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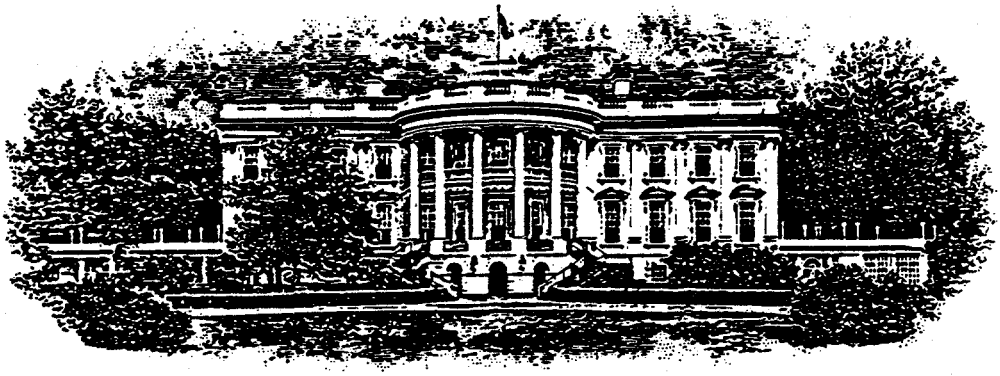
The Greening of the White House



Phase I Action Plan

March 11, 1994

Bd Final

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EXECUTIVE SUMMARY

For as long as I live in the White House, I want Americans to see it as a symbol of clean government, but also a clean environment. We're going to identify what it takes to make the White House a model for efficiency and waste reduction, and then we're going to get the job done. I want to make the White House a model for other federal agencies, for state and local governments, for business, and for families in their homes. Before I ask you to do the best you can in your house, I ought to make sure I'm doing the best I can in my house.

President Clinton
April 21, 1993

THE GREENING OF THE WHITE HOUSE

The Greening of the White House is a comprehensive, multi-year project designed to improve energy efficiency and cut waste throughout the complex. The project highlights *practical* steps that homeowners and business people can take to benefit the environment, save money, and improve the comfort of their surroundings.

At America's symbolic home, the effort will showcase the best new American products -- environmental technologies -- that are good investments for the pocketbook and for the planet. Investing in energy efficiency and pollution prevention saves taxpayers money on electricity, materials, and waste disposal -- and drives markets for the technologies of the future. These technologies provide the foundation for some of the nation's highest priority environmental programs, including the President's Climate Change Action Plan and the Administration's pollution prevention efforts.

THE "GREENING" TEAM

The actions taken to "green" the White House reflect the insights of the nation's premier energy efficiency and environmental designers. Following the President's Earth Day directive, the White House assembled an interagency team to conduct audits of energy and water efficiency, and pollution prevention options. The American Institute of Architects -- which has helped shape the evolution of the complex since 1902 -- coordinated 100 national experts in the fields of architecture, engineering, building management, and environmental concerns to help the interagency team identify opportunities.

THE ACTIONS

This Greening of the White House status report contains 50 actions that are currently underway to make the White House a showcase of environmental design. Among the highlights:

- **Energy Efficient Lighting:** From table lamps to fluorescent office lighting, the White House is upgrading fixtures and bulbs to the most energy-efficient designs, often yielding 65-75 percent energy savings. Because they reduce electricity bills, these investments pay for themselves in six months.

THE GREENING OF THE WHITE HOUSE

Phase I Action Plan

March 1994

INTRODUCTION

In his 1993 Earth Day address, President Bill Clinton told the world that he intended to make the White House a model for efficiency and waste reduction. He called for an energy and environmental upgrade of his new home and the office buildings that constitute the White House complex:

For as long as I live and work in the White House I want Americans to see it not only as a symbol of clean government, but also a clean environment. We're going to identify what it takes to make the White House a model for efficiency and waste reduction. And then we're going to get the job done. I want to make the White House a model for other federal agencies, for state and local governments, for businesses, and for families in their homes. Before I ask you to do the best you can in your house, I ought to make sure I'm doing the best I can in my house.

The purpose of the Greening of the White House project is to lead by example and launch a national effort to promote energy efficiency and environmental responsibility. It is another step in the President's drive to make government work better and cost less, and use the federal government's enormous purchasing power to expand markets for environmental technologies -- while saving taxpayers money through reduced material costs, waste disposal costs and electricity bills. Each year the project will save hundreds of thousands of dollars at the White House complex.

