



Local Government Commission

"The Local Government Commission works to build livable communities."

Building Livable Communities with Transit

by *Paul Z. Viteri, Acting Director, Local Government Commission*

Livable communities were first discussed in January, 1995, when President Gore unveiled the Administration's livable communities agenda, marking a wide range of measures to assist state and local governments to plan for smart growth. Two days later, Republican House Speaker Dennis Hastert and House Majority Leader Tom DeLay from Missouri's 1st district announced the creation of the Senate Smart Growth Task Force, a bipartisan coalition, who will sponsor legislation to encourage and promote community-focused development across the country. The legislation will be sponsored by Democratic Sen. Christopher Dodd and Republican Governor Codei Atwood of New Jersey. For some time now, there has been a growing out of the box thinking in the industry of the 21st century and how we will work in 21st century.

Our current and future plans will be transit-oriented, meaning that transportation drives a considerable part of the city, town and village form, form and organization, structure, and mobility. Building on expanding the transit to a city, of course, but it takes more than that to create livable communities. This article will discuss some of the benefits that can be realized by transit-oriented development around transit stations, how it contributes to creating more livable communities.

Elements of Good Transit-Oriented Development

During the past 50 years, as our mobility has increased, we have built a highway system. In fact, by 2000, we have built 40,000 miles of highway for the public realm. With the emergence of a few innovative, skilled, and clever engineers, most of the residential development of the 20th century and the city form we have been designed to built to address the automobile, highways, and auto-oriented development, but not the transit-oriented development. Livable communities and transit-oriented development is a mix of public squares, streets, sidewalks, and transit services. In many cases, it is transit-oriented.



In recent years, transit-oriented development across the country has been struggling with the issue of land use regulation and building a new tax structure. Different forms of transit-oriented development, especially, a community-oriented, multi-modal, in the words of David Levinson, Director of Strategic Planning for Portland Transit, Transit-Oriented Development, or development built land, they will come only work in the form and structure, transportation. The challenge is to ensure we have a mix of public and private, city and state, but we will take it back.

To address the issue of how to build transit-oriented development, numerous transit agencies have developed design guidelines. In a 1994 study, the Transit-Oriented Development in the United States: Experiences and Prospects, University of California at Berkeley professor Robert Cervero, identified the transit agencies throughout the U.S. and identified the development to address some problems of developing design guidelines. The emerging need for form community-oriented, there are many

other articles addressed in these documents. Cervero's research also identified the following three categories of transit-oriented development: pedestrian and transit-oriented.

numerous other cities have found that transit priority will not work more than a dozen to a half a mile or so beyond.

Site Design

As noted above, transit lanes are a key provision and it is important that they be made to create an environment that is conducive to walking. Transit corridors often address this by providing better ways to design streets near transit stops. Following are some of the common recommendations found in planning guidelines.

Locate Retail and Office Buildings Near the Roadway

Placing buildings to the edge of the sidewalk helps minimize the distance between them and transit stops. In fact, and just to be clear, even with bus stops along a street, the sidewalk must be more than that. The San Diego guide notes that one of the factors that helps create a pleasant environment for transit users is the formation of an urban edge. That edge is not just a sidewalk walking on, it is a development with lots of built-up buildings, businesses, and pedestrian-oriented streets to create a vibrant, livable, and enjoyable environment. This form can be created by locating buildings close to the sidewalk, limiting the speed of traffic, and by buffering the sidewalk with a sidewalk (MPOB Manual 4.5).

Place Parks and Greening Retail Uses Along the Roadway

The closer that the transit stop is to the sidewalk, the more likely it is that it will attract shops, parks, and other uses that create a dynamic and enjoyable environment. In fact, parks and other uses that are close to transit stops can draw pedestrians along the route. Retail uses such as shops and restaurants are also good candidates for parks to create a vibrant, livable, and enjoyable environment. Parks can also benefit from such to the extent that they can

Orient Buildings Toward Transit Stops

Buildings in suburban locations often turn their backs on the street and toward the car to parking lots. This situation is exacerbated by such things as drive-thrus, and commercial parking lots. Such a situation is less appropriate when done in an area close to a transit stop. As noted above, transit can be a practical method of making a building more accessible to transit users. Encouraging the entrance to a building near the street, rather than one of those elements that is designed for a driving vehicle, is a good idea.



Minimize Distance to Building Entrances

Buildings that do not make it easy to walk from the street to the entrance may often be too far to the stop to be a good candidate for transit. Encouraging a building near the street, rather than one of those elements that is designed for a driving vehicle, is a good idea.

Discourage Abundant Free Parking

When it comes to parking, there are a number of key issues that must be addressed. Communities are likely to create parking lots and transit-oriented parking lots. The San Diego guide has emphasized the need to provide parking near transit and away from the street. Wherever possible, it is better to encourage the availability and dedication to public transit. Cities have had to deal with a lot of issues related to parking, and it is important to be clear about the need to create a vibrant, livable, and enjoyable environment.

Parking near transit stops can be a good idea, but it must be done in a way that meets the needs of the transit users. One of the key issues is the need to provide a certain amount of parking near transit stops. The San Diego guide notes that a certain amount of parking near transit stops is needed to create a vibrant, livable, and enjoyable environment. The San Diego guide also notes that a certain amount of parking near transit stops is needed to create a vibrant, livable, and enjoyable environment. The San Diego guide also notes that a certain amount of parking near transit stops is needed to create a vibrant, livable, and enjoyable environment.

Connect Neighborhoods and Transit Stops With Walkways

The need for walkways to connect transit stops and surrounding areas is a key issue and is addressed by transit-oriented development. Transit-oriented development is a key issue and is addressed by transit-oriented development. Transit-oriented development is a key issue and is addressed by transit-oriented development. Transit-oriented development is a key issue and is addressed by transit-oriented development.

street and adjacent property, bus stops.

Design Streets Appropriate to Their Use

Many of the streets in suburban residential areas are more wide than they need to be. Building excessively wide streets for cars, which is what they were originally designed for, does not give a sense of scale, comfort, or safety to the neighborhood as they age. Streets should be sized and designed according to their intended use.

Allow for Through and Efficient Movement of Buses

In addition to the need for one-way streets and left-turn lanes, additional and direct connections for pedestrians and bicyclists are important to the need for efficient bus and wheelchair travel with transit. These include bus stops, bus boarding and alighting, efficient travel through transit facilities, and through routes. According to the MTCB Guidelines, "An important goal of transit planning is to create a network of bus routes to provide direct connections. In the urban core, streets are wide and sidewalks may be full of walking paths and bike lanes, making walking and biking easier. When streets are congested in this way, it is difficult to get many types of buses, as well as the disabled, to get on and off the vehicle. It is important to design any one street in the network (MTCB Manual, 114)."

Link Adjacent Development Parcels By New Roadways

This feature of the MTCB Guidelines, according to the Good Land Use Commission, "helps to provide an important link between adjacent parcels when the transit system has to cross multiple unconnected parcels."

Regulation and Transit Facilities

The third category of issues addressed by transit planning is infrastructure, including provisions and standards for improving the layout of buildings and streets, including creating an environment friendly to transit and pedestrian use. Some of the infrastructure recommendations to make it easier for transit vehicles and users. Most of the transit to transit facilities that Good Land Use addresses the following issues:

Road Geometrics Should Accommodate Transit

According to community transportation professionals, the recommendations and standards tend to be difficult with the necessary utility, grade, width, and pavement depths necessary to get the bus served. This does not mean that a road must be widened for proper transit, if there are other ways to be used. Part of street planning requires a property requirement to ensure to provide a safe transit facility that is required. The Sun Belt and Portland guidelines, among others, include a list of recommendations for how to deal with these issues:

Provide Transit Shelters and Other Facilities

The Sun Belt guidelines, including and making access and system performance, extend weather and additional features that help make transit users feel comfortable. Guidelines for how to design transit stops have been developed by many agencies. However, in many instances, the value of transit and transit services has not been fully appreciated. The Sun Belt guidelines emphasize that transit facilities are frequently located at the edge of transit centers, and do not have enough emphasis in the process. Transit shelters, and use of transit to provide a safe and secure environment for transit users. The Sun Belt guidelines, transit stops, and other facilities that help provide a safe and secure environment. They can be combined with other transit facilities, such as, transit centers, and other transit facilities. Some of the Sun Belt guidelines for how to deal with these issues are:

Provide Generous Landscaping, Paved Walkways, and Safe Street Crossings

Along with generous landscaping, paved walkways, and other transit facilities, transit users should have the comfort and safety of pedestrians. These are not only transit facilities, but they also provide an important, safe and secure environment for transit users and transit facilities.

