Urban Sustainability Strategies in the US: An Examination into the LEED - Neighborhood Development Program

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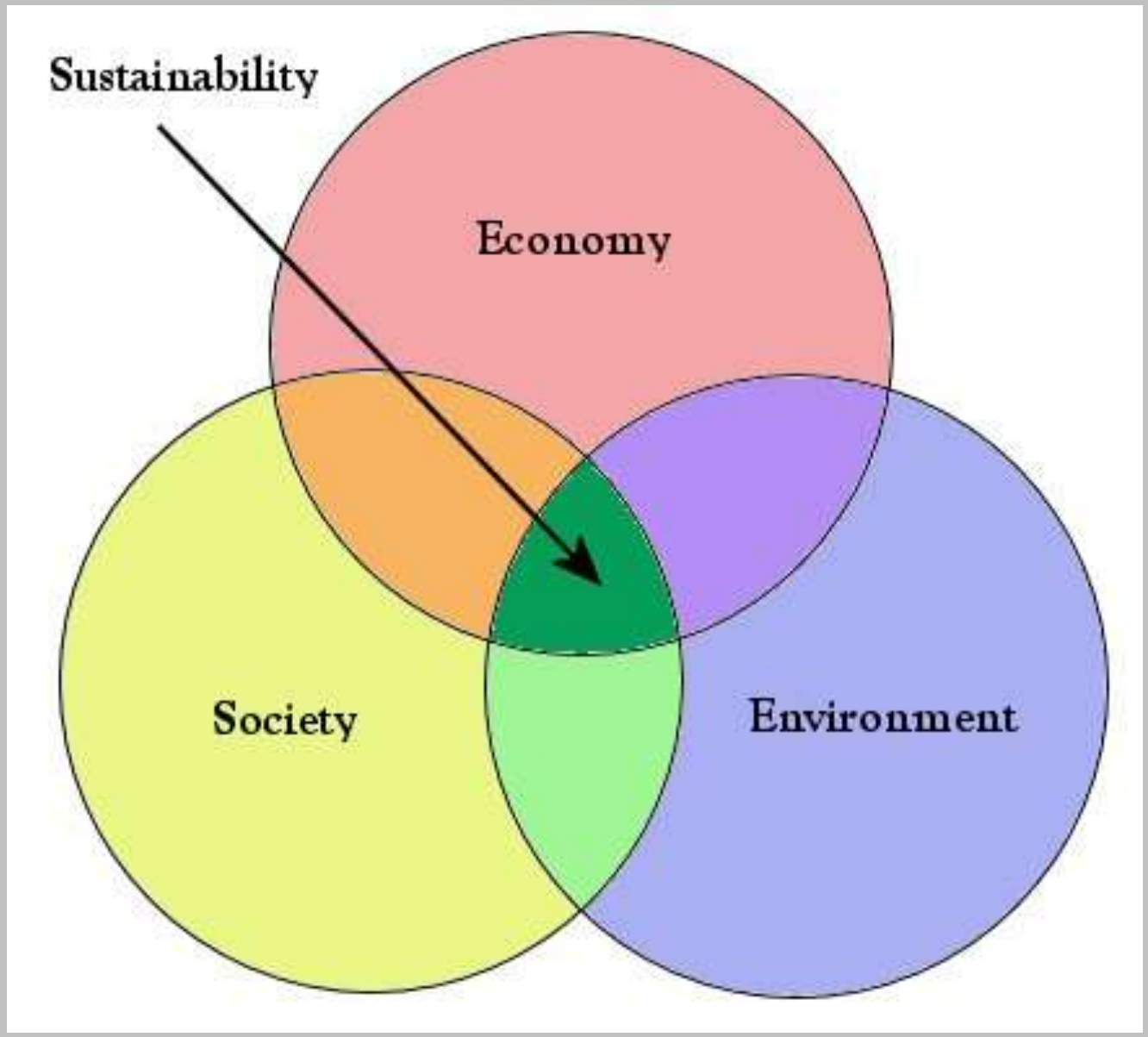
Introduction

- Since 1987 and the release of *Our Common Future* by the World Commission on Environment and Development (WCED), the concept of ‘sustainable development’ has been at the forefront of planning theory.
- The Brundtland Commission defined Sustainable Development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs“ (WCED, 1987, 8).

Introduction

- What is sustainability?
  - The concept of sustainability explores the relationship among **economic development, environmental quality, and social equity.**
  - Concept has been evolving since 1972 UN Conference on the Human Environment in Stockholm.
    - 57 different definitions of sustainability (Rogers et al. 2008)

Introduction



Introduction

- A major challenge facing the planning profession is developing standards and principles that will lead to ‘sustainable development’ (Godschalk, 2004).
- To date three development strategies have been proposed in an effort to lead to more ‘sustainable development’ in the United States:
  - **Smart Growth** (APA 2002; Smart Growth Network 2009)
  - **New Urbanism** (Hazzard 2005; Sway 2005; CNU 2009)
  - **Green Building** (USGBC 2009)

Purpose/Research Agenda

- Examine the major principles and criticisms of Smart Growth, New Urbanism and Green Buildings

- Provide an overview of the LEED-ND program and explore several case studies in the US.

