

LIGHTING DESIGN REVIEW

Relevant Regulation:

Section 4.3.4(4): "Adequacy of exterior lighting for safe circulation on the site without creating off-site glare and excess illumination."

Section 5.6.4 "All exterior lighting shall be installed or shielded in such a manner as to conceal light sources and reflector/refractor areas from view from points beyond the perimeter of the area to be illuminated."

Applicant lighting proposal:

Hannaford has proposed metal halide "gull wing" style parking lot lighting on 24 foot poles located on average about 140 feet apart with a wattage equivalent to a 250 watt high pressure sodium light fixture.

STATISTICAL AREA SUMMARY

Grid Type: Horizontal Illuminance at finish grade.					
Grid Units: Footcandles					
Statistical Area	Avg	Max	Min	Avg/Min	Max/Min
1 Access Drive	2.16	3.60	0.90	2.40	4.00
2 Parking - Side Lot	2.50	7.80	0.30	8.33	26.00
3 Parking - Main Lot	3.17	10.20	0.90	3.52	11.33
4 Front Drive Aisle	3.39	8.70	1.10	3.08	7.91

They are also proposing a 35 foot flag pole with the flag illuminated from the top. This is addressed as follows in our regulations.

5.4.4 Flags: Patriotic flags on residential or public institutional property are not signs. One American flag on a commercial or industrial lot, of a normal size, shall not be considered a sign. If additional flags, or a flag of unusual size, are located on a lot, this shall be presumed to be for the purpose of attracting attention to a business, and the flag or flags shall be considered a sign. The Development Review Board shall determine whether a flag is of "unusual size" in the event of a dispute.

It appears, based on the Federal Law relating to Display of the Flag that: "It is the universal custom to display the flag only from sunrise to sunset. However when a patriotic effect is desired, the flag may be displayed 24 hours a day if properly illuminated during the hours of darkness."

Previous Lighting Decisions for Commerce Park

Original subdivision approval On June 29, 1988 the Planning Commission approved a lighting plan dated 5/28/86 for Commerce Park which stated in part : "The developer of (the lots on Commerce St.)may be required to provide one pole mounted luminaire of a uniform design of the closed mounted sharp cut-off rectangular type with 175 watt metal Halide down to dusk controlled lamp. Lamps will be mounted at twenty feet above grade....."

This is not a requirement for Lot #15 but does indicate the pole height envisioned for the street lights was 20 feet. They would be about 170 feet apart.

Vet Clinic - utilizes 70 watt box style Metal Halide 14 feet above grade. The statistical area summary as far as I can tell, has max of 6.1 fc, min of .1 or .2 fc calculated average of either 6.1 to 1 or 3 fc to 1 and a measured average, square by square, of .7

National Bank of Middlebury utilizes 175 watt metal halide box style fixtures 20 feet above grade. and has a max of 4.5 fc, a min of .1 or .2 fc a calculated average of 4.5 to 1 or 2.75 to 1 and a measured average square by square of 1.68 fc.

Other recent decisions:

Kinney utilizes LED lights that are the equivalent of 175 watt metal Halide with a “gas lamp style fixture” on 16 foot high poles on Route 116 and 12 foot poles in the parking area. It has a minimum of 0.1-0.2 fc, a high of 12.4 fc and an average of 1.1 fc using energy efficient LED lights.

CVU utilizes 175 Watt Metal Halide and poles are 24 feet above the grade with box style fixtures. Its Statistical Area Summary measures foot-candles at finished grade and is:

	Avg.	Max.	Min.	Avg./Min.	Max./Min.
North Parking area	1.254	3.956	4.566	0.275	14.401
South Parking area	1.165	4.835	4.626	0.252	19.192

ISSUES -

- The proposed lighting level is much too high and to my lay interpretation much more than has recently been approved for other projects.
- The poles, especially because the development is raised above surrounding properties, are too high. They are 9 feet higher than the tallest poles in the recent Kinney approval has and five feet taller than the neighboring bank. Additionally they are spaced further apart and rely on brighter lights on each pole.
- The light for the flag will be difficult to install to be in compliance with: Section 5.6.4 *"All exterior lighting shall be installed or shielded in such a manner as to conceal light sources and reflector/refractor areas from view from points beyond the perimeter of the area to be illuminated."*

I am not a lighting expert and it may be advisable to hire a professional review of their proposal in view of the apparent amount of lighting that they are requesting if we are to try and honor section 8.22 of the Town Plan - 8.2.2) The Town recognizes the value of the night sky, and feels it is important to ensure light pollution doesn't unnecessarily impact this resource. Furthermore, the Town recognizes the importance of personal privacy with regard to excessive light from adjacent properties. The Town should explore ways to minimize light pollution that also maintain public and private safety and convenience with regard to outdoor lighting.

The following is a page from the Outdoor Lighting Manual for Vermont Municipalities for your reference. I have been advised that it is not state of the art but we have relied on it previously.

PARKING LOT LIGHTING

Lighting is helpful in allowing people to quickly identify and locate their vehicles, locate keys and fit them to locks, and perceive pavement irregularities which might cause a stumble. Lighting can also add to a sense of comfort and security by making it possible to see vehicles and other people in the area.

Operators of retail facilities often feel that having a brightly illuminated parking area calls attention to their facilities. Indeed, if a parking area is significantly brighter than neighboring properties, it not only calls attention to itself, it can limit visibility into neighboring establishments. This leads to ever-increasing levels of illumination in parking areas.

The IESNA *Lighting Handbook*¹ includes lighting guidelines for parking areas, both open and enclosed. The guidelines for open parking facilities suggest that a basic minimum level of illumination (at the darkest point of the lot) of 0.2 foot-candles is necessary to provide adequate visibility in areas of low nighttime activity. As the activity level increases, the minimum level of illumination should also increase. In Vermont, where background lighting levels are generally low, the necessary minimum level of illumination need not be high, and should rarely go above 0.6 foot-candles.

In order to prevent severe contrasts in illumination levels at various points in the parking area, the IESNA guidelines suggest that a uniformity ratio, defined as the ratio of the average level of illumination to the minimum level of illumination, not exceed 4:1 (3:1 in medium-use situations). This, in conjunction with a minimum illumination level of 0.6 foot-candles, would yield an average level of illumination no higher than 2.4 foot-candles.

The IESNA guidelines are intended to serve as a basis for design. The designer is advised to take into account such external factors as the level of background lighting, lighting from other sources, and characteristics of the surrounding area. The guidelines, by themselves, do not address off-site community impacts of lighting—particularly when levels in excess of the suggested values are provided. In particular, issues associated with excessive lighting levels, glare, color, and skyglow are not specifically addressed. It is these issues that communities may wish to address via local control and regulation.