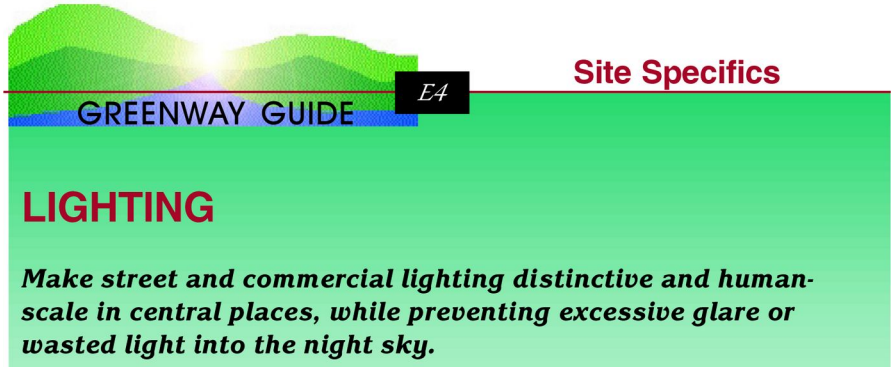
231 Attachment 11

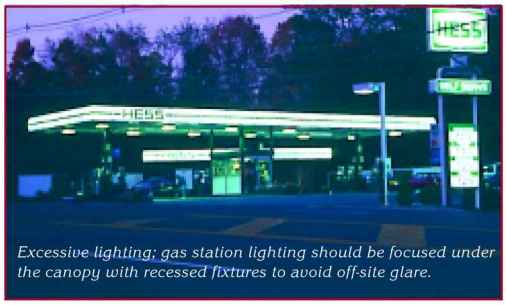
Village of Tivoli
Greenway Guide — Lighting
[Added 9-19-2012 by L.L. No. 3-2012]



Attractive site and street lighting extends the viability of centers and commercial uses, makes public areas feel more secure, and promotes entertainment activities after the primary work day. But existing lighting often features uniform fixtures on overly high poles, broadcasting too much light on neighboring properties or into the night sky. Even light levels are more important for comfort and security than high contrast lighting that produces glare and dark shadows.

Common Lighting Problems:

Glare	too bright; shines off the site or into drivers' eyes
Energy Loss	inefficient costs; wasteful lighting of surrounding area
Color	certain fixtures create an unattractive blue-green or yellow glow
Sky Glow	lighting up the night sky, washing out view of the stars



Excessive lighting; gas station lighting should be focused under the canopy with recessed fixtures to avoid off-site glare.

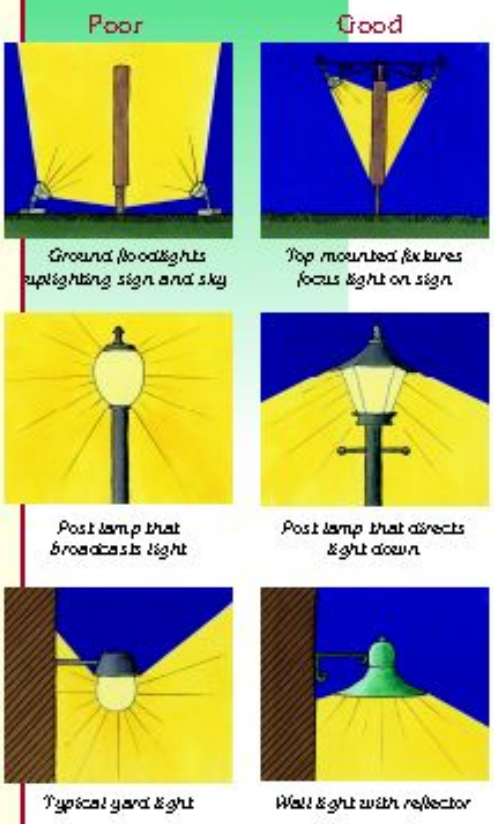
A dark-sky advocacy group estimates that over one billion dollars is wasted every year in the United States polluting the heavens with light and depriving everyone's view of the night sky. Under clear conditions, roughly 2,500 stars and the Milky Way are visible; on the same night city residents might only see 25 or so scattered stars. Lighting that is adequate for the intended task, but not overly bright, and fixtures that focus all light on the intended area and allow no light into the sky can save considerable money and bring back the stars.


Good lighting design can make a place dazzle, entice, or softly glow, highlighting the building and the street without obscuring the night sky.


High fixtures broadcast light over the road, but often cast shadows on sidewalks. Historic quality and pedestrian scale fixtures focus light on streets, sidewalks, and storefronts in centers, not the upper floor windows.

Lighting Guidelines:

- Do not over-light: people begin to feel comfortable at 0.1 to 1 foot-candle; 2 - 5 footcandles are only needed in high security areas; more than 5 footcandles are usually a waste of energy and a source of glare. Manufacturers can provide standards.
- Include full shielding that eliminates glare, especially off-site, with no light above the horizontal level into the night sky.
- Avoid mercury vapor and low pressure sodium fixtures, as well as laser lighting or searchlights for advertising purposes.
- Encourage lighting that accents distinctive architectural features, but discourage "uplighting" or illuminated banding that is primarily for advertising purposes.
- High pressure sodium is most efficient for highway lighting; metal halide is preferred for commercial and pedestrian areas to give better color quality; incandescent bulbs can be used for low wattage (under 150) accent/specialty lights.
- Make main street and pedestrian area lighting human-scale (10 - 15 feet high); parking lot lights need not exceed 15 - 20'.
- Space fixtures approximately four times the height.
- Light outdoor signs from the top; if internally lit signs are allowed, dark backgrounds and light lettering produce less glare and are easier to read.
- Exceptions may need to be considered for stadium lighting and other specialty activities, short-term events, and tree lighting or other decorative bulbs under 75 watts.



Outdoor Lighting Options	Maximum Hours	Color	Comments
Incandescent	not efficient (3,500 hours)	full spectrum white light	attractive low wattage accent and display lighting or for residential uses
Mercury Vapor	efficient	blue-green hue	rarely recommended, often prohibited
Low Pressure Sodium	efficient (18,000 hours)	orange glow	makes everything look yellow or gray; narrow spectrum favored by astronomers
High Pressure Sodium	very efficient (24,000 hours)	yellowish cast	best where light distribution is valued more than appearance, such as highway lighting
Metal Halide	efficient (20,000 hours)	clear white light	best for pedestrian and retail areas; products look good and parking lots feel brighter, safer

Sources:
James Bradley, City Lights, Metropolis, April 1996
Town of Rhinebeck, Design Standards, 1999
Ulster County Planning Board, Planners Memorandum: Outdoor Lighting, 1998