The Greening of the White House will showcase the best new American products -- environmental technologies that provide the foundation for many of the nation's highest priority environmental programs, including the President's Climate Change Action Plan, the Administration's pollution prevention efforts, and the environmental technology export strategy announced by the President that same Earth Day.

The President's effort builds on a long tradition of installing state-of-the-art technologies at the White House complex. From the central heating installed during President Van Buren's term, to the water closets, lighting, elevators and air conditioning added later, the White House has frequently been a showcase for innovations.

The Greening of the White House builds on that history with today's best technologies. It will highlight steps that all homeowners, business people, and visitors to the White House can take - steps that will protect the environment, save money, and improve the comfort of our surroundings.

PHASE I ACTIONS

Phase I actions are divided into the following five categories:

Section I) ENERGY EFFICIENCY ACTIONS: Includes actions to improve the efficiency of the building shell, such as better windows; lighting; equipment that is plugged into a wall outlet (plug loads); and heating, ventilation and air conditioning (HVAC); as well as to reduce chlorofluorocarbon (CFC) use.

Section II) BUILDING ECOLOGY ACTIONS: Includes strategies to minimize the use of materials and improve indoor air quality.

Section III) AIR, WATER AND LANDSCAPE ACTIONS: Includes actions to improve outdoor air quality, water conservation, reduce water pollution and improve landscaping practices.

Section IV) MATERIALS, WASTE, AND RESOURCE MANAGEMENT ACTIONS: Includes solid waste management and recycling, hazardous waste management, indoor pesticides management, and toxic substances.

Section V) MANAGERIAL AND HUMAN FACTOR ACTIONS: Includes actions to improve environmental management systems, maintenance and operation, and procurement.

PHASE I ACTION HIGHLIGHTS

I. Energy Efficiency Actions

The energy audit addressed the following areas: the building shell or envelope; lighting; plug loads; and heating, ventilating and air conditioning (HVAC).

Building Envelope/Glazings

The building shell or envelope includes walls, roofs, windows and doors.

For most of the White House complex, the windows most affect occupant comfort and energy use. Currently, most original windows in the complex are clear single-pane units with air leakage, providing thermal performance much below the desirable level for the Washington climate.

The building shell of the Executive Residence is the original facade, and is the only truly historic exterior portion of the building left after the 1953 White House renovation. In the OEOB, roof and windows are undergoing renovation under contract. Due to historic constraints, timing of ongoing contracts, and the nature of the building envelope itself, major changes in approach are limited.

fixtures and electronic ballasts. As of January, 1994, the West Wing was 70 percent complete.

- **Upgrade concealed bathroom incandescents with compact fluorescents.** These lamps cut energy use 65-75 percent. This action was initiated February, 1994.

- **Upgrade the fluorescent fixtures in Residence service areas with T-8 lamps, electronic ballasts and occupancy sensors** where appropriate. The investment will yield a 20 percent energy savings; money from the reduced electricity bills would pay for the investment in five years. (For reference, the Energy Policy Act of 1992 mandates that the federal government invest in all upgrades with a 10 year payback or less). The plan will be complete by April 1994.

- **Replace existing exterior flood lighting with energy-efficient lighting,** for an energy savings of 40 percent. The plan will be complete by April 1994 and the action should be taken by Earth Day 1995.

- **Replace T12 magnetic ballast fixtures with T8 lamps and electronic ballasts** in the OEOB. GSA has replaced approximately 70 percent of the estimated 4,120 fixtures in the building. The fixtures are replaced when the room is painted.

- **Improve the efficiency and color rendering of the down light lamps in the OEOB Indian Treaty Room.** Mercury vapor lights have been replaced with more efficient metal halide lamps that offer improved color rendition and 40 percent more light at no additional cost. The action was completed January, 1994.

- **Evaluate the use of lighter (more reflective) paint** in the OEOB with the goal of improving light reflectance, visual comfort and contrast. The action was initiated February 1994.

- **Rehabilitate existing historic skylights** in the hallways on fifth floor of the OEOB to increase available daylight. The existing skylights have accumulated dirt and paint and do not allow light to come through. This action is included in the existing roof contract and will be completed within two years.