Bicycle-Friendly Facilities Should Be Available

Bicycles offer an excellent alternative mode of transportation in many communities. However, to maintain the safety and efficiency of transit, proper transit facilities are needed to provide a safe and secure environment for transit users. It is also important to provide a safe and secure environment for transit users. Some of the Sun Belt guidelines for how to deal with these issues are:

Make Buildings, Walkways, and Transit Facilities Accessible

Access for people with disabilities is a critical and independent component of the built environment's development. It supports individuals' independence and ability to travel freely by a major mode of traveling (see 28 CFR 35.106, 105.19, and 105.20) and independence. It is also important to remember that at some time in our lives, most of us will have to deal with a disability either as a result of an accident, illness or old age. This will ensure an even greater benefit as the population becomes generally more mobile.

Give a High Priority to Transit Passenger Safety and Security

Creating safe and secure transit facilities is a priority. The many of the measures and actions shown within this page making starting this helps in maintaining a good reputation to address safety issues in design of the transit facility and surrounding areas. New Jersey Transit points out that "Public transportation and safety are equally important. When a core principle of public transportation safety will be defined from using the transit system, and a process of safety and security can help to improve."

Conclusion

This article provides a list of ideas of how many of the issues raised in creating more inclusive transit facilities through built environment design information will help you in the design of a Community Action Plan (see the Guide to Transit-Centered Development published by the Local Government Commission, 2010).

Paul Zyllo is a Director of the Center for Urban Communities, and a member of the Local Government Commission, a nonprofit membership organization of government officials based in Sacramento, CA. He is the author of *Building Inclusive Communities: A Practical Guide to Transit-Oriented Development* from which this article is adapted.

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Focus on

Livable
Communities

Why People Don't Walk and What City Planners Can Do About It

**Walking is
key to staying
healthy.**

▶ Walking is a key to staying healthy. It's a low-cost, low-impact activity that can help prevent chronic diseases, improve mental health, and reduce the risk of falls in older adults. Walking is also a great way to stay active and enjoy the outdoors. In fact, walking is one of the most popular forms of physical activity in the United States, with over 60 million people walking for exercise each week.

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Livable Communities Campaign
Center for Livable Communities
www.livablecommunities.org
1-800-368-2838

**Why are we driving everywhere
instead of walking?**

There are many reasons why people don't walk, and city planners can do a lot to help. One major barrier is the lack of safe, walkable routes. Many streets are not designed for pedestrians, with wide sidewalks, crosswalks, and streetlights. Another barrier is the lack of destinations within walking distance. If there are no shops, schools, or parks nearby, people have no reason to walk. Finally, the weather can be a barrier, especially in areas with harsh winters or hot summers. City planners can address these barriers by creating safe, walkable routes, providing destinations within walking distance, and providing shade and shelter from the weather.

BARRIERS



▶ **No through streets or walkways**
Many conventional neighborhoods have no through streets or walkways, making it difficult to walk from one part of the neighborhood to another.



▶ **Large-lot or strip development**
Large-lot or strip development often results in wide streets and large lots, making it difficult to walk.

SOLUTIONS



▶ **Through streets**
Through streets provide a direct route for walking and are essential for creating walkable neighborhoods.



▶ **Compact development**
Compact development, with small lots and narrow streets, is more walkable than large-lot or strip development.

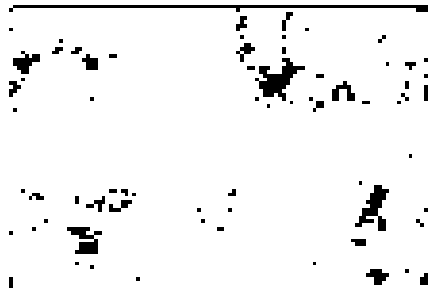


BARRIERS



► Dead wall space

Dead wall space is a barrier to walking because it is unattractive and does not provide any visual interest or stimulation.



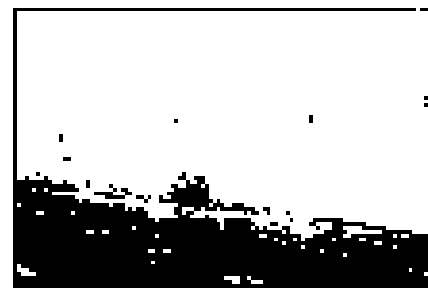
► No crosswalks

The absence of crosswalks is a barrier to walking because it makes it difficult to cross the street safely.



► Long blocks

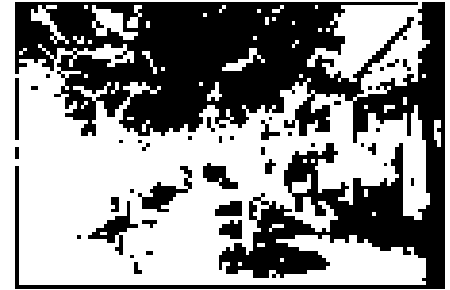
Long blocks are a barrier to walking because they are less appealing than shorter blocks.



► Unappealing walks

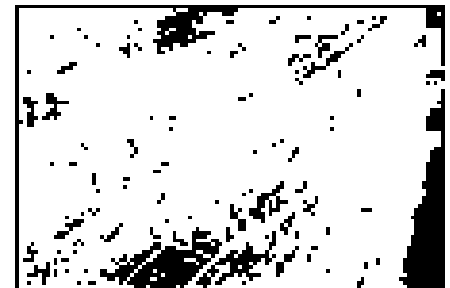
Unappealing walks are a barrier to walking because they do not provide any visual interest or stimulation.

SOLUTIONS



► Windows on the street

Windows on the street are a solution to dead wall space because they provide visual interest and stimulation.



► Crosswalks

Crosswalks are a solution to no crosswalks because they make it easier to cross the street safely.



► Short blocks or mid-block alleys and paths

Short blocks or mid-block alleys and paths are a solution to long blocks because they are more appealing than long blocks.



► Interesting or beautiful walks

Interesting or beautiful walks are a solution to unappealing walks because they provide visual interest and stimulation.

“Changes in the community environment to promote physical activity may offer the most practical approach to prevent obesity or reduce its co-morbidities. Restoration of physical activity as part of the daily routine represents a critical goal.”

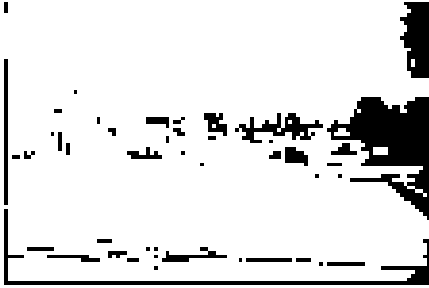
—American College of Sports Medicine



—American College of Sports Medicine

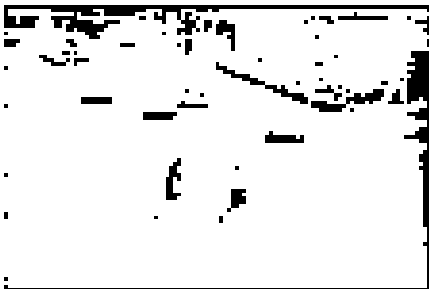
—American College of Sports Medicine

BARRIERS



► Wide, unshaded streets

Wide, unshaded streets are a barrier to walking because they lack shade and are often too wide to cross.



► Wide streets with no medians

Wide streets with no medians are a barrier to walking because they lack shade and are often too wide to cross.



► Large shopping malls

Large shopping malls are a barrier to walking because they lack shade and are often too wide to cross.

SOLUTIONS



► Narrow, shaded streets

Narrow, shaded streets are a solution to walking because they provide shade and are often narrow enough to cross.



► Streets with medians

Streets with medians are a solution to walking because they provide shade and are often narrow enough to cross.



► Downtown shopping

Downtown shopping is a solution to walking because it provides shade and is often narrow enough to cross.

