

S. SUMMARY

S.1 INTRODUCTION

In accordance with the Department of Energy (DOE) National Environmental Policy Act (NEPA) implementing regulations, DOE is required to evaluate the potential environmental impacts of DOE facilities, operations, and related funding decisions. Based on action by the U.S. Congress, DOE has funding available to support the proposed public sector project described in this Environmental Assessment (EA).

The decision to use federal funds in support of the Ohio State University (OSU) 4-H Center with Green Building Technologies (the Ohio 4-H Center) project requires that DOE address NEPA requirements and related environmental documentation and permitting requirements. In compliance with the NEPA (42 U.S.C. 4321) and DOE's NEPA implementing regulations (10 CFR section 1021.330) and procedures, this Environmental Assessment (EA) examines the potential environmental impacts of DOE's decision to support the project in Franklin County, Ohio, including construction of the facility, as well as a No Action Alternative as set forth in Chapter 2.

S.1.1 Purpose and Need

The purpose of the Proposed Action, federal funding provided by DOE for part of the construction of the proposed Ohio 4-H Center, is to support the construction phase of two features within the Ohio 4-H Center designed for energy efficiency: 1) A hybrid geothermal/cooling tower heating, ventilating, and cooling (HVAC) system and 2) the use of recycled structural steel members. The existing 4-H offices on the OSU campus are in a small space within the Agricultural Administration Building that does not provide the visibility needed for the integration of 4-H programs into the rapidly expanding university complex and does not allow for the implementation of green building technologies.

The U.S. Congress has acknowledged the merit of this project by providing specific funding through DOE. Based on Congressional action, DOE has \$990,000 dollars in funding available to support OSU's participation in the proposed project.

S.1.2 Project Site, Proposed Action and Alternatives

The OSU intends to construct the Ohio 4-H Center on its Columbus, Ohio campus northwest of the intersection of Fred Taylor Drive and West Lane Avenue. The Ohio 4-H Center is planned to be the first "green" building on the OSU campus and would utilize a hybrid geothermal/cooling tower HVAC system. The hybrid HVAC system would provide heating and cooling through a vertical geothermal heat exchanger combined with a closed circuit cooling tower for additional heat rejection. The legal description of the project site is City of Columbus tax parcel identification number 010062731 (Personal communication with Ralph Recchie, OSU Office of Real Estate on August 23 2006). Regional access to the site is provided by State Route 315 located about 500 feet (0.15 kilometers) west of the site, U.S. Interstate 670 located about 2.0 miles (3.2 kilometers) south of the site, U.S. Interstate 70 located about 3.5 miles (5.6 kilometers) south of the site and U.S. Interstate 71 located approximately 2.0 miles (3.2 kilometers) west of the site. Local access to the project site is via Fred Taylor Drive just north of West Lane Avenue.

The project site is owned by OSU and includes approximately 5.6 acres (2.26 hectares) (of which 1.4 acres or 60,900 square feet are to be developed for the 4-H Center and associated facilities) of mostly vacant land situated in a campus area comprised mostly of educational and recreational uses. The project site is characterized by open ground with a maintained grass cover. Some mature trees are located around the perimeter of the proposed building footprint and generally outside the proposed building footprint. Nearby land uses include two abandoned poultry barns and State Route 315 to the west, Chadwick North grove of native trees and Chadwick Lake to the north, the Value City Arena/Jerome Schottenstein Center (Schottenstein Center) east of Fred Taylor Drive, and academic facilities principally for the College of Food, Agriculture, and Environmental Sciences south of West Lane Avenue. Landscaping and parking areas associated with the Ohio 4-H Center would be located within these boundaries. The OSU Facilities Planning and Development office recommended a 200 foot setback along West Lane Avenue to retain a site for a future OSU gateway building. The Ohio 4-H Center is planned to be located north of the future gateway building.

The Ohio 4-H Center is planned to include office facilities for 20-25 employees of the Ohio State Extension 4-H program. These employees currently occupy the existing 4-H offices on the OSU campus. In addition to the full-time employees, the Ohio 4-H Center is expected to have a large number of public users participating in in-service training. In addition to serving 4-H youth, volunteers, and youth professionals, the Ohio 4-H Center is planned to be a training resource for other youth organizations, as well as a location for OSU Extension programming. It is expected that 25-50 cars per day would access the site. The project site is planned to include approximately 60 parking spaces and overflow parking is available east of Fred Taylor Drive at the Schottenstein Center.

Potable water used for operation of the Ohio 4-H Center and wastewater sanitation would be provided by the City of Columbus Division of Public Utilities. However, the building's "green" features, such as geothermal mechanical system and "green housekeeping plan" is planned to reduce water and energy consumption for the project. The intended use of DOE funding for this project is to support the construction phase of two features of the Ohio 4-H Center designed for energy efficiency. These features are: 1) A hybrid geothermal/cooling tower HVAC system and 2) the incorporation of recycled structural steel members.