- Analyze the spatial distribution and key attributes of LEED-ND projects in the US in an effort to identify any patterns to LEED-ND implementation.

Smart Growth

"**Smart growth** is a better way to build and maintain our towns and cities. Smart growth means building urban, suburban and rural communities with housing and transportation choices near jobs, shops and schools. This approach supports local economies and protects the environment" (Smart Growth America, 2011).

The **Smart Growth Network** developed a set of ten basic principles:

1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

Smart Growth

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Criticisms of Smart Growth

- Smart Growth increases regulations and reduces freedom.
- Smart Growth reduces affordability.
- Smart Growth increases congestion.
- Smart Growth lacks guidelines on building design.
- Smart Growth is a regional solution. **Scale?**

New Urbanism

“NEW URBANISM promotes the creation and restoration of diverse, walkable, compact, vibrant, mixed-use communities composed of the same components as conventional development, but assembled in a more integrated fashion, in the form of complete communities” (New Urbanism.org, 2011).

Principles of New Urbanism

1. Walkability
2. Connectivity
3. Mixed-Use and Density
4. Mixed Housing
5. Quality Architecture and Urban Design
6. Traditional Neighborhood Structure
7. Increased Density
8. Green Transportation
9. Sustainability
10. Quality of Life

Criticisms of New Urbanism

- New Urbanism focuses to heavily on architectural design.
- New Urbanism decreases affordability.
- New Urbanism feels contrived.
- New Urbanism is often located in the suburbs.
- New Urbanism is a project by project solution. **Scale?**

Green Buildings

"**Green building** is the practice of creating structures and using processes that are environmentally responsible and resource-efficient throughout a building's life-cycle from siting to design, construction, operation, maintenance, renovation and deconstruction" (US-EPA, 2011).

Green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources
- Protecting occupant health and improving employee productivity
- Reducing waste, pollution and environmental degradation

For example, green buildings may incorporate sustainable materials in their construction (e.g., reused, recycled-content, or made from renewable resources); create healthy indoor environments with minimal pollutants (e.g., reduced product emissions); and/or feature landscaping that reduces water usage (e.g., by using native plants that survive without extra watering).

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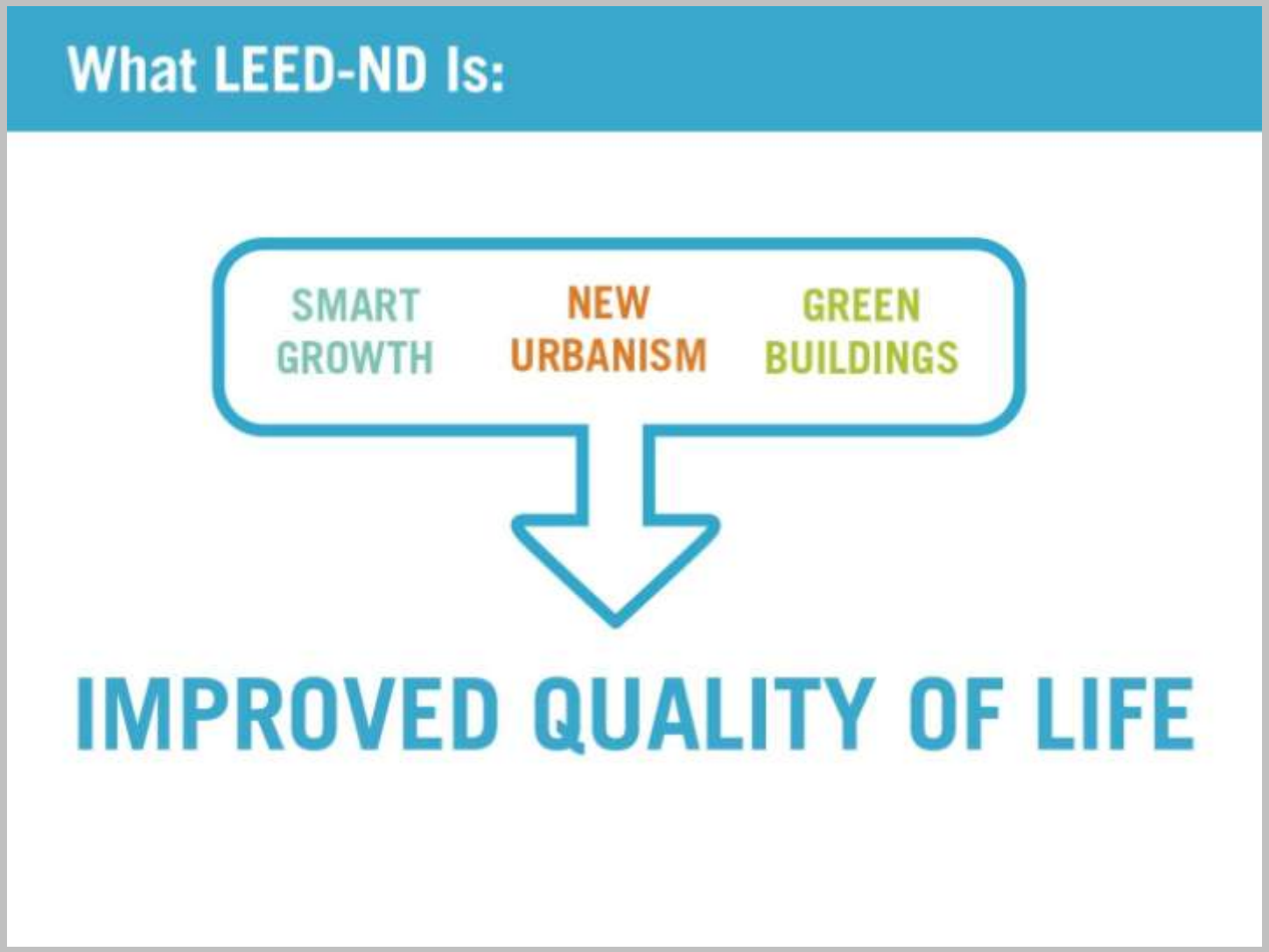
Criticisms of Green Buildings