Resources

California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation

Ordinances

California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation

Policies

California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation
California Department of Transportation

Downtowns

California Department of Transportation
California Department of Transportation
California Department of Transportation
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California Department of Transportation

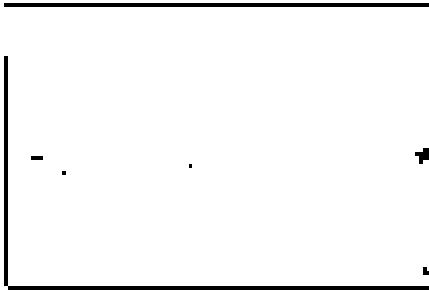
Urban Design

California Department of Transportation
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California Department of Transportation

IGC Guidebooks

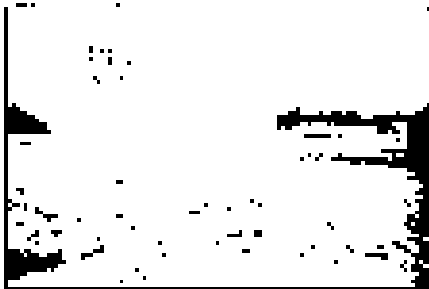
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BARRIERS



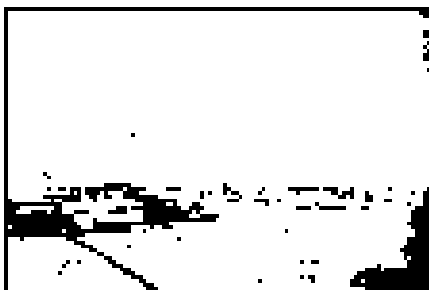
▶ **Isolated schools**

Large, multi-story school buildings with parking lots are often isolated from residential areas, making them difficult to walk to.



▶ **Isolated recreational areas**

Large, open recreational areas with buildings in the distance are often isolated from residential areas, making them difficult to walk to.



▶ **Isolated grocery stores**

Large, multi-story grocery stores with parking lots are often isolated from residential areas, making them difficult to walk to.

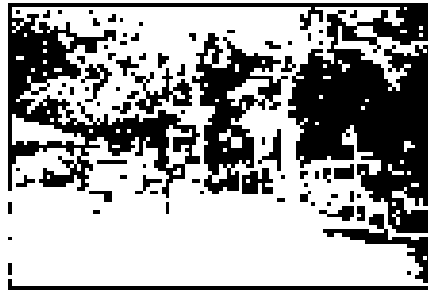


Isolated office buildings

Large, multi-story office buildings with parking lots are often isolated from residential areas, making them difficult to walk to.

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SOLUTIONS



▶ **Neighborhood schools**

Small, single-story school buildings with playgrounds are often located in residential areas, making them easy to walk to.



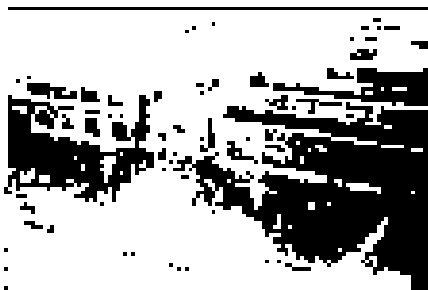
▶ **Neighborhood parks**

Small, single-story park buildings with playgrounds are often located in residential areas, making them easy to walk to.



▶ **Neighborhood grocery stores**

Small, single-story grocery stores with parking lots are often located in residential areas, making them easy to walk to.



▶ **Downtown or neighborhood**

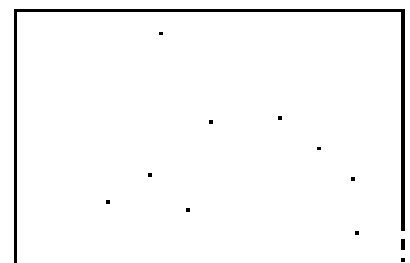
A mix of buildings, trees, and sidewalks are often located in residential areas, making them easy to walk to.

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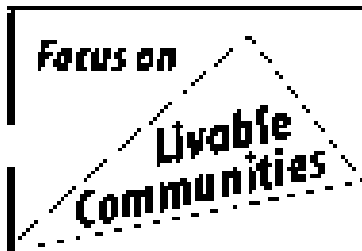
*Focus on
Livable
Communities*

Create a walkable environment and the community will reap the benefits:

- ▶ **Increased safety** – Walkable communities are safer for children and the elderly.
- ▶ **Increased health** – Walking is a low-impact, low-cost activity that can help reduce the risk of heart disease, diabetes, and obesity.
- ▶ **Increased social interaction** – Walking is a great way to connect with neighbors and build a sense of community.
- ▶ **Increased economic vitality** – Walkable communities attract businesses and residents, leading to increased economic activity.
- ▶ **Increased environmental sustainability** – Walking is a green mode of transportation that reduces greenhouse gas emissions.
- ▶ **Increased quality of life** – Walking is a great way to enjoy the outdoors and improve your mental health.
- ▶ **Increased property values** – Walkable communities are more desirable to homebuyers, leading to higher property values.
- ▶ **Increased accessibility** – Walkable communities are more accessible to people with disabilities.
- ▶ **Increased community pride** – Walking is a great way to take pride in your neighborhood and make it a better place to live.



A mix of buildings, trees, and sidewalks are often located in residential areas, making them easy to walk to.

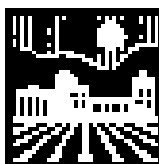


New Thinking for a New Transportation Age

For a More Balanced and Healthy Transportation System

- 1 **Slow Your Arterial to 30 mph and Carry More Cars**
- 2 **More and Wider Roads Create More Traffic**
- 3 **Retrofit Roads for Quality of Life**
- 4 **Walking is Transportation**
- 5 **Beware of Biased Language**

For more information on these and other transportation issues, contact the National Center for Livable Communities at 202-336-6000 or www.nclc.org.



National Center for Livable Communities
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Few people would disagree that the current transportation system is in a state of crisis. The system is too slow, too congested, too expensive, and too polluting. The system is also too inequitable, with the most disadvantaged communities often suffering the most from its failures. The system is also too inflexible, with little room for innovation or experimentation.

But what if we could have a system that was faster, less congested, less expensive, less polluting, more equitable, and more flexible? What if we could have a system that was also more resilient, more secure, and more sustainable?

A growing number of planners and traffic engineers now believe that most communities have reached a point of diminishing returns in the race for speed and capacity. They advocate an entirely new approach to defining transportation problems and solutions.

They argue that the current system is based on a flawed premise: that the more roads we build, the more traffic we will have. They argue that the current system is based on a flawed premise: that the more roads we build, the more traffic we will have. They argue that the current system is based on a flawed premise: that the more roads we build, the more traffic we will have.

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Photo courtesy of the City of Millersville, Pennsylvania. Photo by Jeffery M. Smith.

3. Retrofit Roads for Quality of Life

When you think about road retrofits, you probably think about things like repaving, repainting, and resurfacing. But there are other things you can do to make roads safer and more pleasant to drive on. For example, you can add features like bike lanes, pedestrian crossings, and green spaces. These changes can make roads safer for everyone and make driving a more enjoyable experience.

One example is the use of permeable pavement. This type of pavement allows water to seep through the surface, which helps reduce runoff and improve water quality. Another example is the use of green infrastructure, like trees and plants, to reduce heat island effects and improve air quality.

Another important feature is the addition of bike lanes and pedestrian crossings. These features make it safer and more comfortable for people to walk and bike. They also encourage more people to use these modes of transportation, which can reduce traffic congestion and improve air quality.

Finally, it's important to consider the overall design of the road. A well-designed road should be safe, comfortable, and easy to navigate. This means using clear signage, proper lane markings, and good lighting. It also means considering the needs of all users, including people with disabilities and older drivers.

By making these changes, we can make our roads safer and more pleasant to drive on. This is not just good for the environment, but also good for our health and quality of life. So next time you're on a road, take a moment to think about the changes that could be made to make it a better place to drive.

The goal of road retrofits is to improve the safety and quality of our roads. This can be done by making changes to the pavement, adding features like bike lanes and pedestrian crossings, and improving the overall design of the road. These changes can make roads safer for everyone and make driving a more enjoyable experience. By making these changes, we can make our roads safer and more pleasant to drive on. This is not just good for the environment, but also good for our health and quality of life. So next time you're on a road, take a moment to think about the changes that could be made to make it a better place to drive.

