

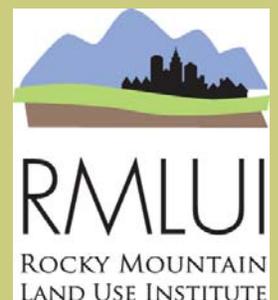


Peacefulness & Livability

Joe Holmes & James van Hemert

The Rocky Mountain Land Use Institute

Sustainable Community Development Code
Research Monologue Series
People's Relationship to their Environment



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About the Research Monologue Series

The Sustainable Community Development Code, an initiative of the Rocky Mountain Land Use Institute, represents the next generation of local government development codes. Environmental, social, and economic sustainability are the central guiding principles of the code. Supporting research for the code is represented by a series of research monologues commissioned, presented and discussed at a symposium held at the University of Denver in September of 2007. RMLUI and the University of Denver's Sturm College of Law extend its gratitude to the authors of the papers who have provided their talents and work pro bono in the service of the mission of RMLUI and the stewardship of the creation.

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Citizens rightfully expect to live in areas where they will not be unduly burdened by loud noises, prolonged eyesores, or excessive ambient light. In order for these expectations to become reality, city governments must pass workable ordinances that establish and maintain livable communities. Peace and quiet are essential components of a sustainable and continuingly desirable neighborhood. Although regulations will vary from dense urban areas to sparsely populated rural areas, it is important that all citizens receive a minimum level of protection from excessive noise pollution, negative visual impacts, and ambient light.

Noise Pollution

Noise pollution is unwanted human-created sound that disrupts the environment. Noise is among the most extensive pollutants today. Noise from automobile traffic, air planes, jet skis, garbage trucks, construction equipment, landscaping equipment, manufacturing processes, and amplified music, to name a few, are among the audible litter that are routinely broadcast into the air. Noise negatively affects human health and well-being. Problems related to noise include hearing loss, stress, high blood pressure, sleep loss, lost productivity, and a general reduction in the quality of life and opportunities for tranquility (Noise Pollution Clearinghouse). The degree of annoyance produced by noise and the subsequent regulations imposed may vary with the time of day, the type of noise, the duration and intensity of the noise, and the nature of the activity that the noise interrupted.

With respect to excessive noise, planners have typically focused their attention on airports and automobiles. While larger, international airports must fly around the clock, many smaller, regional airports operate under limited travel times and special take-off plans as to lessen the noise burden on neighboring communities. Orange County, for example, imposes both curfews and noise standards on John Wayne Airport. The County prohibits commercial departures between 10pm and 7am (8am on Sundays) and commercial arrivals between 11pm and 7am (8am on Sundays).¹ Additionally, the local communities have an expressed sound abatement agreement with the airport that requires planes to takeoff at or near full power and at abnormally steep angles in order to lessen the impact on local communities. Despite these relatively strict requirements, the volume of commercial passengers has doubled over the last 15 years to over 9.6 million passengers annually.²

Automobiles contribute to noise pollution more than any other source. As such, planners can and should alleviate the burdens of roadway noise by roadway design, noise barrier design, limited car speeds, surface pavement selection, and truck restrictions. At higher speeds (such as on freeways and open highways) cars create the majority of their sound by acceleration and engine strain, whereas at lower speeds braking and engine acceleration are the greatest cause of noise. Typical city streets tend to be in the targeted range for noise minimization (between 25 and 45 miles per hour); thus, city speed controls are often identified as an effective method of reducing noise pollution.³ Proper selection of surface pavement can also help mitigate noise pollution. As a rule, pavements that are smooth, porous, and have a negative surface

texture are most likely to cut back on roadway noise.⁴ In addition, well-designed traffic noise barriers can reduce the loudness of traffic by as much as half.⁵

