was founded by Green Schoolyards America in partnership with the California Department of Education, the California Department of Forestry and Fire Protection, and Ten Strands.

For more information, visit: greenschoolyards.org/ca-forests

Green Schoolyards America

CALIFORNIA Schoolyard Forest System®


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**PUBLISHER**

# Appendix

**APPENDIX TABLE 1. Installation Costs.** Compares installation costs for a schoolyard forest, asphalt, grass, and artificial turf in a 15,000-square-foot area.

| | COMPONENT | COST USED FOR ESTIMATE | QUANTITY IN COST MODEL | COST OF SCHOOLYARD FOREST MODEL | SOURCES |
|---|---|---|---|---|---|
| SCHOOLYARD FOREST INSTALLATION | Trees installed (15 gal) with stakes and ties | $300 each | 50 trees | $15,000 | Cost information based on Green Schoolyards America's schoolyard forest pilot project costs in Los Angeles and Sacramento, and verified through online research. |
| | Soil preparation and amendments | $2.0/sf | 15,000 sf | $30,000 | |
| | Mulch installed (3 inch) | $1.3/sf | 15,000 sf | $19,500 | |
| | Irrigation system | $2.5/sf | 15,000 sf | $37,500 | |
| | Logs and stumps installed | $1,500 per log, $200 per stump | 12 logs, 38 stumps | $25,600 | |
| | Boulders (12-30 inch diameter) | $500 each | 6 boulders | $3,000 | |
| | Decomposed granite pathway | $6.0/sf | 1,250 sf | $7,500 | |
| | Other contractor costs (labor compliance, bonding, insurance, mobilization, etc.) | 10% of construction costs | | $13,810 | |
| | **SUBTOTAL** | | | **$151,910** | |
| | Soft costs (design, project management, soil testing, permitting, etc.) | 40% of construction costs (more complex than other project types) | | $60,764 | |
| | **SCHOOLYARD FOREST INSTALLATION COST** | | | **$212,674** | |
| ASPHALT | Asphalt over 6-inch compacted aggregate base | $11.0/sf | 15,000 sf | $165,000 | Cost information provided by landscape contractors that worked on Green Schoolyards America's pilot projects in Los Angeles and Sacramento, verified through online research. |
| | Other contractor costs (labor compliance, bonding, insurance, mobilization, etc.) | 10% of construction costs | | $16,500 | |
| | **SUBTOTAL** | | | $181,500 | |
| | Soft costs (design, project management, soil testing, permitting, etc.) | 25% of construction costs | | $45,375 | |
| | **ASPHALT INSTALLATION COST** | | | **$226,875** | |
| GRASS | Soil preparation and sod installation | $3.0/sf | 15,000 sf | $45,000 | Cost information provided by landscape contractors that worked on Green Schoolyards America's pilot projects in Los Angeles and Sacramento, verified through online research. |
| | Irrigation system | $2.0/sf | 15,000 sf | $30,000 | |
| | Other contractor costs (labor compliance, bonding, insurance, mobilization, etc.) | 10% of construction costs | | $7,500 | |
| | **SUBTOTAL** | | | **$82,500** | |
| | Soft costs (design, project management, soil testing, permitting, etc.) | 25% of construction costs | | $20,625 | |
| | **GRASS FIELD INSTALLATION COST** | | | **$103,125** | |
| TURF | Artificial turf field over 5-inch compacted aggregate base with sand infill | $17.5/sf | 15,000 sf | $262,500 | Cost information provided by landscape contractors that worked on Green Schoolyards America's pilot projects in Los Angeles and Sacramento, verified through online research. See Sportsvenuecalculator (nd) and Site Prep (nd). |
| | Other contractor costs (labor compliance, bonding, insurance, mobilization, etc.) | 10% of construction costs | | $26,250 | |
| | **SUBTOTAL** | | | **$288,750** | |
| | Soft costs (design, project management, soil testing, permitting, etc.) | 25% of construction costs | | $72,188* | |
| | **ARTIFICIAL TURF INSTALLATION COST** | | | **$360,938*** | |

* Costs are rounded

**APPENDIX TABLE 2. Schoolyard Forest Maintenance Costs.** Itemized maintenance costs per tree growth phase, for a 15,000-square-foot schoolyard forest with 50 trees.

