

NOTICE AND AGENDA
Apple Valley Utah
Planning Commission

Public notice is given that the Planning Commission of the Town of Apple Valley, Washington County, Utah will hold a **Planning Commission** meeting on **Wednesday, August 14, 2019** at the **Apple Valley Town Hall**, 1777 N. Meadowlark Dr., Apple Valley, Utah, commencing at 6:00 PM. or shortly thereafter. In accordance with state statute, one or more members may be connected via speakerphone.

The Agenda for the meeting is as follows:

Call to Order/ Pledge of Allegiance/ Roll Call

Discussion and Action Items:

- A. Lot Line Adjustment making AV-CDPT-1-18 and AV-CDPT-1-19 into one lot- Scott Taylor
- B. Request of Approval for Changes to Cabin Sizes for Phases 2 and 3 of Gooseberry Lodges-Aaron Stout
- C. General Map Change Proposal for Bubbling Wells Area
- D. Town Code 10.26 "Outdoor Lighting" Discussion
- E. Town Code 10.28.100 "Parking Requirements of Private Recreational Vehicles in Residential Zones" Discussion

Approval of Minutes:

- F. Meeting Minutes for 7.10.2019

Adjournment

CERTIFICATE OF POSTING: I, Michelle Kinney, as duly appointed Recorder for the Town of Apple Valley, hereby certify that this notice was posted on the Utah Public Meeting Notice website <http://pmn.utah.gov>, the Town Website www.applevalleyut.gov on the **9th day of August, 2019**.

Dated this 9th day of August, 2019

Michelle Kinney, Recorder
Town of Apple Valley

THE PUBLIC IS INVITED TO PARTICIPATE IN ALL COMMUNITY EVENTS AND MEETINGS
In compliance with the American with Disabilities Act, individuals needing special accommodations (Including auxiliary communicative aids and services) during this meeting should notify Michelle Kinney at 435-877-1190.



Town of Apple Valley
 1777 N. Meadowlark Drive, Apple Valley, Utah 84737
 Phone: (435) 877-1190 Fax: (435) 877-1192
 www.applevalleyut.gov

APPLICATION TO APPEAR BEFORE THE PLANNING COMMISSION

Date of Planning Commission meeting for this agenda item to appear 8/14/19 - 6:00pm

Paperwork returned by SCOTT TAYLOR (Date) 7/29/19

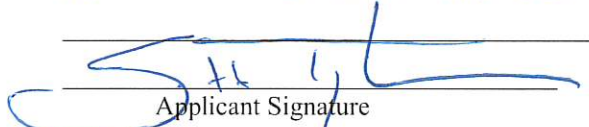
Name of Applicant: SCOTT TAYLOR

Site Location: AV-CDPT-1-18 AND AV-CDPT-1-19

Mailing Address: PO BOX 7366
BUNKERVILLE NV 89007

Phone: 702-539-1491

Purpose of Request: WE WOULD LIKE TO COMBINE LOT
AV-CDPT-1-18 AND AV-CDPT-1-19 INTO ONE LOT.


 Applicant Signature

- 1. Annexations: \$1500.00 filing fee
- 2. Conditional Use Permit: \$300.00 filing fee
- 3. Zone Changes: \$500.00 + Acreage Fee filing fee
- 4. Subdivisions: \$1500.00 filing fee
- 5. Lot Line Adjustment: \$200.00 filing fee
- 6. Lot Split (2 Lots): \$250.00 filing fee
- 7. General Plan Amendment: \$500.00 + Acreage Fee filing fee

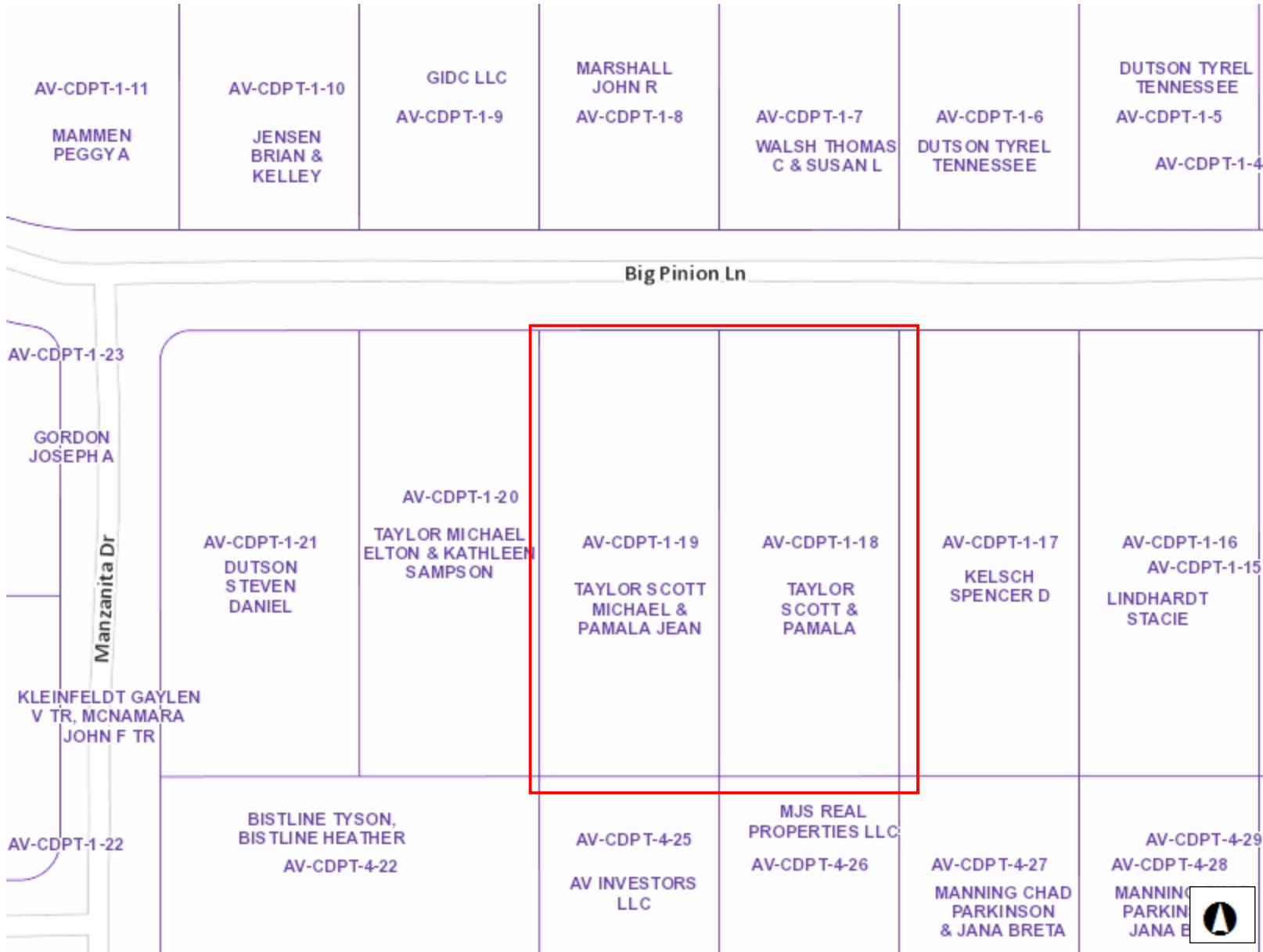
Note: Final approval of this application is subject to all necessary paperwork being submitted. Applications requiring a public hearing may have other requirements which must be completed prior to placement on an agenda. When those applications have been approved for the agenda, they must be submitted no later than 4:00 p.m. the Wednesday three weeks prior to the expected commission meeting. All other applications must be submitted no later than 5:00 p.m. on Thursday, one week prior to the regularly scheduled Commission meeting. All plats, drawings, or other visual material must be submitted in a format viewable by public attending the meeting, as well as an email in PDF format for reproduction to meet notice requirements.

_____/_____
 Planning Commission Chairman / Date

_____/_____
 City Administration / Date



Scott Taylor Lot Merge



Legend

- Parcels
- Ownership**
 - U.S. Forest Service
 - U.S. Forest Service Wilderness
 - Bureau of Land Management
 - Bureau of Land Management Wildlife
 - National Park Service
 - Shivwits Reservation
 - Utah Division of Wildlife Resources
 - Utah Division of Transportation
 - State Park
 - State of Utah
 - Washington County
 - Municipally Owned
 - School District
 - Privately Owned
 - Water
 - Water Conservancy District
 - State Assessed Oil and Gas
 - Mining Claim

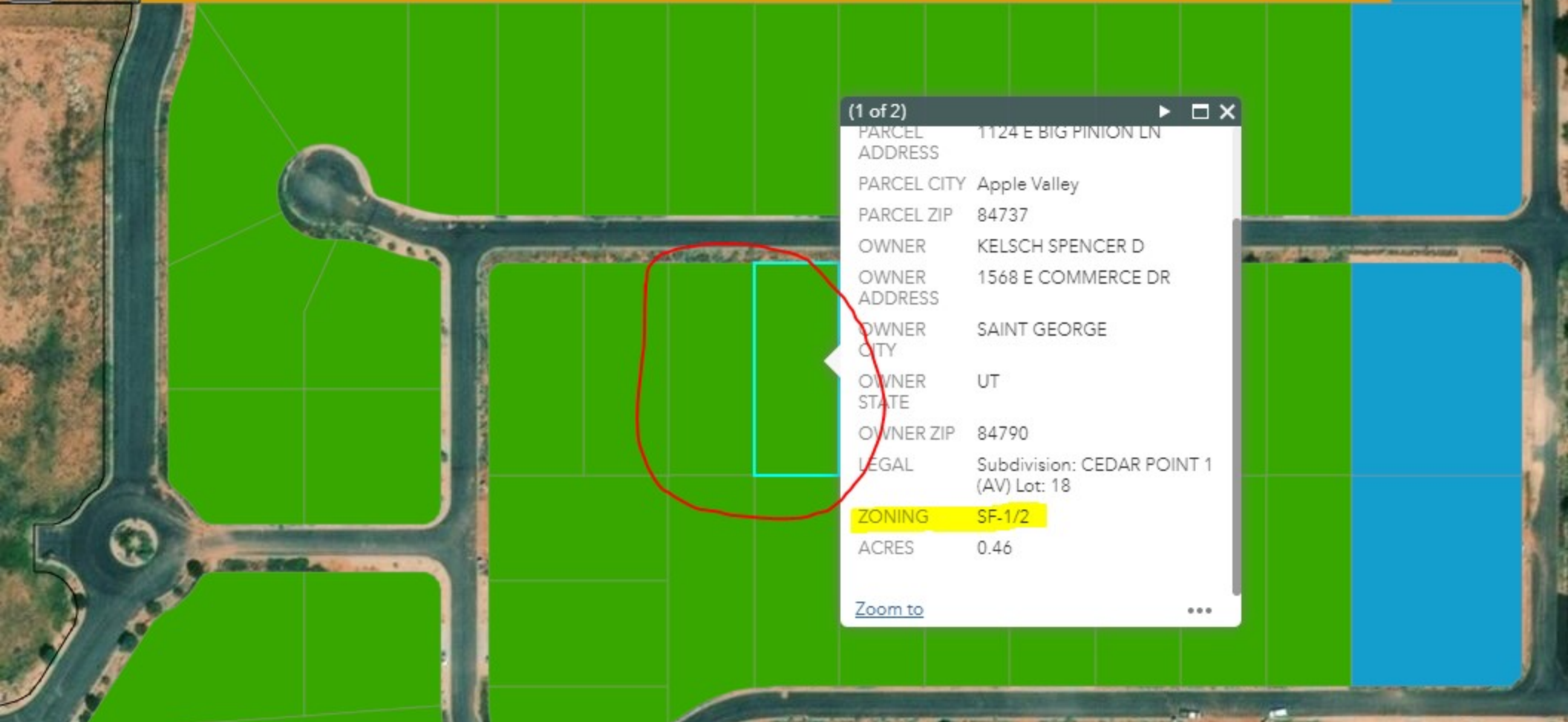
Notes

188.1 0 94.04 188.1 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

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Map navigation controls including zoom in (+), zoom out (-), home, and refresh icons. A search bar contains the text "Find address or place" with a magnifying glass icon.



