

**EXHIBIT A**  
**CHAPTER 98: OUTDOOR LIGHTING / DARK SKY ORDINANCE**

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**§ 98.01 PURPOSE.**

The purpose of this chapter is to provide outdoor lighting standards and regulations that maintain Heath's quaint rural character, decrease light pollution while maintaining property safety, preserve views of the night sky, and promote energy efficiency, community health, and harmony between neighbors.

**§ 98.02 GENERAL.**

- (1) Scope. This chapter applies to outdoor lighting on all non-residential properties within the City limits. The provisions of this chapter are not binding in the Extraterritorial Jurisdiction (ETJ) of the City. However, compliance is strongly encouraged.
- (2) Prohibition. A property owner commits an offense by doing the following:
  - a. Installs outdoor lighting contrary to this chapter.
  - b. Fails to comply with any terms or conditions set forth in a permit issued under this chapter.
- (3) Nuisance. A violation of this chapter is hereby declared to be a prohibited public nuisance.

### § 98.03 DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply. Terms that are not defined below, but are defined elsewhere in the Code of Ordinances, shall be given the meanings set forth therein. Words or phrases not defined in the Code of Ordinances shall be given their common, ordinary meaning unless the context clearly requires otherwise.

**BARN-LIGHT:** Commonly referred to as a dusk-to-dawn light and is generally unshielded and used in rural applications.

**BULB OR LAMP:** A light-emitting device or a structure containing a light source that includes but is not limited to a lamp.

**COLOR RENDERING INDEX (CRI):** A quantitative measure of the ability of a light source to reveal the colors of various objects faithfully in comparison with a natural or standard light source.

**DARK SKY:** A place where darkness of the night sky is reasonably free of interference from artificial light.

**FIXTURE:** The complete assembly that holds the lamp, including any elements designed to provide light output control such as a reflector or refractor, the ballast and housing.

**FOOTCANDLE (FC):** A unit of light intensity equal to one lumen per square foot, which applies to the brightness of light on a surface or at a point in space.

**FULLY SHIELDED LIGHT FIXTURE:** A light fixture constructed and installed in such a manner that all light emitted by the fixture, either directly from the luminaires or a diffusing element, or indirectly by reflection or refraction from any part of the fixture, are not permitted to project above the horizontal plane through the fixture's lowest light-emitting part or beyond the area intended to be illuminated.

**GLARE:** Lighting entering the eye directly from luminaires or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.

**HOLIDAY LIGHTING:** Temporary lighting for a specific celebration that consists only of traditional festoon-type low-output lamps. Spotlights and searchlights are prohibited.

**ILLUMINATION/ILLUMINANCE:** The density of lumens incident on a surface expressed in footcandles.

**KELVIN, KELVIN COLOR TEMPERATURE SCALE:** The Kelvin color temperature scale is used to describe the way various light temperatures appear visually. It is measured in degrees on a Kelvin scale (K) and typically ranges from 2700 degrees Kelvin (yellow/warm light) to 5000 degrees Kelvin (blue/cool light)

**LIGHT TRESPASS:** Light that falls beyond the property it is intended to illuminate, for example, onto a motor vehicle, upwards toward the sky, or onto another property, etc.

**LIGHT/LIGHTING:** Any source of light that does not include natural light emitted from celestial objects or fire. The term includes, without limitation, any type of lighting, fixed or movable, designed or used for outdoor illumination of buildings or homes, including lighting for billboards, streetlights, canopies, gasoline station islands, searchlights used for advertising purposes, externally or internally lit advertising signs, and luminous elements or lighting attached to structures, poles, the earth, or any other location.

**LUMEN:** A measure of the amount of light emitted by a lamp -- the higher the number of lumens, the brighter the lamp. The initial lumen rating associated with a given lamp is generally indicated on its packaging or may be obtained from the manufacturer.