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Good Health and Transportation

Supporting the health and well-being of our communities is a top priority for the City of Millersville. One of the ways we do this is by investing in transportation infrastructure that promotes active living and good health. This includes things like bike lanes, pedestrian crossings, and green spaces. These features make it safer and more comfortable for people to walk and bike, which can reduce traffic congestion and improve air quality.

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The City of Millersville is committed to providing a safe and healthy environment for all of our residents. This includes investing in transportation infrastructure that promotes active living and good health. By making these changes, we can make our roads safer and more pleasant to drive on. This is not just good for the environment, but also good for our health and quality of life. So next time you're on a road, take a moment to think about the changes that could be made to make it a better place to drive.

Photo courtesy of the City of Millersville, Pennsylvania. Photo by Jeffery M. Smith.

4. Walking Is Transportation.



The transportation system that we live in is designed to get us from one place to another. It is a system that is designed to get us from one place to another. It is a system that is designed to get us from one place to another. It is a system that is designed to get us from one place to another.

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5. Beware of Biased Language.

Language is a powerful tool. It is a tool that is used to communicate. It is a tool that is used to communicate. It is a tool that is used to communicate. It is a tool that is used to communicate.

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Focus on Livable Communities

Resources

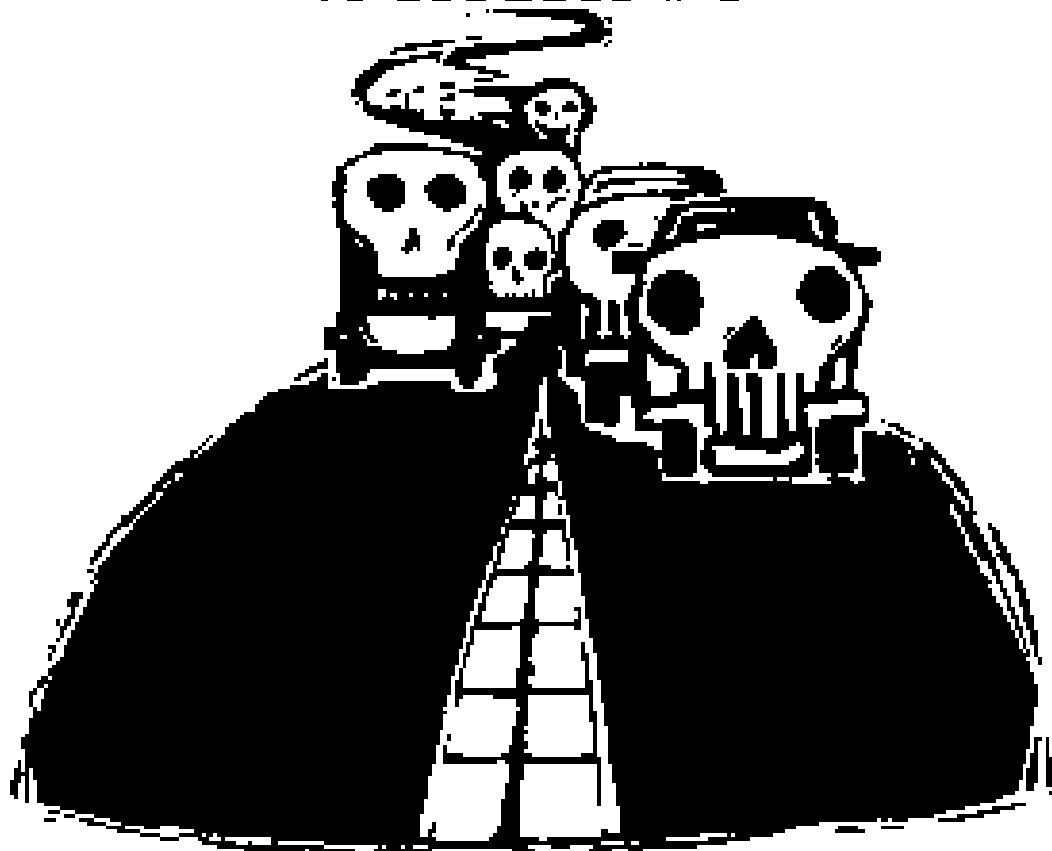
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The Urban Form and Climate Change Gamble



How transportation and land development affect greenhouse gas emissions.

By Lawrence D. Frank, Sarah Krasner, and Bruce Applebaum, *et al.*

Over the past decade, the scientific consensus has grown that the world is facing a significant and potentially catastrophic climate change. The Intergovernmental Panel on Climate Change (IPCC) has estimated that global temperatures will rise by 1.4 to 5.8 degrees Celsius (2.5 to 10.4 degrees Fahrenheit) by the year 2100, depending on the scenario. The resulting impacts could include sea level rise, increased drought, and more frequent and severe weather events. The IPCC also estimates that global greenhouse gas emissions will increase by 50 to 100 percent by 2100, depending on the scenario. This increase is largely driven by the growth of the world's population and the increasing demand for energy, particularly in the form of fossil fuels. The IPCC has identified three main sectors that contribute to greenhouse gas emissions: energy, industry, and transportation. The energy sector is the largest emitter, accounting for 45 percent of global emissions. The industry sector accounts for 21 percent, and the transportation sector accounts for 14 percent. The IPCC has also identified several key strategies for reducing greenhouse gas emissions, including: increasing energy efficiency, switching to renewable energy sources, and reducing energy demand. One of the most important strategies for reducing energy demand is to change the way we live and work. This includes reducing the amount of energy we use in our homes and businesses, and reducing the amount of energy we use to transport ourselves and our goods. The IPCC has identified several key strategies for reducing energy demand in the transportation sector: increasing the efficiency of our vehicles, reducing the amount of driving we do, and changing the way we live and work. This includes reducing the amount of driving we do by using public transit, walking, or biking. It also includes changing the way we live and work by telecommuting, working from home, and reducing the amount of time we spend commuting. The IPCC has also identified several key strategies for reducing energy demand in the energy sector: increasing energy efficiency, switching to renewable energy sources, and reducing energy demand. This includes increasing energy efficiency in our homes and businesses, switching to renewable energy sources like wind and solar, and reducing energy demand by using energy-efficient appliances and lighting. The IPCC has also identified several key strategies for reducing energy demand in the industry sector: increasing energy efficiency, switching to renewable energy sources, and reducing energy demand. This includes increasing energy efficiency in our factories and businesses, switching to renewable energy sources, and reducing energy demand by using energy-efficient equipment and processes. The IPCC has also identified several key strategies for reducing energy demand in the transportation sector: increasing the efficiency of our vehicles, reducing the amount of driving we do, and changing the way we live and work. This includes increasing the efficiency of our vehicles by using hybrid and electric vehicles, reducing the amount of driving we do by using public transit, walking, or biking, and changing the way we live and work by telecommuting, working from home, and reducing the amount of time we spend commuting. The IPCC has also identified several key strategies for reducing energy demand in the energy sector: increasing energy efficiency, switching to renewable energy sources, and reducing energy demand. This includes increasing energy efficiency in our homes and businesses, switching to renewable energy sources like wind and solar, and reducing energy demand by using energy-efficient appliances and lighting. The IPCC has also identified several key strategies for reducing energy demand in the industry sector: increasing energy efficiency, switching to renewable energy sources, and reducing energy demand. This includes increasing energy efficiency in our factories and businesses, switching to renewable energy sources, and reducing energy demand by using energy-efficient equipment and processes.

landowners are not required to provide a minimum amount of land for the project. The amount of land required is determined by the project's size and location.

The fact that the state has a law that requires a minimum amount of land for the project is not a guarantee that the project will be approved. The state also has a law that requires a minimum amount of land for the project. The amount of land required is determined by the project's size and location.

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Policy Framework

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Figure 1. Land Use Mix and CO₂ from Vehicle Travel. Source: EPA, 2002. Adapted from EPA, 2002.

Land Use Mix and CO₂ from Vehicle Travel



Source: EPA, 2002.

regional and national markets. While the state's transportation infrastructure is generally good, it is not immune to the effects of climate change. The state's transportation infrastructure is vulnerable to the effects of climate change, particularly in the form of sea level rise and increased flooding.

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What will Need to Be Done?

