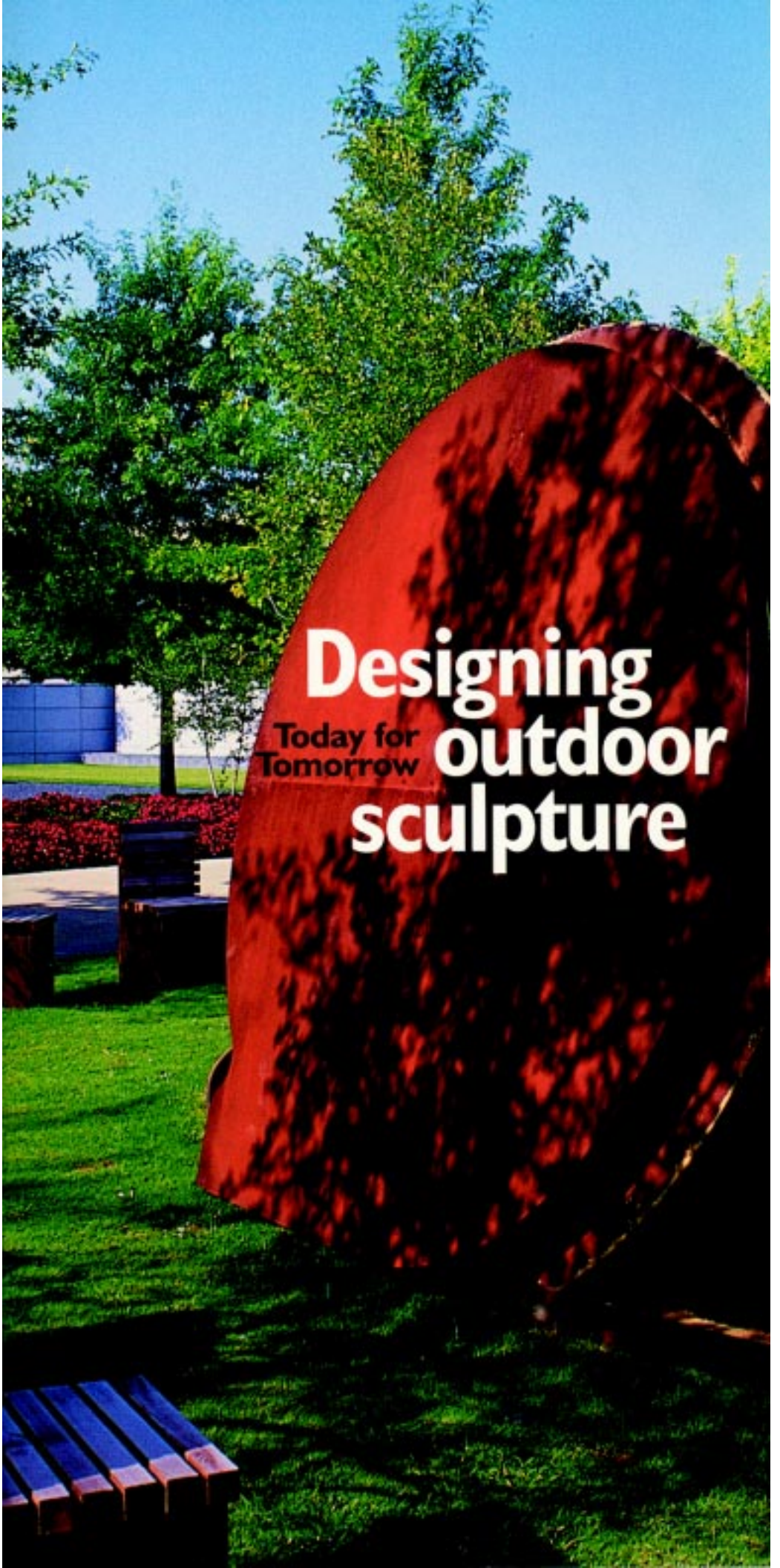

Designing
Today for Tomorrow
outdoor
sculpture

"It is no small thing to outwit **time**."
–A. Bartlett Giametti

Regular **maintenance**
extends the life of outdoor
sculpture

Why this planning guide?

