How to Create a Schoolyard Forest

Process and Best Practices

This article provides school district facilities staff, landscape architects, and other partners working to improve schoolyards with an outline of the process and best practices for creating schoolyard forests in a way that maximizes the benefits to students and their communities.

Project planning

The successful implementation of schoolyard forest projects relies on careful planning. This section explores key aspects of project planning, including essential steps that lay the foundation for creating thriving schoolyard forests that enrich students' educational experiences and foster environmental stewardship.

Raise awareness and get buy-in

Champions of schoolyard forests must raise awareness about their benefits to gain support from decision-makers. This may involve presenting at school and board of education meetings, sharing information on the benefits of schoolyard forests, and showcasing successful case studies. In addition, site visits to thriving schoolyard forests in other districts may be an effective way to inspire decision-makers.

Prioritize school sites based on equity

Projects may begin either at the school site level or be initiated by the district as part of broader facilities plans. To prioritize environmental and racial justice, districts should give precedence to establishing schoolyard forests at schools that serve the most vulnerable students and schools with the lowest amount of tree canopy.

Engage students

Engaging and empowering students early in the schoolyard forest creation process is crucial. Students can analyze site conditions, conduct surveys to assess community needs, present their findings at school meetings, advocate for the project in public meetings, and actively participate in the forest's design and stewardship. These activities foster lifelong skills, empower students, and cultivate a sense of community and environmental connection.

Please refer to the How Cool Is Your Schoolyard? activity and Educator Resources section of our Schoolyard Forest System℠ Library for more information on how to effectively engage students in schoolyard forest design, planting, and stewardship.

Additionally, please refer to our article How to Design a Schoolyard Forest, which provides valuable information on design principles and components of a schoolyard forest.

Assemble a project team

An important initial step in a schoolyard forest project is forming a project team with well-defined roles and responsibilities. Ideally, this team should include school and district members with delegated authority to propel the project forward. While a consultant may not initially be part of the team, collaborating with a landscape architect familiar with child development, permit processes, and state requirements for school facilities is valuable. This collaboration ensures that the project meets necessary standards while effectively serving the students and their school community.

Develop an engagement plan

Meaningful engagement of the school community is vital for the success of a greening project. The school community encompasses various stakeholders, such as students, families, caregivers, teachers (including physical education, science, and garden teachers), school administration, staff (including custodians and after-school program staff), district personnel (including facilities, maintenance, groundskeepers, health, and instructional staff), the board of education, community members, and nonprofit partners. It is essential to create a comprehensive plan to involve and empower the school community, ensuring their voices are heard and integrated into the project. Strategies may include discussing the project during school meetings, organizing workshops, incorporating project activities into classes, and conducting surveys and interviews.

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Explore partnerships

Collaborating with local community groups, non-profit organizations, and funders can provide valuable resources, expertise, and funding to support the project's success. Building successful partnerships requires time and is most effective when shared goals, roles, and commitments are documented in written agreements.

Document project goals

The community engagement process is crucial for creating awareness, generating buy-in, and establishing shared objectives. This process involves identifying community needs, determining desired uses for the space, and outlining project goals. It is essential to prioritize and maintain these goals at the forefront as the project progresses.

Understand the approval process

Schoolyard greening projects often require approval from district facilities and maintenance staff, as well as the school principal or administration, to ensure the project aligns with district and site-specific needs and standards. Understanding the specific approval processes and authorities involved is crucial. In cases where no formal approval process exists, it is essential to identify the decision-maker(s) early on, address their requirements, and secure written approval to proceed with the project.

Develop a preliminary budget

Even if the project is not fully defined or designed, it is possible to develop a preliminary budget by referencing similar projects. This budget should encompass staffing costs, consultant fees (such as design and engineering), permits and construction expenses, initial maintenance costs for plant establishment, and a contingency fund. As the project evolves, it is important to conduct cost estimates at different stages of design to maintain budget alignment and identify any need for additional fundraising.

Site analysis and constraints

Before proceeding with the design, conducting a thorough site analysis is a necessary step. This phase helps identify both constraints and opportunities for the schoolyard forest project, ensuring appropriate location and design decisions from the outset and minimizing the need for significant changes later in the process

Create a base map

A crucial component of site analysis is creating a comprehensive base map. This map should encompass existing structures, topography, utilities, points of irrigation connection, rights of way, and emergency access lanes. If this information is not readily available from the district facilities department, it may be necessary to hire a surveyor, especially for larger projects.