(1 of 2) [Close] [Maximize] [Play]

| | |
|----------------|---|
| PARCEL ADDRESS | 1124 E BIG PINION LN |
| PARCEL CITY | Apple Valley |
| PARCEL ZIP | 84737 |
| OWNER | KELSCH SPENCER D |
| OWNER ADDRESS | 1568 E COMMERCE DR |
| OWNER CITY | SAINT GEORGE |
| OWNER STATE | UT |
| OWNER ZIP | 84790 |
| LEGAL | Subdivision: CEDAR POINT 1 (AV) Lot: 18 |
| ZONING | SF-1/2 |
| ACRES | 0.46 |

[Zoom to](#) ...

Account 0848799

Location

Account Number 0848799
Parcel Number AV-CDPT-1-19
Tax District 45 - Apple Valley Town
Acres 0.46
Situs 1104 E BIG PINION LN , APPLE VALLEY
Legal Subdivision: CEDAR POINT 1 (AV) Lot:
 19

Owner

Name TAYLOR SCOTT MICHAEL & PAMALA
 JEAN
 PO BOX 7366
 BUNKERVILLE, NV 89007-7366

Value

Market (2019) \$40,000
Taxable \$40,000
Tax Area: 45 **Tax Rate:**
 0.009803
Type **Actual** **Assessed** **Acres**
 Non
 Primary \$40,000 \$40,000 0.460
 Land

Parent Accounts 0756935

Parent Parcels AV-1366-D

Child Accounts

Child Parcels

Sibling Accounts

Sibling Parcels

Transfers

Entry Number

Recording Date

| | |
|-----------------------------|--|
| 00952974 | 06/22/2005 03:02:00 PM |
| 20070040648 | 08/10/2007 01:32:51 PM |
| 20110031703 | 10/18/2011 02:16:28 PM |
| 20110031704 | 10/18/2011 02:16:28 PM |
| 20140003686 | 02/06/2014 03:38:14 PM |
| 20140036246 | 11/26/2014 01:57:02 PM |
| 20190000956 | 01/09/2019 11:15:43 AM |
| 20190019031 | 05/16/2019 03:27:53 PM |

[B: 1757 P: 2585](#)

"Tax"

Images

| Tax Year | Taxes |
|----------|----------|
| *2019 | \$392.12 |
| 2018 | \$367.99 |

* Estimated

Account 0848782

Location

Account Number 0848782
Parcel Number AV-CDPT-1-18
Tax District 45 - Apple Valley Town
Acres 0.46
Situs 1124 E BIG PINION LN , APPLE VALLEY
Legal Subdivision: CEDAR POINT 1 (AV) Lot: 18

Owner

Name TAYLOR SCOTT & PAMALA
 PO BOX 7366
 BUNKERVILLE, NV 89007-7366

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Child Parcels
Sibling Accounts
Sibling Parcels

Transfers

| Entry Number | Recording Date | |
|-----------------------------|--|---------------------------------|
| 00952974 | 06/22/2005 03:02:00 PM | B: 1757 P: 2585 |
| 20070040648 | 08/10/2007 01:32:51 PM | |
| 20110031703 | 10/18/2011 02:16:28 PM | |
| 20110031704 | 10/18/2011 02:16:28 PM | |
| 20140003686 | 02/06/2014 03:38:14 PM | |
| 20140036247 | 11/26/2014 01:57:02 PM | |
| 20190000956 | 01/09/2019 11:15:43 AM | |
| 20190026456 | 07/03/2019 04:15:40 PM | |
| 20190026463 | 07/03/2019 04:28:16 PM | |

"Tax"

Images

| Tax Year | Taxes |
|----------|----------|
| *2019 | \$392.12 |
| 2018 | \$367.99 |

* Estimated



Town of Apple Valley
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 Phone: (435) 877-1190 Fax: (435) 877-1192
 www.applevalleyut.gov

APPLICATION TO APPEAR BEFORE THE PLANNING COMMISSION

Date of Planning Commission meeting for this agenda item to appear Aug 14, 2019

Paperwork returned by Aaron Stout (Date) Aug. 5, 2019

Name of Applicant: Aaron Stout

Site Location: Gooseberry Lodges 1752 Plains Dr.

Mailing Address: 1752 W. Plains Dr. Apple Valley

Phone: 435-313-0832

Purpose of Request: Request Approval of changes to cabin sizes for Phases 2 & 3 of Gooseberry Lodges.

Aaron Stout
 Applicant Signature

- 1. Annexations: \$1500.00 filing fee
- 2. Conditional Use Permit: \$300.00 filing fee
- 3. Zone Changes: \$500.00 + Acreage Fee filing fee
- 4. Subdivisions: \$1500.00 filing fee
- 5. Lot Line Adjustment: \$200.00 filing fee
- 6. Lot Split (2 Lots): \$250.00 filing fee
- 7. General Plan Amendment: \$500.00 + Acreage Fee filing fee

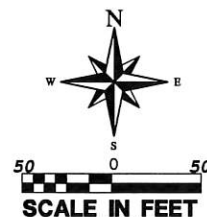
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_____/_____
 Planning Commission Chairman Date

_____/_____
 City Administration Date

SITE PLAN FOR: AARON STOUT

APPLE VALLEY PROPERTY
PARCEL # AV-1337, 4.97 ACRES
LOCATED IN SECTION 25, T42S, R12W, S.L.B.&M.
WASHINGTON COUNTY, UTAH



LEGEND

- PROPERTY LINE
- ADJACENT PROPERTY LINE
- x-x- EXISTING FENCE
- SECTION LINE
- SS — SS — LEACH LINE
- OVERHEAD POWER LINE
- ◆ SECTION CORNER AS DESCRIBED
- SET PROVALUE ENGINEERING REBAR & CAP P.L.S. #4938769
- ⊕ FOUND CENTERLINE MONUMENT AS DESCRIBED
- ⊙ PERCOLATION TEST HOLE
- FOUND MONUMENT AS DESCRIBED
- (00.00) RECORD BEARING OR DISTANCE
- 1" ALL PURPOSE WATER LINE FOR CULINARY & FIRE, SEE DETAIL
- PROPOSED WATER LINE, SIZE INDICATED
- PROPOSED SEWER LINE
- PROPOSED POWER
- FUTURE ROAD
- FUTURE BUILDINGS

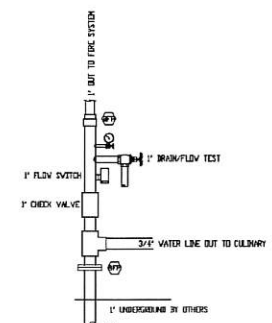
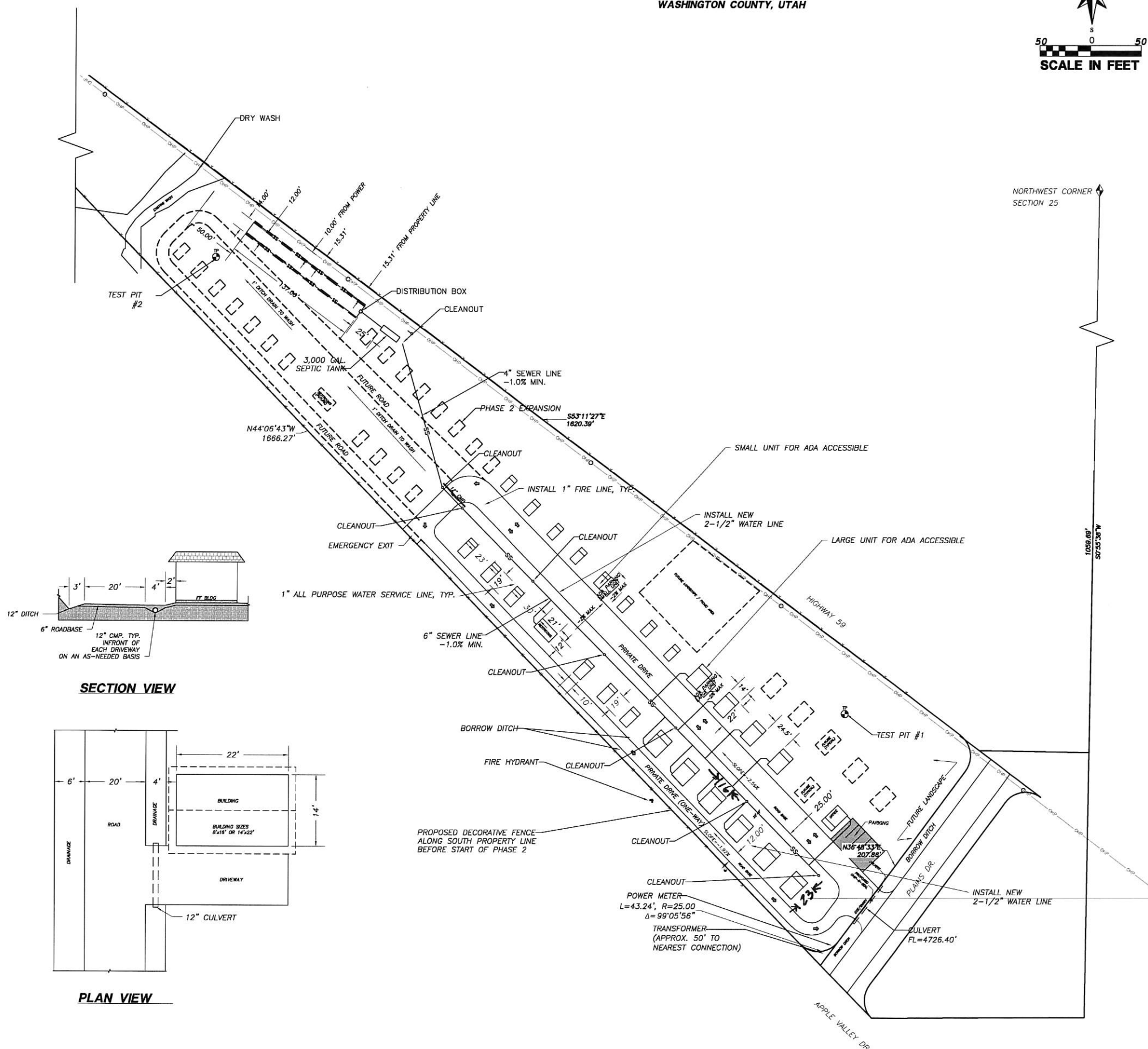
| NO. | DESCRIPTION | DATE | BY |
|-----|-------------|------|----|
| | | | |
| | | | |
| | | | |

PROVALUE ENGINEERING, INC.
Engineers - Land Surveyors - Land Planners
20 South 800 West, Suite 1
Hurricane City, Utah 84737
Phone: (435) 666-0307 Karl Rasmussen

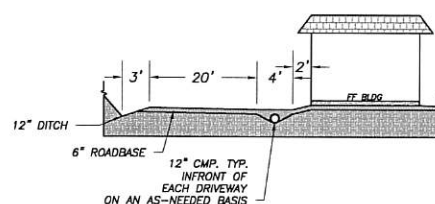


SITE PLAN FOR:
AARON STOUT
APPLE VALLEY PROPERTY
AV - 1337, 4.97 ACRES, WASHINGTON, UT
LOCATED IN SECTION 25, T42S, R12W, S.L.B.&M.