- Green Buildings can be located in environmentally inappropriate areas.
- Green Buildings reduce affordability.
- Green Buildings can focus to much on “bells and whistles”.
- Green Buildings are a building by building solution. **Scale?**

- Each planning theory has issues!

Sustainable Urbanism: LEED-ND



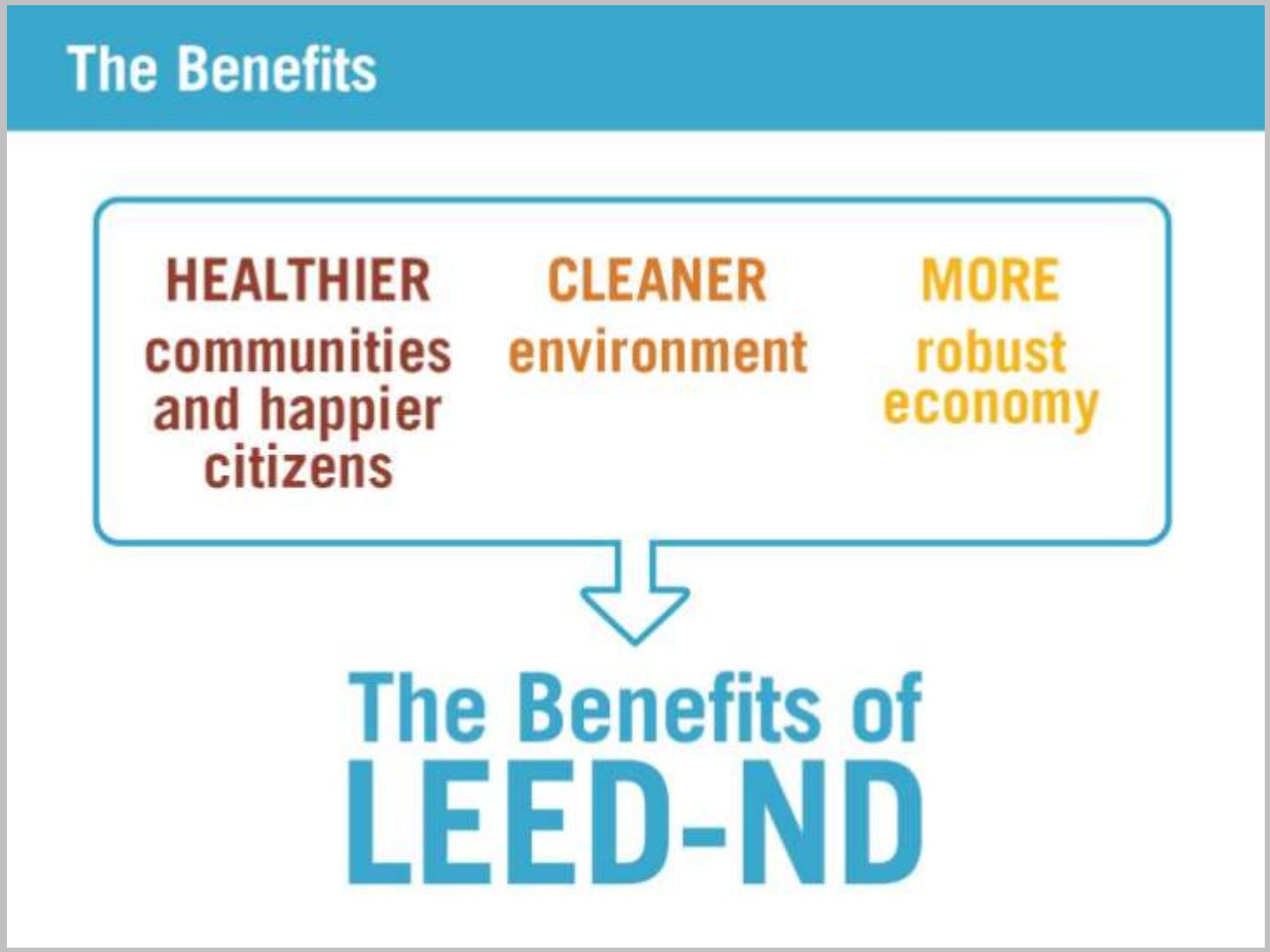
LEED – Neighborhood Development

The Differences

How is it different from other LEED rating systems?