Outdoor sculpture is **art** and **history** that everyone can enjoy every day. Outdoor sculptures are highly visible **focal points** and, when well-maintained, help create a healthy, vibrant sense of **community**, a sense of belonging. When artworks are in the public realm, they should be of highly durable, low-maintenance materials and should be **designed**, **created** and **installed** with forethought as to the long-term costs to maintain their appearance and structural integrity without compromising the sculptor's vision.

This guide identifies elements in the **design** process of outdoor sculpture that can result in less costly and more effective programs of **care after installation**. This planning guide is aimed at those outdoor sculptures intended to endure for at least 20 years.

The selection of **materials** for outdoor sculpture commissioned today may range from traditional bronze, granite or copper to ephemeral materials like plastics, plants and electronic equipment. Over time these materials interact with each other and their environment, leading to inevitable deterioration. Metals corrode, plastics discolor or become brittle, painted surfaces chip and fade. In addition, elements in the **environment**—water, chemical pollutants, extreme temperatures and ultraviolet light—accelerate these processes of deterioration. Sculptures have been removed from view because of neglected **maintenance**.

Today's public sculpture will become tomorrow's historic monuments. Just as communities work now to preserve their existing sculpture and monuments, future generations will be preserving the art created today. The problems that have affected collections of older works will afflict new creations as well. Positive public support is crucial to the survival of outdoor sculpture and can be heightened through **education** and **community participation**.

"Designing Outdoor Sculpture Today for Tomorrow" was written for sculptors, owners, art managers, architects, landscape architects, engineers, fabricators, foundry personnel, conservators, community groups and others who care about outdoor sculpture. Allies in the broader field of public art will find this a useful tool too. This guide was written by their colleagues—Glenn Wharton, conservator, with assistance from Rita Roosevelt, public art specialist, and Mark Rabinowitz, sculptor and conservator. Art consultant Françoise Yohalem, conservator Janet Hughes, SOS! project staff and sculptors were especially helpful in reviewing text and securing images.

"If the work is to survive, it needs maintenance and periodic restoration and a budget should be set aside for this purpose. Preservation should be strictly in accord with the instructions and specifications provided by the artists and the fabricator. If this is done, the sculpture will have a long and happy life. If not, it will be an embarrassment to the community in which it stands."—Claes Oldenburg and Coosje van Bruggen, artists

ABOVE: Claes Oldenburg and Coosje van Bruggen, *Free Stamp,* 1991, painted steel and aluminum, Willard Park, Cleveland, OH (Photo: © Joe Karabinus). OPPOSITE: Julio Teich, *Let it go...!,* 1991, painted steel and cast glass, Rockville Swim Center, Rockville, MD (Photo: Ruben Garcia).

Maintenance and the Design Process

The process of creating public sculpture involves a complex series of steps:

- selecting an artist
- selecting the site
- designing the sculpture
- developing strategies for maintenance
- contracting with the artist and subcontractors
- fabricating the artwork
- installing the sculpture
- documenting the design, fabrication and installation with photographs and written materials

A high degree of collaboration is often involved in creating public sculpture. Central collaborators are the sculptor and owner, typically a commissioning agency or developer. Architects and landscape architects can be artistic collaborators or part of the design team. Art object conservators, engineers and other consultants play a role in selecting materials and reviewing maintenance strategies or design aspects. Other advisory bodies and community groups may be part of the collaborative process. All parties are responsible for the work's survival and should be discussing maintenance concerns at every step along the way.