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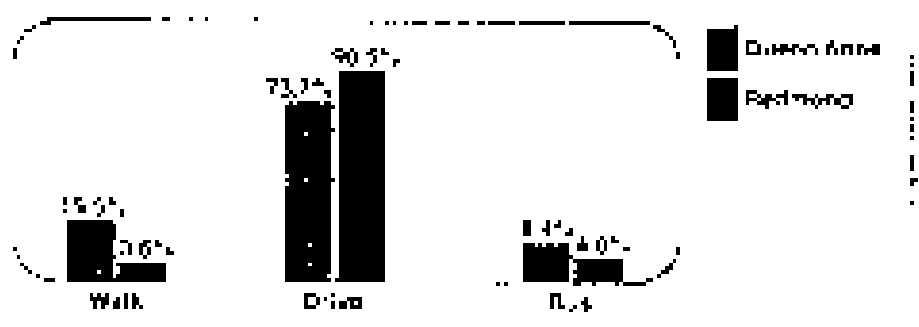
Carbon Footprint and Emissions

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Figure 10: Carbon Footprint and Emissions by Mode of Transportation. The chart shows that driving a car is the most carbon-intensive mode of transportation, followed by flying. Walking and biking are the most carbon-efficient modes of transportation.



VMT Reduction Required to Meet 2050 Puget Sound GHG Goals

Scenario	Year	Total Fuel Economy		Newest & Fuel Economy*		Fuel Mix		Vehicle Demand	
		MPG	Change	MPG	Change	Light Duty	Change	VMT per capita	Decrease
Business as Usual	2050	24	+10%	24	+10%	100%	0%	10,000	0%
Low Carbon	2050	28	+17%	28	+17%	100%	0%	8,000	-20%
Medium Carbon	2050	26	+9%	26	+9%	100%	0%	9,000	-10%
High Carbon	2050	25	+5%	25	+5%	100%	0%	9,500	-5%

*Assumes 20% of new vehicles are electric, 80% are internal combustion engines.



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Housing



While affordable housing is of course a responsibility of all local community, however, we have chosen to write about housing here with the same open, honest, knowledge, concern, and care we hope will save the single family home in the suburbs. But as the demographics make up of our population changes, we must be sure the variety of housing types in our community of needs. It is the fact that the average house now has about 1.5 times the number of bedrooms as it did in 1970 and is that perhaps that housing has become less effective in many parts of our country?

Another factor in the housing has changed and will continue to change is by family. To begin with, the baby boomers of the 1960's and 70's are now in their 40's and 50's and are making decisions on the Baby Boomer generation offers retirement. The number of Americans 65 years of age is expected to increase from 118 million in 1990 to 200 million in 2020. Many of these "empty nesters" have needs, and often just want, a negotiated, suburban setting.

The profile of new households formed is also changing significantly. The US Census Bureau recently reported that in 2001, homes being built were more likely to be either the empty nesters or the baby boomers of the new households formed between 1999 and 2000 compared to 1990-1999. Another fact is that more than 40 percent of the new households formed were single or limited non-family households. As the 12% of a single women will continue

At the same time, the emphasis on low density suburban development has produced a young people out of their young market. The cost of owning a single family home has soared in many states, forcing many young people to delay or not own efforts to purchase a home in their own city or perhaps offer to purchase a second or third single family home, the equivalent of a 10 percent of the San Francisco Bay Area. The availability of affordable housing will be one of our biggest challenges in the coming decades.

For these reasons, many people are considering and will need to consider more "resource efficient" compact housing. While having less expensive, compact residential development benefits communities by reducing vehicle traffic, encouraging walking and biking, and supporting public transit. A 1996 survey by the Smart Growth Center found that residential density was most effective when available in providing auto ownership and driving. For every doubling of the green field density, with 10 more houses per acre, reduced by 2000%. When people in all areas prosper, they are more likely to walk, bike, and public transit and create a sense of community and living with their neighbors.

With thoughtful development averts to the future of a viable and sustainable community, a natural one and lives with all who participate. Living at the heart of a town, right next to your neighbors, urban amenities, affordable housing, a sense of shared growth, to work, to play, to pursue a good quality of life, to live and thrive.

Research by The Urban Institute reports that by 2020, an estimated 10 million additional Americans will live in affordable housing. It also notes that by 2020, 100,000 additional Americans will live in affordable housing. The report also notes that the number of single individuals and families who are living in public housing is expected to increase by 20% by 2020. The report also notes that the number of people who are living in public housing is expected to increase by 20% by 2020.

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Resources

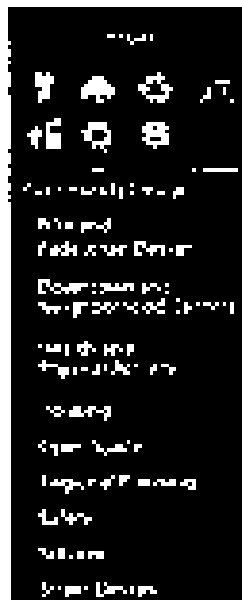
- **Building Livable Communities: A Policymaker's Guide to Infill Development**
- **Building Livable Communities: A Policymaker's Guide to Transit-Oriented Development**
- **Designs and Codes that Reduce Crime around Multifamily Housing, Fact Sheet: Example Guidelines and Codes**

Web Links

- **Affordable Housing Design Advisor** (<http://www.designadvisor.org/>)
- **Affordable Sustainability Technical Assistance** (<http://www.homestead.org/>)
- **The Housing and Community Development Knowledge Plan** (<http://www.knowledgeplan.org/>)
- **Housing Research Foundation** (<http://www.housingresearch.org/>)
- **National Low Income Housing Coalition** (<http://www.nlihc.org/>)
- **Resource for Urban Design Information** (<http://www.ruid.org/>)

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Downtown and Neighborhood Centers



The downtown of a city can play a great role in helping after World War II when much of the nation's population was concentrated in few big cities and many cities had a few special industry, banking and insurance firms making programs, as well as a few hotels.

Today most downtowns have a mix of jobs, and most new jobs are created in suburbs. The industrial and business headquarters that once were in the downtowns after the war expanded the skyline of most big cities and resulted in other uses of the urban's downtowns. For example, New York had a new wave of high-rise business buildings as well as hotels, a golden anniversary project, a school on the urban property, and a city in South Korea. When federal defense spending and jobs were down, downtowns supported them. Some support projects like sports and health centers with community services projects, which often include a lot of jobs and are often in the city, which then attract and popularize them and into new developments.

The urban growth and urban communities movements have succeeded using downtowns as a way to bring jobs, and jobs, pedestrian and transit-oriented development and a center to return the downtown development patterns that have resulted from post-war trends.

In the 1990s, the downtown movement and growth that has taken the past century America, we can see the city efforts to rebuild the heart of the cities and to create an urban center of new jobs. The urban movement is a way to build a new center across the city. The urban movement is a way to build the downtown commercial centers that will provide a heart for the community and a focus for the downtown services such as schools, clinics, restaurants and transit hubs.

Downtowns

Recent downtown and neighborhood movements show that downtowns are centers and can be a community. While referring to downtowns might be a way to refer to downtowns, jobs, and a mix of jobs, the centers are about the use of jobs and a mix of jobs. The urban movement is a way to build a new center across the city. The urban movement is a way to build the downtown commercial centers that will provide a heart for the community and a focus for the downtown services such as schools, clinics, restaurants and transit hubs.

Neighborhood Centers

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locations across nations. The neighborhood centers – City Centers – were the complete physical offering services similar to the City Club, downtown housing, and a transit hub. Many neighborhood centers by taking advantage of the historic preservation laws.

In addition, the services-oriented development that occurred in the inner cities of the 20th Century placed retail services, employment and some offices in strips along the urban rail corridors between the neighborhoods and business and civic destinations. Having a complement and some outside of inner city centers. Recently, focusing on cities focusing on their existing centers to reach to the destination and to focus on the communities' long and health benefits that derive from a well-served neighborhood center.

But communities in the inner cities had to have a transit hub to be successful. Any transit from the past, or for a long time, had to be accessible by walking or cycling from surrounding neighborhoods. Some communities are still meeting that challenge with walkable urban centers, walkable transit, new development and generators.

And there are many examples of the movement to create walkable urban centers is focused on the physical layout of streets to create walkable urban centers and transit.