**LUMINAIRE, OR LUMINOUS ELEMENTS (OF A LIGHT FIXTURE):** Individually or collectively the lamp (light bulb), any diffusing elements and surfaces intended to reflect or refract light emitted from the lamp.

**NET ACRE:** The unit of land area which comprises an acre, less that portion of land covered by any building.

**NON-RESIDENTIAL PROPERTY:** Non-residential property includes the following:

- Property that is not located in the following residential zoning districts: (SF-15) Single-Family Residential District, (SF-22) Single-Family Residential District, (SF-43) Single-Family Residential District, (SFE-3.0) Single-Family Estate 3.0 Residential District, (PD) Residential Planned Development, (D) Duplex Residential District, (TH) Townhouse Residential District.
- Property such as parks, common areas, amenity centers, sports facilities, trails, streets, and entry features associated with neighborhoods and subdivisions regardless of zoning district.
- Non-residential uses situated in the take-area of Lake Ray Hubbard.
- Streets and parking areas regardless of zoning district.
- Agricultural uses such as barns and arenas regardless of zoning district.
- Multi-family properties having three or more dwelling units located within one tract or one lot regardless of zoning district.

**OUTDOOR LIGHTING:** Temporary or permanent lighting that is installed, located, or used in such a manner to cause illumination outdoors. Non-residential fixtures that are installed indoors that cause illumination outside are considered outdoor.

**OUTDOOR LIGHTING PLAN OR PHOTOMETRIC PLAN:** A submittal required with non-residential building permit applications that includes the location of all existing and proposed light fixtures, a lighting fixture table, building elevations indicating where light fixtures are to be installed, a site plan depicting the area to be illuminated, photometric measurements that comply with the requirements of this chapter, measures to minimize trespass, glare, and an applicant certification as provided in § 98.10.

**PUBLIC OUTDOOR LIGHTING:** All City public street lighting and outdoor lighting on other City property and City owned rights-of-way.

**RESIDENTIAL PROPERTY:** All property other than non-residential property as defined above.

**SIGHT TRIANGLE:** A triangle at an intersection formed by two roads or rights-of-way and a third line, which must be kept clear of obstructions for safe motor vehicle operation and pedestrian safety. There shall be two different sight triangles as depicted in the City's Subdivision Ordinance. One shall be for public and/or private street intersections and the other for the intersection of private non-single family driveways with public or private streets.]

**TEMPORARY LIGHTING:** Lighting intended for uses which by their nature are of limited duration provided the lights are positioned so they do not shine in the eyes of passing drivers; for example, holiday decorations, festivals, civic events, construction projects, performances, and emergency response. Temporary lighting is limited to 45 days or longer as permitted in writing by the Building Official. On the 46<sup>th</sup> day and beyond a lighting permit is required.

#### **§ 98.04 NONCONFORMING EXISTING LIGHTING.**

- (1) All new and replacement non-residential outdoor lighting installed after the effective date of this chapter shall comply with its provisions. All existing non-residential outdoor lighting that was legally installed before the effective date of this chapter, and that does not comply with the standards, rules and regulations shall be deemed nonconforming.
- (2) Nonconforming existing outdoor lighting shall be brought into compliance with this chapter upon the earlier of:
  - a. Five years from the effective date of this ordinance.
  - b. A property is the subject of an application for a conditional use permit, subdivision approval, site plan, building permit for new construction, building permit for remodeling 50% or more of a structure, or a building permit for an addition that increases the size of a building by 50% or more of the original square footage of the building or the structure remains vacant for a continuous period of six months. Such property in its entirety shall be brought into compliance with this chapter before final inspection, issuance of a certificate of occupancy, final plat recordation, or occupancy of the improvement, whichever is applicable.
  - c. Any replacement of an outdoor lighting fixture is required to comply with the

provisions of this chapter.