The New York City Board of Education requires sculptors to consult with conservators in the preliminary phases

“I work with thick, custom-made, cast glass blocks and silicone bonding to withstand temperature changes. Over ten years, no piece of glass has cracked, but if one does, it can be replaced easily.”—Julio Teich, artist

"We asked a sculpture conservator if the proposed materials were durable and what maintenance would be required. She advised us to use materials better suited to our climate and raised issues that informed our final decisions. We have since added several books about outdoor sculpture and its care to our collection."—Michael McCue, director, Teaneck Public Library

of design. Program Director Michele Cohen maintains "consulting a conservator in the process of designing a public sculpture is a precautionary measure which can only result in a more durable finished product. We can't foresee all problems, but we can certainly minimize them by thoroughly investigating materials and fabrication methods."

Preserving the integrity of the artwork should be the highest priority during the design process. In the United States, federal and state laws address issues of preservation and artists' and moral rights. Accessibility is mandated by the Americans with Disabilities Act.

Maintenance and the Owner

The initial request for proposals should ask the sculptor for a statement concerning future maintenance. In addition, owners should become familiar with the fabricators or foundry specialists who will be involved; many sculptors depend on them to select and process their materials. Responsibility for the durability of the sculpture should be clearly identified.

- Assess the proposed design and materials for durability and costs of maintenance. Appointing a maintenance advisory committee or consulting with a conservator, architect or engineer is recommended.
- Assess the sculptor's familiarity with materials, techniques and how they are affected by local conditions.
- Establish a maintenance schedule for the work of art from its inception to anticipate future labor and material costs.
- Select the site with an eye to future maintenance. Consider issues of security and exposure to water and other agents of deterioration.
- Confirm that sufficient resources are available for regular maintenance.
- Establish an archive for the artwork. Include photographic documentation, records of fabrication materials, statement of the artist's intent and construction drawings. Details for anchoring and joining methods should be included.

Recognizing that financial resources for on-going maintenance may be limited, City and County of Denver recommends that artists consider highly durable, low-maintenance materials for public art projects. Semi-finalists in their competitions are encouraged to consult with conservators when developing proposals. The final design of each selected artist may be reviewed by the City's Interagency Maintenance Task Force, which includes professional conservators, to ensure that maintenance requirements have been adequately addressed.

Maintenance and the Sculptor

If the sculptor contracts with fabricators or foundries, both parties should consider issues of future maintenance, including clarifying responsibilities for maintenance in their contract. The sculptor's choices and decisions have lasting effects on appearance and maintenance costs.

- Be aware of how materials weather in an outdoor environment and their mutual compatibility.
- Select durable materials for the sculpture.
- Incorporate future maintenance considerations into the design. Hollows, for example, can collect rainwater and cause problems; fragile extensions can be broken or hazardous to passersby.
- Submit a statement regarding the aesthetic intent of the work, including acceptable aging patterns and maintenance of surface characteristics like color, gloss and texture. Avoid being too specific about the use of proprietary materials and specific resins to allow for future advances in technology and changes in products.
- Provide diagrams, names of fabricators, fabrication processes and a list of materials used.
- Provide a description and drawings of installation specifications, including details of connecting methods.
- Consult with a conservator, architect and/or engineer on the selection of materials and design.

Shelley Sturman, head of object conservation at the National Gallery of Art, Washington, d.c., recalls, "Artist George Rickey is particularly aware of issues regarding future maintenance of his works. In fact, after we acquired *Cluster of Four Cubes*, he told us exactly how he wanted the stainless steel cubes that revolve around ball bearings to be lubricated. He even sent us his grease gun!"

OPPOSITE: Judith Peck, *Reading Together,* 1995, bronze, Teaneck Public Library, Teaneck, NJ (Photo: Michael McCue). BELOW: (Photo: Michael Defillippo).

Foundry specialists and fabricators play a key role in a sculpture's structural soundness and surface appearance at installation and through the years. Contracts with them should discuss responsibilities for maintenance.

