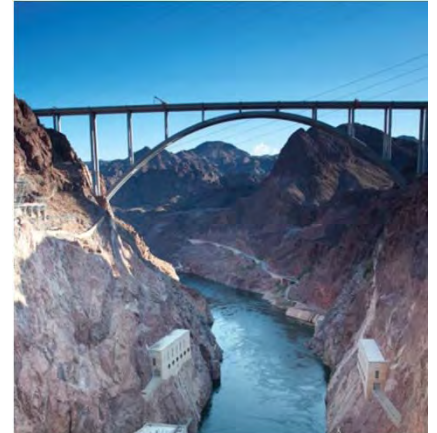


Sustainable Community Development Code Framework

Accelerating the Race to the Top

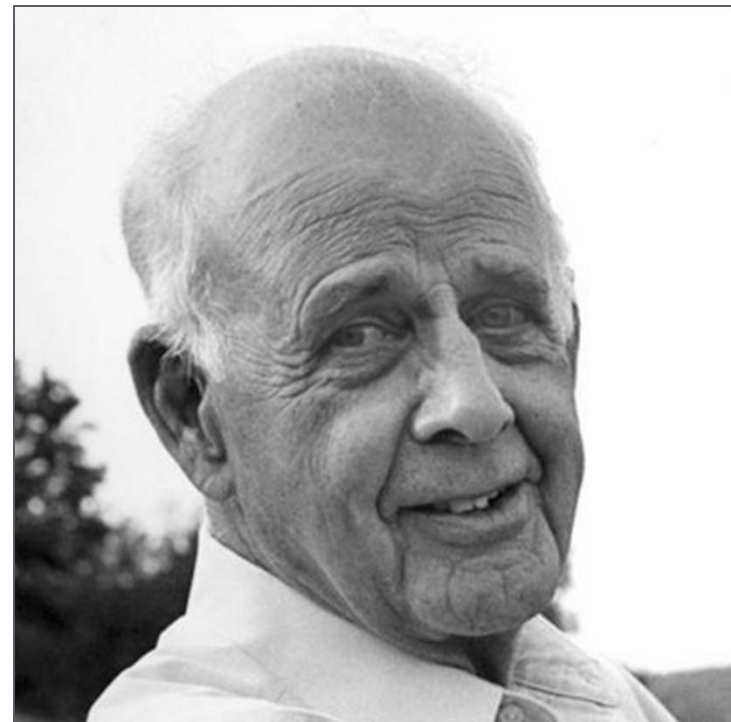


www.law.du.edu/rmlui

RMLUI
ROCKY MOUNTAIN
LAND USE INSTITUTE

Because a community is, by definition, placed, its success cannot be divided from the success of its place. . . Its soil, forests, grasslands, plants and animals, water, light, and air. The two economies, the natural and the human, support each other; each is the other's hope of a durable and livable life.

—*Wendell Berry*



Sustainable Community Development Code Framework

- Incorporates sustainability principles and practices
- Takes multi-disciplinary approach
- Promotes Triple Bottom-Line
 - Environment, economy and social equity
- Is innovative and distinctive
 - Links natural and human-made systems
 - Incorporates useful features of other zoning systems (i.e., performance and form-based zoning)
- Responds to regional climate, ecology and culture
- Identifies relevant obstacles, incentives and regulations

What the Code Framework Offers

- It's Comprehensive
- It's Unique
- It's Current
- It's User-Friendly

<http://www.law.du.edu/rmlui/program/sustainable-community-development-code-framework>

Code Framework Chapters

Environmental Health & Natural Hazards

- [Climate Change](#)
- Low Impact Development
- Natural Resource Conservation
- Water Conservation
- Solid Waste and Recycling
- Floodplain Management
- Wildfires

Land Use & Community Character

- Character and Aesthetics
- Urban Form and Density
- Historic Preservation

Mobility & Transportation

- Transit Oriented Development
- [Complete Streets](#)
- Public Transit
- Parking

Community Development

- Public Participation
- [Community Health and Safety](#)
- [Affordable Housing](#)
- Housing Diversity and Accessibility
- Food Production and Security

Energy

- Renewable Energy: Wind
- Renewable Energy: Solar
- Energy Efficiency and Conservation

Livability

- Noise
- Lighting
- Aesthetics

Coming Soon...

