Division 1: Exterior Lighting Requirements

Section 6.5.1.1 Regulation of Exterior Lighting and Glare

a) *Applicability.* The standard and criteria contained within this section are deemed to be minimum standards and shall apply to all construction (new, altered, or repaired if more than 50% of current value of the property) within the City.

b) *Exemption.* The following properties are exempt from standards applied to exterior lighting.

(1) Property located within a single family zoned district and used for a single family residence;

c) *Purpose.* Standards for controlling lighting and glare are set forth to reduce hazards to motorists and annoyance and inconvenience from light trespass upon the residents, drivers, pedestrians, businesses and other elements of the community. Standards are also established in order to ensure that citizens and visitors to San Marcos are able to continue to enjoy the night sky, natural environment and traditional character of the community. These standards are intended to allow reasonable enjoyment of adjacent and nearby property by their owners and occupants while requiring adequate levels of lighting for parking areas, internal drives, service and pedestrian areas

Section 6.5.1.2 Review procedure of lighting and Glare Standards

a) *Proof of compliance required.* Detailed drawing(s) verifying compliance with the requirements of this section shall be submitted, in detail sufficient to show compliance, at both the time of Site Preparation and Building Plan review. Such compliance shall be illustrated, along with calculations and or /specifications of how areas shown on the site preparation permits will meet the requirements for lighting and design.

b) *Alternative compliance.* All requests for alternative lighting design compliance and specific use exceptions shall be clearly written. Specifically noted and described on the site preparations permit submittal. If requested supporting documents may be required to be submitted in response to plan review. No site permit shall be approved until such requests are determined as provided for in this code.

c) *Plan submittal.* A photometric plan shall be prepared by a lighting professional that is certified by the National Council of on qualifications for the Lighting Professions (NCQLP) or a State licensed professional engineer, architect, landscape architect or land surveyor and shall contain the information listed in appendix ___ of the Technical manual.

Section 6.5.1.3 Procedure for Determining Alternative compliance for and variance from lighting and glare standards

a) *Administrative approval.* The Director may administratively approve specific exceptions from overall lighting levels, if required materials conform to standards set forth on Section 6.5.2.4 of this Article.

b) *Process for Variance.* Variances from the standards set forth in this article may be granted by the Board of Adjustment. Such determinations shall be based solely on the criteria and procedures outlined by the Illuminating Engineering Society of North America in Guidelines For Security Lighting For People Property And Public Places (IESNA G-1-03) and referenced herein. An applicant for variance shall provide the results from a security survey as set forth in IESNA G-1-03 and its appendices A-G.

b. In addition to requirements for granting a variance a set forth in this code, the granting of a variance for lighting shall be made in two steps. An initial finding must be made that there is a special condition of the site or proposed project for security that is unique. Data substantiating that this unique condition exists and is sufficient enough to be a mitigating factor to compliance with the code shall be presented by the applicant. This submittal shall be made at the time of application for a variance and include:
   (1) History of relevant crime activity in the surrounding area See (IESNA - annex A);
   (2) Nature of the Site – type of business or activity, hours of operation accessibility, surrounding conditions See (IESNA - annex B);
   (3) Degree of Obstruction – landscape design, building layout, fencing etc.;
   (4) Ambient Luminance of surrounding area – sources and quality of off-site ambient lighting;
   (5) Impacts on surrounding area – environmental performance zone objectives, disability glare, traffic movement, controls and signage.

c. When security is determined to be a relevant issue, deliberations on such a requested variance shall include discussion of alternative steps to address security as noted in IESNA – annex E. Any variance granted shall be limited, to the extent possible, to specific areas of concern rather than blanket property wide variances. In no case shall a variance be granted in excess of levels and guidelines set forth in IESNA G-1-03.