- d. With the exception of the foregoing provisions of Section 98.04(2), nonconforming outdoor lighting must immediately be removed or replaced to comply with this Ordinance and shall be subject to Section 98.19 "Enforcement".
  - e. Variances. The City Council may hear appeals from the denial of a permit due to lack of conformance with this chapter. Criteria for granting such a variance is as stated in the state statute, V.T.C.A., Local Government Code §211.008 et seq., as it may be amended.
- (3) The foregoing provisions regarding nonconforming existing lighting shall not apply to the height of existing poles, nor be applied to require existing poles to be removed or lowered.

### § 98.05 GENERAL OUTDOOR LIGHTING STANDARDS.

- (1) The City shall determine the appropriate applications, development permits, etc. that will require conformance with this chapter.
- (2) Any fixture having a total light emission exceeding 1,500 lumens shall be a fully shielded light fixture that:
  - a. Confines the light so that it falls entirely on a wall or sign or confines the light within the property and entirely below a horizontal plane at the lowest point of the fixture at which light is emitted. (See Figure A.)
  - b. Prevents a line of sight from any point off the property on which the fixture is situated to a light source.
- (3) Streetlights installed, repaired, or replaced on and after the effective date shall be fully shielded fixtures to limit light trespass (See Figure A) and shall have a correlated color temperature of 3000 Kelvin or less with a minimum Color Rendering Index (CRI) of 80. City streetlights installed before the effective date of this Ordinance shall be brought into compliance with the requirements of this chapter within 5 years after effective date of this ordinance, including but not limited to the installation of fully shielded fixtures to limit light trespass (See Figure A) and

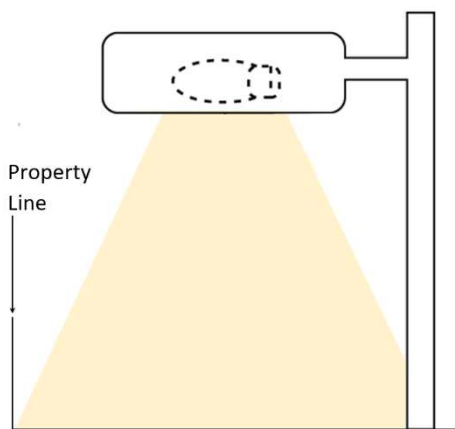


Figure A: Fully Shielded Fixture Illumination

having a correlated color temperature of 3000 Kelvin or less with a minimum CRI of 80.