| SCHOOLYARD FOREST | UNIT COST | ESTABLISHMENT PHASE 3 years | | | JUVENILE PHASE 12years | | | MATURE PHASE 25 years | | | TOTAL COST 40 years | ASSUMPTIONS | SOURCES |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Quantity per year | Cost per year | Total Phase Cost (3 yrs) | Quantity per year | Cost per year | Total Phase Cost (12 yrs) | Quantity per year | Cost per year | Total Phase Cost (3 yrs) | Total Cost over 40 years | | |
| **Materials** | | | **$3,866** | **$11,598** | | **$3,408** | **$40,896** | | **$3,262** | **$81,550** | **$134,044** | | |
| Trees | $200 each | 2 trees | $400 | $1,200 | 0.75 trees | $150 | $1,800 | 0.5 trees | $100 | $2,500 | $5,500 | $200 is an avg. cost/tree; tree mortality is 4% per year in establishment, 1.5% in juvenile phase, and 1% in mature phase. | Tree costs based on online research. Tree mortality based on Hilbert et al. (2019). |
| Mulch | $0.17/sf | 15,000 sf | $2,550 | $7,650 | 15,000 sf | $2,550 | $30,600 | 15,000 sf | $2,550 | $63,750 | $102,000 | 23 cubic yards of mulch every 6 months to maintain 3 inches of cover at an avg. cost of $40/cubic yard plus $300 for delivery each time. | Mulch needs based on input from Berkeley Unified School District. Mulch costs based on online research. |
| Water | $0.016 /gal | 26,000 gal | $416 | $1,248 | 13,000 gal | $208 | $2,496 | 7,000 gal | $112. | $2,800 | $6,544 | 10 gal per week per tree during establishment, 10 gal every other week during juvenile phase, and 10 gal per inch of trunk dia. once during the dry season. Water rates are average non-residential rates for Los Angeles and Oakland. | Water needs based on guidelines from CAL FIRE, Canopy, and Sacramento Tree Foundation. Water rates based on LA Department of Water and Power. (n.d.). and East Bay Municipal Utility District (n.d.). |
| Misc. other materials | $500/year | Each year | $500 | $1,500 | Each year | $500 | $6,000 | Each year | $500 | $12,500 | $20,000 | We budgeted an avg. of $500/year for miscellaneous materials for irrigation repairs, tools, and other materials. | Materials costs based on online research. See Rain Bird (n.d.). |
| **District Labor** | | | **$7,800** | **$23,400** | | **$5,850** | **$70,200** | | **$1,800** | **$45,000** | **$138,600** | | |
| Mulching, pruning, tree removals and replacements (non-mature trees), repairs, and manage contractors | $75/hour | 104 hours | $7,800 | $23,400 | 78 hours | $5,850 | $70,200 | 24 hours | $1,800 | $45,000 | | Weeding is done by students and volunteers, and pruning of mature trees is contracted. Labor rates for district groundskeepers in California are $30 to $45 per hour. To include benefits and indirect costs we used a fully loaded rate 2.5 times the hourly rate. | Hours estimated with input from Berkeley Unified School District. Salary information from online research. See Zip Recruiter (n.d.); Sacramento City Unified School District (n.d.); BCTC Buildings and Grounds Oakland Unified School District (n.d.). |
| **Contractors** | | | **$2,400** | **$7,200** | | **$1,200** | **$14,400** | | **$5,875** | **$146,875** | **$168,475** | | |
| Tree inspections and inventory | $1,200 each | 2 times | $2,400 | $7,200 | 1 time | $1,200 | $14,400 | 1 time | $1,200 | $30,000 | $51,600 | Inspections by a certified arborist including minor formative pruning, a report, and updates to a tree management database are estimated at $1,200 each. After establishment, inspections are once per year. | Inspection cost estimates based on input from urban forestry experts and a certified arborist. |
| Pruning of mature trees | $250 avg. per tree | 0 | $0 | $0 | 0 | $0 | $0 | 16.66 trees | $4,165 | $104,125 | $104,125 | Pruning costs were calculated based on the average expected growth for each species in the model and take into account that all trees are in the same location. At maturity, each tree is assumed to be pruned every 3 years. | Pruning and removal costs from quotes by West Coast Arborists (tree contractor) for the City of Berkeley, CA, based on expected tree diameter for the tree species selected for the model. |
| Removal of mature trees | $1,000 avg. per tree | 0 | $0 | $0 | 0 | $0 | $0 | 0.50 trees | $500 | $12,500 | $12,500 | Costs for removal of trees by contractors are an average for the expected size for the species in the model. One tree is removed every two years (1% mortality for 50 trees). | |
| **TOTALS** | | | **$14,066** | **$42,198** | | **$10,458** | **$125,496** | | **$10,937** | **$273,175** | **$440,869** | | |

| | |
|---|---|
| **YEARLY Average Maintenance Cost over 40 years** | **$11,022*** |