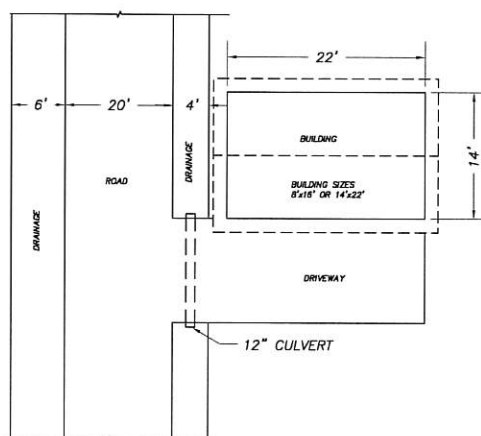
DATE: 8/8/2019
SCALE: 1" = 50'
JOB NO.: 317-001
SHEET NO.: 1 OF 2



1" RISER RISER DETAIL
SCALE: NONE

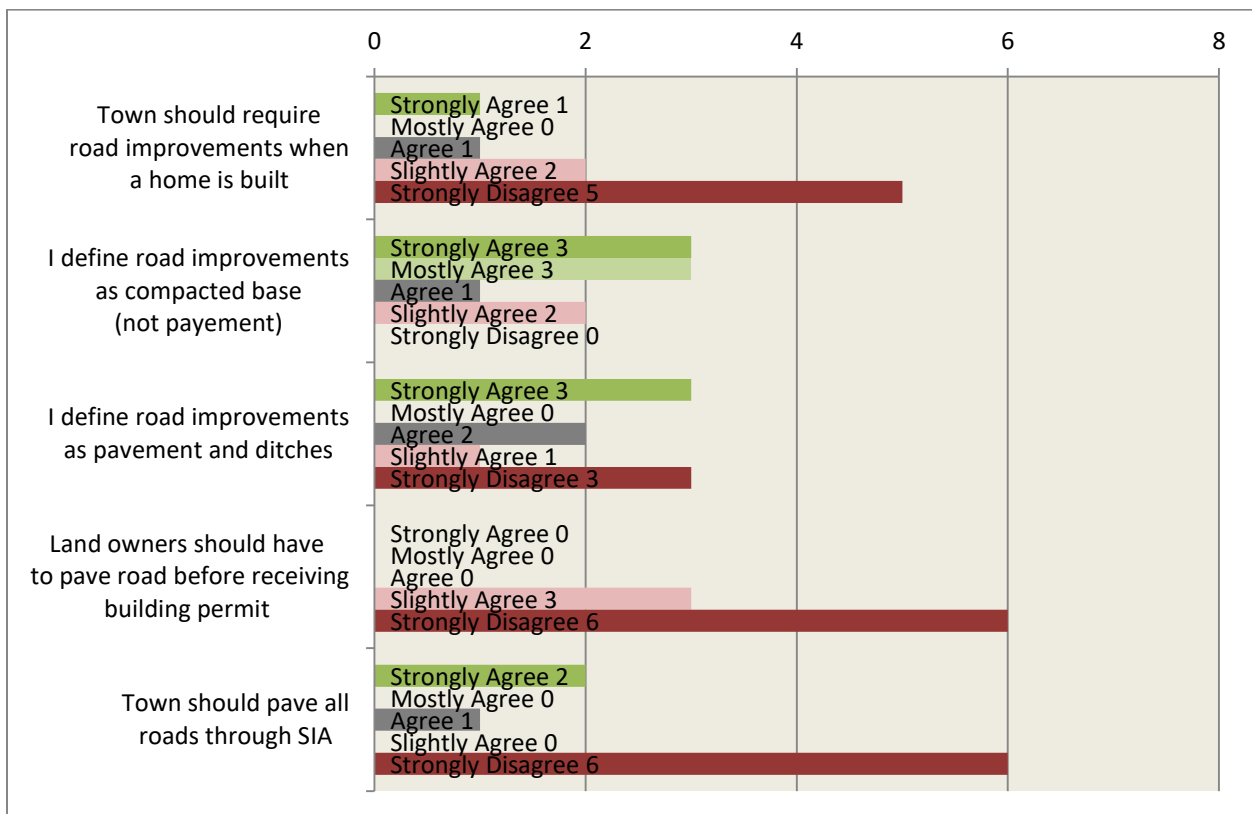
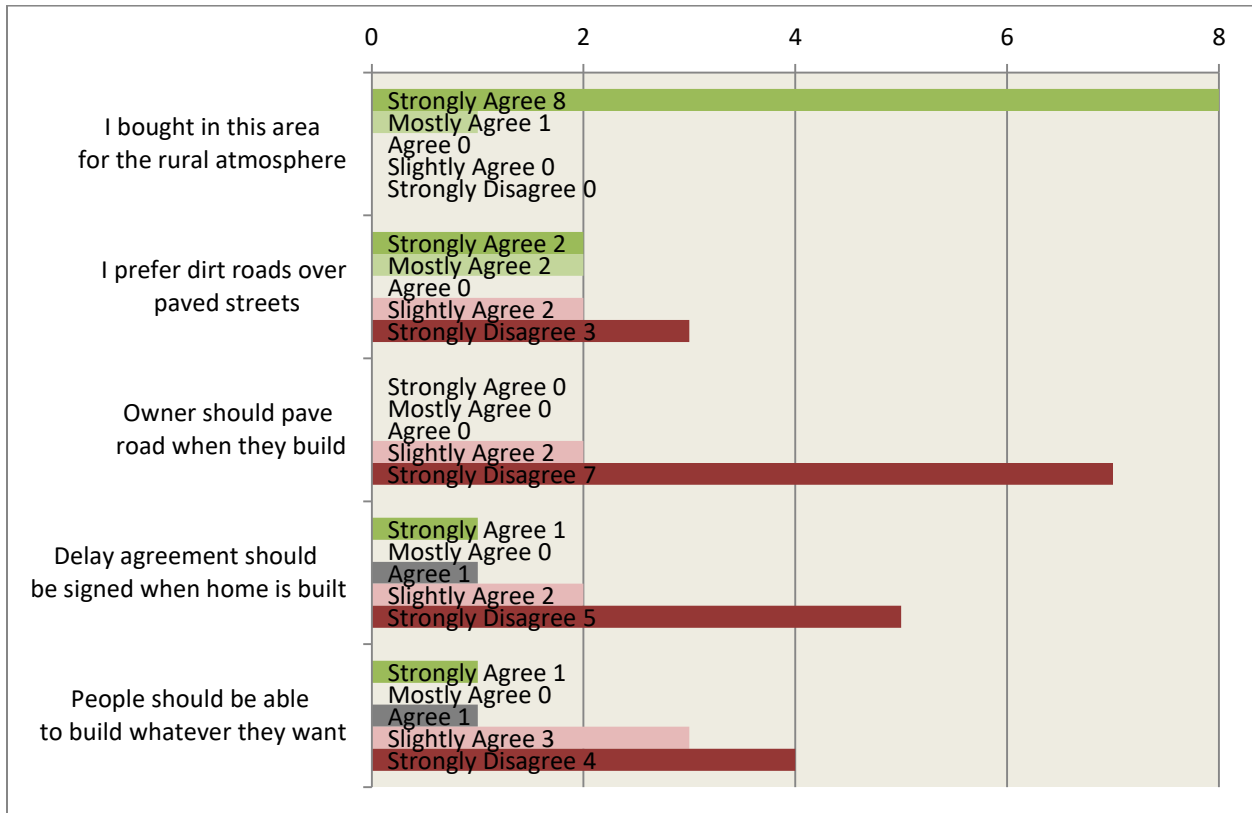


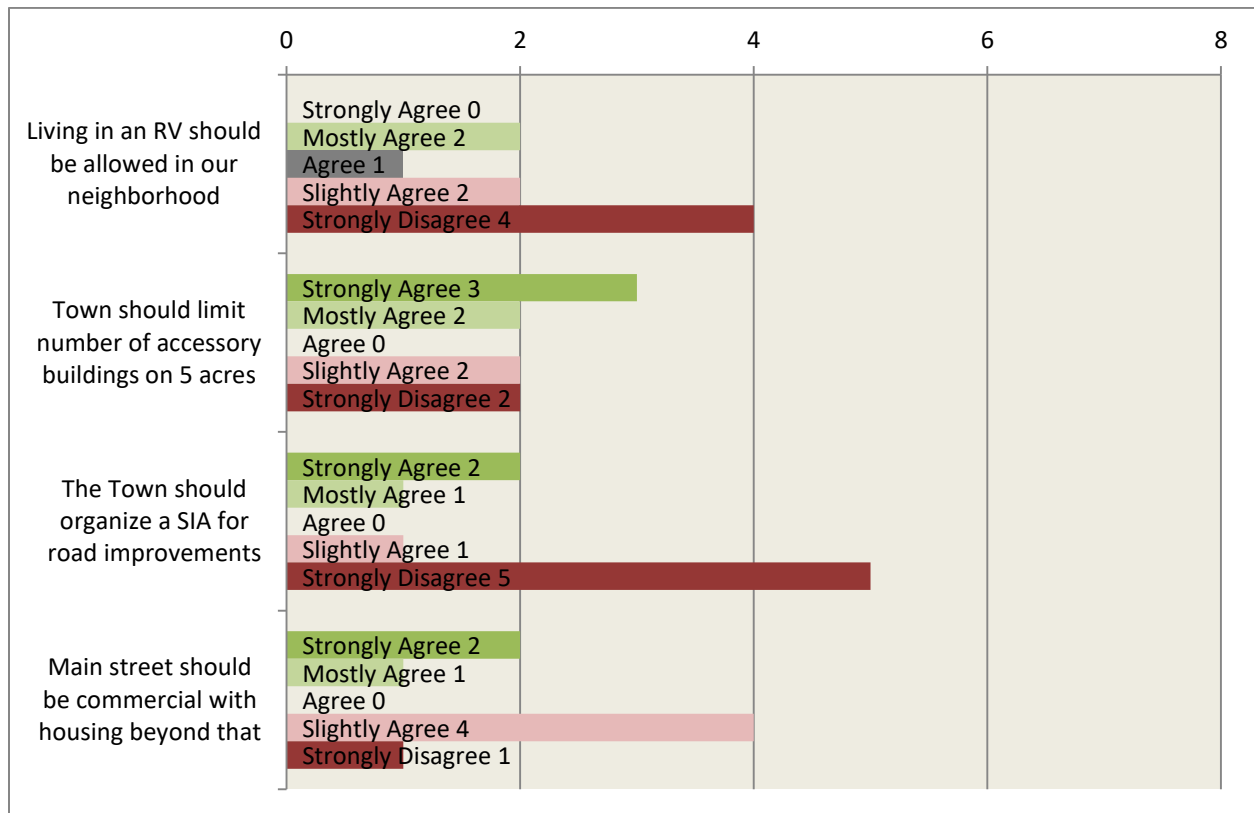
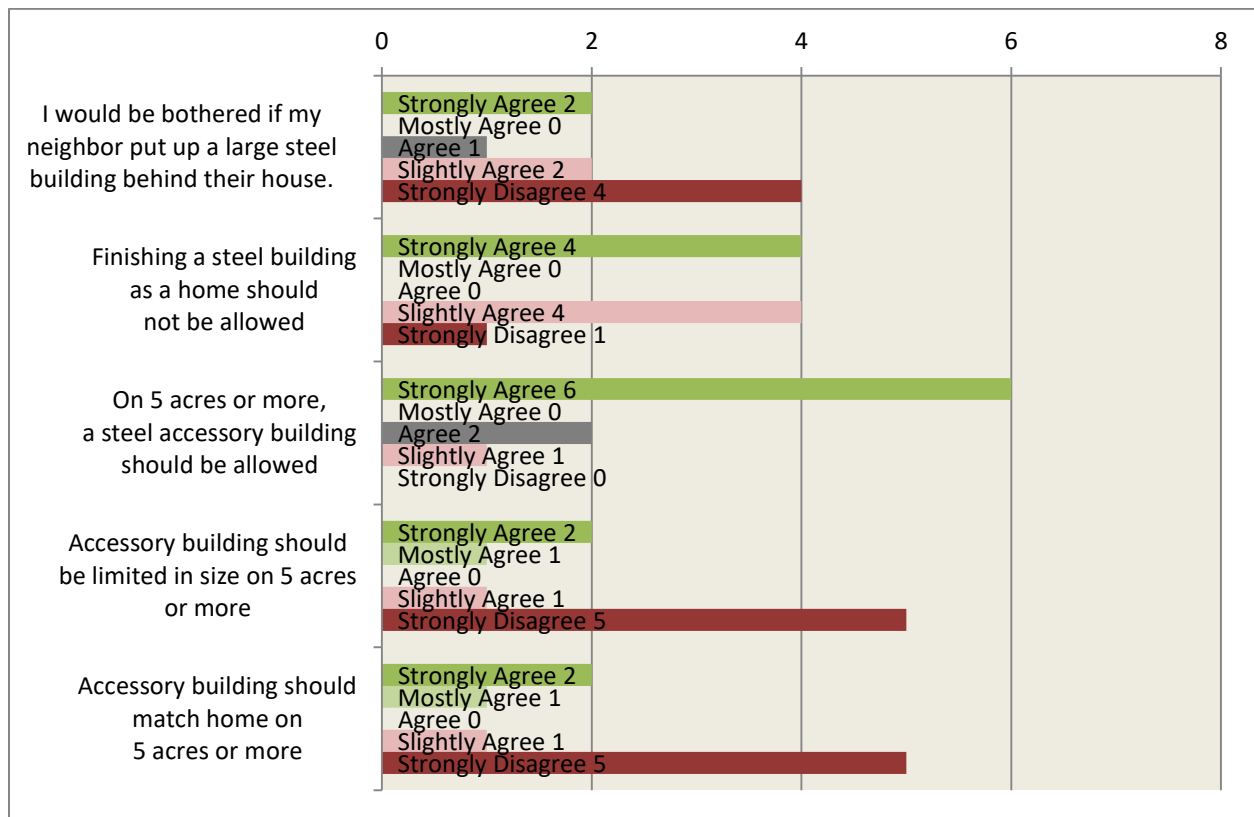
SECTION VIEW