Division 2: Exterior Lighting and Glare Standards

Section 6.5.2.1 - Overall Operational Lighting Levels:

a) *Environmental Performance Zones.* Lighting for an individual project should be evaluated in the context of the overall environment and the goals set for the surrounding community. For this purpose, maximum outdoor lighting averages are established for geographic areas distinguished as environmental lighting performance zones. The general relationship of properties to these zones and the maximum permissible average lighting levels are provided in appendix ____ of the Technical Manual.

b) *Determination of designation.* Determination of an individual property's designation shall occur after all subdivision and legislative actions have been completed. The criteria for determining the zone are found in appendix ____ of the Technical manual.

c) *Maximum intensities.* For a given property the appropriate lighting levels for all pedestrian, parking, and driveway illumination shall be no greater than the maximum levels stated above. Landscape, detention ponds, storage, equipment and other unoccupied areas shall be no greater than one half of the performance zone maximum average. Portions of properties within 350 feet of areas designated as open space on the Future Land Use Map shall reduce lighting levels by one half.

d) *Minimum Intensities.* No lighting plan shall show point-by-point foot-candle readings less than .03 in areas utilized for travel, parking or routine use by people.

e) *Light trespass.* No lighting plan shall distribute light greater than .25 fc across a lot line unless all lots are included in the site preparation permit. No lighting plan shall distribute light onto a residentially (SF or MF) lot.

Section 6.5.2.2 - Non-residential Lighting Curfew

a) *Requirement.* After hours lighting shall begin no later than one-half hour after closing to the public or closing of normal operations.

b) *Performance.* Lighting systems shall be designed to enable and be operated at levels no greater than one half of the maximum level during operating hours after hours. This may be attained by either turning off certain fixtures or utilizing dimmer controls to achieve the desired reduction.

Section 6.5.2.3 - Universal Luminary Standards

a) Specifc standards for luminaries are set forth to minimize negative outcomes of commercial lighting applications.

b) Luminaries meeting the criteria setforth in appendix ____ of the technical manual. Shall be used exclusively in submitting photometric plans and installation on new development or expansion of current outdoor lighting systems.

c) Maintenance, replacement or minor expansion of currently existing lighting systems, that constitute less than 50% of the value of the current system, are exempt form this requirement.

Section 6.5.2.4 - Specific Use exceptions

a) Exceptions permitted. Certain uses or facilities may require lighting intensities greater than the overall performance lighting standards for the property. These uses and facilities and their appropriate lighting levels are illustrated in appendix ____ of the technical manual.

b) Utilization. Specific use exceptions must be requested as outlined in Section 6.5.1.2 (b) and approved as per Section 6.5.1.3 (a). The location of the specific use or facility must be shown on the plans and include separate lighting calculations. The overall site calculations may then exclude this area but must attain no more than the maximum average lighting level on the remainder of the property.

c) New or unlisted uses or facilities may be considered upon submittal of documentation and establishing a case for non compliance. Such amendment to the technical manual shall be made subsequent to a determination by the Planning and Zoning Commission validating the benefit to the city of such inclusion.

Technical Manual
Appendix

Division 2: Exterior Construction and Design Requirements

Support for Section 6.5.1.2 Review procedure of lighting and Glare Standards

Contents of Photometric plan submittal

This list is provided to assist in preparation of Site Preparation and Building Plans in conformance with the requirements of Chapter 6 Article 5. The following reflects information to be provided with all photometric plans.

Photometrics

a) Photometric plans shall be provided for the entire site addressing performance environmental performance zone standards and site specific exceptions or variances if required. Additional information may be required by staff after they have evaluated the design.

b) There is a minimum of one photometric study required for each project. (NOTE: the project should include all property within the Limits of Construction (LOC) submitted for a site preparation permit. This study shall address the horizontal illuminance on the site. Each plan requires the following information:
   a. A point-by-point foot-candle reading. The horizontal photometric plan grid points, utilizing distinctive grip point symbols (example: *), shall have a maximum spacing of 10'-0" between each point across the entire site, and 10'-0" past the property line.
   b. A foot-candle reading shall be provided under each light fixture.
   c. The plan shall include the lighting templates generated by the lighting design software program to calculate the foot-candle readings. The template shall be for the fixture and lamp specified on the plans. The plan's fixture type identification shall match the cut sheets, electrical site plans, and the lighting schedule. This information shall be provided in a summary table.
   d. The plan shall identify the initial maximum, minimum, and average illuminance on the horizontal photometric plan.
   e. The plan shall identify the total maintained maintenance (light loss) factor utilized.