- Primary focus on location and land use
- Looks beyond individual buildings
- Different credit categories

LEED – Neighborhood Development



LEED – Neighborhood Development

Credit Categories

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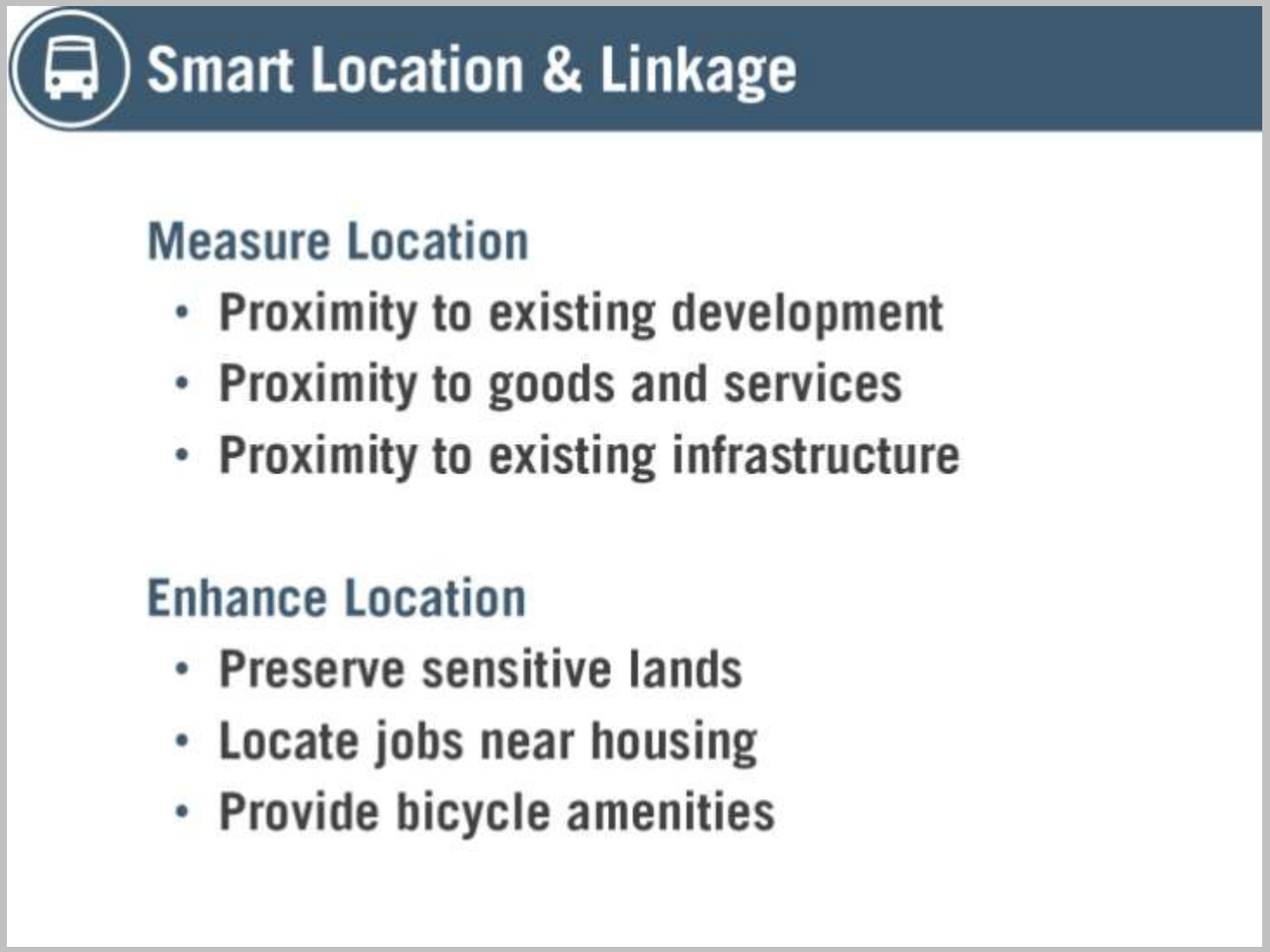
LEED – Neighborhood Development