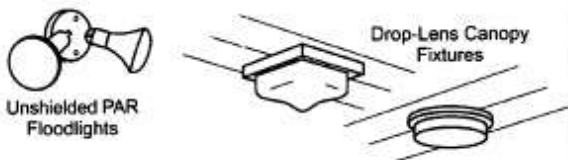
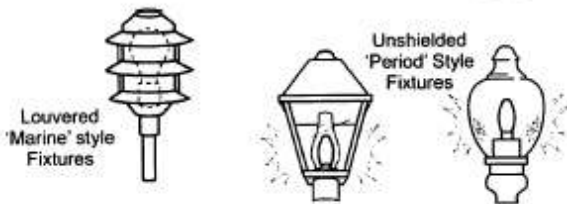
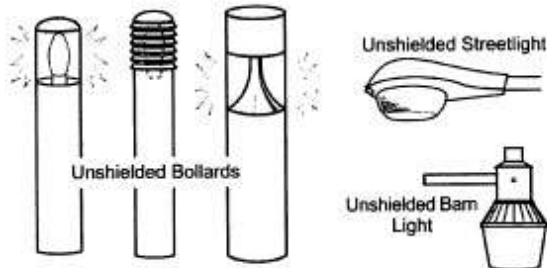
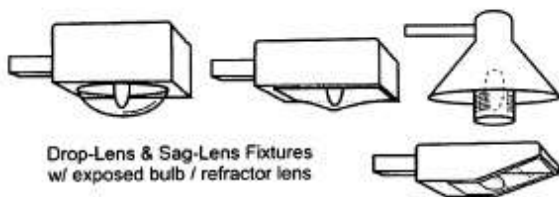
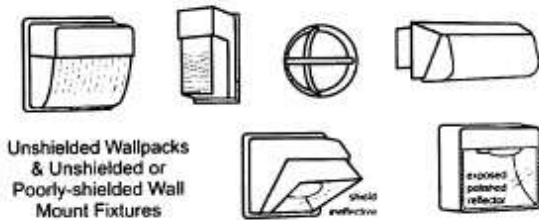
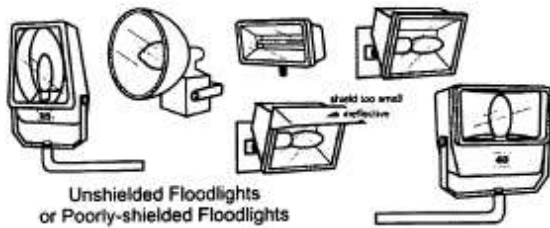
- (4) All non-residential outdoor lighting, except as otherwise specifically permitted by this chapter, shall be fully shielded fixtures. Where fixtures are affixed to canopies or soffits or similarly undermounted on a structure, the fixture shall be flush mounted or side shielded. The luminous elements of the fixture shall not be visible from any residential property and the fixture shall have a correlated color temperature of 3000 Kelvin or less with a minimum CRI of 80. See Figure B for examples of unacceptable and acceptable light fixtures. See Figure A for shielding illustration.
- (5) Metering Equipment and Methods of Measurement:
  - a. Outdoor lighting levels shall be measured in footcandles with a direct reading portable light meter with a color and cosine corrected sensor with multiple scales.
  - b. Readings shall be taken in both the horizontal plane and vertical plane.
  - c. Readings shall be taken when visibility is six miles or greater.
  - d. Readings shall be taken at least one hour after sunset or one hour prior to sunrise.
  - e. For the horizontal plane, the meter sensor shall be mounted or held not more than six inches above ground level in a horizontal position.
  - f. For the vertical plane, the meter sensor shall be mounted or held at least five feet above ground level in a vertical position, measurements made perpendicular to the property line and facing the outdoor lighting in question.
- (6) The aggregate total outdoor lighting on any non-residential property shall not exceed 65,000 lumens per net acre of parking, pedestrian ways and fire lanes, unless approved in writing by the Building Official.
- (7) Light is presumed to be unreasonable and declared a light nuisance if the illumination in any plane is in excess of an average of 1.5 FC in areas of parking, pedestrian ways and fire lanes. The maximum outdoor illuminance on the subject property shall not exceed 5 FC at any point, except that under canopies (such as service stations) illuminance shall not exceed 10 FC.
- (8) Limitations on Neighboring Property: The limit of illumination on neighboring property from one establishment shall be based on the zoning or public use of the neighboring property. Maximum FC at the neighboring property line shall not exceed:
  - a. Single-Family Residential Districts 0.1 FC
  - b. Multiple-Family District 0.5 FC
  - c. Agricultural District 0.1 FC
  - d. Nonresidential Districts 1.5 FC
  - e. Lake Edge Zoning District: 0.1 FC
  - f. Public Areas including right-of-way: 0.5 FC
- (9) Maximum height of light poles, light standards, and flagpoles. Light poles, light standards, and flagpoles installed after the effective date of this Ordinance shall not exceed 20 feet in height. In areas where height is regulated by another section

of the Code of Ordinances, the most restrictive regulation shall be applied. Roof-mounted light standards and light poles shall not exceed the maximum height allowed in the zoning district. For instance, if the maximum height allowed in the zoning district is 30 feet, the height of the building plus the height of the roof mounted pole may not exceed 30 feet.