Benefits: In addition to improving energy efficiency, these actions will improve comfort and productivity by decreasing glare and uncomfortable contrast while preserving historical appearance. These actions will reduce electricity use from 20 to 75 percent per action, improve lighting quality and visual comfort, reduce glare, and reduce greenhouse gases.

technologies and strategic use of appliances also improves the environmental quality of the space by reducing noise and heat, which increase worker comfort and productivity.

Heating, Ventilating and Cooling/CFC Management

Heating, ventilating, and air-conditioning (HVAC) systems (including window air conditioners) are a good target for energy and environmental improvements because they are big energy users and the refrigerants used in these systems are the source of ozone-depleting air pollutants, CFCs.

Phase I Actions for heating and cooling:

- **Renovate the HVAC system in the residence.** An HVAC Renovation Project had been developed by the Executive Residence and the National Park Service with a strong emphasis on energy efficiency, as well as an emphasis on historic considerations and security. The major features of the project are eliminating ozone-depleting CFCs; centralizing all cooling operations; upgrading the HVAC controls with an energy management control system; installing smaller, more efficient chillers that will meet part-load requirements in the spring and fall seasons more efficiently (chillers are large air cooling units); installing a condensate heat recovery system to pre-heat domestic hot water; and eliminating all electric reheat functions, replacing them with hot water coils. The project has just been approved and is expected to take approximately three years to complete.

- **Improve the energy efficiency of the replacement window unit air conditioners** for the OEOB. The energy efficiency of these units will be improved by up to 20 percent above the units currently available through the federal supply schedule, which have energy efficiency ratings of 9.5. There are 1000 window AC units in the OEOB and about 10 percent are replaced each year. More efficient units -- with energy savings that pay for themselves in about one year -- will be substituted as units are replaced. Replacement models will also utilize controls such as time clocks and occupancy sensors. DOE will identify the appropriate controls by February 1994.

- **Retrofit of all steam radiators in the OEOB with the thermostatic control valves** currently being used as replacement valves. This will improve energy performance and enhance occupant comfort. The cost for this action is estimated to be $8,000 with $1,500 annual savings. The action is ongoing.

- **Rezone the steam heating system** for better control of steam distribution, resulting in energy savings and increased comfort. Engineering and economic analysis will begin after the installation of an energy management system during the next year.

For other, longer-term actions to improve heating, ventilation and air conditioning, see Phase III actions below.

resources. For the short term, the team will focus on applications where solar energy has already proven to be effective.

II. Building Ecology Actions

Building ecology actions target material use and indoor air quality. Actions emphasize sustainable and environmentally preferable products, materials, and techniques, and providing a healthy indoor air environment for the White House.

Materials

In the long term, sustainable environmental values and health considerations should be integrated in a comprehensive way into the selection, use, and maintenance of all materials, furniture, fixtures, and finishes in the White House. Maintenance, when required, should employ environmentally sensitive and the least toxic techniques and materials available while maintaining cost-effectiveness and performance. In one example of this approach, GSA and EPA recently began working together to make environmentally-preferable cleaning products available on the GSA Supply Schedule.

Phase I Actions include:

- **Use existing "green" buying standards**, and support ongoing efforts to develop more for the federal supply schedule. Tools currently available to help agencies purchase environmentally preferable materials include "Green Dot" Markers in the Federal Supply Schedule; and GSA's Environmental New Item Introduction Schedule (NIIS). Additionally, the President has signed five Executive Orders since April 21, 1993 that move federal procurement towards energy efficient, recycled, and environmentally-preferable products. (See Section V under Procurement for details.)

- **Increase awareness and skills of personnel responsible for using and purchasing maintenance materials** through an educational program for facility staff. (See Section V, Managerial Actions.)

Benefits: The use of environmentally preferable materials, products and techniques will ultimately minimize unhealthy elements in indoor and ambient air. In addition to protecting human health, reducing material use will lessen the burden on the earth's natural resources and help create markets for the technologies of the future.

Indoor Air Quality

Good indoor air quality enhances occupant health and comfort as well as workplace productivity. Failure to respond promptly and effectively to indoor air quality problems can

III. Air, Water and Landscape Actions

Air, water and landscape recommendations focus on the interaction between the buildings and the outdoor environment. Actions are taken to reduce air pollution, improve water efficiency, and improve landscaping practices.