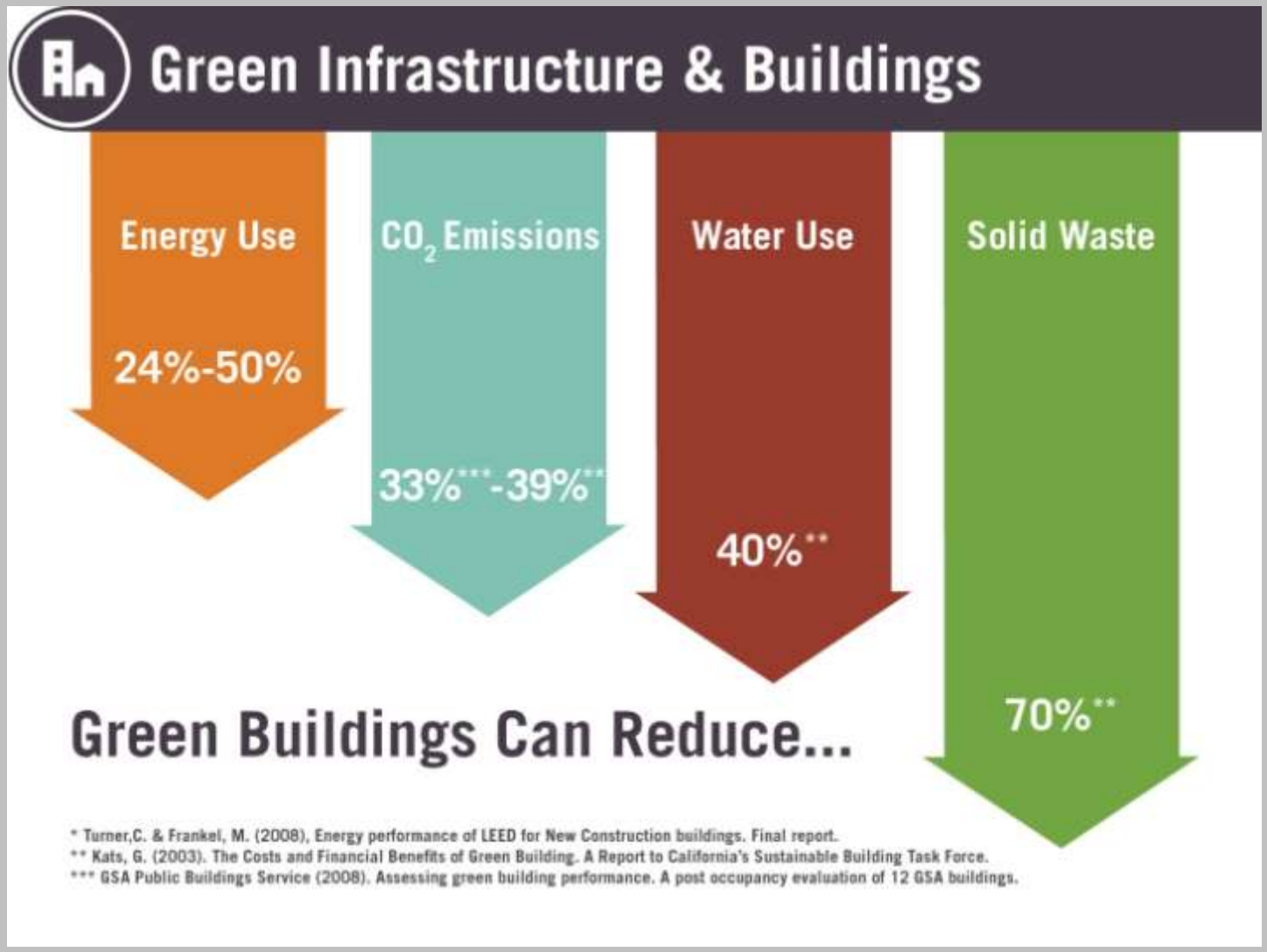
LEED – Neighborhood Development

Neighborhood Pattern & Design

Compact, Complete, Connected

- People connected to place and to each other
- Shared public spaces
- Nearby goods and services

LEED – Neighborhood Development



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LEED – Neighborhood Development

Green Infrastructure & Buildings

Green Infrastructure as Neighborhood Amenities

Image courtesy of Dattner Architects/Grimshaw/Lee Weintraub Landscape

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LEED – Neighborhood Development