- (10) All existing and/or new non-residential outdoor lighting shall not cause light trespass and shall protect properties from glare and excessive lighting. Non-residential outdoor lighting shall be sufficiently shielded and aimed such that spillage of light onto adjacent properties is prevented and glare from the light emitting and/or reflecting parts of a luminaire is not visible from an adjacent property.
- (11) Outdoor lighting at public and private outdoor recreational facilities, including but not limited to playing fields, arenas, tracks, neighborhood amenity centers, and swimming pools shall be fully shielded fixtures and the luminous elements of the fixture shall not be visible from any adjacent residential property and comply with all the standards in this chapter. Underwater lighting of swimming pools shall be exempt from this requirement. *See Figure B.*

## Unacceptable / Do Not Use

Fixtures that produce glare and light trespass



## Usually Acceptable / May Need Shielding

Fixtures that shield the light source to minimize glare and light trespass and to facilitate better vision at night

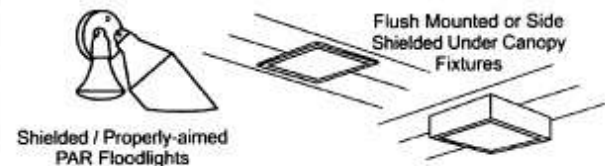
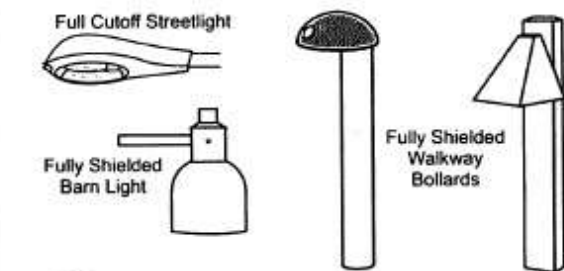
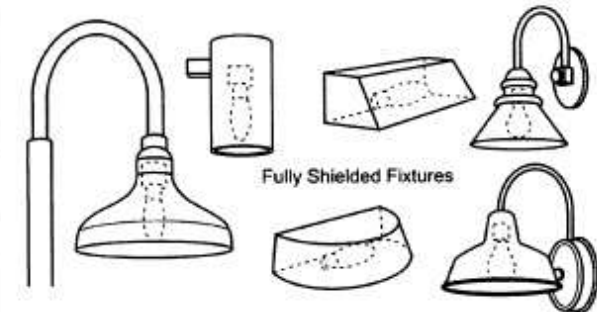
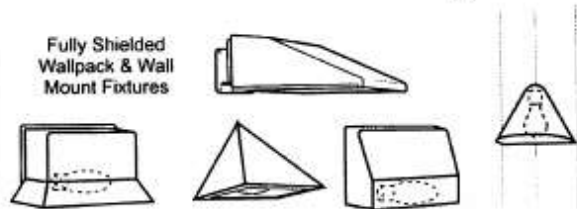
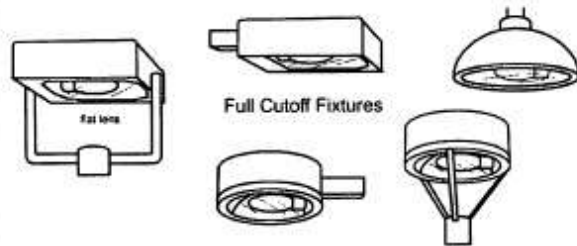


Figure B: Examples of Unacceptable/Noncompliant Fixtures and Acceptable/Compliant Fixtures.



**§ 98.06 LIGHTING FOR OUTDOOR SIGNS AND PANELS.**

- (1) Non-residential outdoor internally-illuminated signs shall conform to this chapter and the Sign Ordinance codified as chapter 151 of the City's Code of Ordinances
- (2) Non-residential outdoor externally-illuminated signs shall conform to all provisions of this chapter and the Sign Ordinance in chapter 151 of the Code of Ordinances.

**§ 98.07 FLAG POLES.**

It is preferred that flagpoles not be illuminated and that the traditional raising of the flag after dawn and lowering of the flag before sunset be utilized. Lighting of up to a total of two (2) governmental flags per property is permitted. Flag poles shall be illuminated from above if illuminated at all. The fixture must shine down at 90° and be fully shielded. The total number of lumens output from any light fixture mounted on top of a flagpole is limited to 800 lumens. Flagpole height shall be limited to 20 feet including the light fixture.