- Information and Communications Technology
- Ecosystem Services

Code Framework Features

Comprehensive Introduction to Each Chapter

- Provides an overview of the topic, including historical information and present-day issues facing cities and towns

Climate Change and Greenhouse Gas Reduction

Revised 1-28-09

INTRODUCTION

Global warming is being accepted as a fact of life in most quarters. Tangible evidence seems to be accumulating on an almost daily basis—shorter winters, melting polar ice caps, rising sea levels, and deeper droughts. Greenhouse gasses are increasingly linked to global warming and are seen as a primary culprit.

Greenhouse gases are made up of carbon dioxide, methane, and nitrous oxides. They contribute to global warming by trapping radiation from the sun. The bulk of greenhouse gases emitted in the United States is associated with transportation (e.g., cars) and energy generation and usage.

Code Framework Features

Implications of Not Addressing the Issue/Goals for Addressing the Issue

- Provides insight into how conditions will worsen if not addressed
- Provides macro-level goals for implementing new policies and ordinances

IMPLICATIONS OF NOT ADDRESSING THE ISSUE

If current low-density, “sprawl” development patterns in many communities continue and expand, the ability to reduce VMTs in the future will be seriously hamstrung. Once development patterns are set, it is exceedingly difficult to affect travel patterns and preferences. Low-density development makes cost-effective mass transit nearly impossible.

The same is true with preservation of mature trees that absorb huge quantities of greenhouse gases and sequester them for many years. If mature trees are needlessly cut to accommodate new development rather than new development being shaped to preserve these trees whenever possible, their destruction will actually release stored greenhouse gases (through burning or rotting), and it will take decades to replace them with smaller trees that absorb much less carbon dioxide in their early years.

Additionally, if communities do not take steps to accommodate and encourage alternative energy sources such as wind and solar, development patterns may be set that prohibit retrofitting in the future.

Code Framework Features

Key Statistics and Facts

- Provides a list of the latest and most relevant statistics and facts on a topic or issue

CLIMATE CHANGE

KEY STATISTICS AND FACTS:

- Greenhouse gases include carbon dioxide, methane, and nitrous oxides
- The United States, with 4% of the world's population, emits almost 25% of global carbon dioxide each year—second only to China. Carbon emissions in the U.S. have increased about 20% since 1990
- In the U.S., each person's direct emissions amount to 40% of this total—mostly from household energy and transportation. Total per person carbon emissions are about 16.5 metric tons (11.0 home; 5.00 auto; .5 air travel). 60% of transportation emissions come from fueling and driving autos
- The average mid-size car emits 9,500 pounds of carbon dioxide annually
- In the U.S., development is becoming more spread out—land consumed for development has increased at a rate of twice that of population growth between 1982 and 2002. During that period, per capita VMTs increased at three times the population growth
- According to a study of 83 metro areas by Reid Ewing, residents in compact regions (Boston, Portland) drove about 25% less than those in sprawling regions (Atlanta, Raleigh)
- Residents in the most walkable neighborhoods drive 26 fewer miles per day than those in the most sprawling areas according to a report conducted in King County, Washington, by Larry Frank. A study for the City of Sacramento, CA, reported that a compact growth scenario would result in a 25% reduction in VMT per house per day
- According to a study by Ewing, a doubling of development density can reduce VMTs by 5%. Other studies report a 5-15% reduction in VMTs associated with mixed-use projects
- According to the Dept. of Energy, a 30-year old hardwood tree can sequester the equivalent of 136 pounds of carbon dioxide annually. About 70 such trees would offset the carbon dioxide emissions from one medium-size car
- Planting a hectare of riparian forest can over the next 100 years offset the carbon emissions caused by 54,000 gallons of gasoline
- Net carbon sequestration by forests, urban trees, and agriculture can offset 15% of total U.S. carbon dioxide emissions annually



Code Framework Features

Achievement Level Table

- Three-tiered goal system
 1. **Remove** Barriers
 2. **Create** Incentives
 3. **Fill** Gaps
- For each goal, “Bronze,” “Silver” and “Gold” achievement levels
- Additional columns containing pertinent references and examples for each goal at each achievement level