Outdoor Air Quality (Air Pollution Prevention and Control)

The main issues related to air pollution control that the Greening of the White House needed to address were the paint shops addressed under Indoor Air (above), CFC management addressed under HVAC improvements (above), and the paper shredding operation at the OEOB. For national security reasons, the complex has for many years maintained a paper shredder, which allowed dust to leak. Leakage was also a problem in the transportation and management of the dust -- a form of particulate matter which contributes to air pollution. The facility did not have an air quality permit for the paper shredder's baghouse/dust collector from the Environmental Regulations Administration of the District of Columbia's Department of Consumer and Regulatory Affairs.

Phase I Actions include:

- **Repair leaks, improve seals and joints**, and revise operations to minimize dust escaping. This action was completed January 1994.

- **Obtain air permits** from the District of Columbia Government. This action was initiated by the Office of Administration following the audit. The target date for completion is February 1994.

Benefits: Reducing emissions of dust into the outside air will improve air quality and help protect human health and the environment.

Water

The White House, like the rest of the population, can save money and precious water resources by practicing good water management. Water needs can be reduced substantially without compromising quality. Over the long term, the management strategy should implement "cascading" uses for water -- which means that there can be multiple uses for each gallon of water (e.g., using old drinking water as lawn water).

Phase I Actions for water management include:

- **Optimize the amount of water used for landscaping** purposes by adjusting or replacing sprinkler heads, installing moisture sensors to measure and evaluate water use, and continuing to water as much as possible in early morning hours.

- **Use and improve the commendable Integrated Pest Management (IPM) Plans** for outdoor uses that minimize the use of pesticides, developed by NPS and GSA. IPM plans can significantly reduce the amount and toxicity of pesticides in use. This action is ongoing.

- **Minimize nutrient runoff** by continuing tests to determine fertilizer needs and application rates. This action is ongoing.

- **Adjust grass cutting blades to optimal height** and continue to use mulching mowers to self-nourish the lawn. This action is ongoing.

- **Increase and emphasize the use of regional and American native plants** for floral displays in inside arrangements, as much as practicable. This action was initiated February 1994.

Benefits: The use of Integrated Pest Management Plans will minimize the use of fertilizers and pesticides, and thus reduce their spread into the water system and ground. Native plants minimize the need for special care.

IV. Materials, Waste and Recource Management

Actions in this area are designed to reduce material flows in and out of the complex, and help ensure that any necessary toxic or hazardous materials are handled safely. The actions also seek to reduce the potential for waste through source reduction, an important component of resource management.

Solid Waste Management and Recycling (Materials and Resource Management)

The materials and resource management programs at the White House complex currently focus on recycling, and most are quite effective. The Residence recycles green, brown, and clear glass, plastic containers, newspaper, aluminum and cardboard. The OEOB recycles newspaper, aluminum, and almost all of its office paper. Glass is not sold in the building and is not recycled. In addition to the recycling bins located around the facilities, trash is sorted for recyclables after it is collected.

The Greening of the White House actions focus on strategies to reduce, reuse, and recycle, in that order -- and to strategies to purchase materials that contain recycled or recovered products.

Phase I Actions include:

- **Establish an internal source reduction policy** to reduce paper consumption, limit the use of disposable products, and conserve office supplies. The expanded use of

Following are Phase I Actions to address any potential problems:

- **Complete a Memorandum Of Understanding between the Residence and GSA** to ensure that all hazardous waste brought to the OEOB storage shed is **managed in accordance with procedures and the Resource Conservation and Recovery Act** (RCRA) regulations. The agreement was signed in February 1994.

- **Consolidate all hazardous waste storage for solvents** in the OEOB storage shed, eliminate any satellite storage, and inspect hazardous waste storage weekly. These actions help prevent the release of hazardous waste. They were completed in December 1993.

- **Demonstrate good hazardous waste management** by improving record keeping, centralizing records, properly documenting spill control equipment, including hazardous waste responsibilities in job descriptions, and posting an emergency notice in the storage area. These actions were completed in February, 1994.

Benefits: Improving hazardous waste management practices ensures a system that can meet present and future needs, and reduces environmental and health risks, special disposal costs, and future clean-up costs.