* Numbers are are rounded

**APPENDIX TABLE 3. Grass Maintenance Costs.** Itemized maintenance costs for a 15,000-square-foot grass field.

| GRASS | UNIT COST | QUANTITY | COST | | TOTAL COST | ASSUMPTIONS | SOURCES |
|---|---|---|---|---|---|---|---|
| | | Quantity per year | Cost each time | Cost average per year | Cost over 40 years | | |
| **Materials** | | | | **$12,752*** | **$510,064** | | |
| Water | $0.016/gal | 48.59 gallons per sf per year | | $11,662* | $466,464 | 1.5 inches of water weekly, which equal to 48.59 gallons per square foot per year. Water rates used were $0.016 per gallon , which are average non-residential rates for Los Angeles and Oakland. | University of California Statewide Integrated Pest Management Program. (n.d.).<br><br>Water rates from LA Department of Water and Power. (n.d.) and East Bay Municipal Utility District. (n.d.). |
| Fertilizer | $1.5/lb | 60 lbs per year | | $90 | $3,600 | 1 pounds of nitrogen per 1,000 square feet, 4 times a year. | Quantity and application frequency based on University of California Statewide Integrated Pest Management Program (n.d.). Fertilizer costs based on online research. |
| Miscellanous repairs, equipment, and materials. | $1,000/year | Each year | | $1,000 | $40,000 | We budgeted an average of $1,000 per year for miscellaneous materials and repairs including tools, irrigation repairs, and mowing equipment. | Material costs based on online research including Rain Bird Irrigation (n.d.). |
| **District Labor** | | | | **$6,263*** | **$250,500** | | |
| Mowing, edging, trimming | $75 /hour | 78 hours per year | | $5,850 | $234,000 | Weekly mowing, edging, and trimming taking 1.5 hours each time, which equals to 78 hours per year. | Grounds Maintenance and Operations. APPA. (n.d.). |
| Fertilizing | $75/hour | 4 hours per year | | $300 | $12,000 | District staff use a broadcast spreader four times per year, taking 1 hour each time. | University of California Statewide Integrated Pest Management Program (n.d.) |
| Aerating | $75/ hour | 1.5 hours per year | | $113* | $4,500 | District staff use walk-behind core aerators once a year, taking 1.5 hours each time. | Essential Aeration Practices. Kapp's Green Lawn. (n.d.). |
| **Contractors** | | | | **$2,813*** | **$112,500** | | |
| Replacement (every 10 years) | $2.5/sf | 15,000 sf | $37,500 | $2,813* | $112,500 | Based on recommended practices, the grass field is replaced every 10 years due to high traffic from student activity. | Natural Grass Athletic Fields. Sports Field Management. (n.d.). |
| **TOTALS** | | | | | **$873,064** | | |

| | |
|---|---|
| **YEARLY Average Maintenance Cost over 40 years** | **$21,827*** |
| **YEARLY Average Maintenance Cost over 40 years without replacements** | **$19,014*** |

* Numbers are rounded

**APPENDIX TABLE 4. Asphalt Maintenance Costs** Itemized maintenance costs for a 15,000-square-foot asphalt area.

| ASPHALT | UNIT COST | QUANTITY | COST | | TOTAL COST | ASSUMPTIONS | SOURCES |
|---|---|---|---|---|---|---|---|
| | | | Cost each time | Cost average per year | Cost over 40 years | | |
| **District Labor** | | | | **$308*** | **$12,300** | | |
| Manage resealing (every 3 years) | $75 an hour | 8 hours every 3 years | $600 | $180 | $7,200 | District staff spend a minimum of 8 hours each time to manage the asphalt resealing project including coordinating with the school, contract administration and invoicing. Resealing 12 times in the 40-year period because the schedule resets after the full replacement. | Green Schoolyards America staff experience in project management and input from school districts. |
| Manage replacement (every 20 years) | $75 an hour | 34 hours every 20 years | $2,550.00 | $128* | $5,100.00 | District staff spend a minimum of 24 hours each time to manage the asphalt replacement project including bidding, contract administration, and invoicing, plus 10 hours of coordination with the school and staff about the project. | |
| **Contractors** | | | | **$11,625** | **$465,000** | | |
| Crack filling and seal coating (every 3 years) | $1.25 per sf | 15,000 sf | $18,750.00 | $5,625 | $225,000 | Based on recommended practices, asphalt maintenance includes filling cracks and resealing every 3 years to extend its lifetime. Resealing 12 times in the 40-year period because the schedule resets after the full replacement. | Input from contractors and online research. Oakland Asphalt Service (n.d.) and Sacramento Asphalt Sealcoating (n.d.). |
| Replacement (every 20 years) | $8.0 per sf | 15,000 sf | $120,000.00 | $6,000 | $240,000 | Based on recommended practices, asphalt needs to be replaced every 20 years. This involves stripping and disposing of the old asphalt and resurfacing with new asphalt. We assumed keeping most of the old aggregate base and recompacting. | |
| **TOTALS** | | | | | **$477,300** | | |

| | |
|---|---|
| **YEARLY Average Maintenance Cost over 40 years** | **$11,933*** |
| **YEARLY Average Maintenance Cost over 40 years without replacements** | **$ 5,933*** |

* Numbers are rounded

**APPENDIX TABLE 5. Artificial Turf Maintenance Costs** Itemized maintenance costs for a 15,000-square-foot artificial turf field.

