

## PLANNING FOR SHADE

Planning for shade requires the completion of a series of interrelated tasks. These include convening a planning team, conducting a site audit to determine whether the existing level of shade is adequate, determining the most appropriate strategies if more shade is required; and developing a plan to increase the amount of shade accessible to students, teachers, staff, and visitors. The process can be lengthy, taking as long as 1 year. This chapter briefly describes each step. In chapter 6, “How to Conduct a Shade Audit,” the reader will find more detailed information on the steps for shade planning.

### **The Shade Planning Team**

It is important for any school undertaking a shade planning project to first identify the stakeholder groups that may have an interest in, or be affected by, the resulting plan. Representatives of these groups should be included on the planning team. For most schools, the stakeholder list would include school administrators, the school nurse, coaches, teachers, students, parents, groups that use the school grounds after hours, and neighbors living adjacent to the school. In addition to stakeholder representatives, the planning team may need to call on professions with expertise in horticulture, landscaping, and architecture. Although it may not be necessary to include such individuals on the planning team, taking the time to identify and recruit them during the earliest stages of the planning process will keep the project moving when their expertise is required.

The process will be well served if the goals of the team, the roles and responsibilities of its members, and a method for decision making are determined at the outset. In the course of developing and proposing a shade plan, many decisions will need to be made. One method for decision making that lends itself to a participatory process is decision by consensus.

### **The Shade Audit**

Once a planning team has been assembled and its roles, goals, and procedures determined, the group’s first major task will be to conduct a shade audit. The audit will help the planning team determine how much shade is currently accessible on the school grounds and if more is needed. The audit consists of a series of user interviews, behavioral observations, and environmental observations. All of the information collected through the audit will be used by the planning group to develop their recommendations.

### ***Interviews***

Although members of the planning team may be very familiar with their school, their expertise may not be comprehensive. Any shade planning endeavor should begin by interviewing several members of each of the identified stakeholder groups. In those interviews, the planning team can collect important background information regarding:

- When and where outdoor activities occur.
- Which areas of the school grounds are off-limits.
- Any long-term plans for the school grounds, including new construction.
- Opinions regarding the adequacy of existing shade.
- Expectations regarding the plans for additional shade.

Chapter 6, “How to Conduct a Shade Audit,” contains sample interview questions for school principals, teachers, and students. Planning teams will need to tailor interview questions to issues and concerns specific to their school.

Prior to conducting stakeholder interviews, the planning team should secure a site plan. This is a drawing of the school grounds and buildings that has been drafted to scale. Often site plans are prepared by surveyors or architects, and may be available from the school's principal or the office of the superintendent of the school district. With a site plan, interviewees can refer to activities in relation to the zones and features of the school grounds and interviewers can record the information directly onto the plan.

### **Behavioral Observations**

The next step in the planning process involves collecting data at the school site. Adequate data collection will require several visits to the school. Initial visits will be to observe outdoor activities conducted on the school grounds and document the usage patterns of students, teachers, and staff. Knowing in advance at what times the students can be expected to be outdoors will facilitate the process. Observers will want to document the types of activities taking place, the location in which they are occurring, the number of students participating, and their duration. Once again, it will be helpful for observers to have a site plan on which to make notes regarding outdoor student and teacher activities.

### **Environmental Observations**

Other visits to the site are recommended in order to take measurements on school grounds without interfering with the school's day-to-day activities. On these visits, an accurate site plan will be essential. If none is available, the planning team will need to draw a freehand plan of the site, recording the distances between the various buildings and play equipment. It might be helpful to name different zones if they do not already have names, such as queuing area or passive play area. It is also important to document any significant topographical features, such as low spots, slopes, or ravines, as these will influence decisions about which shade planning strategies will be most appropriate. The site plan should indicate the boundaries of the school's property, which direction is north, and whether it is magnetic north or true north. Often there is an appreciable difference between the two. Determining true north will be important to ensure that shade is cast in the right place, at the right time of day, at the right time of year.

It may also be important to mark the locations of important features outside of the school boundaries, such as the neighboring homes or businesses.



### **When Is North Not Really North?**

*The short answer is "Almost always!" There is almost always a difference between true north and magnetic north. Fluid motion in the outer core, which is the molten metallic region of Earth, causes the magnetic field to change unpredictably both over time and by location.*

*Magnetic declination is the measurement of the angle between magnetic north and true north. For example, on July 4, 1955, the magnetic declination for Washington, D.C., was 6 degrees west of true north. On the same day in 2003, the magnetic declination was 10 degrees west of true north.*

*To find out more about magnetic declination, visit The National Geophysical Data Center at: <http://www.ngdc.noaa.gov/seg/potfld/declination.shtml>*

Because ground and building surfaces can reflect ultraviolet (UV) radiation, the planning team should make notes regarding the surfaces and finishes of each building and play area on the school grounds.

It will be important for the planning team to also consider the school's sports areas, such as baseball diamonds, soccer fields, and basketball courts. In thinking about these features of the school grounds, the planning team should take into account the shade needs of the students and coaches who are participating and those of the spectators.