**§ 98.08 LIGHTING CURFEW.**

- (1) Lighting for outdoor recreational facilities is allowed between one hour prior to sunset through 10:00 p.m. except to the extent necessary to conclude a scheduled event already in progress at 10:00 p.m.
- (2) Lighting for outdoor recreational facilities is allowed no earlier than one hour prior to sunrise.
- (3) Lighting for outdoor recreational facilities is not allowed between the hours of 10:00 p.m. and one hour before sunrise.
- (4) All outdoor lighting is encouraged to be turned off or turned down when no one is present to use the light, unless such lighting is for the purpose of providing illumination for the safety of persons or property or to deter potential criminal activity.
- (5) The City Manager shall have discretion to determine when and under what circumstances new public outdoor lighting is warranted and will be permitted, based upon public safety hazards or concerns that can only be mitigated by additional public outdoor lighting.
- (6) The City Manager shall have discretion to determine the adaptive controls or curfews to be employed in all future installations of public outdoor lighting, considering the circumstances indicating the need for said public outdoor lighting based on the presence or absence of citizens on public property or rights-of-way.

**§ 98.09 PROHIBITIONS.**

- (1) The installation of any mercury vapor and high-pressure sodium fixture or lamp for use as outdoor lighting is prohibited.
- (2) The installation of any wall pack fixture for use as outdoor lighting is prohibited unless the fixture is rated by the manufacturer as fully shielded and complies with the requirements of this chapter.
- (3) The installation of any barn-light style fixture for use as outdoor lighting is prohibited unless the fixture includes a full opaque reflector instead of the standard translucent lens and otherwise complies with the shielding requirements of this chapter.
- (4) The operation of spotlights and searchlights is prohibited except as allowed herein.

- (5) The installation or operation of any fixtures that create a strobe or flashing effect is prohibited; including but not limited to sign panels, display screens, rapidly changing message boards, laser lights and illuminated disco balls, is prohibited.

#### **§ 98.10 SUBMISSION OF PLANS AND EVIDENCE OF COMPLIANCE.**

- (1) All non-residential property conditional use permits, special exceptions, site plans, planned developments, building permits or other development applications shall include an outdoor lighting plan prepared by a lighting designer or lighting engineer. The outdoor lighting plan shall include the following information, in conformance with this chapter:
  - a. The location of all existing and proposed light fixtures; and
  - b. Specification sheets for all existing and proposed light fixtures; and
  - c. Building elevations indicating where light fixtures are to be installed showing fixture heights; and
  - d. Site plan indicating where light fixtures are to be installed with measurements in feet for the area to be illuminated. The site plan shall demonstrate that the post-development light level complies with all requirements of this chapter; and
  - e. Indicate the location of any landscaped features and other material treatments that will be incorporated into the development to decrease light trespass and glare. The use of non-reflective materials and the minimization of light-colored paving and building materials is encouraged; and
  - f. Acknowledgement by the preparer that the outdoor lighting depicted on the outdoor lighting plan will comply with the requirements of this chapter after installation.
- (2) Verification of compliance with the provisions of this chapter shall occur during the final inspection for a certificate of occupancy by the Building Official.

#### **§ 98.11 EXEMPTIONS.**

The following lighting instances are exempt from this chapter:

- (1) Lighting required by the adopted Building Codes and NCTCOG amendments for life safety; and
- (2) Lighting required by law to be installed on motor vehicles; and
- (3) Holiday lighting; and
- (4) Underwater lighting in swimming pools provided such lighting does not create a strobe or flashing effect; and
- (5) Temporary lighting provided that the exemption applies only during the hours of the event or work; and
- (6) Temporary lighting needed during activities of law enforcement, fire and other emergency services; and
- (7) Temporary lighting required to save life, limb or property from imminent peril, provided that the exemption applies only during the hours of the peril; and
- (8) Temporary lighting employed during emergency repairs of roads and utilities may be unshielded provided the lights are positioned so they do not shine in the eyes of passing drivers.

