

# EXHIBIT A



## TOWN OF MARANA OUTDOOR LIGHTING CODE

ORDINANCE #2021.007

### TABLE OF CONTENTS

<b>CHAPTER 1 – SCOPE AND ADMINISTRATION.....</b>	<b>2</b>
Section	
101 General	
102 Applicability	
103 Duties and Powers of the Building Official	
104 Exemptions	
105 Permit, Plan Submission and Inspection Requirements	
106 Prohibitions	
107 Outdoor Lighting Design Standards	
108 Violations	
<b>CHAPTER 2 – DEFINITIONS.....</b>	<b>9</b>
Sections	
201 General	
202 Definitions	
<b>CHAPTER 3 – LIGHTING AREAS.....</b>	<b>11</b>
Section	
301 Description of Lighting Areas	
<b>CHAPTER 4 – TOTAL OUTDOOR LIGHT OUTPUT, SHIELDING, FIXTURE HEIGHT REQUIREMENTS.....</b>	<b>12</b>
Section	
401 Total Outdoor Light Output	
402 Outdoor Light Shielding	
403 Fixture Height Requirement	
404 Outdoor Lighting Source Color Temperature	
405 Curfew Requirements	
<b>CHAPTER 5 – SIGN LIGHTING.....</b>	<b>15</b>
Section	
501 Outdoor Advertising Signs	
<b>CHAPTER 6 – RECREATION FACILITES.....</b>	<b>16</b>

Section  
601 Illumination of Recreational Facilities

**CHAPTER 7 – OUTDOOR DISPLAY LOT LIGHTING.....17**

Section  
701 Illumination of Outdoor Display Lots

**CHAPTER 1  
SCOPE AND ADMINISTRATION**

**SECTION 101  
GENERAL**

**101.1 Title.** These provisions shall be known as the Outdoor Lighting Code for the Town of Marana. They shall be cited as such and will be referred to herein as “this code.”

**101.2 Scope.** The provisions of the Town of Marana Outdoor Lighting Code apply to the construction, alteration, movement, enlargement, replacement and installation of outdoor lighting throughout the town.

**101.3 Purpose and intent.** The purpose of this code is to preserve the relationship of the residents of the Town of Marana to their unique desert environment through protection of access to the dark night sky. Intended outcomes include continuing support of astronomical activity and minimizing wasted energy, while not compromising the safety, security and wellbeing of persons engaged in outdoor night time activities. It is the intent of this code to control the obtrusive aspects of excessive and careless outdoor lighting usage while preserving, protecting and enhancing the lawful nighttime use and enjoyment of any and all property. It is recognized that portions of properties may be required to be unlit, covered, or have reduced lighting levels in order to allow enough lumens in the lighted areas to achieve light levels in accordance with nationally recognized recommended practices.

**101.4 Conformance with codes.** All outdoor illuminating devices shall be installed in conformance with the provisions of this code and all codes adopted under title 7 of the Marana Town Code and under appropriate permit and inspection.

**SECTION 102  
APPLICABILITY**

**102.1 General.** Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between the general requirements and a specific requirement, the specific requirement shall be applicable.

**102.2 Other laws.** If any part of this title conflicts with federal or state law or regulation, then such federal or state authority shall take precedence. In any case where a provision of this code is in conflict with a provision of any ordinance, code, rule, or regulation of the Town of Marana, the provision that establishes the most restrictive standard shall apply.

**102.3 Application of references.** References to chapter or section numbers herein, or to provisions not specifically identified by number, shall be construed to refer to such chapter, section or provision of this code.

**102.4 Referenced codes and standards.** Other codes and standards referenced in this code shall be considered as part of the requirements of this code to the prescribed extent of each such reference, subject to the following:

**102.4.1 Conflicts.** Where conflicts occur between provisions of this code and other referenced codes and standards, the provisions of this code shall apply.

**102.4.2 Provisions in referenced code and standards.** To the extent a reference to another code or standard includes subject matter that is within the scope of this code or the codes listed in section 101.4, the provisions of this code or codes listed in section 101.4, as applicable, shall take precedence over the provisions in the referenced code or standard.

**102.5 Partial invalidity.** If any of the provisions of this code or the application thereof is held invalid, such invalidity shall not affect other provisions or applications of this code which can be given effect, and to this end, the provisions of this code are declared to be servable.

**102.6 New uses, buildings and additions or modifications.** All proposed new land uses, developments, buildings, structures, or building additions, shall meet the requirements of this code. Modification or replacement (other than maintenance) of outdoor lighting fixtures shall meet the provisions of this code.

**102.7 Existing installations.** All outdoor light fixtures lawfully installed prior to and operable on the effective date of the ordinance codified under this chapter are exempt from all requirements of this code. The installation shall be maintained in accordance with the edition of the Outdoor Lighting Code under which it was installed.