PLAN VIEW

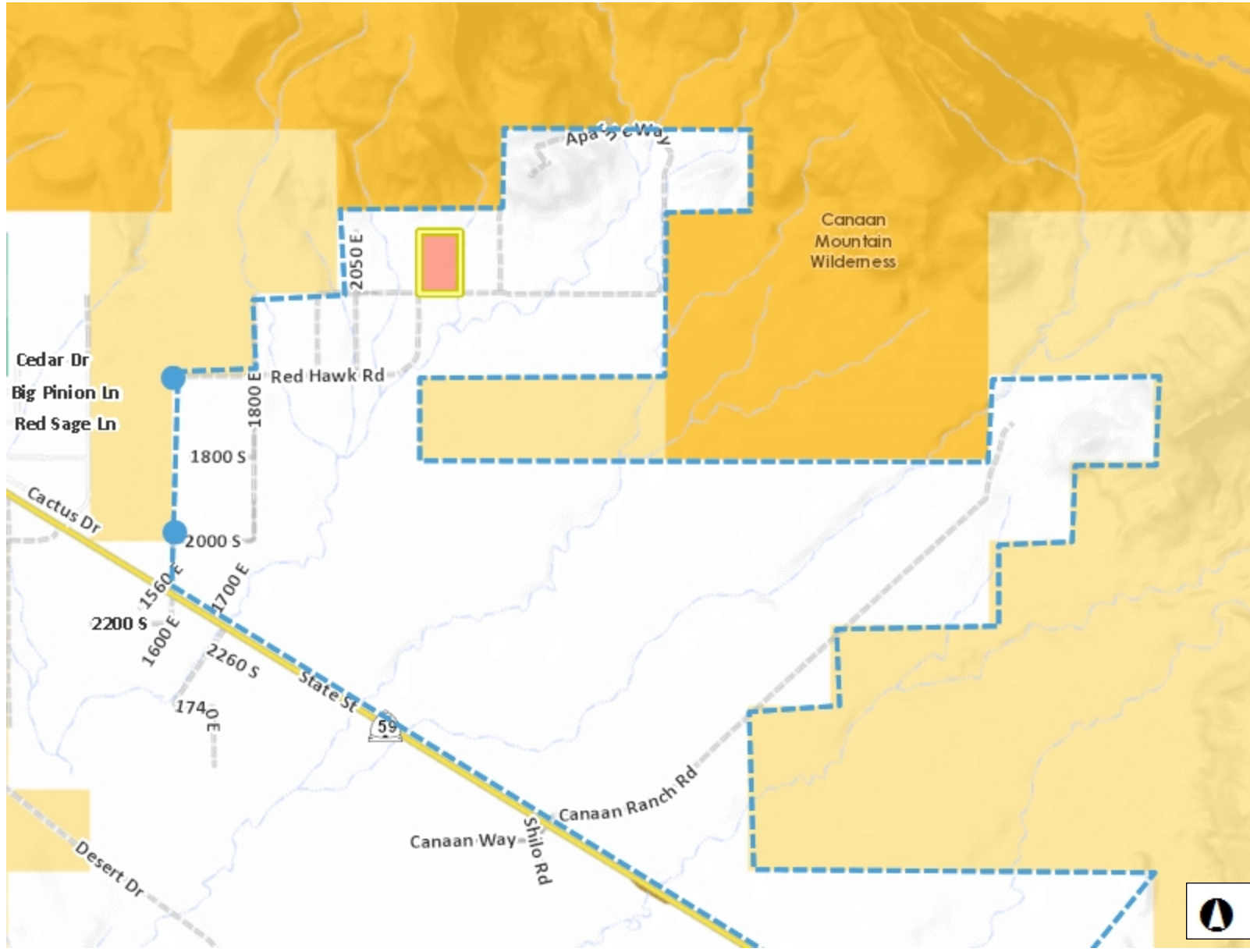
Bubbling Wells Area Survey Responses







Bubbling Wells General Map Change



Legend

Ownership

- U.S. Forest Service
- U.S. Forest Service Wilderness
- Bureau of Land Management
- Bureau of Land Management Wilde
- National Park Service
- Shivwits Reservation
- Utah Division of Wildlife Resources
- Utah Division of Transportation
- State Park
- State of Utah
- Washington County
- Municipally Owned
- School District
- Privately Owned
- Water
- Water Conservancy District
- State Assessed Oil and Gas
- Mining Claim

Notes

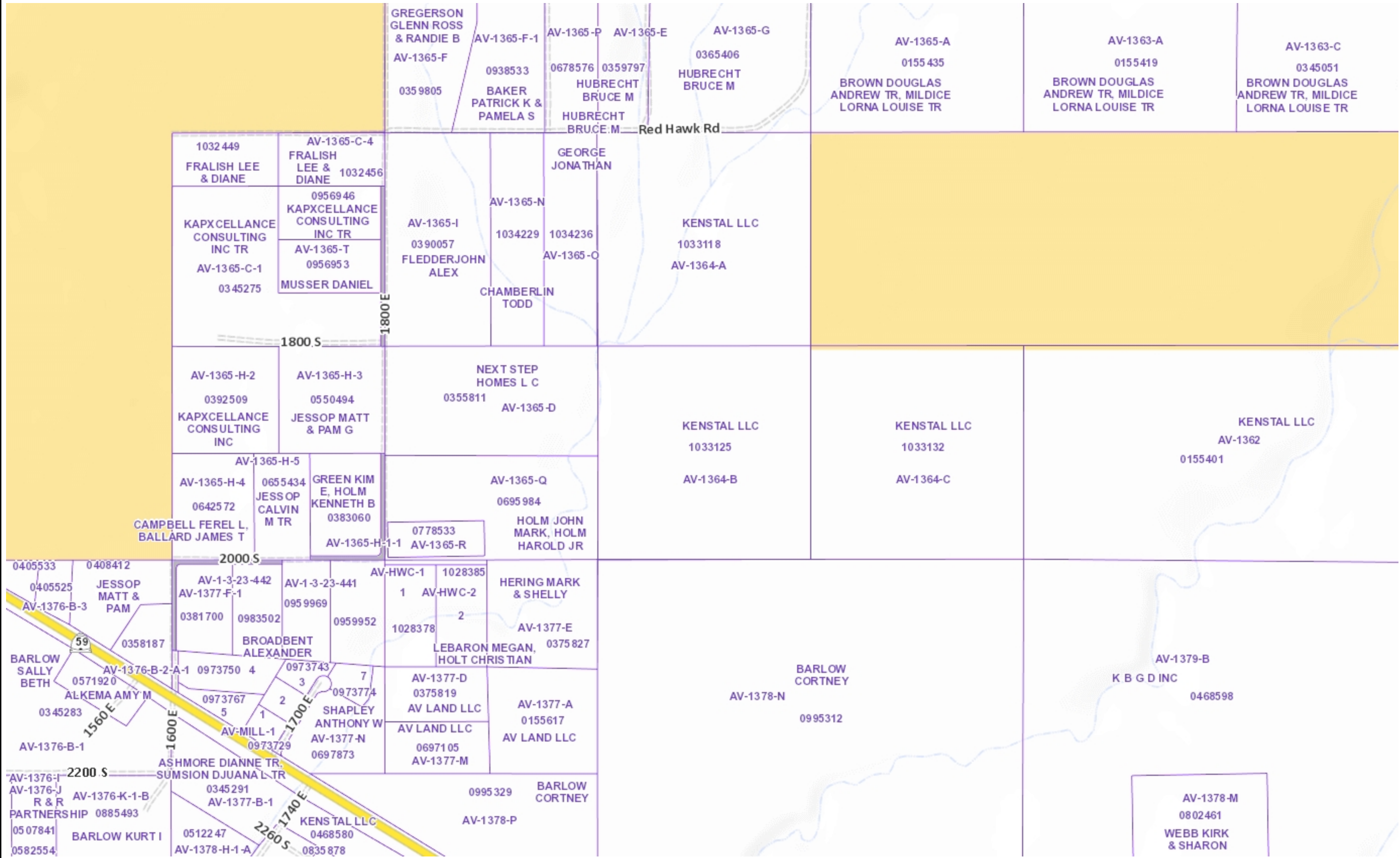
6,018.7 0 3,009.33 6,018.7 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

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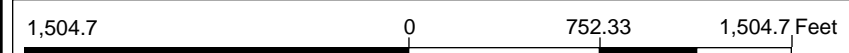


Zone Map Change for Bubbling Wells Area 2



Legend

- Parcels
- Ownership
 - U.S. Forest Service
 - U.S. Forest Service Wilderness
 - Bureau of Land Management
 - Bureau of Land Management Wildlde
 - National Park Service
 - Shivwits Reservation
 - Utah Division of Wildlife Resources
 - Utah Division of Transportation
 - State Park
 - State of Utah
 - Washington County
 - Municipally Owned
 - School District
 - Privately Owned
 - Water
 - Water Conservancy District
 - State Assessed Oil and Gas
 - Mining Claim



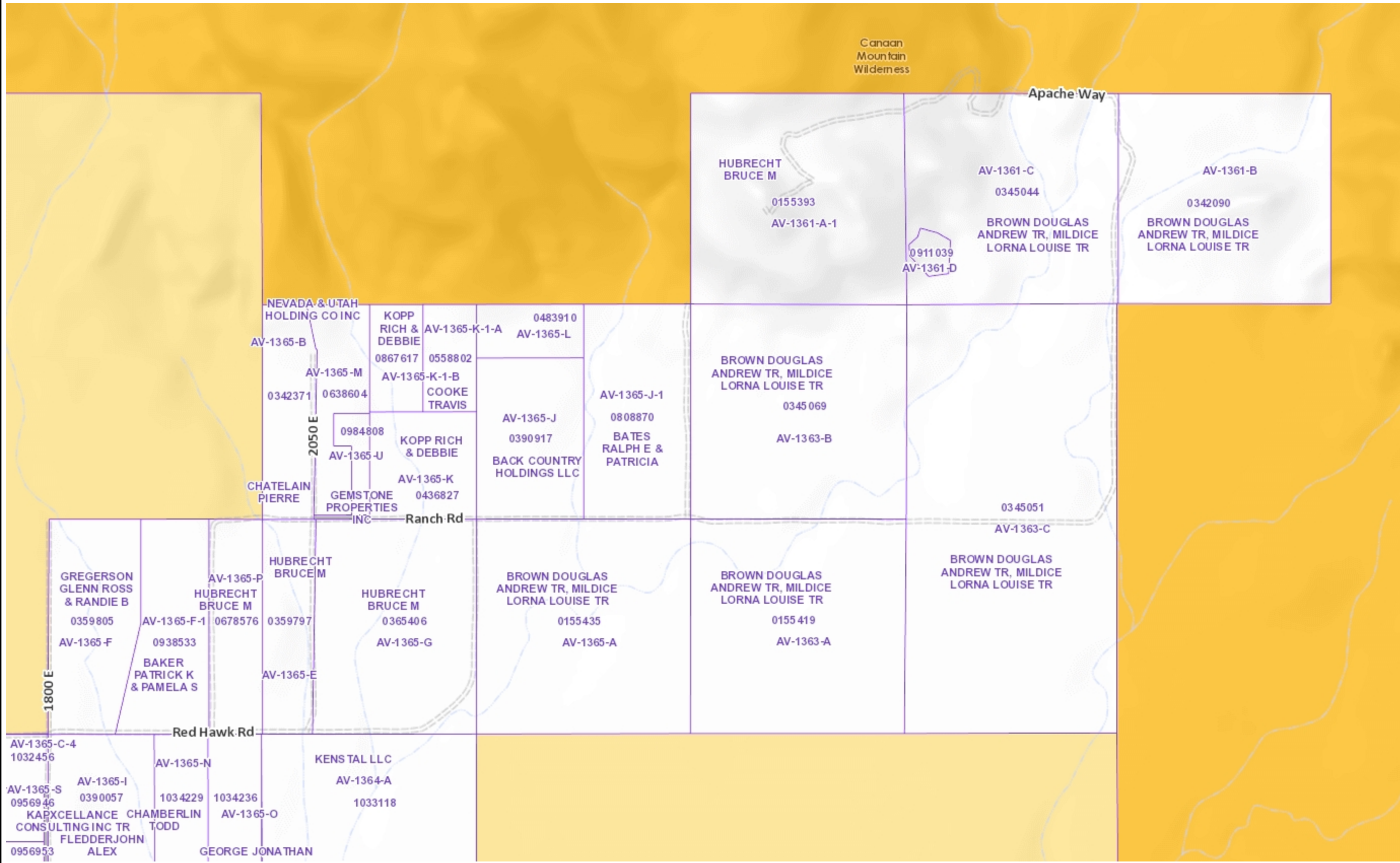
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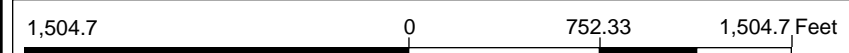


