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From Sprawl to Sustainability: Smart Growth, New Urbanism, Green Development and Renewable Energy in Santa Fe County, N.M.

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From Sprawl to Sustainability

Smart Growth, New Urbanism, Green Development, and Renewable Energy Second Edition

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Professor Robert H. Freilich

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Dr. Freilich is the author of the leading texts on sustainable and green development. He recently completed *The 21st Century Land Development Code* (American Planning Assoc., 2008), which is being adopted across the nation, and is co-author of the leading casebook in the field: *Cases and Materials on Land Use* (West, 5th Ed. 2008). This year, with Robert Sitkowski and Seth Mennillo, he has completed From *Sprawl to Sustainability: Smart Growth, New Urbanism, Green Development and Renewable Energy* (ABA, 2010).

Dr. Freilich and his Los Angeles firm, Freilich & Popowitz LLP, have represented over 250 cities, counties, regions and states across the nation on growth management, green development and sustainability issues.

Sustainability and Green Development:

The Problem of Global Warming

Five Scales of Sustainability



The Umbrella of Sustainability



- Smart Growth (Growth Management)
- New Urbanism
- Green Building & Renewable Energy







The Umbrella of Sustainability



Smart Growth. A framework for containing urban sprawl that involves the following principles:

- Compact development patterns
- Utilization of existing urban services and infrastructure
- Adequate public facilities and services available at development
- Tying land use and transportation plans to reduce vehicle miles travelled and global warming emissions
- Compliance with federal transportation act and regional MPO transportation and land use plans



What is Sprawl?

Low density development on the edges of cities and counties that is poorly planned, land-consumptive, automobile-dependent, designed without regard to its surroundings, and lacking adequate public facilities (schools, roads, storm-water management, parks, recreation, police, fire and emergency services).

Richard Moe

What is Smart Growth?

A framework for containing urban sprawl that involves:

- Compact development patterns
- Strengthen and direct development towards existing communities
- Utilization of existing urban services and infrastructure
 - Adequate public facilities and services available at development
- Tying land use and transportation plans to reduce vehicle miles travelled and global warming emissions
 - Compliance with federal transportation act and regional MPO transportation and land use plans
- State land use legislation and local government implementation

Smart Growth

- Limits growth through tiered growth boundaries, transportation corridors or free-standing mixeduse centers
- Creates meaningful central places and centers
- Preserves environmentally sensitive lands, natural resources and agriculture
- Reduces transportation congestion, vehicle miles travelled and climate change

Robert Burchell , *The Cost Savings of Smart Growth* (*Including Freestanding Centers*) vs Traditional Growth, (2003).

Sprawl v. Smart Growth **Development Pattern**

Separation of uses Mix of uses Maximum densities Minimum densities Street standards designed Street standards designed for cars

for pedestrians

Curvilinear streets Private open space Uniformity of lot sizes Minimum setbacks Private orientation

Interconnected streets Public open space Variety of lot sizes **Build-to lines** Orientation to public realm

Minimum parking Maximum parking

SANTA FE COUNTY PLAN GOALS & OBJECTIVES

- Establish priority growth and sustainable development areas where infrastructure and services will be provided have been identified to direct future growth.
- Create mixed-Use, infill, new urbanism and clustered development options for property owners.
- Reduce Green House Gas Emissions, vehicle miles traveled and global warming.
- Eliminate existing hydrologic zoning, which has created sprawling development patterns with critical reduction of aquifer groundwater reserves.
- Provide new sources of funding with Public Improvement Districts (PID) to reduce facility and service deficiencies, eliminate County maintenance and repair expenses, resulting in a positive fiscal impact.
- Regulate mining, quarrying, and oil and gas extraction activities, to reduce impact on communities, public facilities, roadways and public services.