**102.8 Resumption of use after abandonment.** If a property or use with non-conforming lighting is abandoned as defined in chapter 2, then all outdoor lighting shall be reviewed and brought into compliance with this code before the use is resumed.

**102.9 Change of use.** Whenever the use of any existing building, structure, or premises is changed to a new use as defined in the building code referenced in title 7 of the Marana Town Code, all outdoor lighting shall be reviewed and brought into compliance with this code before the new use commences.

**102.10 Appeals.** Any person substantially aggrieved by any decision of the building official made in administration of this code has the right and responsibilities of appeal to the Advisory/Appeals Board of this jurisdiction.

**SECTION 103**  
**DUTIES AND POWERS OF THE BUILDING OFFICIAL**

**103.1 General.** The building official is hereby authorized and directed to enforce the provisions of this code. The building official shall have the authority to render interpretations of this code and to adopt policies and procedures for the purposes of applying this code. Such interpretations, policies and procedures shall conform to the purpose and intent of this code. Such policies and procedures shall not have the effect of waiving requirements specifically provided for in this code.

**103.2 Applications and permits.** The building official shall receive applications, review construction documents and issue permits for the construction, alteration, movement, enlargement, replacement and installation of outdoor lighting throughout the town.

**103.3 Notices and orders.** The building official shall issue necessary notices or orders to insure compliance with this code.

**103.4 Inspections.** The building official shall make the required inspections and shall have the authority to accept reports of inspections by approved agencies or individuals. Reports of such inspections shall be in writing and be certified by an officer of the approved agency or by the individual. The building official is authorized to seek expert opinion as deemed necessary to report on unusual technical issues that arise, subject to the approval of the Marana Town Council.

**103.5 Right of entry.** Where it is necessary to make an inspection to enforce the provisions of this code, or where the building official has reasonable cause to believe that there exists in a structure or on a premises a condition that is contrary to or in violation of this code, the building official is authorized to enter the structure or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that, if such structure or premises be occupied, credentials be presented to the occupant and entry requested. If such structure or premises is unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the structure or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry.

**103.6 Department records.** The building official shall keep official records of applications received, permits and certificates issued, fees collected, reports of inspections and notices and orders issued. Such records shall be retained in the official records of the building official for the period required for retention of public records.

**103.7 Modifications.** Where there are practical difficulties involved in carrying out the provisions of this code, the building official shall have the authority to grant modifications for individual cases, upon application of the owner or the owner's authorized agent, provided that the building official shall first find that special individual reason makes the strict application of this code impractical, the modification is in compliance with the intent and purpose of this code and that such modification does not lessen health, accessibility, life and fire safety or structural requirements. The details of action granting modifications shall be documented and entered in the files of the department of building safety.

**103.8 Alternative materials, design and methods of construction and equipment.** The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been

approved by the building official. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety. Where the alternative material, design or method of construction is not approved, the building official shall respond in writing, stating the reasons why the alternative was not approved.

**103.8.1 Research reports.** Supporting data, where necessary to assist in the approval of materials or assemblies not specifically provided for in this code, shall consist of valid research reports from approved sources.

**103.8.2 Tests.** Whenever there is insufficient evidence of compliance with the provisions of this code, or evidence that a material or method does not conform to the requirements of this code, or in order to substantiate claims for alternative materials or methods, the building official shall have the authority to require testing for evidence of compliance to be made without expense to the jurisdiction. Test methods shall be as specified in this code or by other recognized testing standards. In the absence of recognized and accepted testing methods, the building official shall approve the testing procedures. Testing shall be performed by an approved agency. Reports of such tests shall be retained by the building official for the period required for retention of public records.

## **SECTION 104 EXEMPTIONS**

**104.1 Gas lighting.** All outdoor lighting fixtures producing light directly by the combustion of natural gas or other fossil fuels are exempt from the provisions of this code.

**104.2 Lighting in the public right-of-way.** Outdoor lighting installed in the public right-of-way is exempt from the provisions of this code. Engineering standards apply and require an approval from the Town of Marana Engineering Department

**104.3 Seasonal decorative lighting.** Seasonal decorations using unshielded low wattage lamps following curfew requirements under section 405, color temperature requirements under section 404, and maximum lumens under section 401 are exempt from the provisions of this code

**104.4 Neon sign lighting.** Neon lighting shall be exempt from the requirements of chapter 4 of this code when used for sign lighting, but not exempt for any other uses.

**104.5 Emergency egress lighting.** Emergency egress lighting, when required under building regulations and illuminated only during an emergency event, shall be exempt from the requirements of this code.

**104.6 Temporary exemption.** Any person may submit a written request, on a form prepared by the jurisdiction, to the jurisdiction for temporary exemption request. A temporary exemption shall contain the following information:

1. Specific exemption(s) requested.
2. Type and use of outdoor light fixture involved.
3. Duration of time of the requested exemption.