Maintenance and **Collaborators**

Sculptors or commissioning bodies should consult with others who can help anticipate and limit future maintenance needs. Consulting with those who have specialized knowledge prior to the design stage can reduce maintenance costs.

Conservator

- Assess the materials, design and siting
- Design maintenance program, especially for sculpture with unusual materials and fabrication processes
- Train personnel to oversee or implement maintenance activities

Architect

- Assess the materials, design and siting
- Design selected elements of the project such as plinth, paving, support walls, finishing details, fasteners and drainage

Landscape Architect

- Assess the siting
- Limit the exposure of the sculpture to water and other agents of deterioration
- Select plant materials that will either discourage or encourage public access

Engineer

- Assess the materials, design and siting
- Design associated features, such as mechanical and electrical elements, fountain mechanics and lighting

Foundry Specialist and/or Fabricator

- Construct or cast sculpture with varying degrees of supervision from sculptor, owner or commissioning agency
- Provide surface finishing

BELOW: Nancy Holt, *Solar Rotary,* 1995, aluminum, bronze, concrete, University of South Florida, Tampa, FL.

Artist Nancy Holt collaborated with an engineer, administrator, university faculty, astronomer, fabricator and historian. As with all her artworks, she provided written maintenance instructions, a list of fabricators and collaborators and specifics about selection and maintenance of plant material and plaques. She keeps a copy.

"Sculpture that is meant to be shown in a museum or studio has a certain preciousness that cannot be afforded to outdoor pieces. Works sited out-of-doors must be created in anticipation of weather and vandalism. After all, you can't leave anything out in the rain without maintenance, not even your car."—Raymond Kaskey, artist

ABOVE: Raymond Kaskey, *Portlandia*, 1985, hammered copper, Portland, OR (Photo: Susan Nichols).

Maintenance and Contracts

Owners contract with sculptors who may then employ contractors and subcontractors. Contracts define terms, conditions and responsibilities of various parties. This phase gives both sides a chance to negotiate until a mutually agreeable contract is signed. An attorney can be helpful in this phase.

Standard contract considerations between the artist and owner typically include scope of services, liability, insurance, indemnification, payment schedules and timeline. In addition, the owner-sculptor contract should itemize maintenance obligations of both parties. In particular their contract should cover:

- nature and extent of maintenance to be provided by owner, administrator or sculptor;
- rights and obligations of the owner to perform certain maintenance, including regular cleaning, repair, replacement of protective coatings and repainting; and
- rights of the artist to participate in maintenance activities, such as selecting paint color, that affect the artist's intent.

If nondurable materials or questionable fabrication processes are employed, the owner might request a warranty from the fabricator or artist. Liability should be transferred back to the owner after a specified period of time. In addition, the owner should be apprised of

"We devised a subterranean support system of stainless steel to protect the sculpture from contact with ground moisture. The stainless steel will not deteriorate underground and does not react adversely with bronze. The sculpture has the illusion of resting directly on the ground as the artist intended."—Lee Aks, conservator

any contractual arrangements between the foundry or fabricator and the sculptor.

Metro-Dade Art in Public Places, Florida, requires artists to provide written instructions for care of their artworks. For example, sculptor Buster Simpson provided hand-written considerations for *Moving Over,* diagrams for removal of bolts and manufacturers' brochures on sealants and polishing pastes.

Maintenance and Site

Long-term survival of outdoor sculpture will be affected by use of the site, adjacent buildings, trees, roads, playgrounds, ponds and similar features. Determine who—pedestrians and pets, cyclists, skateboarders—and how many will use the area and how they will use it.

Susan Carr, director of public art, Arts Commission of Greater Toledo, has learned to include users in the mix of design considerations. "Our *Major Ritual* by Beverly Pepper suffered serious damage from skateboarders. It's taken a lot of time, dollars and public relations to correct the damage. Even resited on grass with a wide stone border, the sloping sculpture sometimes proves too seductive for skateboarders, in-line skaters or bicyclists. Now the artists and I discuss use and users early on."