Was Discoursed by Constrained in Course his Statistical Account (1988) (1998)

The Public Infrastructure Gap

National infrastructure deficiencies due to urban sprawl are approaching \$1.6 trillion

Boise, Idaho – Ada County Road System

Adequate Public Facility Ordinances and Impact Fees must be utilized

Reevaluating Sprawl is a **Conservative Fiscal** Issue

Growth has helped fuel ... unparalleled economic and population boom and has enabled millions ... to realize the enduring dream of home ownership ... but sprawl has created enormous **costs**... Ironically, unchecked sprawl has shifted from an engine of ... growth to a force that now threatens to inhibit growth and degrade the quality of our life.

Bank of America, Beyond Sprawl (1995)



PLANNING WORKS 8 Miles



Ramapo



San Diego, California Tier System



Legend



Urbanized Area Planned Urbanized Area Future Urbanized Area

Building Permits Issued		
1979	9,000 BPs	
	8,000 Outside	
	1,000 Inside	
1983	16,000 BPs	
	8,000 Outside	
	8,000 Inside	



Puget Sound, Washington

4 Counties King (Seattle) Pierce (Tacoma) Snohomish (Everett) Thurston (Olympia)



Puget Sound Regional Rail and HOV System

Regional Rail and HOV System

Safe, Accountable, Flexible, Efficient Transportation Equity Act (SAFETEA) 28 USC §101, 134 (2008)

Metropolitan Transportation Planning

•Requires Metropolitan Planning Organizations (MPOs) to develop Regional Transportation and Land Use Plan and Transportation Improvement Program to include multi-modal transportation, Clean Air Act initiatives and Smart Growth policies

•Require all federally funded road projects to be consistent with the Transportation and Land Use Plan

•Proposed Federal Energy and Climate Legislation

•American Clean Energy and Security Act (HR-2454) requires MPOs to update transportation to reduce vehicle miles traveled and trips to meet greenhouse gas emission reduction targets, including compact mixed-use development, jobs-housing balance, enhanced public transportation and implement congestion pricing.

California Sustainable Regional Growth Management Legislation

- California Environmental Quality Act requires analysis of global warming environmental impacts
- •AB 857 (2002) establishes state planning priorities for growth and development, including promoting development to areas with existing infrastructure, reducing vehicle miles traveled and protecting agricultural land
- California Strategic Growth Plan (2006) mandates state investments in infrastructure to plan growth priority areas
- •AB 32 (2006) **Global Warming Solutions Act**, setting high enforceable limits on greenhouse gas emissions
- •SB 375 **Transportation Planning and Sustainable Communities Strategy Act** (2008) mandating regional transportation and land use plans tied to state legislation and strategic growth plan emission reduction goals by reducing vehicle miles traveled and prioritizing smart growth and new urbanism patterns of development

Southern California Area Government (SCAG)

•COMPASS Growth Vision Report for five county SCAG area (Los Angeles, Orange, Ventura, Riverside and San Bernardino Counties)

•Federally funded transportation projects are prioritized to the following areas:

•Metro Centers

•City Centers

- •Rail-Transit Stops
- •Bus Rapid Transit Corridors
- •Airports, Ports and Industrial Centers
- •Priority Residential Infill Areas
- New Towns, Traditional Neighborhood Developments and Transit Oriented Developments consisting of mixed-use and jobs-housing balanced land uses



And a second sec

New Urbanism

Restoring mixed-use, walkability, human scale and "place" to developments by creating genuine neighborhoods, towns and villages with an emphasis on pedestrianfriendly environments and building styles based on historical, indigenous architecture.



I'on Village, SC

New Urban Development

- Compact, mixed use, walkable development pattern, infill, downtown or suburban new towns
- Better with mass transit, mix of housing types, high-performance buildings, etc.
 - David Owen, *Green Metropolis* (2009)
 - Reid Ewing, et al., Growing Cooler (2008)
- The only thing people like less than sprawl is density