4. Type of lamp and lamp lumens.
5. Total wattage of lamp or lamps and number of lamps to be used.
6. Proposed location on premises of the outdoor lighting fixture(s).
7. Previous temporary exemptions, if any, and addresses of premises thereunder.
8. Physical size of outdoor light fixture(s) and type of shielding provided.
9. Other data and information that may be required by the building official.

**104.7 Approval and duration.** The jurisdiction shall have five business days from the date of submission of the request for temporary exemption to act, in writing, on the request. If approved, the exemption shall be valid for not more than thirty days from the date of issuance of the approval. The approval shall be renewable at the discretion of the building official upon a consideration of all the circumstances. Each such renewed exemption shall be valid for not more than thirty additional days.

**104.8 Disapproval and appeal.** If the request for temporary exemption is disapproved, the person making the request will have the appeal rights provided in section 102.10 of this code.

## **SECTION 105 PERMIT, PLAN SUBMISSION AND INSPECTION REQUIREMENTS**

**105.1 Permit required.** Any owner, occupant or authorized agent who intends to install, construct, enlarge, alter, repair, move, or change any outdoor lighting within Town of Marana jurisdiction, the installation of which is regulated by this code, shall first make application to the building official and obtain the required outdoor lighting permit.

**105.2 Permit submission requirements.** The permit submission shall contain the following:

1. Plans indicating the location and type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices.
2. Description of the illuminating devices, fixtures, lamps, supports, reflectors, additional shielding, and other devices that may include, but is not limited to, catalog cut sheets from the manufacturer.
3. If canopy lighting is being proposed, then provide calculations for average maintained levels of horizontal illuminance at 36 inches above grade level in foot candles. Provide evidence of the fixtures being hidden from sight at the property line.
4. Photometric data established by the fixture manufacturers or credible source, showing the angle of cutoff or light emissions. Photometric data need not be submitted when the full cutoff performance of the fixture is obvious to the reviewer.
5. Additional photometric data and site structure information as necessary to assure that there is no light trespass on adjacent properties in excess of that allowed by this code.
6. A stamp or statement on the plans stamped by a registered design professional certifying compliance with the requirements of this code. The building official may waive this requirement for small installations.
7. For sites in Lighting Area E3 that exceed 6 acres, a master lighting study may be submitted that indicates an overall lumen calculation for the entire site. The study shall indicate actual lumens used for lighting being presently installed and an estimate for future pads, parcels, buildings and phases. The total lumens for the overall project shall be tracked by a single design professional designated by the owner and submitted as a cumulative total to the Town of Marana. The overall project lumens shall be tracked to show current compliance and ability to develop future areas within the limit of the overall allowed lumens. If a parcel is sold by the owner after a master lighting study is approved, the new owner has the option to continue development with the original designated design professional utilizing the overall project lumens.

**105.3 Luminaire schedule on plans.** There shall be a schedule on the plans to confirm compliance with the lumen cap per table 401.1, and which includes the following information:

1. Each exterior luminaire type with the mean lumens for that type.
2. The quantity of each type and whether the luminaire is full cutoff or non-cutoff shielded.
3. The total of full cutoff and non-cutoff shielded mean lumens for the parcel.
4. A statement of the lighting area, the size of the permitted parcel, and the maximum allowed full cutoff and non-cutoff shielded mean lumens.
5. Acreage of the parcel and/or site.
6. Option used per table 401.1.
7. Total allowed lumens for the parcel and/or site.

**Exception:** When a submittal includes a statement by a registered design professional stating that the existing site lighting is being modified less than ten percent, it shall not be necessary to comply with section 105.3.

**105.4 Additional submissions.** The above required plans, descriptions and data shall be sufficiently complete to enable the plans examiner to readily ascertain code compliance. If such plans, descriptions and data are insufficient to enable this ready determination, by reason of the nature of configuration of devices, fixtures, or lamps proposed, the application will be deemed incomplete. The plans examiner may require additional evidence of compliance such as certified reports of tests by a recognized testing laboratory

**105.5 Subdivision plat certification and development plan.** If any subdivision or development proposed to have installed common or public area outdoor lighting, the final plat or development plan shall contain a statement certifying that the applicable provisions of this code will be complied with. Specific plans for lighting shall not be included on the plat but will rather be contained on the building permit plans.

**105.6 Lamp or fixture substitution.** Should any outdoor light fixture or the type of light source therein be changed after the permit has been issued, a change request must be submitted by the design professional to the building official for approval, together with adequate information to assure compliance with this code.