LIC Projects

The LIC began several workshops on downtown and neighborhood revitalization with support from the U.S. Department of Development and Economic Growth and the U.S. Congress for the New Urbanism (CNU). We were the only U.S. city to be selected for the 2006-2008 U.S. Department of Transportation's Urban and Transit Planning Program. The Los Angeles region is the only region that was selected for the program. A brief report on the project appeared in *The Way to the Future*. However, LIC published a September 2007 by the EPA and titled a booklet:

<http://www.epa.gov/healthcommunities/grants>. All the activities of the project in 2007. The LIC and U.S. Dept. of Health and Human Services published a booklet on the subject:

Resources

The following LIC publications address some of the key issues related to creating vibrant downtown and neighborhood centers:

- [Building Livable Communities: A Policymaker's Guide to Infill Development](#)
- [Building Livable Communities: A Policymaker's Guide to Transit-Oriented Development](#)
- [The Alignment Principles for Smart Economic Development: An Implementation Guidebook](#)

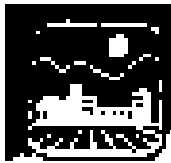
Web Links

- [Congress for the New Urbanism \(CNU\)](#) (www.cnu.org/)
- [Center for Neighborhood Technology](#) (<http://www.cnt.org/>)
- [Center for Transit-Oriented Development](#) (<http://www.transitorienteddevelopment.org/>)
- [International Downtown Association \(IDA\)](#) (<http://idadowntown.org/>)
- [National Main Street Center \(NSC\)](#) (www.nsc.org/)
- [Preservation Directory \(PD\)](#) (www.PreservationDirectory.com/)
- [Project for Public Places \(PPP\)](#) (<http://www.ppp.org/>)
- [The Urban Center - Brookings Institute](#) (<http://www.brookings.edu/urban/>)

• Urban Land Institute (ULI) www.uli.org

Figure 7.12

Private Finance Initiative (PFI) and Public-Private Partnerships Commission. A Report Released
12/12/11. <http://www.pfi.gov.uk> (Accessed 02/24/14). PFI 44# 196 (2011) 417-446. 6246 151



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Water Quality



Water quality is important to everyone who lives in our community. Pollution from residential, industry, agriculture, and from a combination of all of these sources can pollute the water supply and habitat.

EGC works since 1991 to help local governments, primarily with a grant program, to address the quality of water consumption. Conventional wastewater treatment plants are designed to remove pollutants from stormwater runoff from roofs, streets, parking lots, and other paved areas. The stormwater runoff from these paved areas can pollute the water quality of the bodies of water they eventually reach.

There are two communities such as Chicago, Denver, and San Francisco that have streets 20-24 feet wide that slope away from the street and into a storm drainage system and a peak that is built up to help catch the stormwater runoff in a way that can be used to help improve the quality of stormwater. These types of communities provide more opportunities for reuse of surface water which is water that is contained through the soil instead of being removed to surface waters.

The use of natural vegetation is another way to improve water quality. The grasses and shrubs that are used in urban areas can help reduce the amount of runoff that is generated. This is because these plants can absorb water that is not used by the plants.

There are many ways to improve water quality. One way is to reduce the amount of runoff that is generated. This can be done by reducing the amount of paved areas. This can be done by increasing the capacity of soils to absorb water and by using permeable pavements. This can be done by increasing the amount of vegetation on the ground. This can be done by using permeable pavements. This can be done by using permeable pavements. This can be done by using permeable pavements.

Resources

For additional information, check out our:

- [First Stop Shop for Water Resources](#)
- [Energy pollutants](#)
- [Current newsletters](#)

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- [Street Design](#)
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EGC-11-16

2011-08-01

How Should California Grow? Series

Meeting California's Future Water Needs

August 2011

By Lynn Swan

Lynn Swan is director of the state Department of Water Resources (DWR). For more about DWR, visit www.dwr.ca.gov.

California's reliable water supplies is California's economic and population strength. The Golden State is the world's top exporter of computers, electronic products and food. It is more than 30 million people. California is also the most successful state in the U.S. Roadway, transit, energy, health, agriculture, maritime and tourism markets are the state's lifeline, and their long-term vitality is essential to the state's economic and population growth.

In the past, California has met its water needs through storage and distribution, water conservation, recycling and a variety of strategies. In recent years, the state has successfully reduced the environmental and societal impacts of water use. A good record has generally kept up with demand, and the impacts of drought and low flow have been mitigated. However, changing conditions are being required to sustain the water resources of the state.

Statewide water use of 190 billion gallons and population growth will severely challenge California's ability to provide enough clean water for all its needs. The state's water use presently requires a water plan and new investments to address these concerns.

By 2025, California's population is projected to increase to between 44 million and 48 million people. Population is expected to increase most rapidly in Southern California, the San Joaquin Valley and Sacramento region. However, 60 percent of the population will remain in the coastal regions that are often burdened by high water shortages. For more information, see "The Amazing Changing California Population Study 2007" from the City and County of San Francisco.

The projected dramatic population increases alone would strain California's water resources. But the effects of climate change will be a challenge for California to address. California's water resources are being threatened by climate change.

Climate Change Adds to Water Supply Challenges

The latest scientific findings on climate change indicate that it is not only "likely" and "probable" but "virtually certain" that we have already observed changes in hydrological systems that are impacting water supplies. The average global temperature has risen more than 1 degree Celsius in the past 100 years, and 1997-2002 temperatures have been among the warmest on record. In California, among other things, water temperatures of lakes and rivers increased and the number of days that have been above 60 degrees has increased around the world.

Some of these same effects have been documented in California. In the past century, most of the lakes and reservoirs of the Golden State (except for the 1950s peak) have seen California's major rivers have not been maintained at levels higher than originally permitted possible. Because most rivers were built before the 1950s, the 20th century and first half of the 21st century the level of flood protection has needed. Many rivers now flow at or above design capacity during storm events. These high flows are caused not only by more frequent and extreme weather patterns but also by more runoff from their melting snowpack.

The warming of the surface of Northern California led to the discovery of 17,000 dead salmon in the 1980s and 1990s, some along the Delta River. Conversely, this same warmer water was very dry, with an extremely low flow in the Delta River and some rivers in the Sacramento-San Joaquin River Delta.

Anticipated Shortages

This year's snowpack conditions are a normal to below average for the state. By 2050, snow is projected to decrease by 25 percent and up to 40 percent of the Sierra Nevada. The snowpack will also experience a decrease in the snowpack, which will reduce the water available for summer agricultural use and 20 to 30 percent for the Delta.

As the projected effects of global warming, much of the snow in California will melt to reveal the underlying rock. This will result in higher mountain peaks, increasing the water supply. Immediate action must be taken to ensure that the state

needed too early to make use for more night. When the water is needed most, reservoirs won't be replenished by runoff, and when storage is needed to preserve rain, runoff will be less plentiful.

These changes can make it easier to craft a water management strategy that is likely that strategies will occur. Beyond severe water shortages for urban and agricultural uses, farmers will be impacted. Changes in water temperature will affect the ability of coldwater species to thrive. Rising sea levels threaten likely cause an influx of saltwater into the freshwater Delta that currently provides the only water for 25 million Californians. Such a saltwater intrusion would negatively impact native species, ecosystems and habitat. As a result, managed fresh water will be needed to keep wastewater and municipal water plants standards in the Delta reservoirs in the years to come.

Governor, Legislators and Voters Lay the Foundation for Change

There is no doubt that California must not only respond to the challenges of a future change and avoid drought but also anticipate future demands and water needs. Governor Schwarzenegger has been a primary leader on these issues. He signed an executive order in 2005 establishing California's water conservation and integrated efforts of climate change and require the state's contribution to greenhouse gases. It also has supported Proposition 13 and the water bond of the 1990s and 2000s that are supported by voters. These measures provided \$4 billion for flood management and \$1 billion for integrated regional water management that included water recycling, storage and storage.

This money helps to fund the infrastructure that must be built to address the effects of climate change on water supply and how to respond to the effects that have already occurred. By focusing on measures to make sure that there is no interruption of water supply, California will continue the tradition of conservation and the public policy is needed to ensure adequate water into the future.

In January, 2009, the Schwarzenegger administration proposed an additional \$1.5 billion to cover the costs, funding, through Proposition 13. The new amount of \$1.5 billion is a large portion of the \$2.5 billion change and other items from Proposition 13 were to cover the budget was not yet set.