c) The total maintained light loss factor for all horizontal photometric analysis shall not be below 0.70. Plans shall only include one horizontal reading across the entire site. Only the building footprint shall be masked out from the reading.

d) (Acceptable additional horizontal reading grids may be: gas station canopies, ATM drive-thru, walk-up ATMs, and parking garage entries/exits. When separate grids are utilized on the same plan, a separate grid symbol (example: %) must be

utilized, and a separate maintained maximum, minimum, average illuminance shall be provided for the grid.)

e) The overall horizontal illuminance photometric plan may be combined into one sheet with horizontal illuminance photometric plans for special use exceptions or variances if the readings utilize distinctive symbols, a separate summary table for all fixtures utilized and separate average light calculation for the specified area(s). Such submittals must be appropriately labeled and easily assessed. Separate submittals may be required upon request of staff

f) The Photometric plan shall provide a lighting fixture summary table that presents the following information:
   a. Plan identification symbol or abbreviation
   b. Fixture type (include the manufacture product identification catalog number)
   c. Lamp type (include the manufacture product identification catalog number and wattage)
   d. Lamp Lumens
   e. Lamp degree Kelvin
   f. Fixture lens height above lowest adjacent finished grade

Support for Section 6.5.2.1 - Overall Operational Lighting Levels:

The following chart establishes the overall mmaximum permissible average illumination of properties within the associated environmental performance zone.

Environmental Performance Zones	Description	Maximum Average Light Level in Horizontal fc (measured at grade)
E-1	Urbanized, non residential areas along Interstate Highways	2.0
E-2	Urbanized non residential areas along certain State Highways and arterial roadways	1.5
E-3	Residentially dominant areas	1.0
E-4	Designated Open space areas	0.5
Open Space Lighting overlay	A 350' buffer adjusting light levels in any zone	One half of applicable performance zone level

This following list is provided to establish the criteria used for designating an individual property's Environmental Lighting Performance Zone.

(A). Designation of a property's zone is done subsequent to approval of all Legislative and Subdivision actions of this code. The designation utilizes the City of San Marcos's GIS files and the data in place at the time of the designation.

(1) All property designated as open space on the City of San Marcos Future Land Use Map is designated as Environmental Performance Zone E-4.

(2) A 350 foot wide overlay is established around the boundaries of the designated open space.

(3) A 350 foot wide highway corridor is established along IH-35, SH 123, SH 20 north of Snake Creek and portions of SH 80 west of the Blanco River and Arterials within the CBA and east of Hunter Road.

(4) Arterials and highways west of the CBA and Hunter road are excluded from this corridor to preserve the environmental and historic character of the hill country as a back drop to the city.

(5) A Performance zone measure of E-1 is designated for all non residential lots (not designated E-4) with frontage within the 350' highway corridor for IH 35. and not designated as open space.

(6) A Performance zone measure of E-2 is designated for all non residential lots (not designated E-1 or E-4) with frontage within a 700' wide highway corridor along IH 35. and all non residential lots (not designated E-1 or E-4) with frontage within a 350' wide highway corridor along SH 123, SH 20 north of Snake Creek and portions of SH 80 west of the Blanco River and Arterials within the CBA and east of Hunter Road.

(7) All remaining properties which are predominantly residential or are commercial uses in a predominantly residential area are designated as a Performance zone measure of E-3.

(B). The Director of planning may upon request of a property owner or the Planning and Zoning Commission revise designations for individual properties along the edge of or within the body of these zones, if such adjustment "fills in" an otherwise consistent pattern of light levels and maintains the intent of the code.