**105.7 Inspections.** The owner of a property, or the authorized agent of the owner, shall request all required inspections as noted on the permit issued under this code. All inspection requests shall be made at appropriate intervals as noted on the permit and it is the responsibility of the property owner or authorized agent of the owner to assure that all required inspections receive approval from the building official and that final inspection approval is obtained prior to placing the permitted outdoor lighting into service.

**105.7.1 Special inspection requirement.** Special inspection shall be required when:

1. The lumens per net acre are greater than 100,000 or 75% of the allowable lumens per table 401.1, whichever is less.
2. All recreational facility lighting.
3. All outdoor display lots.

## SECTION 106 PROHIBITIONS

**106.1 Mercury vapor lamps and fixtures.** The installation, sale, offer for sale, lease or purchase of any mercury vapor lamp for use within the Town of Marana as outdoor lighting is prohibited.

**106.2 Bottom mounted outdoor advertising sign lighting.** Bottom mounted outdoor advertising sign lighting is prohibited.

**106.3 Laser source lighting.** The use of laser source lighting or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizontal plane is prohibited.

**106.4 Searchlights.** The operation of searchlights for advertising purposes is prohibited.

## SECTION 107 OUTDOOR LIGHTING DESIGN STANDARDS

**107.1 General design standards.** The design shall incorporate at least 80 percent of the allowed lumens or meet the minimum illumination levels recommended in the latest Handbook of the Illuminating Engineering Society of North America (IESNA).

**107.2 Spacing.** Light poles and luminaires shall be spaced in a manner to provide lighting distribution as recommended by the IESNA in areas of frequent use such as parking lots and pedestrian walkways taking height limitations into account.

**107.3 Canopy lighting.** Canopy lighting shall have a maximum average maintained horizontal illuminance level at 36 inches above grade of 60 foot candles (fc) in Area E3 and 45 fc in Area E2

**107.4 Non-cutoff shielded lighting.** All non-cutoff shielded light fixtures, including unshielded seasonal decorations, shall be turned off between 11:00 p.m. and sunrise.

**Exception:** Commercial properties that operate on a 24 hour basis.

**107.5 Flood and spot lights.** Flood and spot lights shall be installed within a shielded housing and aimed such that the source shall not be visible from any adjacent residential property. When installed on a residential property, flood and spot lights must be controlled by a motion detection device.

**107.6 Lighting types approved.** Lighting types shall consist of low pressure sodium (LPS), high pressure sodium (HPS), metal halide (MH), fluorescent, incandescent, gas filled tubing, light emitting diode (LED) and any other lighting source approved by the building official.

**107.7 Lighting required for business operation.** Lighting required for business operation may be allowed to remain on until 11:00 p.m. or until close of business, whichever is later.

## SECTION 108 VIOLATIONS

**108.1 Unlawful acts.** It shall be unlawful for any person, firm, or corporation to erect, construct, alter, extend, repair, move, remove, install, use or demolish outdoor lighting equipment as



regulated by this code, or cause same to be done, in conflict with or in violation of any of the provisions of this code

**108.2 Notice of violation.** The building official is authorized to serve a notice of violation or order on the person responsible for the erection, construction, alteration, extension, repair, moving, removing, demolition or use of any outdoor lighting in violation of this code or in violation of a detail statement or a plan approved hereunder, or in violation of a permit issued under the provisions of this code. Such order shall direct the discontinuance of the illegal action or condition and the abatement of the violation. The property owner or authorized agent of the owner shall comply with the requirements of the notice of violation or file a notice of appeal in accordance with the provisions of section 102.10 above within the time period given on the notice for abatement of the violation.

**108.3 Enforcement and penalties.** Failure to address a notice of violation in a timely fashion may result in the issuance of a civil citation as provided for in chapter 5-7 of the Marana Town Code. Such citation shall not excuse the need to correct or abate such violation, or to remove or terminate the unlawful use of outdoor lighting in violation of the provisions of this code or of the order or direction made pursuant thereto. Each day a violation continues shall be considered a separate offense.

## **CHAPTER 2 DEFINITIONS**

### **SECTION 201 GENERAL**

**201.1 Scope.** Unless otherwise expressly stated, the following words and terms shall, for the purposes of this code, have the meanings indicated in this chapter.

**201.2 Terms not defined.** Where terms are not defined through the methods authorized by this section, such terms shall have ordinarily accepted meanings such as the context implies.

### **SECTION 202 DEFINITIONS**

**ABANDONMENT.** The relinquishment of a property, or the cessation of the use or activity by the owner or tenant for a period of six months, excluding temporary or short term interruptions for the purpose of remodeling, maintaining, or otherwise improving or rearranging a facility. A use shall be deemed abandoned when such use is suspended as evidenced by the cessation of activities or conditions which constitute the principal use of the property.

**APPROVED.** Acceptable to the building official.

**BUILDING OFFICIAL.** The official or other designated authority charged with the administration of this code, or a duly authorized representative.