Understand code requirements

Site analysis also involves understanding various code requirements and constraints. Factors such as fire and emergency access, as well as ADA accessibility, must be taken into account. Engaging in a meeting with the Division of State Architect (DSA), the permitting agency for public school properties, can help clarify specific permitting requirements and exemptions for the project. Similarly, consulting the local fire marshal will provide insights into access and safety requirements that must be considered.

Understand current uses and circulation

In addition to code requirements, a comprehensive site analysis should encompass an understanding of how the school currently utilizes the site, including access and circulation patterns. It is essential that the schoolyard forest is integrated into daily school activities and located in an area readily accessible to students.

Identify existing assets

Healthy mature trees and natural areas are assets that should be protected and, if possible, enhanced as part of the project. An arborist may assess tree health and provide recommendations to ensure that existing trees survive and thrive long term.
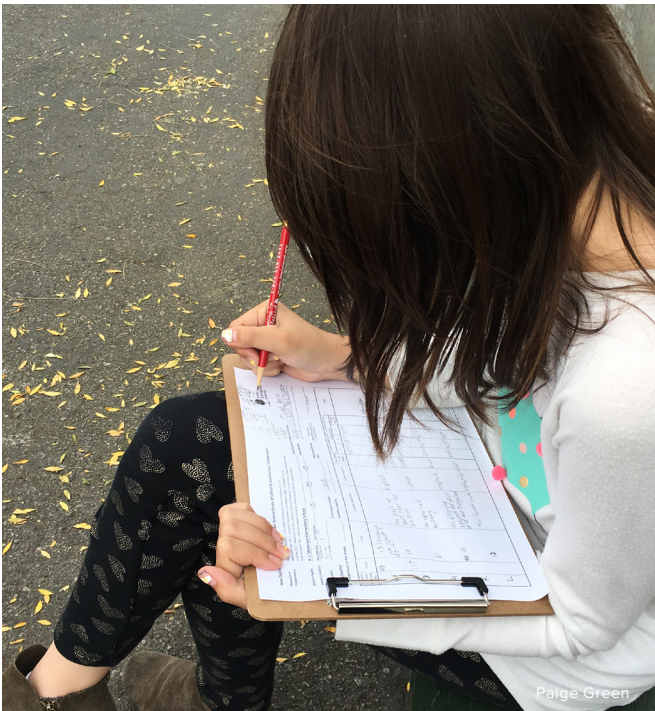
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Understand future plans for the school

It is vital to gather information about any future plans for the school that may impact the schoolyard forest project. This includes potential building expansions, installation or removal of portable classrooms, deferred maintenance, or other modernization projects. The district facilities department, as well as the district facilities master plan, can serve as valuable sources of information in this regard.

Find out about hazardous materials

During the site analysis phase, it is important to gather information about potential hazardous materials present on the school site. Due to the age of many school facilities, contaminants such as lead and other heavy metals may be present beneath pavement surfaces. District facilities staff may possess this information or may require borings and testing beneath the asphalt to determine the presence of contamination and to ensure a safe environment.

Consider the natural context

During the site analysis phase, it is important to consider natural factors such as sun exposure, predominant wind directions, steep slopes, local groundwater levels, proximity to wild–urban interface zones, local annual rainfall, and other conditions that can influence decisions regarding the location and design of the schoolyard forest.

Present the site analysis

Before progressing to the project design phase, it is beneficial to ensure that the school community has a clear understanding of the site, including its opportunities and constraints. This allows for meaningful input and informed decision-making as the project continues to evolve.

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Overall schoolyard plan

Before delving into designing the schoolyard forest space, it may be necessary to initiate a planning process for the entire schoolyard. This is particularly important when there are multiple competing priorities and planned projects for the schoolyard that will impact decisions related to the schoolyard forest. Depending on available resources and time constraints, the schoolyard concept plan can take the form of a high-level diagram or a detailed master plan.

Engage in a participatory process

The development of a schoolyard plan should involve a participatory process that allows for meaningful community input and engagement. This ensures that all programs and needs for the schoolyard are considered and incorporated into the plan. A participatory design process enables a thorough evaluation of the schoolyard forest's location and size in relation to other needs and constraints. An inclusive process allows the school community and district to determine the most suitable location for the schoolyard forest, taking into account other school projects and community needs such as sports fields, lineup spaces, parking, and anticipated expansions.