Pollution, Wind, Light Levels

■ Choose materials and coatings based on their ability to survive local conditions that include chemical pollutants, airborne chlorides from the sea or de-icing salts, soot from automobiles or local industries, sunlight exposure and abrasive wind-blown dusts.

Landscaping

■ Design sprinkler systems to avoid spraying water on the sculpture.

■ Have water drain away from the sculpture site.

■ Avoid materials, such as paints and most resins, affected by ultraviolet light.

■ Trees attract birds and produce sap and other natural resins and oils. Acidic deposits can damage surfaces. Leaves and seeds can lodge in crevices, retain moisture and lead to corrosion and other deterioration.

■ Opt for plant materials without invasive roots. Avoid vines that attach to surfaces.

■ Deeply shaded locations can encourage algae and other biological growth. Shade can result in uneven drying of the sculpture.

■ Provide barriers between grass and sculptures to prevent marring from lawn mowers, trimmers and snow removal equipment.

■ Establish a landscape maintenance program with pruning to avoid overgrown landscapes that alter the

artist's intention, hide the work of art and encourage vandalism. Using herbicides and fertilizers can be harmful to sculpture.

Built Environment

■ Consider the maintenance needs of adjacent structures. Repainting a nearby building may cause damage to a sculpture, such as paint drips or abrasion from ladders or scaffolding.

■ Sculptures near paths or roadways are susceptible to graffiti, damage from salts splashed during de-icing and abrasion from passing equipment and vehicles.

Local Fauna

■ Take measures to inhibit tagging by dogs, nesting and roosting.

OPPOSITE: Juan Muñoz, *Conversation Piece* (detail), 1994-1995, bronze, Hirshhorn Museum and Sculpture Garden, Smithsonian Institution, Washington, D.C., Museum Purchase 1995 (Photo: Lee Stalsworth). BELOW: Barbara Neijna and Ned Smyth, *Accordant Zones,* 1994, concrete and keystone, Broward County, FL (Photo: Dennis O'Kain).

Choices of vegetation and management of those materials are inextricably linked with the safety and well-being of the sculpture and its visitors.

Artists Peter King and Marni Jaime anticipate maintenance needs of their large outdoor ceramic works. Pieces are fired at exceptionally high temperatures, tested for freeze-thaw effects and cemented with high-grade mortar, free of acid salts.

ABOVE: Peter King and Marni Jaime, *Annmarie Garden Gates*, 1995, glazed stoneware, Annmarie Garden, Solomons, MD (Photo: Marni Jaime). OPPOSITE: Mark Rossi, *Three Black Tailed Jack Rabbits* (detail), 1993, bronze, Centerpoint Plaza, Tempe, AZ (Photo: Courtesy of Mark Rossi).

Maintenance and Installation

None of the design and production processes resulting in an outdoor sculpture exists in a vacuum. Producing artwork is an integrated process and includes its installation.

Structural Supports and Surrounding Substrate

- Use durable materials that provide adequate support.
- Consider slope and drainage. Avoid standing water and flat surfaces. Drainpipes, water barriers and gravel beds encourage water runoff, prevent rising dampness and can eliminate direct contact with water.
- Design slabs, elevated platforms, paving and walls with adequate waterproofing, flashing and drainage.
- Select very secure attachment mechanisms to prevent theft and damage from natural disasters. Choose fasteners, cladding and other attachment devices for strength, durability and material compatibility to avoid galvanic corrosion. Use attachment mechanisms that permit removal or disassembly for maintenance activities.
- Use mortars appropriate to the materials and conditions.

Plaques and other signage identify the sculpture as an artwork, inform the public, prompt curiosity and, ideally, foster an appreciative audience. Is touching allowed, but not climbing? If not permitted, why not? Passersby are confused. Signs can explain.