Code Framework Features

Achievement Level Table

Climate Change and Greenhouse Gas Reduction				
		Achievement Levels (Note: Higher levels generally incorporate actions of lower levels)		
		Bronze (Good)	Silver (Better)	Gold (Best)
<p>Green Trees for Greenhouse Gases: A Fair Trade-Off?</p>	Remove Obstacles	<ul style="list-style-type: none"> Allow mixed-use development by-right in selected zone districts Permit solar and small wind turbines by-right in selected zone districts (See Renewable Energy Section (Solar Access and Wind Power) of Code Framework for citations) Allow accessory units and live/work units by-right in residential zone districts Allow live/work units in commercial and mixed-use districts Permit small-scale recycling facilities in residential zone districts 	<ul style="list-style-type: none"> Allow larger recycling facilities in appropriate industrial and commercial zone districts Reduce parking requirements for mixed-use developments/in mixed-use districts Tailor development standards (e.g., landscaping, open space, parking) to encourage infill and mixed-use development (e.g., alternative open space such as plazas, community gardens, green roofs; reduced landscaped buffers with enhanced ornamental fencing) Reduce overly restrictive height/setback requirements for small-scale wind turbines 	<ul style="list-style-type: none"> Require all single-family developments to include minimum percent of accessory units Prohibit single-use developments and buildings in commercial zone districts (e.g., downtown) Prohibit urban level development (e.g., more than 1 residential unit/acre) outside defined urban service areas

Code Framework in Action

Example 1:

The Climate Change chapter includes a reference to the U.S. Dept. of Energy's Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings

References/Commentary

- T. Litman, Parking Management Best Practices, American Planning Association, 2006.
- See Smart Code mixed-use (transect) districts [Available online](#). Retrieved November 2, 2010.
- US Department of Energy, *Method for Calculating Carbon Sequestration by Trees in Urban and Suburban Settings* [Available online](#). Retrieved November 2, 2010.

Code Framework in Action

- Follow the link to the Dept. of Energy's site and insert your data to perform your own calculations:

A. Species Characteristics (Refer to Table 1)			B. Tree Age	C. Number of Age 0 Trees Planted	D. Survival Factor (Refer to Table 2)	E. Number of Surviving Trees (C x D)	F. Annual Sequestration Rate (lbs./tree) (Refer to Table 2)	G. Carbon Sequestered (lbs) (E x F)
Name	Tree Type (H or C)	Growth Rate (S, M, or F)						
Maple, Norway	H	M	2	100	0.736	73.6	3.5	257.6
Maple, Norway	H	M	3	75	0.706	53.0	4.3	227.9
Elm, rock	H	S	6	35	0.639	22.4	3.7	82.9
Spruce, white	C	M	1	437	0.873	381.5	1.5	572.3
Total Pounds of Carbon Sequestered								1130.7
Total Pounds of Equivalent CO2 Sequestered X 3.67								4149.67
Equivalent CO2 Sequestered in Short Tons /2000								2.07

Code Framework in Action

Example 2:

The Climate Change chapter includes a link to the U.S. Green Building Council LEED for Neighborhood Development Rating System (with a cross-reference to another relevant Framework Section)

References/Commentary

- University of Florida, *A Guide To Selecting Existing Vegetation For A Low Energy Landscapes*, [Available online](#). Retrieved November 2, 2010.
- American Planning Assn. PAS Report 446, *Tree Conservation Ordinances*. Zoning Practice July 2006, *Tree Preservation*.
- US EPA Personal Emissions Calculator: [Available online](#). Retrieved November 2, 2010.
- U.S. Green Building Council, LEED for Neighborhood Rating System (See Green Construction and Technology chapter.), available online at [Available online](#). Retrieved November 2, 2010.

Code Framework in Action

- Follow the link to the LEED for Neighborhood Development website to learn how to apply for LEED ratings for neighborhoods in your community

LEED for Neighborhood Development

The LEED for Neighborhood Development Rating System integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design. LEED certification provides independent, third-party verification that a development's location and design meet accepted high levels of environmentally responsible, sustainable development. LEED for Neighborhood Development is a collaboration among USGBC, [Congress for the New Urbanism](#), and the [Natural Resources Defense Council](#).

SUSTAINABLE COMMUNITIES START WITH SUSTAINABLE COMMUNITY DEVELOPMENT CODES

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