Coordinate with other planned projects

A comprehensive master plan can include the location and size of other major renovation projects planned by the district. This facilitates coordination of project schedules and potential cost savings through combined efforts.

Explore different options

The process should involve presenting various options to the school community, gathering their input, and refining the concept design through multiple iterations before finalizing the plan. This iterative approach ensures that the schoolyard plan aligns with the needs and preferences of the community.

Allow for a phased implementation

A community-supported schoolyard plan is a valuable long-term guide and fundraising tool that allows the project to be implemented in phases as funding becomes available.

LEGEND

①	CENTRAL GATHERING SPACE	⑤	NATURE PLAY AREA WITH LOG CLIMBERS	⑨	PLAY LAWN WITH FENCE	⑬	LEARNING GARDEN	⑰	BASKETBALL COURT
②	RAISED TREE WELL	⑥	SALVAGED LOG EDGING	⑩	BENCH WITH BACK	⑭	OUTDOOR CLASSROOM	⑱	WALL BALL COURT
③	PICNIC TABLE	⑦	WOOD FIBER SURFACE	⑪	FRUIT TREE ORCHARD	⑮	GARDEN SHED	⑲	FOUR SQUARE COURTS
④	CONCRETE SEATWALL	⑧	STUMPS	⑫	DRY CREEK	⑯	RAISED GARDEN BEDS	⑳	EXISTING PLAY STRUCTURE

A schoolyard master plan for a school in Oakland, California, developed by The Trust for Public Land and Miller Company.

Schoolyard forest concept design

Once the location for the schoolyard forest is agreed upon, the schoolyard forest project can move into a concept design phase. A concept design usually consists of a plan diagram drawn to scale that includes the general location and layout of all the elements that need to be included in the schoolyard forest (e.g. trees, seating areas, and play elements).

Refine the program

How students and educators want to use the space, what specific activities will take place there, and what elements, in addition to trees, need to be included to support those activities should have already been discussed during the project planning phase. The concept design phase is an opportunity to revisit and refine these questions, especially if the schoolyard has not gone through a planning process for the whole schoolyard. The schoolyard forest design phase is another opportunity to engage the school community, in particular students and teachers who will use the space and will be able to provide more specific needs and design ideas for the space.

Consider different options

It may be best to present different design options to the school community to get their input and then refine the design through several iterations before it is finalized. Because schoolyard forests can serve multiple purposes and host many different activities, it is important to consider how programmatic needs and uses may be layered rather than trying to have a separate space for each activity.

Present the final concept design

Prior to detailed design, it is advisable to present the final concept design of the schoolyard forest to the school community. This presentation should demonstrate the incorporation of their feedback and address any ideas that could not be included. Engaging students in the presentation can be an enriching learning experience for them. It is recommended that the team create a cost estimate, update the budget as necessary, and secure official approval of the concept plan from the school principal and facilities department before proceeding with a detailed design.

Detailed design

For larger projects, the detailed design phase is typically undertaken by a licensed landscape architect. This phase involves creating technical drawings and specifications that contractors and other stakeholders will utilize to construct the project and ensure compliance with all necessary requirements. The detailed design phase is also referred to as the construction documentation phase.

Ensure compliance with building codes

One crucial aspect to consider during the detailed design phase is designing the project in accordance with the applicable building codes and standards. In California, the Division of the State Architect (DSA) plays a vital role in overseeing the design and construction of public school properties. DSA reviews projects to ensure compliance with structural integrity, accessibility, fire safety, and overall life safety codes.