■ Use materials that are stable in the environment. Bronze, stone, concrete and stainless steel are commonly used. As with the artwork, choosing the correct material for the conditions is key.

■ Select very secure attachment mechanisms to discourage theft. Durability, material compatibility and reversibility should be considered.

Security and public safety are serious, related concerns for the sculpture and users. The Chicago Park District is testing a nighttime anti-vandal sprayer system that sprays water when a motion detector reports movement too near the sculpture. Enhancements like vegetation and walls are potential concealments for assailants. Security devices themselves may attract vandals and require planned and regular maintenance. For example, although lights are a deterrent in general, they can be attractive targets for stone-throwing. Further increased illumination for security or beauty may result in maintenance trade-offs; more light may attract insects that in turn attract spiders and birds, resulting in detritus and guano.

■ Install electrical boxes in an accessible area that does not detract from the sculpture.

■ Consider access by disabled and elderly visitors and children.

Maintenance and Function

Often sculpture designed to memorialize a person, idea or event is intended to endure in perpetuity. If so, the most stable of materials should be considered—granite, bronze and stainless steel, for example.

If the artwork is functional and participatory, anticipate higher maintenance needs.

■ Choose structurally resilient and abrasion-resistant materials.

■ Isolate sandboxes and loose gravel from sculptures to avoid abrasion and breakage.

■ Follow recommendations for child safety when designing play structures.

■ Public safety should be a primary concern. Hard surfaces, jagged or moving parts, splintering materials and projections can be hazardous. Allow an appropriate distance between elements.

Anticipate higher maintenance needs for artworks with water elements, including increased frequency of coatings.

■ Because water accelerates the deterioration of most materials, choose materials that are stable in moist environments.

■ Use maintainable waterproofing and moisture membranes.

Signage can instruct and reinforce positive attitudes. This sculpture's plaque reads: "I'm the guard rabbit. For your safety and mine, you may tug on my tail, pet my paw, scratch my tummy, but please don't climb on me!"

■ Algae and other biological activity damage many materials.

■ Considerable damage is caused by freezing. Cold winters require complete drainage of all water-holding elements.

■ Be sure that piping, pumps and other electrical and mechanical parts are made of non-corrosive materials, such as bronze, brass or stainless steel. This includes pipe rests, flange bolts, screws and stone-mounting pins.

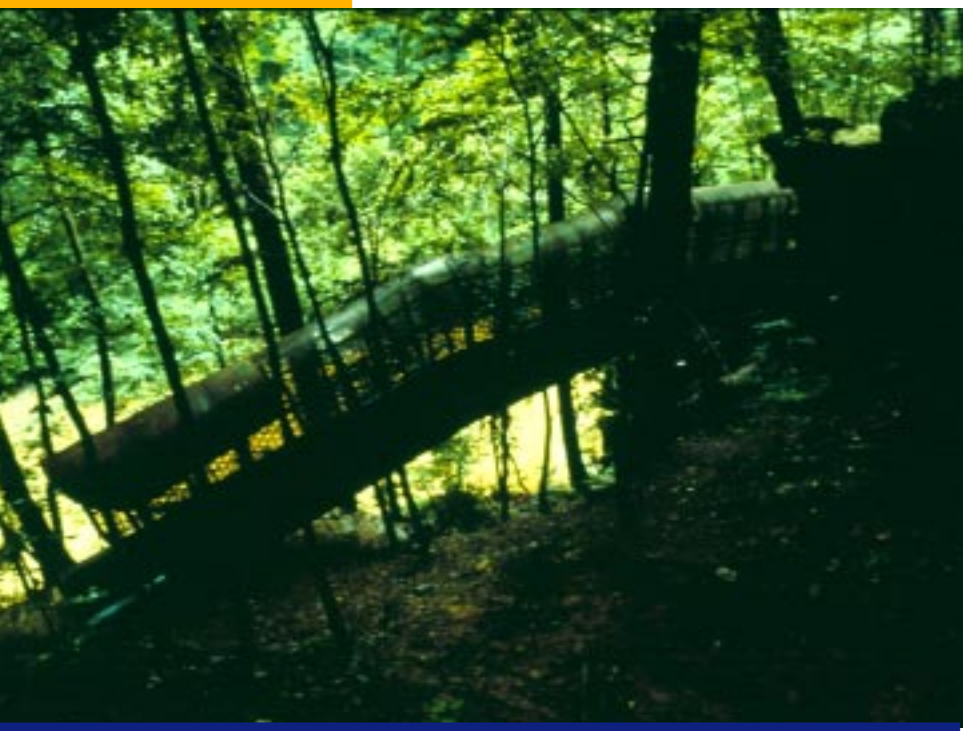
■ Access for repairs must not require major dismantling of the artwork. Drain lines should exit at the lowest elevations and not use the pump return lines.