The geothermal heating and cooling system is a hybrid geothermal (water source) closed loop heat pump system. Heat is extracted from or rejected to the earth through a vertical geothermal heat exchanger that would be buried under the Ohio 4-H Center's parking lot. The geothermal heat exchanger is planned to consist of a series of 72 drilled holes, each measuring five inches in diameter by 280 feet deep. Additional heat rejection would be accomplished through a closed circuit cooling tower in the Ohio 4-H Center's 5-story tower at the building's north end. Circulating fluid would not come into contact with soil.

Recycled steel would be the main component in the Ohio 4-H Center structural system. The project would require 282 tons of structural steel that would be produced in domestic mills using the Electric Arc Furnace (EAF) process and would contain at least 90% total recycled content. The use of recycled structural steel allows energy that would be used to extract raw material from the ground to be conserved and diverts waste from old steel products away from landfills.

Given the intent of this EA, scoping input, and preliminary impact findings, the only alternative to the Proposed Action analyzed in this EA is the No Action Alternative. OSU's environmental management commitments are described in Section 2.4.1.

S.1.3 Organization and Content of the Environmental Assessment

This EA is organized in a manner consistent with NEPA and DOE's NEPA Implementing Regulations. The EA has six Chapters, a summary, and associated appendices.

- Summary
- Chapter 1 – Introduction
- Chapter 2 – Proposed Action and Alternatives
- Chapter 3 – Affected Environment
- Chapter 4 – Environmental Consequences and Mitigation Measures
- Chapter 5 – Bibliography and References
- Chapter 6 – List of Preparers
- Appendices

S.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

S.2.1 Summary of Consultation Process, Input, and Impact Issues

A scoping/consultation letter was prepared and distributed to county, state and federal agencies and organizations on July 31, 2006. The consultation letter distribution list included agencies and organizations that may have information regarding potential environmental issues in the vicinity of the project site. Appendix A presents the consultation letter, a complete list of the letter recipients, and response letters received during the comment period.

S.2.2 Environmental Issues

The scoping letter for the Proposed Action identified the following environmental topics to be addressed in the EA:

- Land Use and Transportation;
- Visual Quality/Aesthetics;
- Public Services and Utilities;
- Noise;
- Socioeconomics and Environmental Justice;
- Biological Resources;
- Cultural Resources;
- Air Quality;
- Water Resources;
- Geology and Soils;
- Hazardous Materials and Waste Management;
- Secondary and Cumulative Impacts.

At this time, the Proposed Action and the No Action Alternative are the only alternatives addressed in the EA. The applicant's Proposed Action involves construction of the Ohio 4-H Center with Green Building Technologies. DOE's Proposed Action is to provide partial funding in support of the Ohio 4-H Center construction. DOE's No Action Alternative would involve a DOE decision not to provide funding for the project. The applicant, OSU, has already commenced construction activities for this project, so for NEPA compliance purposes and to create a meaningful No Action scenario, potential impacts addressed in this EA are as

compared to pre-construction baseline conditions. A privately funded project scenario would be identical, or at least similar to, the Proposed Action, however in the absence of DOE or other federal funding, OSU is not required to comply with NEPA.

S.2.3 Description and Comparison of Environmental Consequences

The following discussion summarizes findings of this EA and compares the impacts of the Proposed Action with those of the No Action Alternative.

Implementation of the Proposed Action would not result in significant impacts to the environment because the project site and surrounding area generally lack sensitive resources (e.g., threatened or endangered species, cultural resources, low-income or minority groups, etc.) and because of the limited impacts from the construction of the proposed Ohio 4-H Center. Additionally, OSU proposes an extensive set of environmental management commitments intended to avoid, minimize, and mitigate potential impacts. OSU's environmental commitments are described in Chapter 2 and described, where applicable, in Chapters 3 and 4.

The direct, indirect, secondary, and cumulative impacts of the Proposed Action are discussed throughout Chapter 4. None of these impacts are considered significant; however, the applicant has committed to the following measures:

- Construction areas will be fenced to limit disturbance to adjacent habitat outside of the construction zone. Stormwater handling and soil erosion control measures are described in the Ohio 4-H Center construction document package.
- To ensure that trees indicated to remain on site are protected during construction and promptly and properly treated and repaired if damaged, a landscape architect and arborists from the Chadwick Arboretum and Learning Gardens will be available for consultation.
- To minimize impacts associated with particulates, best management practices (BMPs) such as covering of dirt stockpiles and application of water sprays will be implemented.
- To ensure that impacts to soil or groundwater from the heat exchanger would be minimal to non-existent the BMPs for geothermal heat pumps described in Section 4.9.1 would be employed.

S.2.4 Comparison of Proposed Action to No Action Alternative

The vast majority of impacts created by the Proposed Action would be avoided if the No Action Alternative were selected as the preferred alternative. However, none of the impacts of the Proposed Action is considered significant, and the No Action Alternative would eliminate the beneficial impacts that could be expected from completion of the Ohio 4-H Center with Green Building technologies.

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