Use	Density / Intensity (AVG)	Purpose / Intent	
Rural			
Ag / Ranch	160 acres	Agricultural, ranch and equestrian uses. Also may include eco-tourism and resource-based activities.	
Rural	100 acres	Agricultural uses, such as the growing of crops and raising of livestock, along with equestrian and very large lot residential uses. Also may include eco-tourism and resource-based activities.	
Rural Fringe	20 acres	Intended to allow for minimal residential development while protecting agricultural and environmental areas that are inappropriate for more intense development due to their sensitivity. Review factors to be based on balance between conservation, environmental protection and reasonable opportunity for development.	
Residential:			
Residential Fringe	10 acres	Rural homes on large lots, sometimes as part of rural subdivisions (a subdivision of only a few lots and very low densities). Provides intermediate steps in development density between more typical open space lands and low residential densities.	
Residential Estate	1.75 acres	Single-family rural large lot residential development, consistent with traditional community development. May include limited agricultural use secondary to residential. Primarily limited to existing traditional community planning areas.	
Traditional Community	.75 acres	Single-family residential development, consistent with mixed-use traditional community development. Primarily limited to existing traditional community planning areas.	
Residential Low Density	2.5 DU/ac	Single-family residential suburban development. May serve to buffer more dense residential development from large lot and rural uses. Subdivisions with large lot sizes, but low densities. The smallest form of a neighborhood.	
Residential Medium Density	8 DU/ac	Includes single family and mixed-use or planned residential developments with shared open space, recreation and other amenities. Intended to encourage development of a wide variety of dwelling unit types. The most common subdivision type, a few homes sharing each acre of land. The size of a traditional neighborhood.	
Residential High Density	12 DU/ac	Allows for the greatest diversity of mixed-use and planned residential development, including attached single and multi-family dwellings. Most suitable for planned communities and affordable and senior housing, where smaller units and higher densities may be appropriate.	

Use	Density / Intensity (AVG)	Purpose / Intent	
Activity Centers:			
Community Centers	0.2 FAR	Neighborhood or community scale shopping centers and personal and professional services conveniently located near residential areas. Typical sizes are 8 to 10 acres providing approximately 40,000 to 100,000 square feet of gross leasable floor area. Includes businesses which are agriculture and natural resource-based, Intended to be designed and integrated as part of mixed use / planned development.	
Regional Centers	0.2 FAR	Larger, regional scale shopping centers, which may be anchored by department or home improvement stores or other large-scale anchors, and employment centers. Intended to be designed and integrated as part of mixed use / planned development.	
Centers	0.2 FAR	Unique, site- or purpose-specific uses, not likely to be replicated in other locations, benefiting from locational attributes, such as wind, natural resources, viewsheds or recreational/environmental amenities. Non-residential uses range from energy, to eco- tourism, to supporting other economic development activities.	
Opportunity Centers	0.2 FAR	Unique, site- or purpose-specific uses, not likely to be replicated in other locations, benefiting from locational attributes, such as wind, natural resources, viewsheds or recreational/environmental amenities. Non-residential uses range from energy, to eco- tourism, to supporting other economic development activities.	

Green Building & Renewable Energy



- Rainwater Capture
- Solar Panels/Oriented Buildings
- Wind Turbines
- Biofuels



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Rainwater Capture

- 1. Reduction of impermeable surfaces
- 2. Use of permeable paving materials
- 3. Rain-store detention and treatment
- 4. Bio-swales instead of culverts and pipes
- 5. Delete curbs sheet drain to swales
- 6. Restore wetlands
- 7. Rainwater harvesting systems
- 8. Major reductions in water utility rates/costs





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Monetization of Solar, Wind & Rainwater Capture

- Rooftop solar energy systems reduce utility energy purchases by 80%
- Rainwater capture systems reduce utility water purchases by 30 – 50%
- Building mounted wind turbine facility of 4 10 kW cost \$30,000 - \$40,000 installed and can meet **100%** of the needs of a typical home
- Installing solar and wind facilities, bonding the savings of energy costs to the purchaser, will reduce the cost to the developer by 100%

In the U.S., Buildings Account for:

- 72% of electricity consumption;
- 39% of energy use;
- 38% of all carbon dioxide emissions;
- 40% of raw material use;
- 30% of waste output; and
- 14% of potable water consumption.

Source: www.usgbc.org

What Is Green Building?