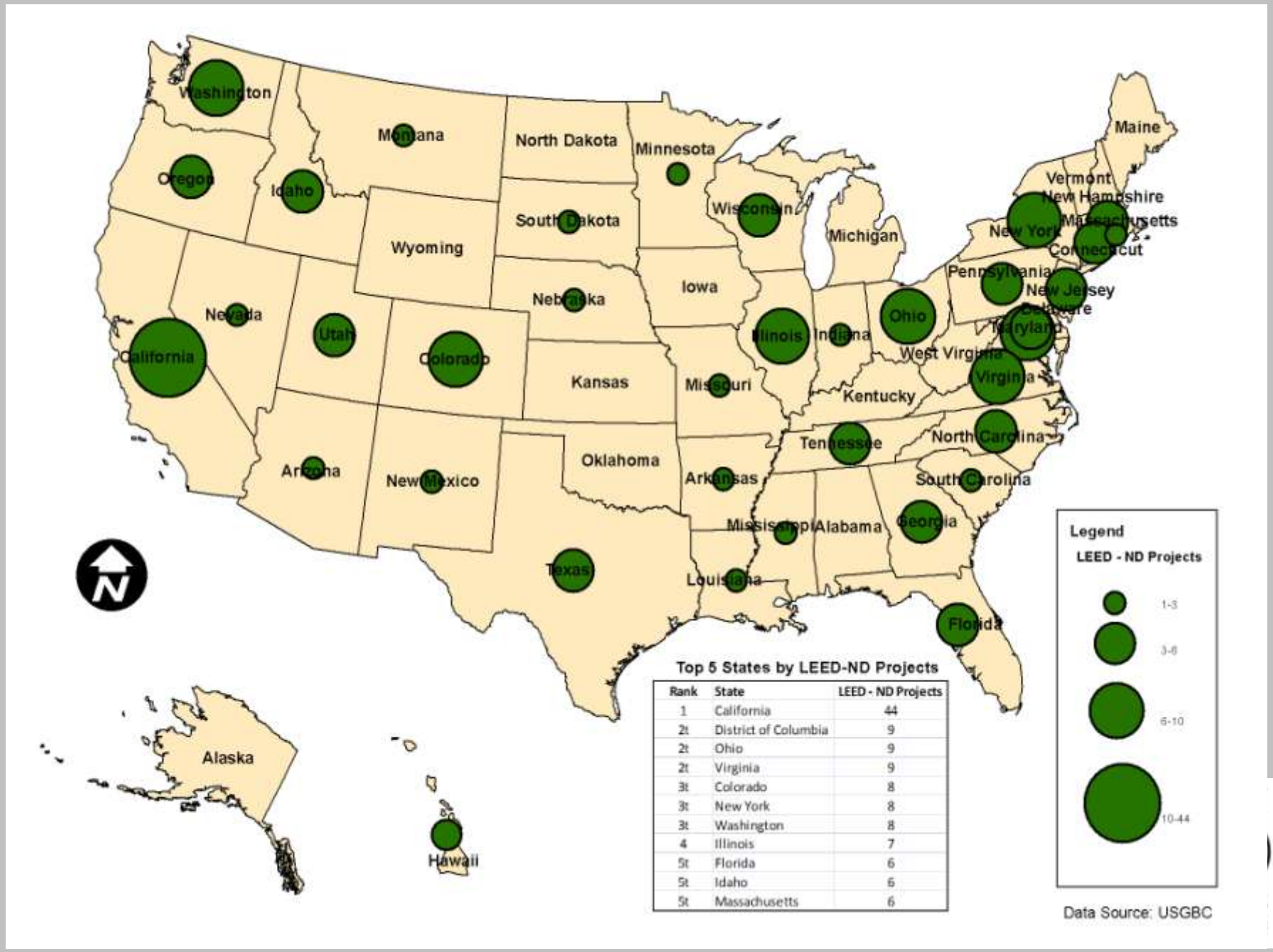
Eligible Projects

- Residential, commercial, mixed-use
- Whole, portions of, or multiple neighorhoods
- New or re-development
- Appropriate sites in urban, suburban, and village areas

LEED – Neighborhood Development Spatial Patterns and Characteristics

- 195 LEED-ND projects being developed in the United States.
- California contained the largest number of LEED-ND projects (44). New Mexico was home to the largest LEED-ND project by acreage (12,800 acres).
- A total of almost 55,000 acres is currently being developed according to LEED-ND guidelines.
- The mean acreage for a LEED-ND project in the United States was 1,077 acres. Interestingly, the median acreage was only 75.6 acres.