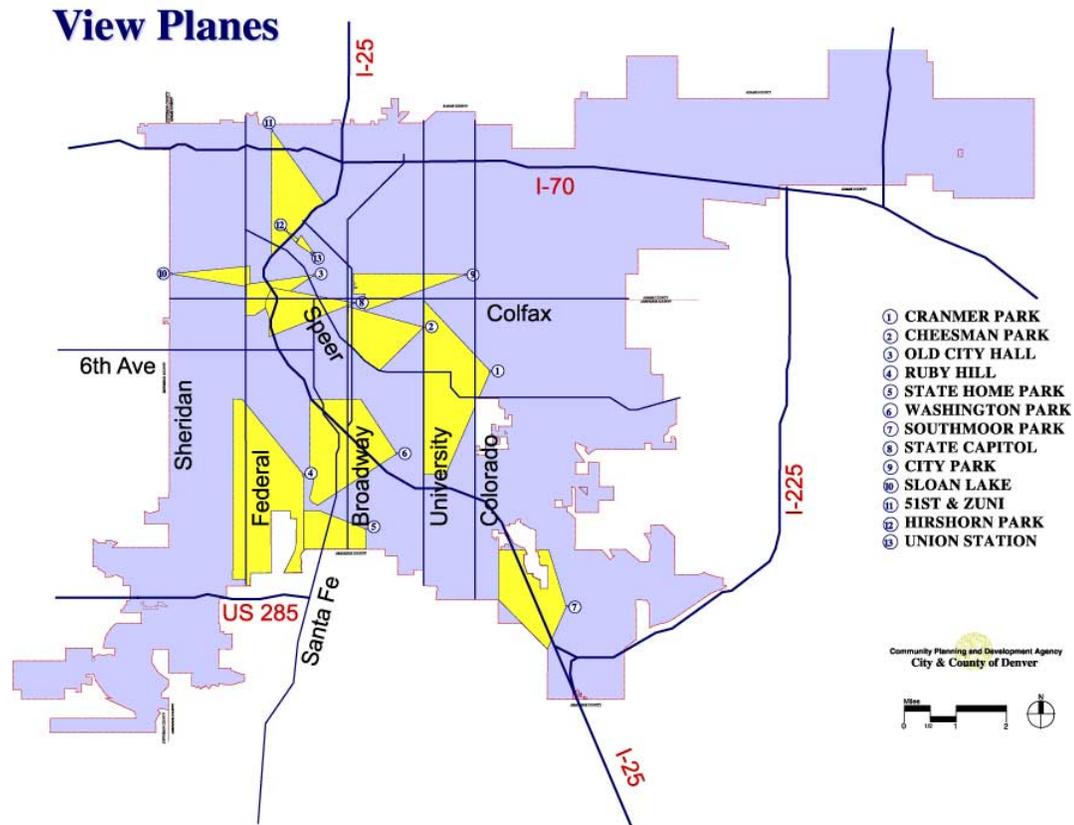
Cities can also set permissible noise levels, such as designating specific maximum decibel levels for different land uses at different times of day. For purposes of setting permissible noise levels, the City of Colorado Springs, divides land uses into four main categories – residential, commercial, light industrial, and industrial. The corresponding daytime maximum noise levels at a distance of 25 feet are 55, 60, 70, and 80 decibels, respectively (daytime being 7am to 7pm). Maximum nighttime levels are 50, 55, 65, and 75 decibels, respectively (nighttime being 7pm to 7am).⁶ In comparison, a vacuum cleaner at 10 feet is 70 decibels while a jet flyover at 1,000 feet is 110 decibels. Discomfort begins at 80 decibels and prolonged exposure to 80+ decibel levels can result in hearing loss.⁷ Colorado Springs also sets a modest vehicle noise pollution standard of 80 decibels for all vehicles weighing less than 10,000 pounds and 88 decibels for vehicles weighing more than 10,000 pounds.⁸ Ultimately, while all land uses are subject to these relatively stringent requirements, hardship permits are granted on a case-by-case basis.

Visual Impacts

Visual impacts, or aesthetic controls, are increasingly being identified as an important quality of life in many jurisdictions. Aesthetic controls attempt to preserve or improve the beauty of an area. The obvious difficulty in regulating these visual impacts is the inherent subjective quality that accompanies such regulation. Chosen for their relative impact and their seeming ability to regulate, the following analysis focuses on three discrete visual impact sub-topics: urban view sheds, rural view sheds, and historic preservation.