Furthermore, landscape projects must adhere to the guidelines outlined in the Model Water Efficient Landscape Ordinance (MWELO). This ordinance aims to promote water conservation through various strategies, including the selection of climate-appropriate plants, utilization of high-efficiency irrigation systems, and the preference of gray water or recycled water for irrigation purposes instead of potable water.
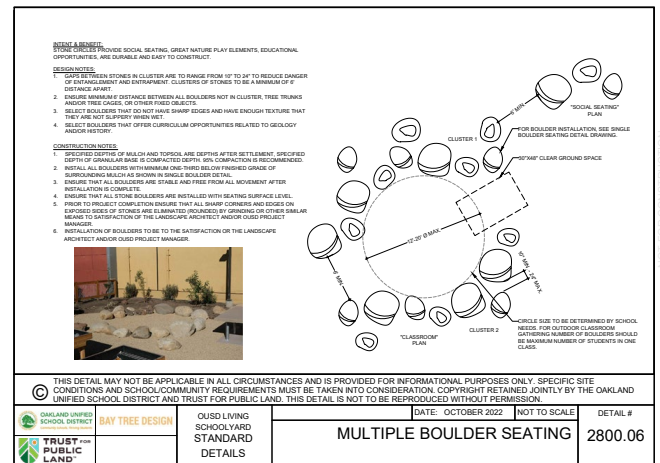
It is important to engage a licensed landscape architect who can design the project to meet these codes and standards and also navigate the review and permitting process effectively. It should be noted that not all tree planting initiatives will necessitate state reviews and permits. For instance, planting trees within existing designated areas may be exempt from such requirements.

Refer to goals and community priorities

During the detailed design phase, as the project design gets refined to meet codes and standards, it may require some modifications to the original concept plan. For this reason, it is important to always refer back to the original project goals and community priorities, to ensure that those are met in the final built project.

Divide the scope

In the detailed design drawings, it is imperative to clearly delineate the project scope to be executed by contracted professionals and district staff, as distinct from the tasks that will involve students or volunteers. This division is critical for proper coordination and sequencing, thereby ensuring a smooth construction process for the project.

Examples of detailed design drawings created by Bay Tree Design for the Oakland Unified School District and The Trust for Public Land.

Construction and planting

The construction and planting phase is a pivotal stage in the realization of a project, where careful planning and execution bring the envisioned transformation to life.

Obtain permits

In cases where permits are required, the detailed design must be submitted to the Division of the State Architect (DSA) for review and permitting before proceeding with contractor bidding and construction. This step ensures compliance with regulatory requirements and facilitates a smooth construction process.

Plan with the school calendar

A critical consideration is to align the construction timeline with the school calendar. Ideally, contracted professionals can carry out the work during the summer when school is not in session, whereas students and volunteers can participate in planting activities during the academic year. However, it is advisable to avoid planting between late November and early February (depending on the region) to minimize the risk of frost damage to newly established plants. Ideally, planting should be scheduled for spring, once the frost danger has passed, to promote better growth and survival of the trees.

Major construction

Certain construction tasks, involving heavy equipment and higher risk levels, should be performed by district grounds staff or licensed contractors. These activities may include demolition, asphalt and soil removal, concrete work, installation of play equipment, fence installation, paving, placement of large boulders, plumbing work for drainage and irrigation, and excavation of large tree pits. After major construction is completed, it is crucial to ensure that the contractor has adhered to the technical drawings and contract specifications, that installed equipment such as irrigation systems are functioning properly, and that the contractor provides the school or facilities department with as-built drawings, manuals, and other necessary documents.