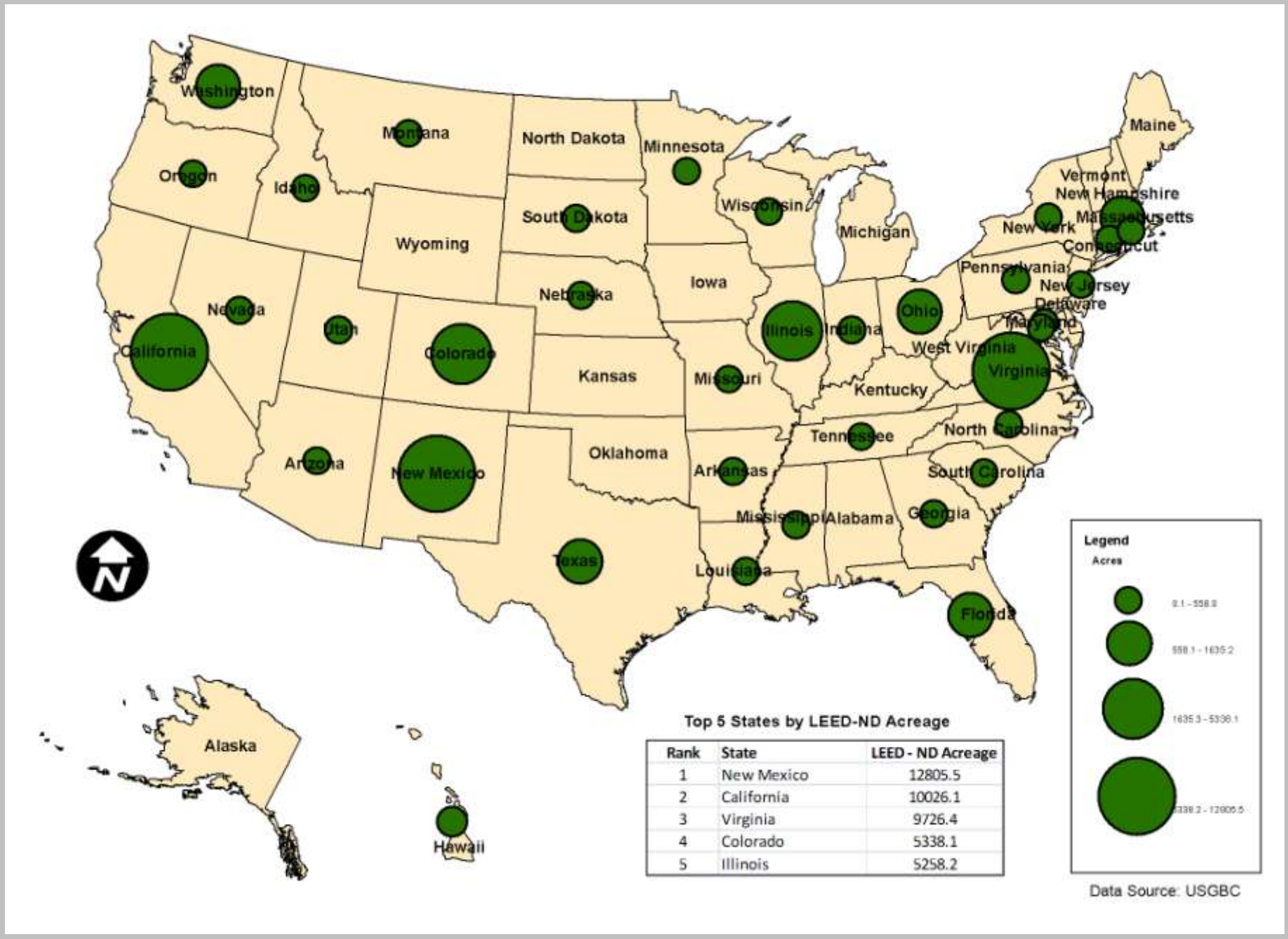
Spatial Distribution of LEED-ND Projects in the US



Top 5 States by LEED-ND Projects

Rank	State	LEED - ND Projects
1	California	44
2t	District of Columbia	9
2t	Ohio	9
2t	Virginia	9
3t	Colorado	8
3t	New York	8
3t	Washington	8
4	Illinois	7
5t	Florida	6
5t	Idaho	6
5t	Massachusetts	6

Spatial Distribution of LEED-ND Projects by Acreage in the US



Top 5 States by LEED-ND Acreage

Rank	State	LEED - ND Acreage
1	New Mexico	12805.5
2	California	10026.1
3	Virginia	9726.4
4	Colorado	5338.1
5	Illinois	5258.2

Data Source: USGBC

Case Study: Celadon – Charlotte, NC

- 24 Townhomes (Infill)
- 1.34 acres
- USGBC Project of the year

- 4th LEED-ND Project approved in the nation

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Celadon – Charlotte, NC

- Development Features:
  - Located adjacent to Bike Lane and Mass Transit Route
  - Located along Greenway
  - Tree Preservation and Management Program
  - Sub-metering of water usage
  - 70% of Construction Waste diverted from landfill
  - Concrete with Fly Ash
  - Xeriscaping

Celadon – Charlotte, NC

- Townhome Unit Features:
  - Skylights
  - Light Reflective Roofing System
  - Environmentally Friendly Insulation
  - Energy Efficient Appliances
  - Tankless Water Heater
  - High Efficiency HVAC
  - Sustainable Bamboo Flooring and Low Emitting
  - Dual Flush Toilets
  - Low VOC paint
  - Recycled Glass Tile
  - Photovoltaic Ready