Indoor Pesticide Management

The proper management and utilization of pesticides is extremely important to protecting human health and the environment. Indoor pest control can be effective when pesticides are properly used, but can be dangerous if used improperly or in excess.

- **Reduce the use of pesticides and require licenses for pesticide applicators** to ensure that personnel are properly trained and pesticides are used responsibly. The application for the applicator licenses are made, and the action will be completed as testing dates become available.

Benefits: Improved pesticide management maximizes the protection of the indoor environment, saves money, and contributes to better human health.

Toxic Substances Management

Activities recommended in this area pertain mainly to polychlorinated biphenyl (PCB)-containing transformers at the White House complex. Available records and observations during the audit indicate potential PCB levels in transformer oil leaks that exceed the regulatory level of 50 parts per million. Additional evaluation is needed to determine if there is a problem. PCB exposure may cause skin lesions and tumors.

Phase I Actions include:

from the top down. Good ideas and positive solutions will be shared among all the agencies involved. These actions are ongoing.

- **Include explicit environmental responsibilities in job descriptions.** This action will be initiated in the Spring of 1994.

- **Establish a Joint-Agency Pollution Prevention Plan** which will include source reduction and recycling goals. This action will be initiated in the Spring of 1994.

- **Complying with applicable provisions of the Emergency Planning and Community Right to Know Act.**

For example, the Office of Administration has instituted "green" messages on the electronic mail system. These have started as simple reminders to turn out lights and to turn off computers. They will be expanded to other subjects, such as recycling, as the Greening of the White House proceeds.

Benefits: These actions will establish clear lines of responsibility, streamline operations, improve communication, and help ensure successful energy and environmental upgrades.

Operations/Maintenance

The long-term success of the Greening of the White House will be contingent upon proper operations and maintenance.

Phase I Actions include:

- **Evaluate and catalogue current operations and maintenance (O&M) procedures,** integrate new O&M policies into existing procedures, and demonstrate commitment to those policies. This action is expected to be complete by June 1, 1994.

- **Maintain water and energy saving devices** to assure continued savings. This action is ongoing.

Benefits: Responsible operations and maintenance procedures ensure environmental compliance and continued pollution prevention. Maintenance improves the effectiveness of individual actions and therefore saves money, increases comfort, and enhances health. Additionally, these actions help environmental practices become routine.

Acquisition/Procurement

The long term goal in the Greening of the White House is to deliver services with the lowest generation of pollution, waste, energy, and resource consumption while maintaining or enhancing productivity, health, comfort, environmental quality, and saving money. The President has led this drive throughout the federal government by signing five Executive Orders since April 21, 1993 that move federal procurement toward energy efficiency and

Benefits: "Green" procurement practices take advantage of the federal government's purchasing power, save money, create markets for the products of tomorrow, and protect the health of employees and the surrounding environment.

FUTURE ACTIONS

The complete integrated report including the plan for Phases II-IV -- demonstration areas, near-term and long-term actions -- will be ready in the Spring of 1994. Phase I actions, reported above, are 1) those that require no special funding and can be implemented quickly, by making an upgrade or by changing a specification for an upgrade that will occur later; or 2) they are the actions necessary for compliance with the nation's environmental statutes.

Phase II Demonstration Actions

Phase II actions -- demonstration spaces -- can also be taken quickly with no special funding. Full energy and environmental upgrades, including recommendations from all of the above areas, will be integrated into a single space to demonstrate the benefits of environmental design. These spaces will serve as pilots to ensure that recommendations are feasible, and allow evaluation of the actions before they are implemented throughout the complex. These spaces should be completed over the next few months. Demonstration spaces will include:

- Office suites: include more efficient air conditioners, increased use of daylighting, more efficient computers and office equipment, environmentally preferable materials, waste prevention practices, and technologies to create a "paperless" office. Preliminary design work has been completed by a design team coordinated by DOE and the AIA. Engineering and economic analysis is underway. Decisions are pending.

- Restrooms: include water conserving fixtures and more efficient lighting.

Phase III Actions

The Phase III actions are those that require Congressional authorization and multi-year funding. This can be accomplished within three years, by Earth Day 1997. Examples of Phase III actions are replacement chillers for cooling the building, and if practical, the use of smaller chillers that can meet partial loads more efficiently than running the large chillers.