## **§ 98.12 MATERIALS AND METHODS OF INSTALLATION.**

This chapter is not intended to prohibit the use of any design, material or method of prescribed installation not specifically proscribed by this chapter, provided such alternative meets the legislative intent of this chapter.

## **§ 98.13 COMPLIANCE WITH BUILDING CODE.**

All lighting installations commenced in accordance with this chapter must be in compliance with the adopted Building Codes and NCTCOG amendments as adopted by the City Council.

## **§ 98.14 MISCELLANEOUS.**

These provisions shall apply to all non-residential outdoor lighting:

- (1) Outdoor lighting shall be maintained in good repair by the owner.
- (2) All structural elements of the outdoor lighting fixtures and poles shall remain in sound condition as determined by the Building Official.
- (3) Outdoor lighting shall not be constructed in the 100-year floodplain, except as approved by the City Engineer.
- (4) No outdoor lighting shall be permitted within a sight triangle.
- (5) Should regulations in this chapter conflict with each other, the most restrictive regulation shall apply.

## **§ 98.15 PERMIT REQUIRED.**

A permit is required for installation of all outdoor lighting regulated by this chapter. An outdoor lighting permit fee shall be established by the City Council and amended from time to time, without further need to amend this Ordinance, as on file in the Office of the City Secretary.

## **§ 98.16 VARIANCES.**

The City Council may allow a variance to the provisions of this chapter after a public hearing if it determines that the enforcement of a provision in a particular instance:

- (1) Is not in the best interests of the public;
- (2) Constitutes waste or inefficient use of land or other resources;
- (3) Creates an undue hardship on the applicant for a permit; or
- (4) Does not serve its intended purpose, is not effective or necessary.

Before the tenth day prior to the public hearing on the variance, the City shall send notice via regular mail to all property owners, as indicated by the most recent tax appraisal roll, within 500 feet of the property on which the variance is requested.

## **§ 98.17 ADMINISTRATIVE GUIDANCE.**

The City is authorized to promulgate one or more interpretive documents to aid in the administration of, and compliance with, this chapter. Such interpretive documents shall be educational only and shall not constitute regulations, amendments, or exceptions.

### **§ 98.18 PUBLIC NUISANCE**

- (1) Any violation of this chapter that results in light trespass or an unreasonable interference with the common and usual use of neighboring property is hereby declared to be a public nuisance, which is prohibited by this chapter.
- (2) It is an offense under this chapter for a property owner to emit light onto the property of another unreasonably interfering with the neighboring property owner's use and enjoyment of their property.
- (3) Light trespass onto a neighbor's property applies to both non-residential and residential properties.

### **§ 98.19 ENFORCEMENT.**

The City shall have the power to administer and enforce the provisions of this chapter as may be required by governing law. Any property owner violating any provision of this chapter is subject to suit for injunctive relief as well as prosecution for criminal violations, and each day upon which a violation occurs or continues shall constitute a separate violation.

- (1) Any property owner violating any provision of this chapter shall, upon conviction, be fined a sum not exceeding five hundred dollars (\$500.00) plus associated court costs. Each day that a provision of this chapter is violated shall constitute a separate offense. An offense under this chapter is a Class C misdemeanor.
- (2) In the event work is not being performed in accordance with this chapter, the City shall issue a Stop Work Order and all work shall immediately cease. No further work shall be undertaken on the project while a Stop Work Order is in effect.
- (3) Nothing in this chapter shall be construed as a waiver of the City's right to bring a civil action to enforce the provisions of this chapter and to seek remedies as allowed by law, including, but not limited to the following:
  - a. Injunctive relief,
  - b. Monetary damages, and
  - c. Other relief as directed by a court with jurisdiction over the matter.