Case Study: The Village at Galisteo Basin Preserve, Sante Fe, NM

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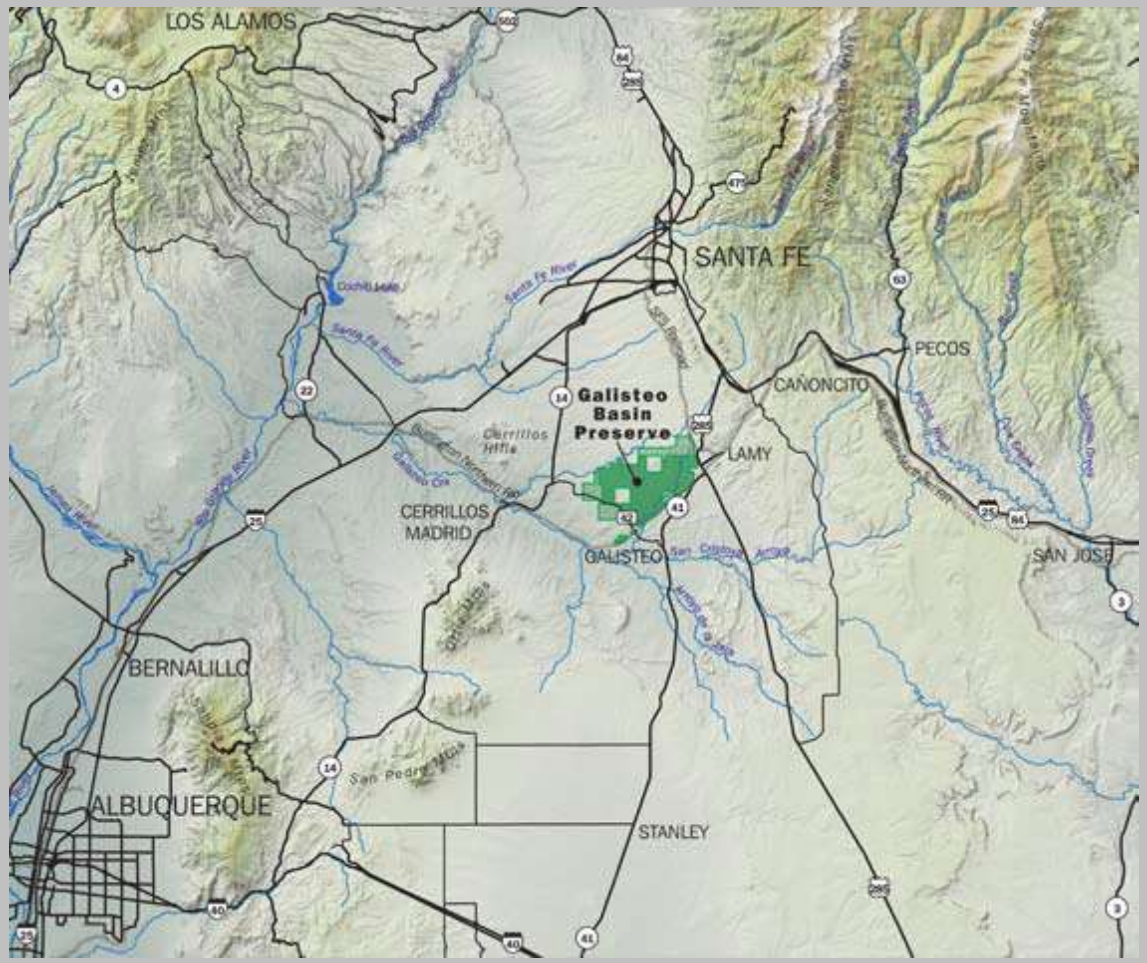

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Case Study: The Village at Galisteo Basin Preserve, Sante Fe, NM

- Project Vision

  "The Galisteo Basin Preserve is a 13,522-acre, stewardship-oriented, conservation-development initiative located 13 miles south of Santa Fe, New Mexico, in the central Galisteo Basin. An area of fragile and ecologically significant land and water resources, the Galisteo Basin is internationally celebrated for its scenic, cultural, and wildlife habitat values".

Case Study: The Village at Galisteo Basin Preserve, Sante Fe, NM

- Project Overview:
  - 965 home, mixed use, mixed income village within 300 acres (290 affordable homes)
  - Protect 96% of the land through open space conversation easements (approximately 79% of the Preserve will be publicly accessible, with more than 50 miles of trails).
  - 150,000 square feet of Commercial and Civic Space

Case Study: The Village at Galisteo Basin Preserve, Sante Fe, NM

- Design Elements:
  - Green Rooftops
  - Sun Shading
  - Water Conservation Efforts
  - Natural Materials
  - Courtyards

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Case Study: North Hills – Santa Barbara County, CA

- Proposed New Development:
  - 7,500 new homes
  - 2 million square feet of commercial space
  - 4,200 acres
  - $4.5 billion in new real estate
- Current site conditions:
  - 177 active oil wells and 96 more proposed
  - Land zoned for commercial agriculture

Case Study: North Hills – Santa Barbara County, CA

- Project described as “the biggest, most innovative, and certainly the most ‘sustainable’ development in the history of Santa Barbara County” (Welsh, 2007).
- Supported by Peter Calthorpe of TOD fame.
- Rezoning request denied by Planning Commission.
- Urban/Rural Interaction

Urban Sustainability: LEED-ND

LEED-ND as Policy Tool Guidance for Local/State Govts

- ✓ Use as basis for financial incentives for projects.
- ✓ Use as a basis for structural incentives for projects.
- ✓ Evaluate your own zoning, regs, and master plans.
- ✓ Be familiar with the rating system.
- ✗ Expect it to replace comp plans, zoning, or planning itself.
- ✗ Expect it to replace environmental regulations.
- ✗ Expect to be able to certify your town, city, or comp plan.

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Questions and Comments

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