**CURFEW.** A time established for listed lighting systems to be automatically extinguished.

**DEVELOPMENT PROJECT.** Any residential, commercial, industrial or mixed use subdivision plan

or development plan which is submitted to the jurisdiction for approval or for permit.

**DIRECT ILLUMINATION.** Illumination resulting from light emitted directly from a lamp or luminaire, not light diffused through translucent signs or reflected from other surfaces such as the ground or building faces.

**DISPLAY LOT OR AREA.** Outdoor areas where active nighttime sales activities occur, and where accurate color perception by customers is required. To qualify as a display lot, one of the following specific uses must occur:

1. Vehicle sales (autos, recreational vehicles, boats, motorcycles etc.).
2. Assembly lots.
3. Swap meets.
4. Airport and automobile fueling areas.

Uses not on this list must be approved as a display lot use by the building official.

**FULL CUTOFF LIGHT FIXTURE.** A light fixture shielded or constructed so that no light rays are emitted by the installed fixture at angles above the horizontal plane, as certified by photometric test reports. Such candela information shall be as determined by a photometric test report from a nationally recognized independent testing laboratory and as certified by the manufacturer. Any structural part of the luminaire provided this cutoff angle shielding shall be permanently attached.

**GLARE.** The definition of glare shall be as found in the Illuminating Engineering Society of North America (IESNA) handbook.

**INSTALLED.** The attachment, or assembly fixed in place, whether or not connected to a power source, or any outdoor light fixture.

**LAMP.** Generic term for a man-made source of light. In the context of this code, “lamp” means electrically powered light bulb, fluorescent or neon tube or LED light source.

**LED.** Light emitting diode solid state lighting source.

**LIGHT FIXTURE OR LUMINAIRE.** The complete lighting assembly, less the support assembly. The terms “light fixture” and “luminaire” may be used interchangeably in this code. “Light fixture” and “luminaire” do not include unshielded lighting strings that are plugged into an approved receptacle. Two or more units with lamps less than three feet apart shall be considered a single light fixture or luminaire.

**LUMEN.** Unit of luminous flux used to measure the amount of light emitted by lamps.

**NET ACREAGE.** The remaining found area after deleting all portions of proposed and existing public streets within a parcel.

**NON-CUTOFF SHIELDED FIXTURE.** A light fixture that does not comply with the full cutoff light fixture requirements of this code, but does comply with shielding requirements.

**OPAQUE.** “Opaque” means that the material shall not transmit visible light.

**OUTDOOR LIGHT FIXTURE.** An outdoor illuminating device, outdoor lighting or reflective

surface, lamp or similar device, permanently installed or portable, used for illumination or advertisement. Such devices shall include, but not be limited to:

1. Street lighting.
2. Parking lot lighting.
3. Building and structural lighting.
4. Landscaping lighting.
5. Recreational lighting.
6. Billboards and other signs (advertising or otherwise).
7. Product display area lighting.
8. Building overhangs and open canopy lighting.
9. Security lighting.
10. Searchlight, spotlight, flood lights and laser lights.

**OUTDOOR RECREATION FACILITY.** An area designed for active recreation, whether publicly or privately owned, including but not limited to baseball, soccer, and football fields, golf courses, tennis courts, swimming pools and race tracks of any sort.

**PERSON.** Any individual, tenant, lessee, owner, or any commercial entity, including but not limited to a firm, business, partnership, joint venture or corporation.

**PROPERTY LINE.** The property line used to determine pole height shall be the actual property line. Common areas, streets and right-of-ways shall not be used to allow increases in pole heights.

**PUBLIC RIGHT-OF-WAY.** A road, street, alley or highway permanently dedicated to the public for public use.

**SHIELDING/SHIELDED.** Construction of a luminaire, the location of a fixture or the addition of materials to prevent the light source from being seen from an adjacent residential property. The shielding must be permanent and non-reflective. Care should be taken to ensure additional shielding added to a luminaire does not affect the listing or warranty of the luminaire.

**TEMPORARY LIGHTING.** Lighting which does not conform to the provisions of this code and which will not be used for more than one thirty day period within a calendar year, with one thirty day extension. Temporary lighting is intended for uses that, by their nature, are of limited duration (e.g., holiday decorations, civic events or construction projects).

## **CHAPTER 3 LIGHTING AREAS**

### **SECTION 301 DESCRIPTION OF LIGHTING AREAS**

**301.1 Lighting areas.** Lighting areas shall be as described and defined on the Town of Marana Lighting Area Map incorporated within this code as Appendix A, and as further described within this section.

**301.2 Lighting Area E3.** Lighting Area E3 is an urban area with primary land uses for commercial, business, industrial activity, apartments and surrounded by suburban residential areas.