Zone Map Change for Bubbling Wells Area



Legend

- Parcels
- Ownership
 - U.S. Forest Service
 - U.S. Forest Service Wilderness
 - Bureau of Land Management
 - Bureau of Land Management Wild
 - National Park Service
 - Shivwits Reservation
 - Utah Division of Wildlife Resources
 - Utah Division of Transportation
 - State Park
 - State of Utah
 - Washington County
 - Municipally Owned
 - School District
 - Privately Owned
 - Water
 - Water Conservancy District
 - State Assessed Oil and Gas
 - Mining Claim



WGS_1984_Web_Mercator_Auxiliary_Sphere

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Notes

10.26 Outdoor Lighting

10.26.010 Purpose

10.26.020 Scope And Applicability

10.26.030 Conformances With Applicable Codes

10.26.040 Regulations

10.26.050 Effective Date And Nonconforming Luminaries

10.26.060 New Subdivision Constructions

10.26.070 Violations And Legal Action

10.26.080 Definitions

10.26.010 Purpose

Outdoor lighting at night benefits everyone. It increases safety, enhances the Town's nighttime character, and helps provide security, as well as energy efficiency. New technologies have produced lights that are extremely powerful. If installed improperly, such lights create excessive glare, light trespass and pollute the night sky, and higher energy use which in turn may cause safety problems and increased cost for everyone. There is a need for a lighting ordinance that recognizes the benefit of the outdoors lighting and provides clear guidelines for its installation to maintain and complement the Town's character. Appropriately regulated and properly installed outdoor lighting will contribute to the safety and welfare of the residents of the town.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.020 Scope And Applicability

- A. All exterior outdoor lighting installed after the effective date of this ordinance in any and all zones in the town shall conform to the requirements established by this Ordinance and other applicable ordinances unless otherwise exempted. This Ordinance does not apply to indoor lighting.
- B. Law governing conflicts. Should this ordinance be found to be in conflict with any provisions of Federal, State, County, or Town statutes, codes, or other sections of the Town Ordinances, the more restrictive shall govern unless otherwise required by law.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.030 Conformances With Applicable Codes

All outdoor electrically powered illuminating devices shall be installed in conformance with the provisions of the Apple Valley Town Ordinances, including but not limited to the Building Code, the Electrical Code and the Sign Code under appropriate permit and inspection.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.040 Regulations

All public and private outdoor lighting installed in the Town of Apple Valley shall be in conformance with the requirements established by this Ordinance. Including Parking lots and Single Family Homes, All previous language in the Apple Valley Town Codes regarding outdoor lighting is replaced with this Ordinance.

A. Control of Glare / Design Factors

1. Any luminaries with a lamp rated at a total of MORE than 1800 lumens, and all flood or spot luminaries with a lamp or lamps rates a total if MORE than 900 lumens shall not emit any direct light above a horizontal plane through the lowest direct-light-emitting part or the luminaries.
2. Any luminaries with a lamp or lamps rate at a total MORE than 1800 lumens, and all flood or spot luminaries with a lamp or lamps rated at a total of MORE than 900 lumens, shall be mounted at a height equal to or less than the value $3 + (D/3)$, where D is the distance in feet to the nearest property boundary. The maximum height of the luminaries may not exceed 25 feet.

B. Exceptions to Control of Glare

1. Any luminaries with a lamp or lamps rated at a total of 1800 lumens or LESS and all flood spots luminaries with a lamp or lamps rated at 900 lumens or LESS may be used without restriction on light distribution or mounting heights, except that is any spot or flood luminaries rated 900 lumens or LESS is aimed, directed, or focused such as to cause direct light from the luminaries to be directed toward residential buildings or adjacent or nearby land, or creates glare perceptible to persons operating motor vehicles on public right of ways, the luminaries shall be redirected or its light output controlled as necessary to eliminate such conditions.
2. Luminaries used for public roadway illumination may be installed at a maximum height of 34 feet and may be positioned at that height up to the edge of any bordering property.
3. Luminaries used primarily for sign illumination and property illumination may be mounted at any height to a maximum of 25 feet, regardless of the lumen rating.

C. Outdoor Advertising

1. Lighting fixtures used to illuminate an outdoor advertising sign shall be mounted on the top of the sign structure. All such fixtures shall comply with the shielding requirements of subsection B,1 Bottom-mounted outdoor advertising sign lighting shall not be used.
2. Outdoor advertising signs of the type constructed of translucent materials and wholly illuminated for within do not require shielding. Dark backgrounds with light lettering or symbols are preferred to maximize detrimental effects. Unless conforming to the above dark background preference, total lamp wattage per property shall be less that 41 watts.
3. Compliance Limit. Existing outdoor advertising structures shall be brought into conformance with this ordinance when it becomes necessary to make major repairs (NEW PERMIT) to the signage or within 10 years from date of this provision.

D. Recreational Facilities

1. Any light source permitted by this Ordinance may be used for lighting of outdoor recreational facilities (public or private), Such as but not limited to, football fields, soccer fields, baseball fields, softball fields, tennis courts, or show areas, provided all of the following conditions are met:
 - a. All fixtures used for the event lighting shall be fully shielded as defined in subsection B,1 of this Ordinance, or be designed or provided with sharp cut-off capability so as to minimize up-light, spill-light, and glare. Pole height will not exceed 25 feet.
 - b. All events shall be scheduled so as to complete all activity before or as near to 10:30 p.m. as practical, but under no circumstance shall any illumination of the playing field, court, or track be permitted after 11:00 p.m. Except to conclude a scheduled event that was in progress before 11:00 p.m. and circumstances prevented concluding before 11:00 p.m.

E. Parking Area Lighting Low pressure or high pressure sodium light sources are the only allowed light source for Parking Areas with five (5) or more spaces. Lighting fixtures affixed to buildings for the purposes of lighting Parking Areas shall be prohibited. Light levels should be designed with minimum light trespass off site by using cut off Luminaries that are Fully Shielded with no light distributed above the horizontal plane of the Luminaire.

1. Maximum Light Distribution. For uniformity in lighting and prevention of shadows, an average horizontal luminance level of two (2) Foot Candles with a 4:1 Uniformity Ratio over the Site is the Maximum allowed.
2. Pole Height / Wattage / Design. Luminaries mounting height must be measured from the Parking Lot or Driveway surface, in the range of twelve feet (12') to twenty feet (20') as determined by the Planning Commission. The maximum height shall only be allowed at the review and approval with specific findings. The determination shall be based on:
 - a. review of the Site plan,
 - b. proposed land uses,
 - c. surrounding land uses,
 - d. Parking area size,
 - e. Building mass,
 - f. Location of the site with respect to other lighting sources,
 - g. Impact on the adjacent properties,
 - h. Topography of the site, and
 - i. Other site features. Light poles higher than sixteen feet (16') are appropriate only for parking areas exceeding two hundred (200) stalls and not in close Proximity to residential areas.

3. Parking Area Wattage / Design Standard.

- a. Luminaries for twelve foot (12') to sixteen foot (16') poles must not exceed fifty (50) watts per fixture or 105 watts per pole.
- b. Luminaries for eighteen foot (18') and twenty foot (20') poles must not exceed seventy-five (75) watts per fixture or 150 watts per pole.
- c. All attempts shall be made to place the base of light poles within landscaped areas.

4. Underground Parking Garage entryways. Light sources within the first thirty feet (30') of an open garage entryway must be high pressure sodium light sources with partially shielded fixtures.

5. Submission Requirements. An application for Development with off street parking must contain the following.

- a. Plans indicating the location on the premises, and the type of illumination devices, fixtures, lamps, supports, reflectors, installation and electrical details.
- b. Description of illuminating devices, fixtures, lamps, supports, reflectors, and other devices, that may include, but is not limited to, manufacture catalog cuts and drawings, including section where required.
- c. Photometric data, such as that furnished by manufacturers or similar showing the angle of the cut off or light emission. A point by point light plan may be required to determine the adequacy of the lighting over the site.

6. Non-conformance. All operable outdoor light fixtures lawfully installed, that do not meet these lighting requirements, are considered to be non-conforming fixtures. The applicant must bring such fixtures into compliance with the code with any exterior building permit. On residential structures, only new exterior fixtures on remodels or new additions must comply with these requirements.

F. Prohibitions

1. Laser Source Light. The use of laser source light or any similar high intensity light for outdoor advertising or entertainment, when projected above the horizontal is prohibited.
2. Flashing, blinking, intermittent or other lights that move or give the impression of movement are prohibited.

G. Exemptions The following shall be exempt form the requirements of this Ordinance.

1. Holiday lighting SOME COMMUNITIES SET A TIME FRAME LIKE OCT 1 - MARCH 1 YOUR CHOICE
2. Traffic control signals and devices
3. Temporary emergency lighting in use by law enforcement, fire departments, government agencies, or other emergency services, including all vehicular luminaries.
4. All hazard warning luminaries required by federal regulatory agencies are exempt form the requirements of this ordinance, except that all luminaries used must be red and must be shown to be as close as possible to the federally required minimum lumen output required for the specific task.

H. Temporary Outdoor Lighting Any temporary outdoor lighting that conforms to the requirements of this Ordinance shall be allowed. The Planning Commission may permit Nonconforming temporary outdoor lighting after considering

1. The public and /or private benefits that will result from the temporary lighting.
2. Any annoyance or safety problems that result from the use of the temporary lighting
3. The duration of the temporary nonconforming lighting.

The applicant shall submit a detailed description of the proposed temporary nonconforming lighting to the planning Commission, which shall consider the request at duly called meeting of the planning commission. Prior notice of the meeting of the planning commission shall be given to the applicant. The planning Commission shall render its decision on the temporary lighting request within two weeks of the date of the meeting.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.050 Effective Date And Nonconforming Luminaries

- A. This Ordinance shall take place effective immediately upon approval by the Town Council and shall supersede and replace all previous ordinances pertaining to outdoor lighting.
- B. All Luminaries lawfully in place prior to the date of this Ordinance shall be nonconforming. However, any luminaries that replace nonconforming 159 luminaries, or any nonconforming luminaries that is moved, must meet the standard of this ordinance. Advertising signs that are nonconforming only for a period of ten years, as specified in AVLU 10.26.040 C,3
- C. This ordinance does not recognizes permanent nonconforming lights. All operable outdoor light fixtures lawfully installed, that do not meet these lighting requirements, are considered to be non-conforming fixtures. The applicant must bring such fixtures into compliance with the code with any exterior building permit. On residential structures, only new exterior fixtures on remodels or new additions must comply with these requirements.