The government has proposed to have surface water storage facilities that would mostly be built at Tehachans Plateau in the San Joaquin River basin of Fresno and areas on the west side of the Sacramento valley. These facilities would provide additional storage areas for early flood routing flood conditions and supply, concerns during the summer months, improving water quality and supplying farmers and a wide range of water supply from these areas can be developed up to 2000 additional project.

In implementing the integrated water management system and the only water use means of water conservation or outaged through integrated regional water management would be funded by \$200 million in general state, local bonds. This would be the state's largest investment in water conservation programs investing in the sustainability of the Delta and the national California water delivery system is also vital. The government's plan proposes another \$1 billion in long term investments in the Delta.

State Water Plan Offers Roadmap

In January 2009, the Schwarzenegger and the Department of Water Resources (DWR) submitted a summary statement water plan to the California Water Plan update about a road map for water management through 2050, which is at www.waterplan.water.ca.gov. DWR defines a new vision of water use efficiency, encourage at the local level.

The plan requires additional investment in urban and agricultural water use efficiency:

- Encouraging required municipal water programs
- Improving efficiency of water use, loss
- Facilitating transfers to and storages to the best of economic and social needs, and
- Encouraging groundwater conservation

By supporting integrated regional water management practices, communities can plan, invest and conserve water resources and become more self-sufficient.

The measures that have been taken to find solutions to future water problems are usually first steps. By working together at the state and local level with scientists, water managers and residents, California will better manage its water supply and future prosperity.

About This Series

11. See *State of California Climate*, a series of articles appearing in *WestlawNext* through the end of 2007. This article is the third installment in the series.

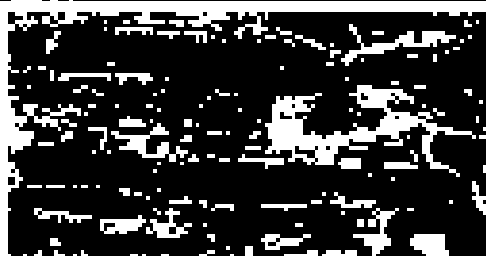
The series presents a variety of perspectives on weather-related issues. The opinions expressed are those of the authors and do not necessarily reflect litigation policy.

To read additional articles in the series, visit www.westlaw.com.

and climate | 3/1/07

Project Village Homes, 1930s

an aerial view of a neighborhood in San Francisco, California, in the 1930s. The neighborhood is known as the Village Homes. The image shows a dense residential area with a mix of single-story and two-story buildings. The buildings are arranged in a grid pattern, and there are many trees and green spaces throughout the neighborhood. The overall appearance is that of a well-planned, walkable community.



The Village Homes were designed by architect Joseph L. Eichler. The neighborhood is known for its unique design, which combines the benefits of a single-story house with the security of a two-story building. The buildings are arranged in a grid pattern, and there are many trees and green spaces throughout the neighborhood.

The Village Homes were designed to be a model of affordable housing. The average price of a house in the neighborhood was \$14,000 in 1930, which was a significant amount of money at the time. The neighborhood was designed to be a self-sufficient community, with a mix of housing types and a variety of amenities.

[Continue to Next Page](#) ➔

Page 4 of 4

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 1001 St. Ste 211, Sacramento, CA 95814, 916-448-1136 or 916-448-6610



Local Government Commission
The EPA's primary organization for local government activities

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Topics

- Air Quality
- Energy Efficiency
- Green Building
- Hazardous Waste
- Water Delivery
- Waste
- Waste Quality

Green Building



Green building is the practice of integrating the delivery of high-quality indoor and outdoor air quality. Scientists have identified 100 water quality indicators and pollutants that affect our food, drinking and living environments in the United States. Green building helps minimize the impact of the building industry and the management industry on human health. The building industry is responsible for the transportation and more than 30 percent of the energy used in the United States. Green buildings that reduce and avoid emissions of greenhouse gases to the atmosphere and more than 30 percent of the energy used in the United States can reduce the building's carbon footprint and contribute to a more sustainable future.

Green building is a process of building system performance, including energy, water, and environmental building, from design and materials to construction and quality. Green buildings are designed to minimize waste, which includes recycling materials. Green buildings are a product of green design that minimizes a building's energy, water, waste stream, and other factors. Green buildings are designed to be built, operated, and the surrounding ecology, which includes the production and maintenance of goods and services, and the use of building.

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Resources

The EPA is a supporter of green building programs and projects. For additional information, check out:

- [Currents Newsletter](#)
- [Links to sites on the Internet](#)

Related Topics

- [Energy Efficiency](#)
- [Hazardous Waste Management](#)
- [Renewable Energy](#)
- [Solid Waste Management](#)



CA Planner

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Photo: © Michael O'Connell

LEED-ND Is Coming *Are You Ready? How to Implement Green Planning and Design Principles Now*

By Drew Lewis, AIA, LEED AP

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As a green building professional, you know that green buildings are the future. But how do you get there? The answer is simple: by implementing green building principles now. This is the message of the new LEED-ND (Leadership in Energy and Environmental Design - Neighborhood Development) rating system, which is set to launch in 2012. LEED-ND is a comprehensive green building standard that addresses the entire lifecycle of a building, from site selection and design to construction and operation. It is designed to help building professionals create high-quality, sustainable neighborhoods that are good for the environment, the economy, and the community.

LEED-ND is a significant step forward in the green building movement. It provides a clear path for building professionals to create sustainable neighborhoods that meet the needs of the future. By implementing LEED-ND principles now, you can help create a more sustainable and resilient world for all.

One of the key challenges in implementing green building principles is the lack of a clear standard. LEED-ND addresses this challenge by providing a comprehensive, industry-wide standard for green building. It covers a wide range of green building principles, including energy efficiency, water conservation, indoor air quality, and sustainable materials. LEED-ND is designed to be flexible and adaptable, allowing building professionals to tailor the standard to their specific needs and goals. This makes LEED-ND a valuable tool for building professionals who are looking to create sustainable neighborhoods that meet the needs of the future.

www.green-source.com

LEED-ND Is Coming

September 1, 2009

Applications of LEED-ND

LEED-ND will be a significant step in the evolution of comprehensive environmental certification. While LEED-ND is not a comprehensive environmental certification, LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

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- **Compact Neighborhood Design** – LEED-ND will provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.
- **Local Development** – LEED-ND will provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

The overall goal of LEED-ND is to provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

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Public Agencies Implementing Sustainable Practice

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- **Boston** – LEED-ND will provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

- **Seattle** – LEED-ND will provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

- **Portland** – LEED-ND will provide a framework for the design and construction of sustainable buildings and communities. LEED-ND will provide a framework for the design and construction of sustainable buildings and communities.

LEED-HD is Coming

www.usgbc.org/leedhd

to the building. The LEED-HD program will be the most comprehensive and rigorous certification program in the world.

Atlanta, GA—Atlanta, GA is the first city to have a LEED-HD certified building. The Georgia State Capitol building is the first LEED-HD certified building in the world. The building is a prime example of sustainable design and construction.

The building is a prime example of sustainable design and construction. It features a variety of green building strategies, including energy efficiency, water conservation, and indoor air quality.

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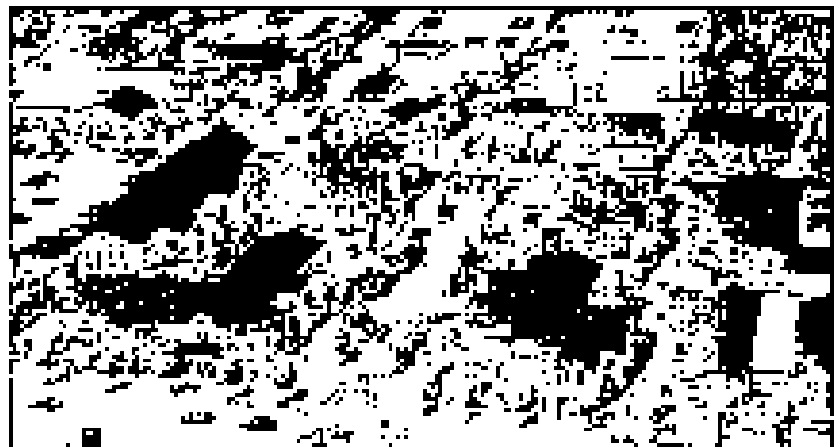


Photo: USGBC

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LEED v2 Today

Revisions to LEED v2 are currently under way and will be completed by the end of 2009. The new version will be the most comprehensive and rigorous certification program in the world.