Increased development often obstructs natural views and visually encroaches on historical places that define the character of the city. To combat this, many cities and counties have passed zoning ordinances that restrict development in certain areas to preserve view corridors, pleasant backdrops and historic areas.

In Denver, development is restricted to protect mountain views in popular public places. The City's ordinance includes a map specifying the areas where development is restricted through height limitations. These restricted areas account for approximately 12.5 percent of the City. Additionally, the City regulates the height of downtown buildings to protect views of the Denver Civic Center.⁹ Such restrictions help to ensure a more pleasant environment with fewer negative visual impacts.



Graphic Depiction of the City of Denver's View Plane ordinance. Views from important public places are protected by building height limitations.

Source: www.denvergov.org/View_Planes/

Similarly, Portland, Oregon has established four view corridors to protect views of Mount Hood and Rocky Butte from selected vantage points in Columbia South Shore. Portland has also established view corridors of the Willamette River along seven streets. In these view corridors, buildings cannot intrude 30 feet from each side of the street; this requirement ensures that all neighborhoods and business districts in the areas have visual access and connections to the river. In addition, all development and vegetation within the view corridors must undergo design review. Buildings in these zones can have facades of no more than 100 feet in height. Two rows of trees (one evergreen and one deciduous) must be planted on 30-foot centers. The ordinance also has provisions mandating the screening of garbage cans and mechanical systems, mandating set-back requirements, and limiting the size and height of signs.¹⁰ These requirements make these zones open and largely free of eyesores and intrusive development.

Regulating to ensure the preservation of scenic views is not just limited to urban environments. In Teton County, Wyoming, for example, great efforts are made to

protect views of the local mountains and skylines. New developments are required to use earth-tone materials, roof colors are required to be similar to that of surrounding vegetation or land features, and no reflective roof materials are permitted. Additionally, the County prohibits penetration of the skyline on buttes and hillsides, as viewed from any public road. The County limits development options to five locations: at the rear of the foreground; at the edges of the foreground; behind existing stands of vegetation; behind or built into a natural topographic break; or clustered in meadows. Within these development areas, site plans must minimize impacts to the visual corridor as much as possible.¹¹

At the site plan review level it is important that careful review be given to topographic considerations. This exercise complements height restrictions and recognizes the unique context of every site.

The City of Long Beach, California provides an example of a city that continues to grow and expand while showing a strong commitment to historical preservation. The City “encourages the preservation of distinctive features, finishes, and construction techniques as examples of craftsmanship that serve to characterize and define property of historic significance”.¹² In order to protect the character of these properties, the City requires that any addition that is over 50 percent in size to the original building or home, will be closely scrutinized by the Cultural Heritage Commission. The City also encourages repair over replacement, alteration over removal, and discourages demolition in the issuing of building permits.¹³ All of these steps are intended to minimize the visual impact of modern-day changes and preserve and maintain the character of the existing buildings and districts.

Whether attempting to lessen the visual impacts on natural or historic landmarks, cities must protect areas that provide character and define the city. Preserving views of mountains or historic homes can have many outside benefits including increased property values, character, and charm to name a few. These benefits are tangible to all citizens. Denver will always be defined by its backdrop, the Rocky Mountains, as will Long Beach be defined by its charming, early 20th century, craftsman architecture. All cities have defining qualities; to preserve these traits cities must actively protect that which defines them.

Light Quality

Light pollution refers to light that is obtrusive and wasteful. Light pollution takes many forms including skyglow, light trespass, and glare. Skyglow refers to wasted light shining skywards and reflecting into the atmosphere causing a glow over urban and suburban areas, making it difficult, if not impossible, to see the stars at night. Light trespass is light that is distributed onto areas where the illumination is not wanted, such as light intruding into neighboring homes and properties that can keep people awake at night and destroy people’s sense of privacy. Glare refers to light shining dangerously into peoples eyes as they walk or drive; glare is the central safety-related aspect of light

pollution (Boulder County).¹⁴ Increased light pollution has led many cities to implement light quality standards and restrictions on lighting.