The next task will require some degree of horticultural expertise. The planning team should inventory each tree and planted area on the school grounds. Trees should be numbered on the site plan, and a separate set of notes should record the team's findings for each tree, including the following:

- Species.
- Estimated height.
- Trunk diameter.
- Condition (e.g., broken branches, dead limbs), paying particular attention to any that appear to be unhealthy.
- Estimated diameter of the tree's canopy, that is, the upper part which includes the branches and leaves.
- Density of the tree's canopy.

Notes should also be made on the predominant vegetation for areas of densely planted mixed species.

The final task of the shade audit is to estimate the amount of existing shade on the school grounds. Measurements should be taken of all of the shade, regardless of whether it is in an off-limits area. There are two methods for measuring shade, one of which is highly technical and requires a detailed knowledge of sun projection techniques. The second method requires only that the planning team mark the shade patterns on the ground at the times of day that students are outdoors. The ground can be marked with chalk, rope, or baking flour, then measured and marked to scale on the site plan. Measurements will need to be taken at several times during the day and throughout the school year to ensure that seasonal changes in the shade patterns are recorded.

### ***Assessing the Findings***

Having completed interviews with representatives of stakeholder groups, observed usage patterns, and plotted the seasonal shade patterns at the school, the next step in the planning process is to analyze the quantity and quality of shade that is accessible on school grounds, and determine if and where additional shade is needed. The following questions will guide the analysis:

- Will future growth of existing trees result in additional accessible shade?
- Are any areas currently off-limits that could provide additional shade if they were accessible?
- Are any areas protected from direct UV radiation, but not protected from indirect (reflected or diffuse) UV radiation?
- Are there future building plans that might be modified to provide additional shade?

## Shade Design

Based on the shade audit, the planning team should present its recommendations in text and graphic format. Recommendations should clearly state the shade goals for each specific zone of the school property, such as bus queuing area, sports venues, active play areas, or informal social gathering places, along with strategies for achieving those goals. The team should consider the range of options at the same time that it is considering the nature of the shade to be provided. Questions that the planning team should take into account when developing a shade plan include:

- Is there a need for protection from rain?
- What are the initial costs for each strategy considered?
- What are the long-term maintenance costs associated with each strategy?
- Is the strategy safe, considering the local weather conditions?
- Is there risk of vandalism, and how can that risk be minimized?

Consulting with knowledgeable architects, landscape architects, or horticulturists is advisable at this point. Not only will they know the species of vegetation that will meet the shade requirements for natural applications and the local building codes for any structural applications, they also can advise the planning team on the potentially complicated tasks of obtaining local building permits and contracting with builders and landscapers.

## Funding

At the same time that the planning team is finalizing the shade design, team members can explore potential funding sources and volunteer resources for the project. Several potential sources for funding and hands-on participation are discussed further in chapter 4, “Case Studies” and in the appendices of this manual. Some possibilities include:

- Contributions from local and national corporations, including in-kind contributions.
- State and federal grants.
- Volunteers and financial contributions from community service organizations.
- Local fund-raisers.
- Support from environmental organizations.
- Advice from local master gardeners associations and programs.
- Volunteer project work for Boy Scout or Girl Scout troops.
- Student class projects.

## Where Can I Find More Information?

Chapter 6, “How to Conduct a Shade Audit,” provides more detailed information on the steps of conducting such an audit, including examples of questions that would be appropriate for interviews with stakeholders. On the following pages are resources for facilitating participatory decision-making processes, funding, and working with volunteers.

## RESOURCES FOR SHADE PLANNING TEAMS

Facilitators Guide to Participatory Decision-Making (1996)	
Sam Kaner, with Lenny Lind, Catherine Toldi, Sarah Fisk, and Duane Berger New Society Publishers Gabriola Island, BC	This guide is designed to help groups increase participation and collaboration; promote mutual understanding; honor diversity; and make effective, inclusive, and participatory decisions.
Evergreen	
355 Adelaide Street West, Fifth Floor Toronto, Ontario M5V 1S2 Phone: (416) 596-1495 www.evergreen.ca	<p>Evergreen is a Canadian non-profit environmental organization with a mandate to bring nature to Canadian cities through naturalization projects. Evergreen motivates people to create and sustain healthy, natural outdoor spaces and gives them the practical tools to be successful. Following are several publications available from Evergreen that should be of interest to shade planning teams.</p> <p><b><i>Hands for Nature: A Volunteer Management Handbook</i></b> This booklet provides practical tips and ideas for working effectively with volunteers to create and sustain greening projects. It includes many insights and helpful statistics from the Community Greening Volunteerism 2002 Survey as well as generous input and discussions with experienced volunteer coordinators and greening participants.</p> <p><b><i>Design Ideas for the Outdoor Classroom: Dig it, Plant it, Build it, Paint it!</i></b> This booklet is a collection of ideas and techniques for creating native plant and vegetable gardens, and includes a whole range of built and artistic features for your school grounds.</p> <p><b><i>All Hands in the Dirt: A Guide to Designing and Creating Natural School Grounds</i></b> This manual will guide you through the planning process, providing tips and templates for designing a site that reflects your local natural environment and the ideas of all involved.</p> <p><b><i>Nature Nurtures: Investigating the Potential of School Grounds</i></b> This report is a comprehensive review of the literature pertaining to school ground naturalization. It examines the work of some of the most advanced thinkers in the fields of child development, education, and environmental psychology, and it explores the web of benefits that results when an entire school community participates in creating more nurturing and diverse environments for learning on the school grounds.</p>

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