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An Introduction to Conservation Design

Course Number: SU-02-110

PDH: 4

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Module 1: Introduction

Learning Objectives

By the end of this section, you will be able to:

- **Identify** the core principles and regional goals of conservation design as defined by the Chicago Wilderness Biodiversity Recovery Plan.
- **Evaluate** the qualitative, environmental, and economic benefits of transitioning from conventional subdivision layouts to conservation design.
- **Select** appropriate site design practices to modify local ordinances and comprehensive plans to facilitate sustainable development.

Executive Summary: Conservation design is a density-neutral design system that prioritizes the protection of a site's natural landscape and ecological functions while maintaining the community's established development capacity. By shifting from burdensome Planned Unit Development (PUD) processes to allowing conservation design "by right," local governments can reduce approval times, enhance resident quality of life, and ensure regional biodiversity protection.

Design Fundamentals of Conservation Design

The primary aim of this course is to assist communities in creating regulations conducive to **conservation design**. Conventional ordinances often conflict with conservation goals; however, thoughtful revision allows existing codes to be updated to encourage residential, commercial, and mixed-use development that is sensitive to both natural ecology and economic needs.

A Regional Conservation Perspective: Chicago Wilderness

In 1999, the Chicago Region Biodiversity Council (Chicago Wilderness) published its **Biodiversity Recovery Plan** for northeastern Illinois. This plan recognizes that while land management agencies protect 200,000 acres, 90 percent of the regional landscape is subject to the planning and management decisions of local governments.

Local government goals for biodiversity include:

- **Restoring and maintaining** natural areas through regional development policies.
- **Inventorying** sensitive habitats to identify preservation opportunities.
- **Modifying** engineering practices and ordinances to consider development impacts on biodiversity.
- **Incorporate provisions** for protection and restoration in new design plans.

Defining the Conservation Design System

Conservation design is one of many tools available for **sustainable development**—development that meets present needs without compromising future generations.

Core Principles

Environmentally sound development is created by combining these four main principles:

1. **Flexibility** in site design and lot size.
2. **Thoughtful protection** and management of natural areas.
3. **Reduction** of impervious surface areas.
4. **Sustainable stormwater management**.

Density Neutrality

In this context, conservation design is **density neutral**, meaning that designers plan developments so there is no overall loss of buildable units despite achieving conservation goals. For example, in a residential subdivision, house lot sizes are substantially decreased to conserve large areas of contiguous natural land with **no net loss of housing units**.



Figure 1: Conventional Subdivision Layout (Conservation Design Forum, 2003)



Figure 2: Conservation Subdivision Layout (Conservation Design Forum, 2003)

Multifaceted Benefits of Conservation Design

Quality of Life Benefits

- **Community Interaction:** By creating formal and informal public spaces, residents have increased opportunities for social interaction compared to conventional suburbs.
- **Recreational Access:** Developments provide organized activities (soccer, picnics) and natural area prospects (biking, hiking, bird watching).

Environmental and Biodiversity Benefits

Conservation design counteracts negative consequences of development such as:

- **Protected water quality** and recharged aquifers.
- **Reduced flooding** through natural drainage systems.
- **Protected habitat** for regional biodiversity.



💡 **Design Tip:** Homes in conservation developments often increase in value as market demand grows for residences that provide direct access to nature and community interaction.

Implementation: Why Update Local Ordinances?

Updating local comprehensive plans, codes, and ordinances is the most effective way to reflect a commitment to conservation.

- **Approval Efficiency:** Moving away from the Planned Unit Development (PUD) process to "by right" approval reduces the burden on planning staff and developers.
- **Predictability:** Large-scale adoption of these practices creates a predictable process that encourages developers to utilize environmentally friendly strategies.

⚠️ **Safety Constraint:** This course is not a comprehensive solution for all urban challenges; it focuses specifically on conservation design rather than urban infill or New Urbanism.

Principles and Practices Framework

The thirteen specific site design practices categorized under the four essential principles are detailed below:

Principle A: Develop Flexible Lot Design Standards

- **Practice 1:** Lot Size, Density, and Suggested Open Space.
- **Practice 2:** Arranging the Development Site.
- **Practice 3:** Building Setbacks.

Principle B: Protect and Create Natural Landscapes and Drainage Systems

- **Practice 4:** Natural Area Protection and Conservation.
- **Practice 5:** Natural Landscape Sensitivity.
- **Practice 6:** Natural Landscaping.
- **Practice 7:** Open Space Management.

Principle C: Reduce Impervious Surface Areas

- **Practice 8:** Roadway Design.
- **Practice 9:** Parking Lot Design.
- **Practice 10:** Vegetated Swales.



- **Practice 11:** Walkways.
- **Practice 12:** Driveway Design.
- **Practice 13:** Roof Runoff Management.

Principle D: Implement Sustainable Stormwater Management Techniques

- **Practice 14:** Urban Runoff Mitigation Plan.

Checkpoint Quiz

1. What does it mean for a conservation design to be "density neutral"?

- a) The development has 50% fewer homes than a conventional design.
- b) The design achieves conservation goals with no overall loss of buildable units compared to conventional zoning.
- c) The design ignores local zoning to maximize open space.
- d) Density is increased to pay for environmental restoration.

Answer: (b). Density neutrality ensures that the community's established housing capacity is maintained. By decreasing individual lot sizes, designers can cluster homes together, allowing large contiguous natural areas to be preserved without reducing the total number of buildable units.

2. Why is it recommended to allow conservation design "by right" rather than through a PUD process?

- a) It bypasses all environmental regulations.
- b) It increases the oversight of the Plan Commission.
- c) It reduces approval time and administrative burdens for both developers and the city.
- d) It prevents developers from changing their plans.

Answer: (c). The Planned Unit Development (PUD) process is often burdensome and time-consuming for both planning staff and developers. Enabling conservation design "by right" streamlines the approval process, which saves money and encourages more developers to utilize these environmentally sensitive practices.

3. Which of the following is NOT one of the four main principles of conservation design?

- a) Reduction of impervious surface areas.
- b) Sustainable stormwater management.
- c) Mandatory greenfield development on the urban fringe.
- d) Flexibility in site design and lot size.



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