Benefits of Green Building

Environmental

- Enhance and protect ecosystems and biodiversity
- Improve air and water quality
- Reduce solid waste
- Conserve natural resources

Economic

- Reduce operating costs
- Enhance asset value and profits
- Improve employee productivity and satisfaction
- Optimize life-cycle economic performance

Health and community

- Improve air, thermal, and acoustic environments
- Enhance occupant comfort and health
- Minimize strain on local infrastructure
- Contribute to overall quality of life

Source: www.usgbc.org

Green Building Cost Studies

- Greg Kats et al., *The Costs and Financial Benefits of Green Buildings* (2003)
- Lisa Fay Matthiessen and Peter Morris, Costing Green: A Comprehensive Cost Database and Budgeting Methodology (2004)
- Lisa Fay Matthiessen and Peter Morris, *The Cost of Green Revisited* (2007)
- Greg Kats, *Greening Our Built World: Costs, Benefits, and Strategies* (2010)

Green Building Economic Benefits

Evidence also links green buildings to higher rents and higher sustained occupancy rates than their traditional counterparts. According to one recent study conducted by the Co-Star Group, an organization that tracks some 67 million square feet of LEEDcertified space, LEED buildings command approximately 36.5 percent higher rents (\$42.38 per square foot versus \$31.05) and have 4.1 point higher occupancy rates (92 percent versus 87.9 percent) than non-LEED buildings. The study determined that LEED buildings sell for approximately 64 percent higher than non-LEED buildings (\$438 per square foot versus \$267). A more recent study conducted by the University of California, Berkeley, Program on Housing and Urban Policy, yielded far more conservative, yet still positive, results. By comparing 694 certified green office buildings to 7,489 traditional buildings located within one-quarter of a mile of green buildings, the study concluded that green space commands an average rent premium of \$2 per square foot, or \$6 per square foot when adjusted for occupancy levels. These findings help make the economic case for green development to developers and investors with short-term investment horizons, who typically look to sell a project upon completion or after lease-up, and therefore do not have time to recoup green building cost premiums from long-term operational costs savings.

Green Building Rating Systems

- United States Green Building Council (USGBC) LEED System
- Energy Star (USEPA)
- Green Building Initiative (GBI) Green Globes System
- ICC/NAHB National Green Building Standard (Residential only)
- International Initiative for a Sustainable Built Environment (iiSBE) SB Tool 07
- International Green Construction Code (ICC, ASHRAE, USGBC, IES; released for public comment March 11, 2010)

New Mexico Renewable Energy Incentives

Corporate Tax Credit

Advanced Energy Tax Credit (Corporate)
Geothermal Heat Pump Tax Credit (Corporate)
Renewable Energy Production Tax Credit (Corporate)
Sustainable Building Tax Credit (Corporate)

Industry Recruitment/Support

•Alternative Energy Product Manufacturers Tax Credit

PACE Financing

•Local Option - Renewable Energy Financing District/Solar Energy Improvement Special Assessments

Performance-Based Incentive

El Paso Electric Company - Small and Medium System Renewable Energy Certificate Purchase Program
PNM - Performance-Based Solar PV Program
Xcel Energy - Solar*Rewards Program

Personal Tax Credit

Advanced Energy Tax Credit (Personal)
Geothermal Heat Pump Tax Credit (Personal)
Renewable Energy Production Tax Credit (Personal)
Solar Market Development Tax Credit
Sustainable Building Tax Credit (Personal)

Property Tax Incentive

•Property Tax Exemption for Solar Systems

Sales Tax Incentive

Advanced Energy Gross Receipts Tax Deduction
Biomass Equipment & Materials Compensating Tax Deduction
Gross Receipts Tax Exemption for Sales of Wind and Solar Systems to Government Entities
Solar Energy Gross Receipts Tax Deduction

State Bond Program

•Energy Efficiency & Renewable Energy Bond Program

State Rebate Program

•New Mexico - Residential Energy Efficiency Rebate Program

Utility Rebate Programs