In Boulder County, Colorado, minimum outdoor lighting requirements have been put into place. All outdoor lights must be fully shielded and downlit; the shield must be opaque so that no light can pass through it. In addition, no lighting source, whether direct or reflected, may create a traffic hazard to operators of motor vehicles on public roads. Similarly, no colored lights may be used in a way that could be confused or construed as traffic control devices. Lastly, except when required by state and federal law or for holiday uses, no blinking, flashing, or fluttering lights, or other illuminated device which has a change in light intensity, brightness, or color, and no lighting which exceeds 12 feet in height are allowed within the county. Further, all lighting fixtures must be approved by county officials before building permits can be issued.¹⁵



Image provided courtesy of Abacus Lighting

Good lighting is downlit, reduces glare, and does not trespass onto neighboring property.

http://www.environment-agency.gov.uk/commondata/figureimages/img3lightpoll_fs.jpg

Using the aforementioned minimum Boulder County requirements as a foundation, the City of Boulder has implemented more stringent lighting requirements. Boulder's outdoor lighting ordinance was passed in late 2006. Private property owners not in compliance are given 15 years to comply. All property owners with building permits are required to provide lighting plans that are in compliance with the City's ordinance. New buildings and redevelopments are also required to comply with the lighting requirements.¹⁶ Ultimately, the 15 year retrofitting period gives residents sufficient time to comply with the ordinance. The City established maximum allowable lighting levels which are based on zoning district and use. Additionally, lighting is required to be reasonably uniform to minimize light/dark contrast. Further, the City requires that all light in excess of 2,400 lumens (roughly equivalent to a 150 watt incandescent bulb) be "white light," which includes metal halide, fluorescent, and induction light bulbs, because

of superior color and rendering properties. Finally, the City of Boulder requires the use of full cut-off light fixtures and shielding to reduce glare, light pollution, and light trespass.

The ski-town of Aspen, Colorado has implemented similar requirements to that of Boulder, but instead gave residents only one year to comply. As a result, many businesses and landowners were forced to spend thousands of dollars to comply with Aspen's stringent lighting requirements. The costs of compliance can be great. Thus, forward-looking approaches are preferable to highly demanding, retrofitting requirements such as Aspen's.¹⁷ While Boulder's 15 year retrofitting period is likely to have largely insignificant costs associated with it, a preferable solution may be to encourage retrofits of existing property through tax incentives or by regulating lighting requirements at sale (i.e. requiring property owners to retrofit lighting when they sell their property).

Other cities have contemplated restricting business lighting in downtown areas during off-peak times. Dallas, Texas, for example, is currently considering an ordinance that would darken thousands of city lights for four hours each night. The ordinance is designed to curb energy consumption and demand. According to the proposal, businesses citywide would have to turn off most of their exterior and sign lighting between 2 and 6am. While these requirements would radically change the Dallas skyline during these hours, exemptions would include security, hospital, traffic control, residential and transportation lighting, and facilities and businesses open between 2 and 6am.¹⁸ Ultimately dynamic solutions to prevent waste are necessary to both encourage energy consumption changes and to decrease the negative costs associated with light pollution.

Noise, visual quality, and lighting are among the most significant influences on peacefulness and livability. Although subjective, a thoughtful and contextual approach to developing regulations can have a profoundly beneficial impact on the relationship with our built environment.

Land Use Code Strategies

Removing Obstacles

- Work with local retailers and utilities to discourage sale and installation of unshielded light fixtures
- Work with smaller, regional airports to impose curfews and noise standards

Incentives

- Encourage lighting retrofits of existing properties through tax incentives or by regulating lighting requirements at sale

Regulations

- Set maximum noise levels for different land uses in different zone

- Regulate the height and location of buildings in a manner that preserves views of natural and historic landmarks
- Require lights that minimize light/dark contrast
- Ban lights that may create traffic hazards
- Require all outdoor lights to be fully shielded and downlit
- Restrict downtown and commercial lighting during off-peak hours and during times when businesses are closed
- Set reasonable time tables for light retrofitting

Strategic Success Factors

- Encourage retrofitting by buying lights in bulk and selling them to property owners at discount rates
- Pave and repave streets with pavements that are porous and have a negative surface texture
- Set speed limits and traffic lights in a manner that encourages consistent, mid-speed driving

Notes

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