**301.3 Lighting Area E2.** Lighting Area E2 comprises rural residential and agricultural areas.

**Exception:** Properties located within Lighting Area E2 on the Marana Lighting Area Map that are determined to be a commercial or industrial use by the Town of Marana planning manager, or otherwise have an allowed commercial use, shall be deemed to be located within Lighting Area E3. In the case of rezoning, outdoor lighting levels and the purposes and intent of this code shall be a rezoning consideration and outdoor lighting levels may be restricted by the rezoning authority.

**301.4 Lighting area C.** Lighting Area C comprises areas designated as land banks, conservation areas or any environmental areas of special consideration as designated by the Marana Town Council. Lighting in these areas shall be limited to lighting for public safety only.

**301.5 Properties in more than one lighting area.** A property located in more than one of the lighting areas described within this chapter shall be considered to be only in the most restrictive lighting area.

## CHAPTER 4

### TOTAL OUTDOOR LIGHT OUTPUT, SHIELDING, FIXTURE HEIGHT REQUIREMENTS

#### SECTION 401

#### TOTAL OUTDOOR LIGHT OUTPUT

**401.1 Calculation of total outdoor light output for property.** Total outdoor light output shall not exceed the lumen limits given in table 401.1. In the table, "total" means the sum of emitted light on the site. For determining compliance with this code, the total lumens shall be the sum of the following:

1. One hundred percent of the lumens from outdoor full cutoff and non-cutoff shielded fixtures installed on grade, on poles, and on the top or sides of buildings or other structures, when not shielded from above by the structure.
2. One hundred percent of the lumens from externally illuminated signs.
3. Fifty percent of the lumens from underwater light fixtures unless the fixture is aimed at an angle of less than 45 degrees above the horizontal plane, in which case the lumens shall be calculated at ten percent of the total lumen output.
4. Twenty percent of full cutoff fixtures installed under canopies, building overhangs or roof eaves.
5. Zero percent of internally illuminated and LED signs, and lights illuminating a flag of the United States of America when shining downward.

**401.2 Calculation of total light output for fixture lamps.** The total amount of light, measured in lumens, is limited to a value per net acre of the site. The output from all outdoor light fixture lamps shall be determined as follows:

1. For lamp types that vary in light output as they age (such as fluorescent or high intensity discharge lamps) the mean lumen output, as defined by the lamp manufacturer, shall be the lumen value used. For lamps not listed with mean lumens, the initial rating shall be used.
2. The light output for each outdoor light fixture shall be based on the largest lamp that the outdoor light fixture is rated to accommodate. Furthermore, the largest lamp rating for fluorescent and high intensity discharge fixtures shall be based on the installed ballast rating.

**401.3 Other than full cutoff lighting.** Unshielded fixtures or lighting sources shall not exceed 3,000 lumens per luminaire.

**Exception:** Non-full cutoff lighting installed in accordance with section 601.

**TABLE 401.1**  
**MAXIMUM TOTAL OUTDOOR LIGHT OUTPUT**  
**REQUIREMENTS**

<b>LUMEN CAPS: MEAN LUMENS PER NET ACRE OF PARCEL OR LOT</b>			
<b>LIGHTING AREAS</b> <i>(As defined in section 301 and on Town of Marana Outdoor Lighting Map.)</i>	<b>E3</b>	<b>E2</b>	<b>C</b>
<b>COMMERCIAL AND INDUSTRIAL - OPTION 1 (1)</b> <i>(Mostly low pressure sodium fixtures.)</i>			
<b>Total</b> full cutoff LPS fixtures, plus full cutoff non-LPS fixtures, plus non-cutoff shielded fixtures. (5)	450,000	200,000	SP (4)
<b>Limit</b> on non-LPS full cutoff fixtures. (5)	45,000	18,000	SP (4)
<b>Limit</b> on non-cutoff shielded fixtures. (5)	12,000	6,000	SP (4)
<b>COMMERCIAL AND INDUSTRIAL - OPTION 2 (1)</b> <i>(Mostly non-low pressure sodium fixtures)</i>			
<b>Total</b> full cutoff fixtures, plus non-cutoff shielded fixtures. (5)	300,000	65,000	SP (4)
<b>Limit</b> on non-cutoff shielded fixtures. (5)	12,000	6,000	SP (4)
<b>ALL RESIDENTIAL ZONING (2) (3)</b>			
<b>Total</b> full cutoff fixtures, plus non-cutoff shielded fixtures.	55,000	24,000	SP (4)
<b>Limit</b> on non-cutoff shielded fixtures. (5)	12,000	6,000	SP (4)

**Table footnotes:**

1. Use any one of the options for the entire property.
2. This refers to all residential land-use zoning, including all densities and types of housing such as single family, detached and duplexes.
3. If LPS is used for residential lighting, then the total lumens in the table for all areas can be increased by 50 percent of full cutoff LPS lighting.
4. "SP" indicates special permit where local conditions warrant low level lighting design.
5. Non-cutoff shielded fixtures shall not exceed 3,000 mean lumens output per fixture, and shall meet the shielding requirements of this code.