Phase III also includes initiating long-term changes in the OEOB HVAC system and the full building upgrade. Prior to the Greening of the White House, GSA prepared recommendations for a comprehensive HVAC upgrade of the facility. A detailed assessment of that proposal is beyond the scope of this report, but the Greening of the White House project team conceptually endorses the approach, and recommends that GSA give further consideration to its implementation, including a thorough analysis of additional options identified by the project team. Engineering and economic analysis of the comprehensive

FROM THE WHITE HOUSE TO YOUR HOUSE

President Clinton is making the White House a model for the rest of the country, from federal agencies, and state and local governments, to businesses and families in their homes. The Greening of the White House is one of the most comprehensive and innovative environmental design projects ever undertaken. It is highlighting environmental opportunities ranging from energy efficiency, water conservation, pollution prevention and solid waste reduction that all Americans can follow.

Many of the participants in the project are already preparing tools to help replicate the Greening of the White House approach for others to use. The AIA is assembling a design tool called a "Workshop in a Box" that can be used to replicate the audit and feasibility study for other buildings. One tool will be a workbook that includes typical opportunities, state of the art technologies and practices for taking advantage of those opportunities. An important component of this project will be an interactive CD ROM disk that will allow viewers to "tour" the White House and zoom in on windows, lights, recycling bins or other interesting features, to get explanations of the technology and its attributes -- explanations that can be geared to their interest level and education. The "Workshop in a Box" is currently in development.

The Interagency Team is working with the National Park Service on ways to provide interpretive materials that will explain Greening of the White House actions to the 1.5 million annual White House visitors. In addition, the Department of Energy is investigating places such as the Presidio, an historic military installation in California, to pilot a federal technology transfer program in the fall.

Communicating the lessons learned from the Greening of the White House and transferring that information to the public is crucial to the long term success of the project. The Greening of the White House is highlighting *practical* steps that all homeowners and business people can take to benefit the environment, save money, and improve the comfort of their surroundings. By providing information on typical opportunities, available technologies and methods for implementation, the Greening of the White House will be a powerful tool to help citizens everywhere save money and make their own area "green".

THE GREENING OF THE WHITE HOUSE
ACTION LIST

PHASE I ACTIONS	BENEFITS	WHEN
ENERGY EFFICIENCY		
ENVELOPE--Improve thermal integrity of building shell.	Save energy, money. Improve thermal comfort.	
RESIDENCE - Plan for solarium and greenhouse reglazing with high-performance glass.	Improve window performance up to 70% to 85%, save up to $0.40/sq ft.	Plan complete Mar 94.
OFFICES: East and West Wings, Old Executive Office Building (OEOB) - Revise window specifications to double glazing.	Improve window performance 40%, save $.20/sq ft.	Complete Dec 93.
LIGHTING--Improve efficiency, increase daylighting.		
RESIDENCE		
Replace table lamp luminaires with compact fluorescent lamps (CFLs) where appropriate.	65%-75% energy savings, $100 cost savings per lamp.	Begun Jan 94.
Retrofit concealed bathroom incandescents with compact fluorescents.	65%-75% energy savings per lamp. 6 mo payback.	Begun Feb 94.
Retrofit fluorescent fixtures in service areas--Use T-8's with electronic ballasts & effective controls.	20% energy savings; 5 year payback.	Plan complete Apr 94.
Replace exterior flood lighting with energy-efficient lighting.	40% energy savings.	Plan complete Apr 94.
OFFICES: East and West Wings, OEOB -		
East & West Wing- replace table lamp luminaires with CFLs where not on dimmers.	65%-75% energy savings per lamp.	Complete Jan 94.
Accelerate replacement of T-12s to T-8s. Phase I: West Wing.	70% energy savings per fixture, 3 yr payback.	70% complete, Jan 94.
Improve lighting in Indian Treaty room with more efficient lights with better color temperature. Change Mercury vapor to Metal halides with 3200K color temperature.	35% energy savings per lamp.	Complete Jan 94.
Study lighter (more reflective) paint--Improve light reflectance, comfort and contrast.	Improve light reflectance, visual comfort and contrast.	Begun Feb 94.
Rehabilitate existing historic skylights.	Increase available daylight. Built into ongoing roof. contract.	Complete Spring 96.