| ARTIFICIAL TURF | UNIT COST | QUANTITY | COST | | TOTAL COST | ASSUMPTIONS | SOURCES |
|---|---|---|---|---|---|---|---|
| | | | Cost each time | Cost average per year | Total over 40 years | | |
| **Materials** | | | | **$3,750** | **$150,000** | | |
| Infill top-ups, cleaning supplies, materials for minor repairs including equipment repairs | $3,750/year | | n/a | $3,750 | $150,000 | Materials and equipment needed for district staff to perform regular cleaning, infill top-ups, and minor repairs. | Sports Venue Calculator (n.d.) sportsvenuecalculator.com; Sports Field Management Association (n.d.) SportsFieldManagementOnline.com; The Turf Yard (n.d.) theturfyard.com/ |
| **District Labor** | | | | **$7,200** | **$288,000.00** | | |
| Disinfecting, spraying, redistributing infill using groomers, manage contractors | $75/hour | 96 hours per year | n/a | $7,200 | $288,000 | Artificial turf fields require regular cleaning, disinfection, grooming, and repairs. Regular maintenance requiring light-duty equipment is done in house by district staff. In addition, district staff manages contractors that perform specialized maintenance and field replacements every 10 years. These activities add up to about 8 hours of labor per month. | |
| **Contractors** | | | | **$16,300** | **$652,000** | | |
| Major repairs of worn sections (every 5 years) | $2,750 each time | Each time | $2,750 | $550 | $22,000 | School districts usually hire contractors for specialized maintenance tasks that require heavy equipment such as major repairs, major infill replenishment, yearly decompaction, deep grooming, and professional cleaning. Costs are based on recommendations from experts. | |
| Major infill replenishment (every 3 years) | $0.25 /sf | 15,000 sf | $3,750 | $1,250 | $50,000 | | |
| Deep grooming, decompaction, and professional cleaning (once per year) | $2,500 each time | Each time | $2,500 | $1,500 | $100,000 | | |
| Full field replacement (every 10 years) | $8.0/sf | 15,000 sf | $120,000 | $750 | $480,000 | Replacement includes removal and disposal of the old turf and pad; the existing aggregate base remains in place. | |
| **TOTALS** | | | | | **$1,090,000** | | |

| | |
|---|---|
| **Average Yearly Cost over 40 years** | **$27,250** |
| **Average Yearly Cost over 40 years without replacements** | **$15,250** |

Green Schoolyards America

# ADVANCING SCHOOLYARD GREENING

## RECOMMENDATIONS FOR LOS ANGELES UNIFIED SCHOOL DISTRICT

March 12th, 2026

## Purpose

This report provides recommendations to address systemic barriers that nonprofit greening partners (Greening Partners) face when trying to implement schoolyard greening projects with LAUSD. These barriers lead to prolonged project timelines and increased costs for both LAUSD and its Greening Partners, hindering the District's ability to meet the goals outlined in the *Green Schools for All Resolution*. The challenges and recommendations presented in this report are based on firsthand experience from implementing a small schoolyard forest pilot project at 122nd Street Elementary School, as well as insights from other organizations working on greening projects at LAUSD schools. These insights were gathered through meetings with the L.A. Living Schoolyards Coalition and discussions with stakeholders navigating similar obstacles.

## Introduction

Green Schoolyards America is dedicated to transforming asphalt-covered school grounds into living schoolyards that support children's well-being, learning, and play while enhancing ecological health and climate resilience. Our team has expertise in urban planning, landscape architecture, policy, ecology, and environmental education, with extensive experience in green schoolyard design and implementation.

We have a long-standing partnership with LAUSD and are honored to support the district's greening efforts. We commend LAUSD and the L.A. Living Schoolyards Coalition for their groundbreaking progress, including the passage of the 2022 *Green Schools for All Resolution*, the publication of the 2024 *Green Schoolyards for All Plan*, and the allocation of an unprecedented amount of funding for schoolyard greening over the past three years. Additionally, we recognize LAUSD's ongoing collaboration with nonprofit Greening Partners, which has led to securing close to $55 million in CAL FIRE grants across 51 LAUSD schools, and the district's recent resolution to eliminate LAUSD fees for schoolyard greening projects implemented by Greening Partners.

In 2022, Green Schoolyards America secured a CAL FIRE grant, along with private funding, to launch the *California Schoolyard Forest System® (CA SFS)*—an initiative developed in collaboration with CAL FIRE, Ten Strands, and the California Department of Education (CDE). The CA SFS aims to expand tree canopy on public school grounds to protect PreK-12 students from extreme heat and rising temperatures due to climate change. Initial efforts of the initiative included identifying barriers and opportunities to scaling schoolyard forests statewide, mapping schoolyard tree canopy equity, developing free online resources for school districts, and implementing two schoolyard forest pilot projects. These schoolyard forest pilots were intended to test a scalable, cost-effective model for schoolyard greening that meaningfully engages students in the design, planting, and care of their trees.