**SECTION 402**  
**OUTDOOR LIGHT SHIELDING**

**402.1 Full cutoff requirements.** All outdoor light fixtures are required to meet the full cutoff requirements of this code.

**Exception:** Fixtures described in table 401.1 as non-cutoff shielded, internal and LED

sign lighting. Seasonal decorative lighting as described in section 104.

**402.2 Shielding requirements.** All outdoor lighting fixtures are required to meet the following shielding requirements:

1. All outdoor lighting within 150 feet or ten times the mounting height of the fixture, whichever is greater, of an adjacent residential property shall have external shields installed. Additional shielding may be required by the building official when glare intrudes into residential areas or affects visibility of traffic signals or signage.
2. Flood and spot lights shall be installed within a shielded housing and aimed such that the source shall not be visible from any adjacent residential property.
3. Light trespass into residential areas shall not exceed 0.3 foot candles measured vertically at 5 feet above the ground.
4. Residential and commercial luminaires shall be full cutoff within 25 feet of adjacent residential property lines, measured perpendicular to the lot line.

**Exception:** Internal and LED sign lighting. Seasonal decorative lighting as described within section 104.

### SECTION 403 FIXTURE HEIGHT REQUIREMENTS

**403.1 Outdoor light fixture height requirements:**

1. The height of a pole-mounted luminaire shall be measured from finished grade to the bottom of the lens of the luminaire and fixture poles shall not extend more than two feet above the allowed mounting height.
2. The height of a pole-mounted luminaire above finished grade shall not exceed 42 feet for a property that exceeds 25 acres, 30 feet for a property between six and 25 acres, and 20 feet for a property less than six acres. For properties that exceed six acres, any pole within 150 feet of an adjacent residential property shall not exceed 20 feet in height.
3. All lighting fixtures on the residential side of commercial or industrial property and adjacent to residential property shall be full cutoff and shall be limited in height to ten feet at the property line and may increase in height at a rate of one foot for every two feet and six inches away from the property line up to the maximum height for the area of the site.
4. All wall mounted luminaires utilizing lamps in excess of 4,000 lumens and/or installed above nine feet in elevation shall be equipped with external shields and provided with forward throw optical characteristics so as to minimize the reflected light off the wall below the luminaire. See sections 401.1 and 401.2 for additional requirements.

### SECTION 404 OUTDOOR LIGHTING SOURCE COLOR TEMPERATURE

**404.1 Rated color temperature.** The rated color temperature of light sources (lamps and fixtures) shall not exceed 3000K.

**Exception No. 1:** Recreation and outdoor display lots complying with chapters 6 and 7 of this code.

**Exception No. 2:** Existing legal, non-conforming light fixtures may be re-lamped with greater than 3000K rated lamps when 3000K or lower rated lamps are not manufactured for such fixtures.

## SECTION 405 CURFEW REQUIREMENTS

**405.1 Unshielded Light Sources.** Unshielded lighting shall be extinguished between 11:00 p.m. and sunrise the following day.

**Exception No. 1:** Unshielded lighting installed for the illumination of the flag of the United States of America.

**Exception No. 2:** Unshielded lighting installed in accordance with section 601.2 shall be turned off in accordance with the curfew requirements of section 601.3.

**405.2 Illuminated signs.** Refer to section 501.5.

**405.3 Recreational facilities.** Refer to section 601.3.

**405.4 Outdoor display lot.** Refer to section 701.3.

**405.5 Outdoor lighting controls.** The use of outdoor lighting controls shall be as follows:

**405.5.1.** The means of controlling the specific “off” curfew shall be by a 24-hour timing device that includes stand-by power to maintain the time and program for a minimum of six hours.

**405.5.2.** Whenever any curfew “off” time is required by this code, a permanent sign or notice shall be installed in or on the 24-hour timing device stating the required turn-off time. Such sign or notice may be installed within the cover of the 24-hour timing device such that it is visible whenever the device is set or adjusted.

## CHAPTER 5 SIGN LIGHTING

### SECTION 501 OUTDOOR ADVERTISING SIGNS

**501.1 External illumination of on-site signs.** External illumination for on-site signs shall conform to all provisions of this code and shall also conform to the lamp source, shielding restrictions, color temperature and lumen caps set forth in chapter 4.

**501.2 Illumination of off-site advertising signs.** Illumination of outdoor advertising off-site signs is prohibited.

**Exception:** The use of lighting fixtures legally installed in Lighting Areas E2 and E3 prior to the effective date of this code may continue, provided such fixtures are mounted on the top of the sign structure, are not illuminated between the hours of 11:00 p.m. and sunrise, and comply with all other provisions of the code.