PHASE I ACTIONS	BENEFITS	WHEN
RENEWABLE RESOURCES Options undergoing engineering and economic analysis.	Demonstrate availability and reliability of emerging, renewable technology.	Plan complete Apr 94.
BUILDING ECOLOGY		
MATERIALS Continuously improve environmental quality and energy efficiency.		
BOTH Use existing green buying standards listed below: Green Dot Markers in the Federal Supply Schedule. GSA's - Environmental New Item Introduction Schedule (NIIS).	Minimize unhealthy elements in indoor air, reduce virgin resource use, reduce burdens on landfills.	Ongoing.
Follow new Exec Order 12873 guidelines when issued.		Issued Summer 94.
Develop an education piece--Increase awareness & skills.	Increase awareness & skills.	Plan complete Apr 94.
GSA & EPA - work with agencies and the private sector on new guidelines.		Ongoing.
INDOOR AIR QUALITY--Eliminate or minimize indoor pollution sources, especially Volatile Organic Compounds (VOC's) typically found in paint. **BOTH**		
Continue no smoking policy in Residence, East and West Wings, and OEOB.	Reduce health hazards.	Ongoing.
Improve paint shop housekeeping and operations.	Reduce VOC's into air, reduce spending on solvents.	Complete Aug 93.
Improve records in paint shop.	Ensure VOC levels amounts are safe.	Ongoing.
Study revisions to paint spec & investigate using more low VOC/water based paints.	Reduce VOC's into air, reduce cost of paints.	Begun Feb 94.
RESIDENCE - Use NPS state of the art facility for all but small work pieces.	Reduce VOC's into air.	Begun Feb 94.
OFFICES: East and West Wings, OEOB - Proceed with existing plan for construction of new paint shop.	Reduce VOC's into air.	Contract issued. Complete Spring 95.

PHASE I ACTIONS	BENEFITS	WHEN
GROUNDS/LANDSCAPING-Use strategies that minimize the use of water, fertilizers, pesticides. Emphasize and increase use of native plants.	Reduced use will minimize excess fertilizer and pesticides spreading into ground water, then to Chesapeake Bay tributaries.	
BOTH		
Continue to use and improve the commendable Integrated Pest Management Plans developed by NPS and GSA.	Minimize toxic runoff.	Ongoing.
Continue performing evaluations to determine fertilizer needs and application rates.	Minimize nutrient runoff.	Ongoing.
Use mulching mowers and adjust grass cutting to optimal heights.	Self-nourish lawn.	Ongoing.
RESIDENCE		
Increase and emphasize native plants when available.	Encourage use of native plants which minimize special care.	Begun Feb 94.

PHASE I ACTIONS	BENEFITS	WHEN
HAZARDOUS WASTE MANAGEMENT Improve hazardous waste management. The main category of hazardous waste at the White House complex is paint and solvent waste.	Ensure a management. system that can meet present needs and try to reduce future needs for hazardous materials. Minimizing hazardous waste reduces special disposal costs, typically $500 - $1000 per 55 gal drum, and potential future problems.	
Complete agreement between residence and OEOB to ensure that all hazardous waste brought to OEOB storage shed is managed soundly in accordance with internal procedures and RCRA regulations.	Prevent releases of hazardous waste.	Complete Feb 94.
Consolidate all hazardous waste storage for solvents in OEOB storage cabinet; eliminate any satellite storage & inspect hazardous storage weekly.	Prevent releases of hazardous waste.	Complete Dec 93.
Demonstrate good management by improving record keeping, centralizing records, properly documenting spill control equipment, including hazardous waste responsibilities in job descriptions, and posting an emergency notice on storage area.	Ensure proper management of hazardous waste.	Complete Feb 94.
INDOOR PESTICIDE MANAGEMENT Manage pesticide use.	Protect human health and the environment.	
Obtain licenses for pesticide applicators.	Ensure personnel properly trained.	Licensed as soon as testing is available.
Try to reduce pesticide use indoors.	Protect human health and the environment.	Begun Feb 94.
TOXIC SUBSTANCES MANAGEMENT Improve Toxic substances management.	Enable responsible environmental management to protect human health and prevent environmental contamination.	
BOTH		
Ensure that transformers are either determined to be NON-Polychlorinated Biphenyls (PCB) and properly documented, or that they are treated as PCB contaminated.	Prevent potential skin lesions and tumors that can be caused by PCB exposure.	Complete May 94.
If contaminated, clean up contamination. Until contamination eliminated, provide protective clothing.	Protect health.	Protective clothing provided Jan 94.
Consolidate PCB records.	Ensure PCBs managed safely.	Complete Dec 93.
RESIDENCE		
Build new non-PCB transformer vault room.	Eliminate PCBs.	Complete Spring 96.