Support for Section 6.5.2.3 - Universal Luminary Standards

The luminaries for the following functional types of lighting shall follow the standards set forth below.

a) *Full cut-off lighting.* Full cut-off fixtures are required on all outdoor lighting applications including outdoor walkways, parking lots, canopy and building/wall mounted luminaries. This standard is also applicable to open sided parking structures and the top level of parking structures.

b) *Aesthetic lighting.* Landscape and architectural lighting must use full cut0off or directionally shielded luminaries aimed and controlled to substantially direct and confine light to the object intended to be illuminated.

c) *Signage.* Internally lit signs shall be limited to signs bearing only a state or federally registered trademark or signs having translucent backgrounds other than white, yellow or off white in color.

d) *Disability glare.* All outdoor fixtures must be located, aimed and maintained to prevent disability glare that causes reduced visibility and or impairs visual performance. Such conditions fixtures may include lights set low and aimed toward an entry drive that could temporarily blind a driver or display lighting that creates backlight or distracting background impairing a driver's ability to easily distinguish traffic signals or highway signs.

e) *Canopy lighting.* All canopies, free standing or attached, shall utilize flat lens, full cut-off fixtures. All luminaries must be located 5 feet or farther from any edge of the canopy. Use of decorative lighting such as pendants or scones beneath a copy may be approved by the director if impacts are shown to be minimal.

Support for Section 6.5.2.4 - Specific Use exceptions

This table is provided to establish the uses and facilities that may utilize alternative compliance standards in a photometric lighting plan.

Specific Use or Facility	**Area illuminated**	**Purpose of area**	**Maximum Average Light Level in Horizontal fc (measured at grade)**
Automated Teller Machines (ATM)	As specified by State Banking Regulations	Compliance with State Banking regulations	As specified by State Banking Regulations
Bank or Service window - Drive through	A 20 x10 foot area centered on the service window or automated window mechanism	Lighting for maneuvering, ordering or preparing for a transaction	2fc
	A 20 x10 foot area for each cue space either side of the service window	Lighting for transacting a purchase or exchange	5fc
Gas Station Canopies and approaches	Area of Canopy plus five feet outside canopy edge on all dimensions	Operation of pumps and inspection of vehicle	20fc
	A 20 area outside of the canopy area above.	Lighting for maneuvering	5 fc
Auto Dealerships	A 30 foot wide area	Front line or	30fc

	along the front row or around an individual display	pedestal display	
	Area of Canopy plus five feet outside canopy edge on all dimensions	Display or vehicular pick-up	20fc
Outdoor Display areas	Area of fixed display plus five feet outside edge on all dimensions	Display and sale of merchandise	5fc
	A 30 foot wide area around an individual display	pedestal display	10fc
Athletic Facilities	Plane of area used	Batting cages, Archery, firing ranges & baseball or golf driving ranges	20fc
	Infield	Baseball (competition)	100fc
	Outfield		75fc
	Playing field plus 20 along all dimensions	Field sports (competition)	50fc
		Go cart and other vehicular tracts	30fc
	Greens & Tee boxes	Golf courses	5fc
	Fairways		3fc
	Plane of area used	Miniature golf	20
	Plane of area used	Rodeo, riding rings, show areas	30
	Plane of area used	Skating, skate board or hockey rinks	14-12

Section 6.7.2.1 Determination and Regulation of Size

(b) Street Frontage Required. Each lot on a plat shall front onto a dedicated, improved public street in accordance with this Code. In all cases, single-family residential lots shall have a minimum of 35 feet of frontage, and non-residential lots shall have a minimum of 50 feet of frontage, along a dedicated, improved street. ~~Lot depth shall not exceed three times the lot width for lots platted after March 10, 1975.~~

(c) Irregularly-Shaped Lots. Irregularly-shaped lots shall have sufficient width at the building line to meet lot width and frontage requirements of the appropriate