- D. Nonconforming luminaries that direct light toward streets or parking lots that cause disability glare to motorist or cyclist shall be either shielded or redirected within 90 days of notification of the Property Owner, so that the luminaries do not cause a potential hazard to motorist or cyclists.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.060 New Subdivision Constructions

- A. Submission Content: The applicant for any permit required by any provision of the laws of this jurisdiction in connection with the proposed work involving outdoor lighting fixtures shall submit (as part of the application for permit) evidence that the proposed work will comply with the Ordinance. The submission shall contain but shall not necessarily be limited to the following, all or part of which may be part or in addition to the information required elsewhere in the law of this jurisdiction upon application for the required permit.
1. Plans indicating the location on the premises and the type of illuminating devices, fixtures, lamps, supports, reflectors, and other devices.
 2. Description of the illuminating devices, fixtures, lamp supports, reflectors, and other devices. Submission may include catalog cuts by manufacture and drawing.
 3. Photo data, such as the furnished by manufactures, or similar data showing the angle of cut off or light emissions.
- B. Additional Submission: The above required plans; descriptions and data shall be sufficiently complete to enable the plan examiner to readily determine whether compliance with the requirements of this ordinance will be secured. If such plans, descriptions and data cannot enable this ready determination by reason of the nature or configuration of the devices, fixtures, or lamps proposed, the applicant shall 160 additionally submit as evidence of compliance certified reports performed and certified by a recognized laboratory.
- C. Subdivision Plat Certification: If any subdivision proposes to have installed street or other common or public area outdoor lighting, the final plat shall contain a statement certifying compliance with the applicable provisions of the Town of Apple Valley Outdoor Lighting Ordinance.
- D. 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 to the building official for approval, together with adequate information to assure compliance with this Ordinance, which must be received prior to substitution.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.070 Violations And Legal Action

If after investigation, the Code Enforcement Officer finds that any provision of the ordinance is being violated, the office may elect to file notice by hand delivery or by certified mail, return receipt requested, of such violation to the owner and/ or the occupant of such premises demanding the violation be abated within thirty (30) days from the date of hand delivery or date of mailing notice. If the violation is not abated within the thirty (30) day period, the Code Enforcement Officer may institute actions and proceeding, either legal or equitable, to enjoin, restrain, or abate any violations of this Ordinance and to collect the penalties for such violations.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

10.26.080 Definitions

For the purpose of this Ordinance, terms used shall be defined as follows:

Direct Light: Light emitted directly from the lamp, off the reflector diffuser, or through the refractor or diffuser lens of the luminaries.

Direct Glare: The visual discomfort resulting from insufficiently shielded light source.

Fixture: The assembly that houses the lamp or lamps can include all or some of the following parts: housing, mounting bracket, pole socket, lamp holder, ballast, reflector, mirror, and / or a refractor lens.

Flood or spotlight: Any fixture or lamp that incorporates a reflector or a refractor to concentrate the light output into a directed beam in a particular direction.

Fully Shielded Lights: Outdoor light fixtures shielded or constructed so that no light rays are emitted by the installed fixture at angles above the horizontal plane as certified by a photometric test report.

Nonconforming Luminaire: Luminaire not conforming to this ordinance that were in place at the time this ordinance was voted into effect. When an Ordinance “grandfathers” luminaries, it means that such already-existing outdoor lighting doe no need to be changed unless a specified time period is provided for adherence to the ordinance.

Height of Luminaries: The height of a luminaire shall be the vertical distance from the ground directly below the centerline of the luminaire to the lowest direct light emitting part of the luminaire.

Indirect Light: Direct light that has been reflected or has scattered off other surfaces.

Lamp: The component of the luminaire that produces the actual light.

Light Trespass: Limit the exterior lighting originating on a property to a maximum of 0.5 horizontal foot candles (HFC) at a distance of 25 feet beyond the property lines. (This specification will allow the controlled placement of lighting poles and luminaire adjacent to the property lines).

Lumen: A unit of luminous flux. One foot-candle is one lumen per square foot. For purposes of this Ordinance the lumen-output value shall be the INITIAL lumen output rating of a lamp.

Luminaire: a complete lighting system, including a lamp or lamps and fixture.

Outdoors Electrically Powered Illuminating Devices: Illuminaires utilizing AC and / or DC power.

Outdoor Lighting: the nighttime illumination of a outside area or object by any handmade device located outdoors that produces light by any means for a period of less than 7 days, with at least 180 days passing before being used again.

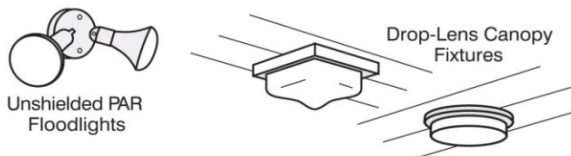
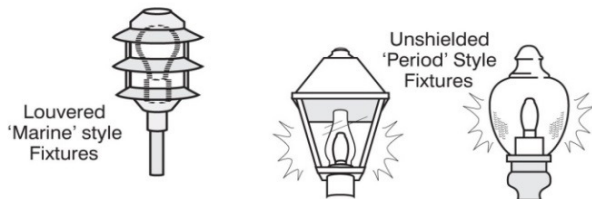
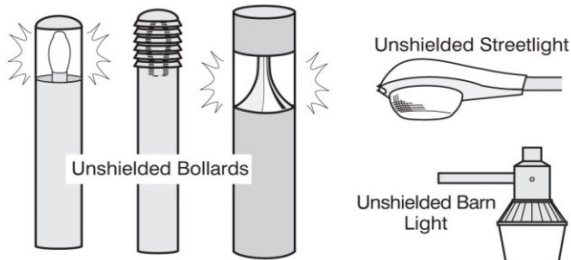
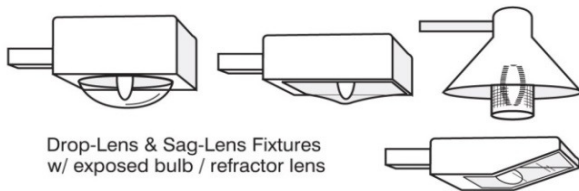
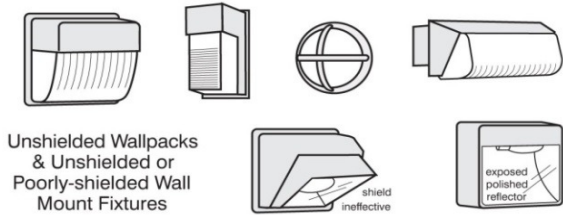
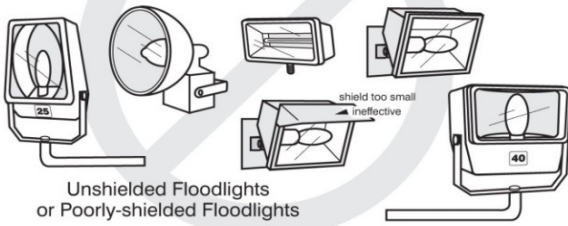
HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

Examples of Acceptable / Unacceptable Lighting Fixtures

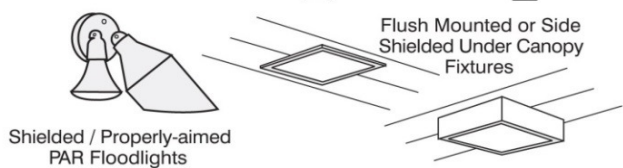
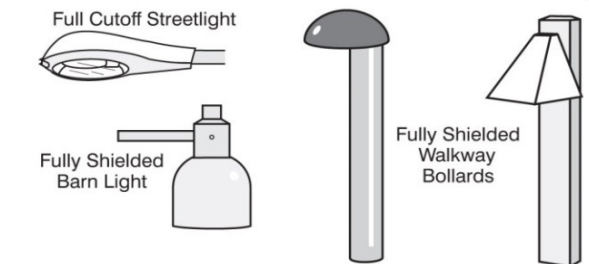
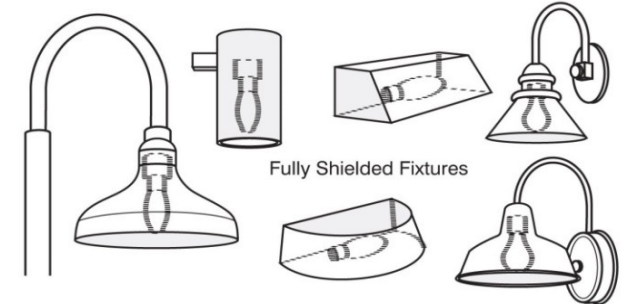
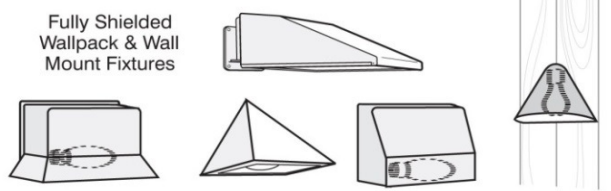
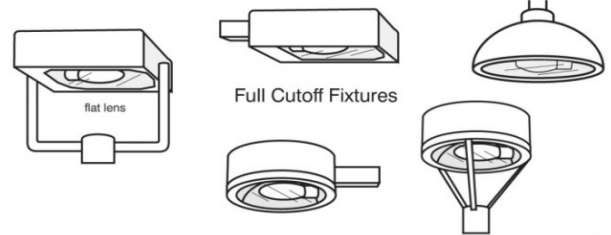
Unacceptable / Discouraged

Fixtures that produce glare and light trespass



Acceptable

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



Acceptable Lighting Angles





Illuminating
ENGINEERING SOCIETY



JOINT IDA - IES

MODEL

LIGHTING

ORDINANCE

(MLO)

with USER'S GUIDE

June 15, 2011

The User Notes

The User Notes are intended to clarify the sections of the MLO for the various audiences who will use it: lighting designers, city officials, engineers, citizen groups, and others. Every effort has been made to keep the language technically accurate and clear, but since different disciplines may use the same term in different ways, or have different interpretations, some guidance may be helpful. While these Notes can not be a full tutorial on modern lighting design, it is hoped that the Notes will help facilitate the dialogue necessary to adopt the MLO.

Background

The problems of light pollution first became an issue in the 1970s when astronomers identified the degradation of the night sky due to the increase in lighting associated with development and growth. As more impacts to the environment by lighting have been identified, an international “dark sky” movement is advocating for the precautionary approach to outdoor lighting design.

Many communities have passed anti-light-pollution laws and ordinances. However, there is little or no agreement among these laws, and they vary considerably in language, technical quality, and stringency. This is confusing for designers, engineers, and code officials. The lack of a common basis prevents the development of standards, educational programs, and other means of achieving the goal of effective lighting control.

This MLO will allow communities to drastically reduce light pollution and glare and lower excessive light levels. The recommended practices of the IES can be met using readily available, reasonably priced lighting equipment. However, many conventional lighting practices will no longer be permitted, or will require special permits.

This Model Lighting Ordinance (MLO) is the result of extensive efforts by the International Dark Sky Association (IDA) and the Illuminating

Engineering Society of North America (IES). Among its features is the use of lighting zones (LZ0-4) which allow each governing body to vary the stringency of lighting restrictions according to the sensitivity of the area as well as accommodating community intent. In this way, communities can fine-tune the impact of the MLO without having to customize the MLO. The MLO also incorporates the Backlight-Uplight-Glare (BUG) rating system for luminaires, which provides more effective control of unwanted light.

Joint IDA-IESNA
Model Outdoor Lighting
Ordinance (MLO)

June 15, 2011

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General Notes in Adopting this Model Ordinance

Adoption of this ordinance should follow the established development, review, and approval processes of the adopting authority. If no such processes are in place, this ordinance may be adopted as a new independent section of the Municipal Code.

The MLO is probably best adopted as an “overlay zoning” ordinance. This means that it overlays, but is different from, land-use zoning. It can be added to or integrated into existing ordinances or codes and cross-referenced to other applicable codes and ordinances such as the electrical code, the sign code, planning ordinances, etc.