■ Consider the effects of acids, bases, buffering agents and biological deterrents on fabrication materials. After installation, carefully monitor filtration and water chemistry. Personnel from pool and fountain maintenance services may have insufficient knowledge to address long-term and aesthetic concerns of artworks.

■ Water attracts birds. Feathers, guano and food scraps clog equipment and cause public health concerns.

Anticipate higher maintenance needs when electrical, electronic and mechanical parts are included. Transformers and electrical devices should be accessible and concealed. Manufacture or specify in advance all replacement parts.

BELOW: Jody Pinto, *Fingerspan,* 1987, Cor-Ten steel, Fairmount Park, Philadelphia, PA (Photo: Wayne Cozzolino © 1994 Courtesy of the Fairmount Park Art Association).



Engineer Sam Harris and I designed a provocative, maintenance-free, safe form that would complement its setting over time. The resulting Cor-Ten steel bridge, with its openwork roof and floor, allows ample circulation and blends with its surroundings. Nearly ten years later it has achieved our goal."—Jody Pinto, artist

Selected **Resources**

Many sources are available to more fully describe each of the points raised in this planning guide. Owners, sculptors, users, clients and other collaborators in the design process can offer invaluable insights. This basic shelf list of print and videotape resources will lead to others.

Cruikshank, Jeffrey L. and Pam Korza. *Going Public: A field guide to developments in art in public places*, 1988. Contact Arts Extension Service, University of Massachusetts, Amherst, at 413-545-2360.

Feldman, Franklin and Stephen E. Weil, with Susan Duke Biederman. *Art Law: Rights and Liabilities of Creators and Collectors, supplement*, 1996. Contact Little, Brown and Company, Boston.

Hughes, Janet. "Preventive conservation of outdoor sculpture," poster, 1996. Contact National Capital Planning Authority, Canberra, Australia.

Inventory of American Sculpture. National Museum of American Art, Smithsonian Institution, Washington, d.c. Contact via telnet at siris.si.edu. Access is direct; no login or password is necessary. Call 202-786-2384 to discuss adding existing or newly commissioned sculptures.

Kaufman, Pat. "Working With Conservators to Preserve Your Art," *Maquette*. July/August 1995. Contact International Sculpture Center, Washington, d.c., at 202-785-1144.

Montagna, Dennis, Susan Nichols and Rebecca Shiffer, eds. "Public Monuments and Outdoor Sculpture," *CRM, Cultural Resources Management* (18:1), 1994. Contact u.s. Department of the Interior, National Park Service, Cultural Resources, at 202-343-3395.

National Endowment for the Arts and National Assembly of State Arts Agencies. *Design for Accessibility: An Arts Administrators Guide*, 1994. Contact nasaa, Washington, d.c., at 202-347-6352. For materials, technical advice, or to speak with a specialist about the Americans with Disabilities Act, call 800-514-0301; tdd 800-514-0383. Recorded information is given in Spanish and English.