In May 2023, Green Schoolyards America approached LAUSD in search of a site for one of the schoolyard forest pilot projects. At that time, our organization provided LAUSD with a document titled *Schoolyard Forest System Pilot Projects | At a Glance*, which outlined project goals, site selection criteria, timeline, budget, and expected roles and responsibilities. Based on this document, LAUSD proposed three potential sites, and Green Schoolyards America selected 122nd Street Elementary for the schoolyard forest pilot.

The project at 122nd Street Elementary was envisioned as a small-scale, design-build tree-planting project with a $200,000 construction budget to plant approximately 45 trees in a 12,000-square-foot section of an

existing grass field. A key requirement for the pilot was to design the project to meet code while avoiding the need for Division of the State Architect (DSA) approval, as the budget and timeline for the project could not accommodate that process. The project aimed to maximize shade and student engagement while keeping costs low, as well as provide LAUSD an opportunity to explore new materials, construction methods, and design approaches in alignment with the *Green Schoolyards for All Resolution and Plan*.

To implement the project, Green Schoolyards America hired SLA Inc. (SLA), a local nonprofit design-build landscape design and construction organization recommended by LAUSD. Green Schoolyards America and SLA collaborated with district staff, school administration, students, and the school community to design, build and steward the schoolyard forest at 122nd Street Elementary. The design features a variety of tree species, decomposed granite pathways, logs, stumps, and other natural materials.

Since selecting 122nd Street Elementary in June 2023, the project encountered numerous systemic obstacles which increased the project timeline, staffing costs, and other project expenses. The project took 30 months to complete compared to a similar schoolyard forest pilot project with another district which took 14 months to complete.

This report outlines the challenges faced during the planning, design, and construction of the pilot project at 122nd Street Elementary School and, most importantly, provides recommendations to address systemic barriers that Greening Partners face while trying to implement schoolyard greening projects with LAUSD. These barriers contribute to lengthy timelines and high costs for both LAUSD and its partners. Addressing them is essential for LAUSD to achieve its greening goals as outlined in the *Green Schools for All Resolution.*

## Existing Challenges and Recommendations

The current LAUSD review and approval process is designed for large, complex, district-led projects where LAUSD maintains full control over all aspects. However, this approach is not well-suited for relatively simple, straightforward schoolyard greening projects led by Greening Partners. Applying the complex standard approval process to much simpler greening projects results in inefficient, duplicative, and overly complex administrative processes, with excessive requirements and staffing needs, confusing approval requirements, and vastly inefficient and delayed timelines that often threaten to exceed standard grant periods allowed for design and construction. Additionally, existing LAUSD technical design standards must be updated to better align with current sustainable practices, and the process should be more flexible to encourage innovation and incorporate field expertise.

To address these barriers and support more effective schoolyard greening projects, the following sections outline key challenges and proposed recommendations.

## The role of the Greening Partners is not clearly defined as a collaboration

While Greening Partners secure funding and implement projects, their authority in project management remains unclear, limiting their decision-making power while subjecting them to excessive oversight. At the same time, LAUSD maintains strict control over project details without assuming liability for delays or budget overruns, leaving Greening Partners accountable but without the ability to make key decisions.

To function effectively, greening projects led by nonprofit partners require a collaborative framework distinct from LAUSD-funded projects. For schoolyard greening efforts to succeed, LAUSD and its nonprofit Greening Partners must establish a well-defined structure that reflects their shared responsibility.

As the property owner, LAUSD should focus on high-level oversight to ensure projects align with clearly stated district goals, standards, and regulations that are all provided before the design process begins—rather than exercising detailed control over construction documents or excessive day-to-day involvement in project execution. Meanwhile, Greening Partners should take the lead in managing projects. This includes hiring and directing the design team and contractors, ensuring projects stay within budget and schedule, administering grants in compliance with state requirements, and coordinating with LAUSD on critical approvals.

### RECOMMENDATIONS TO CLARIFY ROLES

**1. Update key documents to accurately reflect Greening Partners' role.** The documents that govern greening projects led by Greening Partners, should reflect the partner's role in project management and LAUSD's role in high-level oversight. These key documents include the *Development Agreement*, *LAUSD Technical Specifications*, *School Design Guide*, and the 2025 draft of the *How-to-Guide for LAUSD's Greening Partners*.

**2. Elevate the Greening Partner's project manager role.** A Greening Partner's project manager should have recognized authority to work alongside LAUSD's assigned project manager, usually the Eco-Sustainability Office Project Manager, ensuring clear communication and collaborative decision-making aligned with contractual responsibilities.

**3. Redefine the LAUSD-assigned project manager role**. The LAUSD-assigned project manager (usually part of the Eco-Sustainability Office) should work in collaboration with the Greening Partner from start to finish to ensure project success and continuity of process. Ideally, this role should have experience with nonprofit collaborations, landscape architecture, and construction, as well as decision-making authority to effectively drive the project with the Greening Partner across LAUSD departments.