The MLO may best be managed by assigning it to planning officials and using existing administrative structures.

Because of the diverse community and lighting needs across large areas, this MLO is not intended for adoption as a state, provincial or national ordinance. Regional coordination is encouraged. Light pollution knows no boundaries, and the effects of polluting light persist as far as 200 kilometers (about 120 miles) from the source. One large city could adopt the MLO and dramatically affect a region, but adoption in suburbs and small towns must be part of a regional effort to achieve significant improvements in the overall quality of the night sky.

Adopting agencies should also consider that the MLO, like all other modern codes, is designed to evolve over time. Lighting technology will change, and MLO changes will be needed every few years. On-going renewal cycles are strongly recommended as any part of an adopting ordinance.

MLO Development and Task Force Members

This Model Lighting Ordinance has been developed as a joint undertaking by the Illuminating Engineering Society and the International Dark-Sky Association.

The Joint Task Force responsible for developing the MLO include

IDA
Co-Chair: Jim Benya
Co-Chair: Nancy Clanton
Leslie Lipstein
Leo Smith
Michael Mutmansky

IES
Naomi Miller
Cheryl English
Denis Lavoie
Eric Gibson

John Walter representing the electric utility industry also contributed as a member of the Joint Task Force.

I. PREAMBLE - User's Guide

In general, the preamble is part of the ordinance but is typically not part of the code. It establishes the reasons why the municipality is undertaking these regulations.

Local governments may add other purposes to the Preamble including established local government environmental or energy goals that support the model lighting ordinance. The environmental impacts of outdoor lighting fall into two categories: carbon footprint (energy used in the life of a lighting product) and obtrusive light.

| CARBON FOOTPRINT | OBTRUSIVE LIGHT |
|--|---------------------------|
| Cost & Impact of Mining the Materials Used | Impact on Humans |
| Energy Used in Production | Impact on the Environment |
| Energy Used during Product Life | |
| Disposal/Recycling Costs | |

II. LIGHTING ZONES - User's Guide

Lighting zones reflect the base (or ambient) light levels desired by a community. The use of lighting zones (LZ) was originally developed by the International Commission on Illumination (CIE) and appeared first in the US in IES Recommended Practice for Exterior Environmental Lighting, RP-33-99.

It is recommended that lower lighting zone(s) be given preference when establishing zoning criteria. Selection of lighting zone or zones should be based not on existing conditions but rather on the type of lighting environments the jurisdiction seeks to achieve. For instance, new development on previously rural or undeveloped land may be zoned as LZ-1. Using lighting zones allows a great deal of flexibility and customization without the burden of excessive regulation. For example, a jurisdiction may choose to establish vertical lighting zones with the lighting zone at street level at a higher zone than the residential housing on upper levels.

I. PREAMBLE - Ordinance Text

The purpose of this Ordinance is to provide regulations for outdoor lighting that will:

- a. Permit the use of outdoor lighting that does not exceed the minimum levels specified in IES recommended practices for night-time safety, utility, security, productivity, enjoyment, and commerce.
- b. Minimize adverse offsite impacts of lighting such as light trespass, and obtrusive light.
- c. Curtail light pollution, reduce skyglow and improve the nighttime environment for astronomy.
- d. Help protect the natural environment from the adverse effects of night lighting from gas or electric sources.
- e. Conserve energy and resources to the greatest extent possible.

II. LIGHTING ZONES - Ordinance Text

The Lighting Zone shall determine the limitations for lighting as specified in this ordinance. The Lighting Zones shall be as follows:

LZ0: No ambient lighting

Areas where the natural environment will be seriously and adversely affected by lighting. Impacts include disturbing the biological cycles of flora and fauna and/or detracting from human enjoyment and appreciation of the natural environment. Human activity is subordinate in importance to nature. The vision of human residents and users is adapted to the darkness, and they expect to see little or no lighting. When not needed, lighting should be extinguished.

II. LIGHTING ZONES (cont.) - User's Guide

II. LIGHTING ZONES (cont.) - Ordinance Text

However, if an adjacent use could be adversely impacted by allowable lighting, the adopting authority may require that a particular site meet the requirements for a lower lighting zone. For example, the authority could specify Lighting Zone 1 or 2 requirements if a commercial development were adjacent to a residence, hospital or open space, or to any land assigned to a lower zone.

LZ1: Low ambient lighting

Areas where lighting might adversely affect flora and fauna or disturb the character of the area. The vision of human residents and users is adapted to low light levels. Lighting may be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, most lighting should be extinguished or reduced as activity levels decline.

Lighting zones are best implemented as an overlay to the established zoning especially in communities where a variety of zone districts exists within a defined area or along an arterial street. Where zone districts are cohesive, it may be possible to assign lighting zones to established land use zoning. It is recommended that the lighting zone includes churches, schools, parks, and other uses embedded within residential communities.

LZ2: Moderate ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderate light levels. Lighting may typically be used for safety and convenience but it is not necessarily uniform or continuous. After curfew, lighting may be extinguished or reduced as activity levels decline.

LZ3: Moderately high ambient lighting

Areas of human activity where the vision of human residents and users is adapted to moderately high light levels. Lighting is generally desired for safety, security and/or convenience and it is often uniform and/or continuous. After curfew, lighting may be extinguished or reduced in most areas as activity levels decline.

LZ4: High ambient lighting

Areas of human activity where the vision of human residents and users is adapted to high light levels. Lighting is generally considered necessary for safety, security and/or convenience and it is mostly uniform and/or continuous. After curfew, lighting may be extinguished or reduced in some areas as activity levels decline.

| Zone | Recommended Uses or Areas | Zoning Considerations |
|------|---|---|
| LZ-0 | Lighting Zone 0 should be applied to areas in which permanent lighting is not expected and when used, is limited in the amount of lighting and the period of operation. LZ-0 typically includes undeveloped areas of open space, wilderness parks and preserves, areas near astronomical observatories, or any other area where the protection of a dark environment is critical. Special review should be required for any permanent lighting in this zone. Some rural communities may choose to adopt LZ-0 for residential areas. | Recommended default zone for wilderness areas, parks and preserves, and undeveloped rural areas. Includes protected wildlife areas and corridors. |
| LZ-1 | Lighting Zone 1 pertains to areas that desire low ambient lighting levels. These typically include single and two family residential communities, rural town centers, business parks, and other commercial or industrial/storage areas typically with limited nighttime activity. May also include the developed areas in parks and other natural settings. | Recommended default zone for rural and low density residential areas. Includes residential single or two family; agricultural zone districts; rural residential zone districts; business parks; open space include preserves in developed areas. |

II. LIGHTING ZONES (cont.) - User's Guide

| Zone | Recommended Uses or Areas | Zoning Considerations |
|-------------|--|---|
| LZ-2 | Lighting Zone 2 pertains to areas with moderate ambient lighting levels. These typically include multifamily residential uses, institutional residential uses, schools, churches, hospitals, hotels/motels, commercial and/or businesses areas with evening activities embedded in predominately residential areas, neighborhood serving recreational and playing fields and/or mixed use development with a predominance of residential uses. Can be used to accommodate a district of outdoor sales or industry in an area otherwise zoned LZ-1. | <p>Recommended default zone for light commercial business districts and high density or mixed use residential districts.</p> <p>Includes neighborhood business districts; churches, schools and neighborhood recreation facilities; and light industrial zoning with modest nighttime uses or lighting requirements.</p> |
| LZ-3 | Lighting Zone 3 pertains to areas with moderately high lighting levels. These typically include commercial corridors, high intensity suburban commercial areas, town centers, mixed use areas, industrial uses and shipping and rail yards with high night time activity, high use recreational and playing fields, regional shopping malls, car dealerships, gas stations, and other nighttime active exterior retail areas. | <p>Recommended default zone for large cities' business district.</p> <p>Includes business zone districts; commercial mixed use; and heavy industrial and/or manufacturing zone districts.</p> |
| LZ-4 | Lighting zone 4 pertains to areas of very high ambient lighting levels. LZ-4 should only be used for special cases and is not appropriate for most cities. LZ-4 may be used for extremely unusual installations such as high density entertainment districts, and heavy industrial uses. | <p>Not a default zone.</p> <p>Includes high intensity business or industrial zone districts.</p> |

III. GENERAL REQUIREMENTS - User's Guide

This Section sets out the requirements that apply to all lighting, both residential and non-residential.

Each adopting jurisdiction should incorporate their existing standards as to when compliance with new regulations is required, when repair or remodeling triggers compliance and if the new ordinance will be retroactive to existing development. The Applicability section of this model ordinance should serve as a guide if the adopting jurisdiction does not have standards or policies in place. Likewise, the adopting jurisdiction should use their existing policies and definitions of what constitutes public monuments, and temporary and/or emergency lighting. Community attitudes and precedents should be taken into account in deciding to regulate seasonal holiday lighting.

EXEMPTIONS - User's Guide

This is standard language intended to prevent conflict of laws and to give the community the ability to set specific lighting requirements in special plans and under use permits. It can be amended to conform to similar language in other ordinances. For example, while public monuments, statuary, and flags should be lighted, the lighting also should be limited to avoid excess.

Lighting for streets, roads, and highways is usually regulated by a street lighting ordinance, and is not covered by this model ordinance. However, since street lighting can affect nearby areas, some recognition of its effect is appropriate. (See Section XI)

SIGN LIGHTING - User's Guide

A sign lighting ordinance is strongly recommended if not already in place. It should carefully limit lighting to prevent over-lighted signs from being used to circumvent lighting ordinances.

III. GENERAL REQUIREMENTS - Ordinance Text

A. *Conformance with All Applicable Codes*

All outdoor lighting shall be installed in conformance with the provisions of this Ordinance, applicable Electrical and Energy Codes, and applicable sections of the Building Code.

B. *Applicability*

Except as described below, all outdoor lighting installed after the date of effect of this Ordinance shall comply with these requirements. This includes, but is not limited to, new lighting, replacement lighting, or any other lighting whether attached to structures, poles, the earth, or any other location, including lighting installed by any third party.

Exemptions from III.(B.) The following are not regulated by this Ordinance

- a. Lighting within public right-of-way or easement for the principal purpose of illuminating streets or roads. No exemption shall apply to any lighting within the public right of way or easement when the purpose of the luminaire is to illuminate areas outside the public right of way or easement, unless regulated with a streetlighting ordinance.

Note to adopting agency: if using the street lighting ordinance (Section XI), this exemption should read as follows:

Lighting within the public right-of-way or easement for the principal purpose of illuminating roads and highways. No exemption shall apply to any street lighting and to any lighting within the public right of way or easement when the purpose of the luminaire is to illuminate areas outside of the public right of way or easement.

- b. Lighting for public monuments and statuary.
- c. Lighting solely for signs (lighting for signs is regulated by the Sign Ordinance).
- d. Repairs to existing luminaires not exceeding 25% of total installed luminaires.

III. GENERAL REQUIREMENTS (cont.) - Ordinance Text

- e. Temporary lighting for theatrical, television, performance areas and construction sites;
- f. Underwater lighting in swimming pools and other water features
- g. Temporary lighting and seasonal lighting provided that individual lamps are less than 10 watts and 70 lumens.
- h. Lighting that is only used under emergency conditions.
- i. In lighting zones 2, 3 and 4, low voltage landscape lighting controlled by an automatic device that is set to turn the lights off at one hour after the site is closed to the public or at a time established by the authority.

Exceptions to III. (B.) All lighting shall follow provisions in this ordinance; however, any special requirements for lighting listed in a) and b) below shall take precedence.

- a. Lighting specified or identified in a specific use permit.
- b. Lighting required by federal, state, territorial, commonwealth or provincial laws or regulations.

C. Lighting Control Requirements

- 1. Automatic Switching Requirements
Controls shall be provided that automatically extinguish all outdoor lighting when sufficient daylight is available using a control device or system such as a photoelectric switch, astronomic time switch or equivalent functions from a program-mable lighting controller, building automation system or light-ing energy management system, all with battery or similar backup power or device.

LIGHTING CONTROLS - User's Guide

This section requires all outdoor lighting to have lighting controls that prohibit operation when sufficient daylight is available, and to include the capability, either through circuiting, dimming or alternating sources, to be able to reduce lighting without necessarily turning all lighting off.