Naudé, Virginia Norton, ed. *Sculptural Monuments in an Outdoor Environment*, 1985. Contact the Pennsylvania Academy of Fine Arts, Museum Shop, at 215-972-0273.

Naudé, Virginia N. and Glenn Wharton. *Guide to the Maintenance of Outdoor Sculpture*, 1993. Contact American Institute for the Conservation of Historic and Artistic Works, Washington, d.c., at 202-452-9545.

Public Art Institute. *Public Art—A Directory of Programs in the United States*, 1996. Contact National Assembly of Local Arts Agencies, Publications, Washington, d.c., at 202-371-2830.

Save Outdoor Sculpture! "Selecting and contracting with a conservator: Informed decision making eases the process," *LodeSTAR* (5:2), 1994. Contact SOS!, National Institute for the Conservation of Cultural Property, Washington, d.c., at 800-422-4612.

SOS! and National Park Service, Northeast Field Area. "The Preservation of Outdoor Sculpture and Monuments," videotapes, 1994. Contact SOS! at 800-422-4612.

Save Outdoor Sculpture! *SOS! Maintenance Kit*, 1996. Contact SOS! at 800-422-4612.

"The Inventory of American Sculpture is a unique catalogue of our country's creative breadth and diversity. We heartily encourage owners, administrators and sculptors to register new commissions so that the rich legacy of outdoor sculpture in the United States will be known to present and future generations."—Elizabeth Broun, director, National Museum of American Art, Smithsonian Institution

Save Outdoor Sculpture!

Save Outdoor Sculpture! (**SOS!**) is jointly sponsored by the National Institute for the Conservation of Cultural Property and the National Museum of American Art, Smithsonian Institution. For information call 800-422-4612 or consult <http://www.nic.org/sos/sos.html>.

SOS! has these **goals**:

- inventory every piece of publicly accessible outdoor sculpture in the United States; and
- prompt local action through **SOS! 2000** to save outdoor sculpture for the next generation.

SOS! has raised awareness among owners and administrators of outdoor sculpture and those who commission new artworks. Jan Butters, Colorado Springs **SOS!**, reports, "Our park's maintenance staff has new insights regarding placement of sprinkler systems near existing sculpture." Rex Gulbranson, Arizona Commission on the Arts, notes that because of **SOS!** his agency is more aware of the importance of considering materials, siting and other maintenance issues when it provides funding for new works.

As part of **SOS!**, more than 200 organizations and 6,000 volunteers have inventoried historic and contemporary outdoor sculpture in their hometowns. They are motivated and well-placed to support next-step efforts to care for the artworks. They expect foresight in commissioning new sculpture and want to help establish policies and practices to better safeguard the long-term health of America's collection of outdoor sculpture.

It is no small thing to outwit time. Help us save outdoor sculpture for the next century—and the next.

FRONT COVER: Linnea Glatt, *Harrow*, 1992, Cor-Ten steel, western red cedar, sand and cedar elm tree, Lubben Plaza, Dallas, TX, (Photo: © Craig Kuhner). INSIDE FRONT COVER: (background) Nancy Holt, *Solar Rotary*, 1995, aluminum, bronze, concrete, University of South Florida, Tampa, FL. (Insets, clockwise from top) Mags Harries and Lajos Héder, *Wall Cycle to Ocotillo: Acoustic Vessel*, 1992, concrete, steel and solar power, Design by Hopi/Laguna artist Howard Sice, Squaw Peak Parkway, Phoenix, AZ, (Photo: Bob Rink). Henry Moore, *Reclining Connected Forms*, 1969, bronze, Storm King Art Center, Mountainville, NY, (Photo: Courtesy of Storm King Art Center). Luis Jimenez, *Vaquero*, © 1980, fiberglass, National Museum of American Art, Smithsonian Institution, Washington, D.C., (Photo: Gene Young).