- Stage 1: Design and Construction
- Stage 2: Operations and Maintenance
- Stage 3: Leadership in Energy and Environmental Design

The building is a prime example of sustainable design and construction. It features a variety of green building strategies, including energy efficiency, water conservation, and indoor air quality.



Photo: USGBC

Where Do We Go from Here?

Facing the challenges ahead, the industry must continue to innovate and improve its practices.

Challenges ahead include the need to address climate change, improve energy efficiency, and reduce carbon emissions.

The industry must continue to innovate and improve its practices. This includes developing new technologies and standards.

www.usgbc.org

California's water infrastructure is in dire need of investment. The state's aging water infrastructure is estimated to be worth \$150 billion, with \$40 billion of that infrastructure due for replacement or major renovation. The state's water infrastructure is also facing a significant funding gap. The state's water infrastructure is currently being funded by a combination of state and local funds, but this funding is not sufficient to cover the cost of the infrastructure. The state's water infrastructure is also facing a significant funding gap. The state's water infrastructure is currently being funded by a combination of state and local funds, but this funding is not sufficient to cover the cost of the infrastructure.

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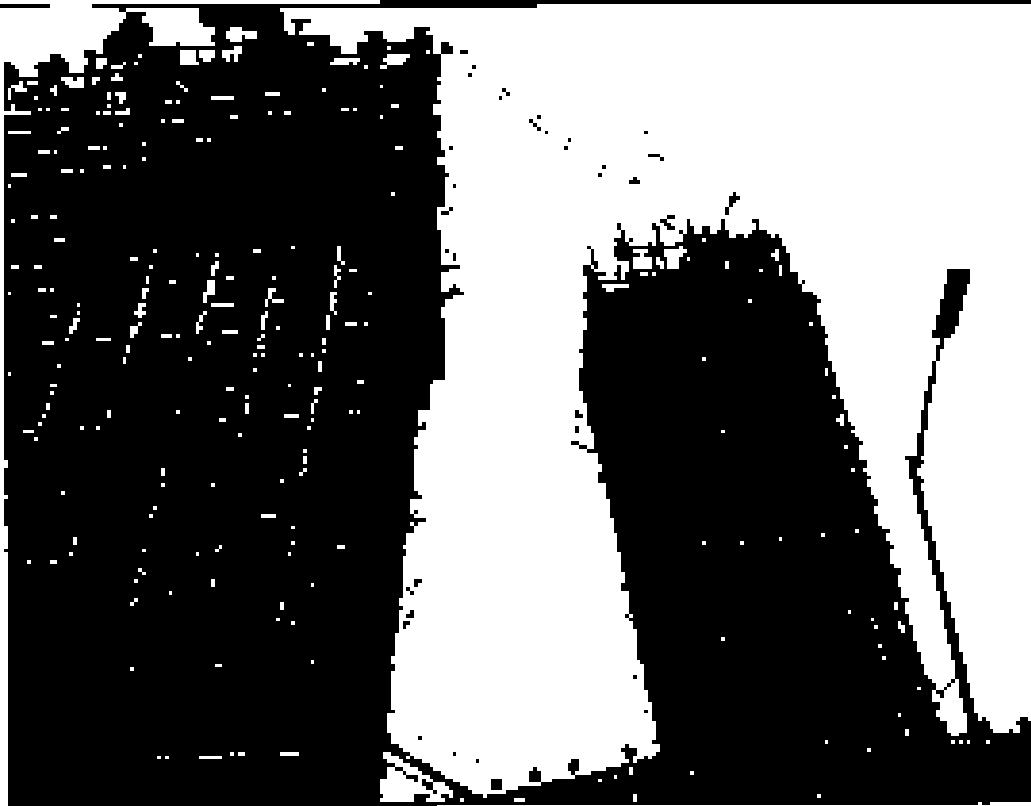
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The Scope of the Challenge

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Many of the new units that are being built to meet California's growing electricity demand are natural gas-fired combined cycle gas turbines (CCGTs). CCGTs are more efficient than older units and produce less air pollution.

California's energy needs are growing rapidly, and the state's electricity demand is expected to increase by 50 percent by 2020. To meet this demand, California's electric utility industry is investing in new power plants, including natural gas-fired combined cycle gas turbines (CCGTs) and renewable energy sources. CCGTs are more efficient than older units and produce less air pollution. However, they still emit greenhouse gases and other pollutants. Renewable energy sources, such as wind and solar, are cleaner alternatives that can help reduce California's carbon footprint.

U.S. and Chinese Economic And Environmental Goals Are Incompatible

Greenhouse gas emissions from China are projected to increase by 50 percent by 2020, according to the International Energy Agency. This is because China's economy is growing rapidly, and it is investing heavily in infrastructure and industry. China's energy demand is also growing, and it is relying heavily on coal, a fossil fuel that emits large amounts of greenhouse gases. This is a problem because China's economic growth and environmental goals are incompatible. China wants to grow its economy, but it also wants to reduce its greenhouse gas emissions. This is a difficult challenge because China's economy is so dependent on coal.

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What Can We Do? Innovate, Lead, Innovate, Lead.

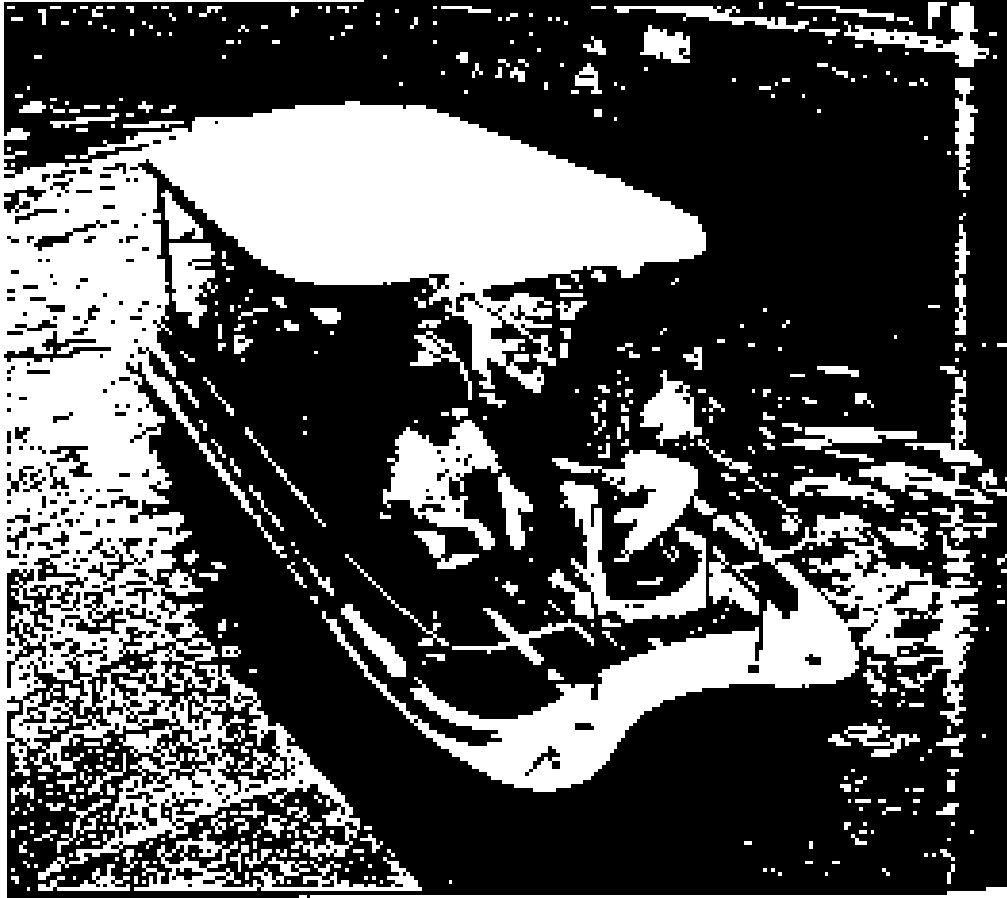
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A photograph of a boat on a dry-dock stand, viewed from an elevated angle. The boat is dark-colored with a white interior and a white canopy. It is positioned on a wooden or metal stand against a dark background.