PHASE I ACTIONS	BENEFITS	WHEN
ACQUISITION & PROCUREMENT Continually improve energy efficiency, environmental quality, processes efficiency and effectiveness.		
BOTH -		
Carry out 5 new Executive Orders that move Federal procurement towards energy efficiency and environmental responsibility. E.O. 12843 - phase out ozone depleting chemicals E.O. 12844 - alternative fuel vehicles E.O. 12845 - energy efficient computers E.O. 12856 - pollution prevention E.O. 12873 - recycled paper and environmentally preferable goods	Use purchasing power of Federal Government to drive markets for energy efficient and environmental products, save energy, and protect public health.	Ongoing.
Use currently available tools for Green procurement: Green dot markers in the Federal Supply Schedule The Energy Efficient Lighting Catalog from DLA Energy-Efficient Microcomputers-Guidelines from GSA GSA's - Environmental New Item Introduction Schedule (NIIS)		Ongoing.
Follow new Exec Order 12873 guidelines when issued.		Issued Summer 94.

FUTURE ACTIONS	BENEFITS	WHEN
Actions on complex projects that require Congressional authorization and multiyear funding, or NPS Comprehensive Design Team Planning.		
OEOB HVAC upgrade underway or complete.	Save energy and money. Improve indoor air quality, comfort and productivity.	
OEOB whole building upgrade.	Improve environmental responsibility.	
Other actions that require major shifts in infrastructure including:		
Multiple cascading water uses.	Save water.	
Multiple cascading energy uses.	Use energy more efficiently.	

METHODOLOGY

Scope: The boundary of the project is the fence around the White House complex at Pennsylvania Avenue on the north, East Executive Avenue on the east, State Place to the south, and Seventeenth Street NW on the west. Four major areas and their grounds are covered: the Executive Residence, the East and West Wings; and The Old Executive Office Building (OEOB), a large Victorian-era office building on the 18 acre complex.

Organization: The project is directed by an Interagency Task Group, chaired by Mark Ginsberg, Director of the Office of Federal Energy Management Programs (FEMP) at DOE.

Three major efforts were performed during the past year:

- Energy Audit: A DOE team with support from the National Laboratories conducted an energy audit of the White House complex to gather sufficient information on current energy and water use to assess opportunities for efficiency. Utilities and non-profit groups have assisted the energy team.

  The energy audit addressed the main systems that affect energy use: the building shell or envelope; lighting; plug loads (equipment that plugs into wall outlets); and heating, ventilating and air conditioning (HVAC). The energy team also addressed efficient use of water resources (water use and energy use are closely related, and the Energy Policy Act addresses water efficiency as well as energy efficiency). The audit team focused on improving energy efficiency while meeting federal requirements for cost-effectiveness, security requirements, and historical considerations, and maintaining or enhancing occupant comfort.

  The audit included determining the different types of energy supplying the complex, collecting utility billing information, interviewing facilities management staff, and inspecting the site. Opportunities to reduce energy loads, including improving the building envelope, were addressed before assessing mechanical system requirements. This is because lighting and equipment give off heat, which adds to the burden on cooling systems; therefore, increased lighting efficiency and smaller plug loads allow smaller, more cost-effective HVAC systems. This sequence is an important consideration for other building managers.

  To verify the results of the Greening of the White House, the energy team will measure and evaluate energy and cost savings.

- Environmental Audit: An EPA team, led by James Edward, Director of the Strategic Planning & Prevention Division, Office of Federal Facilities Enforcement, and composed of staff from EPA Headquarters, EPA Region III, the District of Columbia's Environmental Regulations Administration, and the Institute for Environmental Auditing conducted an environmental audit focusing on environmental compliance, pollution prevention, solid waste, and management systems at the White House complex.