**4. Develop communication protocols and decision-making processes.** Communication protocols and decision making should reflect contractual relationships—recognizing that LAUSD's agreement is with the Greening Partner, while the Greening Partner contracts directly with the design professional and contractor.

## The existing agreement template is not adequate for schoolyard greening projects led by Greening Partners

The two existing agreement templates that LAUSD uses for schoolyard greening projects led by Greening Partners—the Development Agreement and the Access Agreement—are ill-suited for third-party greening projects where the Greening Partner secures funding and leads the design and implementation. The Development Agreement is designed for large-scale building projects where LAUSD funds and manages the contractors. Its extensive requirements create unnecessary burdens and costs for greening projects, placing full financial and legal responsibility on the Greening Partner with minimal commitment from LAUSD. The Access Agreement is a more viable option, but it fails to address projects that involve site modifications. For these reasons, a new agreement is needed that is specifically designed for schoolyard greening projects led by Greening Partners.

In addition, Asset Management—the department responsible for drafting and negotiating agreements—lacks both a clear understanding of greening projects and a process tailored to greening projects' needs. Because its approach is designed for high-risk large-scale engineering and construction projects, it does not account for the distinct needs of greening initiatives or the collaborative nature of nonprofit partnerships.

### RECOMMENDATIONS TO IMPROVE AGREEMENTS WITH GREENING PARTNERS

**1. Develop a new agreement template specifically for greening projects led by third-party Greening Partners**. Balance costs, liability, and responsibilities to reflect a true partnership as opposed to a one-sided contract. Requirements should be in line with landscape architecture projects rather than LAUSD-led building projects. For reference, see the Memorandum of Understanding between Sacramento City Unified School District and Green Schoolyards America for a similar schoolyard forest pilot project.

**2. Ensure that the department developing the agreement understands schoolyard greening projects and nonprofit partnerships.** The agreement needs to be developed with a collaborative approach, different from standard LAUSD-led large construction contracts. Ideally, the Eco-Sustainability Office (ESO) oversees the development of the agreements with Greening Partners as well as the design and implementation of schoolyard greening projects.

## Decision-making and approvals are excessively piecemeal and bureaucratic

Decision-making and approvals are fragmented across multiple departments, with extensive requirements even for minor improvements. The 2025 draft of the How-to-Guide for LAUSD's Greening Partners outlines an approval process that involves multiple LAUSD departments and staff positions, including but not limited to: Asset Management, the Eco-Sustainability Office (ESO), ESO Project Manager, Facilities Services Division, Risk Management, Health and Physical Education Coordinator, Construction Project Management (CPM), Office of Environmental Health and Safety (OEHS), Site Assessment Project Manager, Labor Compliance Department, Owner's Authorized Representative (OAR), and Inspector of Record (IOR).

The 2025 *How-to-Guide for LAUSD's Greening Partners* attempts to simplify procedures for non-grant-funded greening projects, stating that these projects are typically small. Since most third-party greening projects are grant-funded regardless of size, this attempt to simplify the process does not help most partner-led schoolyard greening projects. The criteria for defining a "small" greening project and determining which specific requirements apply remain unclear, causing LAUSD departments to default to a cautious approach, leading to unnecessary requirements.

For instance, our simple schoolyard forest pilot project—consisting only of tree planting on an existing grass area without asphalt removal—has required involvement from over fifteen LAUSD staff before beginning construction including:

- a Facilities Development Manager who worked on the Development Agreement
- an Eco-Sustainability Office Project Manager who has acted as project coordinator with other departments
- a Site Assessment Project Manager who reviewed and approved the soil testing proposal and final soils report
- two Labor Compliance staff who requested documentation on the project to enter in their system and held a meeting with GSA and SLA in order to allow soil sampling to proceed
- a Maintenance and Operations Project Manager acting as intake coordinator for submittals
- over 10 Maintenance and Operations staff including three landscape architects, an architect, two civil engineers, irrigation, plumbing, electrical, and other disciplines that reviewed the design submissions.

In addition, there has been a lack of consistency and coordination among reviewers, with new reviewers and comments introduced at every stage, creating a never-ending cycle of revisions. We have gone through five submissions including concept design, 50% construction documents, 100% construction documents, and two additional 100% back-check submissions because new comments were introduced. This overstaffing, and lack of consistency and coordination among reviewers not only increases timelines and costs for both LAUSD and partners, but also fails to improve outcomes or reduce risk.

Furthermore, this highly fragmented process provides little incentive for efficiency or innovation. Different departments have their own mandates and goals, operating independently in silos, often without urgency or motivation to expedite reviews or explore alternative solutions. The current rigid, cumbersome, and risk-averse process makes it difficult to improve project designs or adopt better promising practices. Proposing new approaches is so time-consuming and frequently met with rejection that Greening Partners are incentivized to continue using LAUSD's existing, outdated technical standards—even when more

sustainable and cost-effective options are available. With numerous departments and staff positions involved, no single decision-maker or project champion has the authority to advance projects when roadblocks arise. The Eco-Sustainability Office Project Manager primarily acts as a coordinator, deferring to other departments for requirements and approvals rather than having the authority to streamline decisions.