Planting and other activities

Once the contractor has completed their work, removed all equipment, and left the site in a safe condition, other tasks such as planting and spreading mulch can be undertaken by students as part of the curriculum or by adult volunteers during dedicated workday events. Students and volunteers may also engage in additional activities, including sanding logs and stumps for seating, constructing planter boxes, and carrying out various carpentry projects. Volunteer events should be well-organized and led by experienced staff, with a strong emphasis on safety.
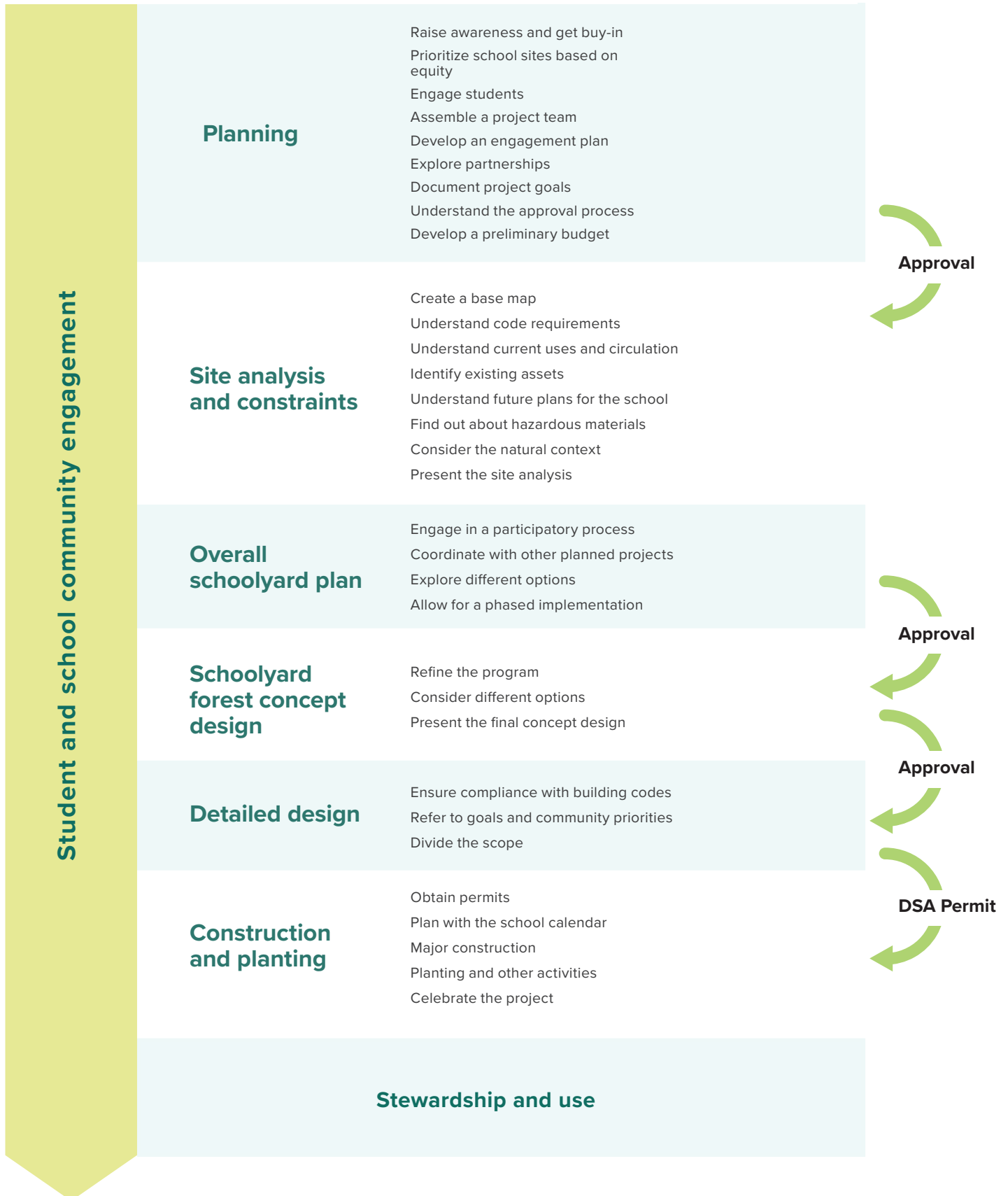
Celebrate the project

An opening celebration with the school community serves as a powerful way to acknowledge the contributions of students, teachers, partners, and volunteers who have helped bring the project to fruition. Such events empower students by highlighting the impact they can have within their schools and communities. It is essential to ensure meaningful student participation in these celebrations, making it a memorable and inclusive experience for everyone involved.

Volunteer workday at an elementary school in Berkeley, California

Process summary

Student and school community engagement

Planning

- Raise awareness and get buy-in
- Prioritize school sites based on equity
- Engage students
- Assemble a project team
- Develop an engagement plan
- Explore partnerships
- Document project goals
- Understand the approval process
- Develop a preliminary budget

Approval

Site analysis and constraints

- Create a base map
- Understand code requirements
- Understand current uses and circulation
- Identify existing assets
- Understand future plans for the school
- Find out about hazardous materials
- Consider the natural context
- Present the site analysis

Overall schoolyard plan

- Engage in a participatory process
- Coordinate with other planned projects
- Explore different options
- Allow for a phased implementation

Approval

Schoolyard forest concept design

- Refine the program
- Consider different options
- Present the final concept design

Approval

Detailed design

- Ensure compliance with building codes
- Refer to goals and community priorities
- Divide the scope

DSA Permit

Construction and planting

- Obtain permits
- Plan with the school calendar
- Major construction
- Planting and other activities
- Celebrate the project

Stewardship and use

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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**