**501.3 Internally illuminated advertising signs.** Internally illuminated outdoor advertising signs shall not be counted toward the lumen caps described in chapter 4 of this code. Outdoor internally illuminated advertising signs constructed with an opaque or colored background and translucent text and symbols are strongly preferred so as to reduce any potential detrimental effects.

**501.4 LED, LCD, plasma screen and similar signs.** LED, LCD, plasma screen and similar outdoor advertising signs shall not be counted within the lumen caps described within chapter 4 of this code. All outdoor LED, LCD, plasma screen and similar advertising signs shall be limited to a maximum luminous intensity of 280 cd/m<sup>2</sup> (candela per square meter), full white mode, from sunset to sunrise. In addition, outdoor LED, LCD, plasma screen advertising signs shall be turned off at curfew times listed within table 501.5, or the close of business, whichever is later.

**501.5 Outdoor illuminated sign curfews.** Illumination for all advertising signs, both external and internal, shall be reduced by 50 % or turned off at the curfew times listed in table 501.5, or when the business activities cease, whichever is later. Billboards with legally installed lights shall be turned off at 11:00 p.m.

**TABLE 501.5  
ILLUMINATED SIGN CURFEWS**

LIGHTING AREAS (Defined in section 301 and on Town of Marana Outdoor Lighting Map.)	E3	E2	C
<b>COMMERCIAL AND INDUSTRIAL ZONING</b>	12:00 a.m.	11:00 p.m.	X
<b>ALL RESIDENTIAL ZONING</b>	11:00 p.m.	10:00 p.m.	X

X = Not allowed

**CHAPTER 6  
RECREATIONAL FACILITIES**

**SECTION 601  
ILLUMINATION OF RECREATIONAL FACILITIES**

**601.1 Lighting not directly related to athletic areas.** All site lighting not directly associated with the athletic playing areas shall conform to the lighting standards described in this code, including but not limited to the shielding requirements set forth in chapter 4 and the lumens-per-acre limits in table 401.1.

**601.2 Athletic lighting exempt from lumen limits.** Lighting for athletic fields, courts or tracks shall be exempt from the lumens-per-acre limits in table 401.1. All such lighting shall utilize full cutoff luminaires that are installed in a fashion that maintains the full cutoff characteristics. Every such lighting system design shall be certified by a registered engineer as conforming to all applicable restrictions of this code.

**Exception:** Where full cutoff fixtures are not utilized, acceptable luminaires shall include those which are provided with internal and/or external glare control louvers and installed so as to limit direct up-light to less than five percent of the total lumens exiting from the installed fixture, and minimize offsite light trespass by installing additional shielding for any residential area. Acceptable fixtures must also be installed with minimum aiming angles of 25 degrees downward from horizontal. This aiming angle shall be measured from the axis of the luminaire maximum beam candlepower as certified by an independent testing agency.



**601.3 Athletic lighting curfew.** All events shall be scheduled so as to complete all activity before the curfew times listed in table 601.3. Illumination of the playing field, court or track shall be permitted after the curfew only to conclude a scheduled event that was unable to be concluded before the curfew due to unusual circumstances.

**601.4 Lighting Area C prohibition.** No recreational lighting is permitted in Lighting Area C. Trailheads or other facilities may have low levels of lighting for security and shall require a special permit.

**TABLE 601.3  
RECREATIONAL FACILITY LIGHTING CURFEWS**

LIGHTING AREAS (Defined in section 301 and on Town of Marana Outdoor Lighting Map.)	E3	E2	C
<b>CURFEW TIME</b>	11:00 p.m.	11:00 p.m.	X

X = Not allowed

**CHAPTER 7  
OUTDOOR DISPLAY LOT LIGHTING**

**SECTION 701  
ILLUMINATION OF OUTDOOR DISPLAY LOT AREAS**

**701.1 Lighting not associated with display lot areas.** All site lighting not directly associated with the display lot areas shall conform to the lighting standards described in this code, including but not limited to the requirements of chapter 4.

**701.2 Lighting for display lot areas.** Lighting for display lot areas shall be exempt from the lumens-per-acre limits of chapter 4. All such lighting shall utilize full cutoff luminaires that are installed in a fashion that maintains the full cutoff characteristics. Every such lighting system design shall be certified by a registered lighting or electrical engineer as conforming to all applicable restrictions of this code.

**701.3 Curfew requirements for display lot lighting.** Display lot area lighting exceeding the lumens-per-acre limits of chapter 4 shall be turned off at the curfew times listed in section 405 or within thirty minutes after closing of business, whichever is later.

**Exemption:** Display lot area lighting used for security and safety purposes is exempt from the curfew requirements of section 405 provided it is in full compliance with all requirements of chapter 4 and all other aspects of this code.