It is worth noting that in October 2025, LAUSD established a multidisciplinary core team (the TIGER Team) to work with Greening Partners on schoolyard greening projects, with the goal of addressing barriers, resolving roadblocks, and streamlining project delivery. While there has not yet been sufficient time to fully assess the effectiveness of this approach, we appreciate LAUSD's commitment to improving coordination and supporting the implementation of greening initiatives.

### RECOMMENDATION TO IMPROVE THE DECISION-MAKING AND APPROVALS

**1. Establish a simpler and clear process for schoolyard greening projects led by Greening Partners.** Requirements and approval processes for schoolyard greening projects need to be in line with the scope of such projects. We recommend that LAUSD develops a transparent and streamlined approval process, with reasonable requirements and staffing, and clear criteria to determine what requirements apply based on project scope. In addition, there should; be an even easier process for projects that only include planting and irrigation, and/or limited asphalt removal and garden pathways that do not impact the path of travel.

**2. Assign a small and consistent review team and reduce staffing redundancy** – In order to streamline the technical review process, we recommend consolidating roles where possible and assigning a small and consistent core technical team to oversee the design and construction from start to finish. One of those team members should be a Landscape Architect and act as the OAR during construction. Maintaining a consistent team throughout the project will reduce inefficiencies and ensure a smoother workflow. As mentioned before, the LAUSD-assigned project manager should possess technical expertise, and be granted greater decision-making and cross-departmental authority to make decisions and streamline approvals.

**3. Grant the Eco-Sustainability Office the authority to make final decisions** on key project requirements to streamline and accelerate schoolyard greening efforts.

## New guides and technical standards for schoolyard greening projects

The LAUSD Design Standards and Technical Specifications (DSTS) should be updated to align with the District's greening goals, incorporating considerations such as environmental sustainability and health, in addition to cost and durability. While the *LAUSD School Garden Guidebook* provides valuable recommendations and examples of successful greening projects, some design elements and materials featured—such as redwood edging—have been rejected during the 50% Construction Documents phase in favor of concrete, in accordance with the current DSTS. These over-engineered civil and architectural details, though aimed at ensuring durability, are often not suited for school garden and greening projects and are beyond the scope of many grant budgets.

Excessive reliance on concrete and other over-engineered elements should be reconsidered by landscape architects with expertise in schoolyard greening. The updated standards should emphasize not only durability but also cost-effectiveness, material life cycle, carbon footprint, sustainability, and health, among other goals. Additionally, greening partners often face challenges when proposing cost-effective, sustainable alternatives, as requests for deviations from established standards are cumbersome and typically rejected.

Another significant issue is the overwhelming number of guides, standards, forms, and requirements provided to greening partners, many of which are either irrelevant or contradictory. These documents include the *Technical Standards and Specifications*, the *2023 School Design Guide*, the *2024 School Garden Guide*, the draft *Guidelines for School Gardens and Nature Plan* (dated April 25, 2024), and the *Third-Party Greening Projects Guide* (dated May 1, 2024). The sheer volume of these lengthy and sometimes conflicting documents creates confusion for greening partners, making it difficult to determine which requirements are applicable.

To foster innovation and clarity, LAUSD's technical specifications and processes should allow for greater flexibility, moving away from rigid, one-size-fits-all standards in favor of a more adaptable approach that supports sustainable greening solutions.

### RECOMMENDATIONS TO IMPROVE TECHNICAL STANDARDS AND GUIDES

**1. Work with partners and experts to update design standards and specifications.** Work with the L.A. Living Schoolyards Coalition and an external Landscape Architect team with extensive experience in school ground greening to lead a process that includes key LAUSD departments, the L.A. Living Schoolyards Coalition and other Greening Partners to develop design guidelines and update the Design Standards and Technical Specifications for LAUSD schoolyard greening projects.

**2. Provide clear guidance for Greening Partners working on schoolyard greening projects**. Provide only one clear and comprehensive guidance document to help Greening Partners navigate the process efficiently. Establish a system for answering questions, including the option for an initial orientation meeting, where key requirements and processes can be clarified upfront. Many issues can be resolved quickly through direct communication, reducing delays caused by unnecessary back-and-forth via email and document review processes.

**3. Keep standards and requirements consistent throughout the project.** Technical standards and process requirements may be periodically updated by the District, however, projects should not be required to make significant changes after 50% Construction Documents have been submitted because of updates that LAUSD had made to their standards, unless those updates are related to state mandated regulatory changes.

**4. Allow for innovation and embrace Greening Partner's expertise.** Improve the timeliness and process to review and approve design alternatives by placing more responsibility on the Greening Partner's licensed design professional to propose proven and effective design details and materials rather than only using LAUSD technical specifications.

## The labor compliance process needs to be improved

Schoolyard greening projects must comply with state labor laws. However, the current labor compliance process led by the Labor Compliance Department is not well-suited for third party-led greening projects. As with other LAUSD requirements, the process appears to be designed for district-led projects, where LAUSD hires the design team, conducts a public bid, and contracts the general contractor.

Greening Partners—who secure external funding and manage project implementation—must sign a Labor Compliance MOU alongside the Development Agreement, yet its requirements are designed for large publicly funded projects rather than nonprofit-led greening initiatives. Provisions related to bid invitations, contract language, and subcontractor oversight should be revised to ensure compliance while reducing unnecessary administrative burdens. Clarifying whether prevailing wage requirements apply to all aspects of a project, or only contractor-led tasks would help streamline compliance, while adjusting site visit and monitoring requirements would prevent disruptions to volunteer-driven activities.

A major obstacle in our pilot project was the requirement to engage the Labor Compliance (LC) Department before proceeding with soil testing, a critical step in the design phase. The LC Department requested multiple documents, many of which were either irrelevant or unavailable at that stage, creating unnecessary delays.

### RECOMMENDATIONS TO IMPROVE THE LABOR COMPLIANCE PROCESS

**1. Tailor the labor compliance to third party-led schoolyard greening projects** and include it as part of the main agreement with the Greening Partner, aligning requirements with their role and responsibilities. Allow preliminary activities, such as soil testing, to proceed before full labor compliance documentation is required, ensuring procedural hurdles do not delay projects. In addition, allow for volunteer activities to take place which are usually an important part of schoolyard greening projects.

## Construction inspections and management

The district required that Green Schoolyards America fund an Inspector of Record (IR) assigned and provided by the district. Having an IR who had not been involved during the design phase of the project—and who was not a Landscape Architect but instead trained to inspect larger architectural and engineering projects—created challenges. At times, the IR introduced additional requirements that went beyond the approved project drawings and specifications.

Another challenge was the lack of clear guidance regarding the scope of the IR's inspection responsibilities. The process functioned more as an open-ended, continuous inspection, involving numerous site visits in addition to bi-weekly coordination calls, which resulted in excessive costs. On the other hand, the LAUSD Landscape Architecture Technical Team was responsive and supportive when roadblocks arose, even though they only visited the site during the final walkthrough.

### RECOMMENDATIONS TO IMPROVE CONSTRUCTION PROCESS

**1. Consider eliminating the need for an Inspector of Record (IR) for non-DSA projects.** Instead of assigning an Inspector of Record (IR), the LAUSD Landscape Architecture Technical Team—who are already engaged with greening projects to respond to clarification requests and proposed changes to the approved drawings and specifications—could conduct site visits at key construction milestones. This approach would maintain appropriate oversight and compliance while reducing unnecessary staffing costs for both the district and Greening Partners.

**2. Consider milestone-based inspections for green schoolyard projects.** City park permitting processes offer a useful model. These projects also comply with building and accessibility codes but rely on more efficient compliance mechanisms, such as Designer-of-Record certification and milestone inspections outlined in the approved plans, rather than open ended continuous inspection.

**3. Assign an IR with landscape architecture expertise for third-party-led schoolyard greening projects.** If an IR is required, the district should assign an inspector with demonstrated experience in landscape architecture or green schoolyard projects. An inspector familiar with landscape construction methods, planting systems, and outdoor learning environments would be better positioned to interpret plans accurately and avoid introducing requirements that fall outside the approved drawings and specifications, or the norm for schoolyard greening projects.

## Conclusion

LAUSD has set visionary goals and targets to green their campuses and has made commendable progress taking steps and investing in schoolyard greening, demonstrating a strong commitment to student well-being and environmental sustainability.

The only way for LAUSD to fully achieve its visionary greening goals is through partnerships with nonprofits that bring expertise, capacity, and funding into the District. While LAUSD lacks the necessary funding and internal capacity to accomplish these goals alone, LAUSD has dedicated and capable Greening Partners that have proven their willingness to invest in the District.

The Eco Sustainability Office has begun addressing several of the barriers outlined in this report, marking important initial progress. However, further work is needed to strengthen the overall process—an essential step for effective collaboration with Greening Partners, who play a critical role in driving lasting, transformative change. By continuing to build strong partnerships with these nonprofit organizations, the District can unlock even greater potential for green schoolyards. The benefits for students and communities will be significant: healthier learning environments, increased climate resilience, and deeper community connections.

LAUSD's ongoing willingness to engage with Greening Partners reinforces its commitment to these efforts. By working together, these collaborations can serve as a national model for urban school districts striving to green their campuses to enhance student well-being and environmental sustainability.

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