III. GENERAL REQUIREMENTS (cont.) - Ordinance Text

CURFEW REQUIREMENTS - User's Guide

The intent is to reduce or eliminate lighting after a given time. Benefits include reduced environmental impact, longer hours of improved astronomy, energy savings, and improved sleeping conditions for residents. Additionally, some police departments have indicated that post-curfew light reductions make drive-by patrolling easier because it allows them to see further into and through a site.

The authority should determine the time of curfew and the amount of lighting reduction based on the character, norms and values of the community.

Typically, curfews go into effect one hour after the close of business. Restaurants, bars and major entertainment facilities such as sports stadiums, may require the curfew go into effect two hours after the close of business. The authority may elect to have no curfew for facilities with shift workers and 24 hour operations, or to extend the curfew time to meet specific needs. The MLO can be modified to address those concerns.

Areas without street lights or with very low ambient light levels should consider turning off all non-emergency lighting at curfew while commercial areas or urban areas may prefer a reduction in lighting levels. A reduction of at least 30% is recommended for most uses.

Exceptions to III.(C.) 1. Automatic lighting controls are not required for the following:

- a. Lighting under canopies.
- b. Lighting for tunnels, parking garages, garage entrances, and similar conditions.

2. Automatic Lighting Reduction Requirements
The Authority shall establish curfew time(s) after which total outdoor lighting lumens shall be reduced by at least 30% or extinguished.

Exceptions to III.(C.) 2. Lighting reductions are not required for any of the following:

- a. With the exception of landscape lighting, lighting for residential properties including multiple residential properties not having common areas.
- b. When the outdoor lighting consists of only one luminaire.
- c. Code required lighting for steps, stairs, walkways, and building entrances.
- d. When in the opinion of the Authority, lighting levels must be maintained.
- e. Motion activated lighting.
- f. Lighting governed by special use permit in which times of operation are specifically identified.
- g. Businesses that operate on a 24 hour basis.

IV. NON-RESIDENTIAL LIGHTING - User's Guide

This section addresses non-residential lighting and multiple-family residences having common spaces, such as lobbies, interior corridors or parking. Its intent is to:

- Limit the amount of light that can be used
- Minimize glare by controlling the amount of light that tends to create glare
- Minimize sky glow by controlling the amount of uplight
- Minimize the amount of off-site impacts or light trespass

This MLO provides two methods for determining compliance. The *prescriptive method* contains precise and easily verifiable requirements for luminaire light output and fixture design that limit glare, uplight, light trespass and the amount of light that can be used. The *performance method* allows greater flexibility and creativity in meeting the intent of the ordinance. Note that both the prescriptive and the performance method limit the *amount* of light that can be used, but do not control *how* the lighting is to be used.

Most outdoor lighting projects that do not involve a lighting professional will use the prescriptive method, because it is simple and does not require engineering expertise.

For the prescriptive method, the initial luminaire lumen allowances defined in Table A (Parking Space Method) or B (Hardscape Area Method) will provide basic lighting (parking lot and lighting at doors and/or sensitive security areas) that is consistent with the selected lighting zone. The prescriptive method is intended to provide a safe lighting environment while reducing sky glow and other adverse offsite impacts. The Per Parking Space Method is applicable in small rural towns and is a simple method for small retail “mom and pop” operations without drive lane access and where the parking lot is immediately adjacent to the road. A jurisdiction may

IV. NON-RESIDENTIAL LIGHTING - Ordinance Text

For all non-residential properties, and for multiple residential properties of seven domiciles or more and having common outdoor areas, all outdoor lighting shall comply either with Part A or Part B of this section.

PRESCRIPTIVE METHOD - User's Guide

also allow a prescriptive method for classes of sites, such as car dealerships, gas stations, or other common use areas.

Note that the values are for initial luminaire lumens, not footcandles on the target (parking lot, sidewalk, etc). Variables such as the efficiency of the luminaire, dispersion, and lamp wear can affect the actual amount of light so the lumens per square foot allowance is not equal to footcandles on the site. By specifying initial luminaire lumen values, it is easier for officials to verify that the requirement is being met. Initial luminaire lumens are available from photometric data. Each initial luminaire lumens calculation should be supplied on the submittal form.

Solid state luminaires, such as LEDs, do not have initial lamp lumens, only initial luminaire lumens (absolute photometry). Other luminaires tested with relative photometry will have initial luminaire lumens which can be calculated by multiplying initial lamp lumens by the luminaire efficiency. In this example, three types of luminaires are used to light a parking area and building entry in a light commercial area. Two of these three luminaires use metal halide lamps: 70 watt wall mounted area lights and 150 watt pole mounted area lights. For these, the Initial Luminaire Lumens is equal to the initial lamp lumens multiplied by the luminaire efficiency. These values are entered into the compliance chart. The lumen value for the building mounted LED luminaires is equal to the lumens exiting the luminaire. Therefore, the value already represents the Initial Luminaire Lumens and no luminaire efficiency is needed. The total Luminaire Lumens for the site is equal to 247,840.

The allowable lumens are based on the lighting zone and the total hardscape area. Referencing Table B, the allowed lumens are 2.5/SF for LZ2. Multiplying this by the total hardscape square footage gives a value of 250,000 lumens allowed. Because this value is greater than the value calculated for the site, the project complies. Listed below is an example on a typical compliance worksheet for the Prescriptive Method.

IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text***A. Prescriptive Method***

An outdoor lighting installation complies with this section if it meets the requirements of subsections 1 and 2, below.

1. Total Site Lumen Limit

The total installed initial luminaire lumens of all outdoor lighting shall not exceed the total site lumen limit. The total site lumen limit shall be determined using either the Parking Space Method (Table A) or the Hardscape Area Method (Table B). Only one method shall be used per permit application, and for sites with existing lighting, existing lighting shall be included in the calculation of total installed lumens.

The total installed initial luminaire lumens is calculated as the sum of the initial luminaire lumens for all luminaires.

IV. NON-RESIDENTIAL LIGHTING (cont.) - User's Guide

IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text

In this example, three types of luminaires are used to light a parking area and building entry in a light commercial area. Two of these three luminaires use metal halide lamps: 70 watt wall mounted area lights and 150 watt pole mounted area lights. For these, the Initial Luminaire Lumens is equal to the initial lamp lumens multiplied by the luminaire efficiency. These values are entered into the compliance chart. The lumen value for the building mounted LED luminaires is equal to the lumens exiting the luminaire. Therefore, the value already represents the Initial Luminaire Lumens and no luminaire efficiency is needed. The total Luminaire Lumens for the site is equal to 247,840. The allowable lumens are based on the lighting zone and the total hardscape area. Referencing Table B, the allowed lumens are 2.5/SF for LZ2. Multiplying this by the total hardscape square footage gives a value of 250,000 lumens allowed. Because this value is greater than the value calculated for the site, the project complies.

| PRESCRIPTIVE METHOD EXAMPLE - COMPLIANCE CHART | | | |
|--|-----|--------------------------|---------|
| Lamp Descriptions | QTY | Initial Luminaire Lumens | Total |
| 70 W Metal Halide | 8 | 3,920 | 31,360 |
| 150 W Metal Halide | 20 | 9,600 | 192,000 |
| 18 W LED | 24 | 1,020 | 24,480 |
| TOTAL INITIAL LUMINAIRE LUMENS | | | 247,840 |
| SITE ALLOWED TOTAL INITIAL LUMENS* | | | 250,000 |
| PROJECT IS COMPLIANT? | | | YES |

* Listed below is the method of determining the allowed total initial lumen for non-residential outdoor lighting using the hardscape areamethod. (Table B).

| SITE ALLOWED TOTAL INITIAL LUMENS | |
|--|------------------|
| Site Description | Light Commercial |
| Lighting Zone | LZ-2 |
| Hardscape Area (SF) | 100,000 |
| Allowed Lumens per SF of Hardscape (Table B) | 2.5 |
| Site Allowed Total Initial Lumens (lumens per SF X hardscape area) | 250,000 |

PRESCRIPTIVE METHOD (cont.) - User's Guide

IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text

LIMITS TO OFFSITE IMPACTS

PRESCRIPTIVE METHOD

The prescriptive method of the MLO restricts uplighting, including upward light emitted by decorative luminaires. A jurisdiction may choose to preserve some types of lighting, including lighting of monuments or historic structures. In this case, the adopting jurisdiction should exempt or otherwise regulate these types of lighting carefully so that it does not inadvertently allow glaring or offensive lighting systems.

Offsite effects of light pollution include glare, light trespass, sky glow, and impacts on the nocturnal environment . All of these are functions of the fixture or luminaire design and installation. This document replaces the previous luminaire classification terminology of full cut-off, semi cut-off, and cut-off because those classifications were not as effective in controlling offsite impacts as with the new IESNA luminaire classification system as described in TM-15-07.

A traditional method of defining light trespass is to identify a maximum light level at or near the property line. However, this method does not address offensive light that is not directed toward the ground, or the intensity of glaring light shining into adjacent windows. The requirements defined in Table C limit the amount of light in all quadrants that is directed toward or above the property line. The Backlight/Uplight/ Glare (BUG) rating will help limit both light trespass and glare. (A detailed explanation of the BUG system is provided in the section on Table C.)

The limits for light distribution established in Table C (for the BUG rating system) prevent or severely limit all direct upward light. A small amount of uplight reflected by snow, light-colored pavement or a luminaire's supporting arms is inevitable and is not limited by the prescriptive method of this ordinance.

2. Limits to Off Site Impacts

All luminaires shall be rated and installed according to Table C.

3. Light Shielding for Parking Lot Illumination

All parking lot lighting shall have no light emitted above 90 degrees.

Exception:

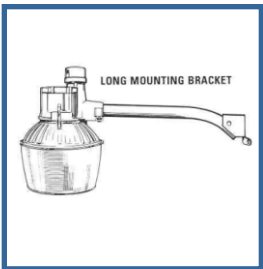
a) Ornamental parking lighting shall be permitted by special permit only, and shall meet the requirements of Table C-1 for Backlight, Table C-2 for Uplight, and Table C-3 for Glare, without the need for external field-added modifications.

PRESCRIPTIVE METHOD (cont.) - User's Guide

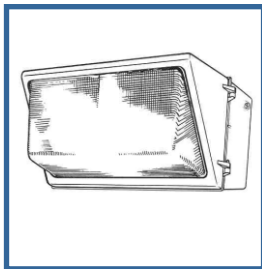
IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text

LIMITS TO OFFSITE IMPACTS

A seemingly non-compliant fixture, such as a post-top translucent acorn luminaire, may in certain cases meet the BUG ratings, as long as it has proper interior baffling within the acorn globe. However, the BUG ratings in Table C will limit the use of the following types of luminaires in all lighting zones:



Barn Lights



**Non-Shielded
Wall Packs**



**Floodlights or
lights not aimed
downward**

PERFORMANCE METHOD - User's Guide

IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text

The performance method is best for projects with complex lighting requirements or when the applicant wants or needs more flexibility in lighting design. The performance method is also used when any lighting designer plans to aim or direct any light fixture upward (above 90 degrees). An engineer or lighting professional generally will be required to design within the performance method. An adopting jurisdiction may also wish to hire an engineer or lighting professional to review and approve projects using this method and/or incorporate review of the performance method into special review procedures.

B. Performance Method

1. Total Site Lumen Limit

The total installed initial luminaire lumens of all lighting systems on the site shall not exceed the allowed total initial site lumens. The allowed total initial site lumens shall be determined using Tables D and E. For sites with existing lighting, existing lighting shall be included in the calculation of total installed lumens.

The Performance Method is also best for projects where higher lighting levels are required compared to typical area lighting. An example might be a car sales lot where more light might be required on the new cars than would be needed for a standard parking lot. Another example is a gas station canopy requiring more light than a building entrance canopy.

The total installed initial luminaire lumens of all is calculated as the sum of the initial luminaire lumens for all luminaires.

The first step in the Performance Method regulates overlighting by establishing the Total Initial Site Lumens (Table D) that are allowed.

Allowances include the summation of the following (Table D):

- 1) Initial lumen allowance per site
- 2) Per area (SF) of hardscape

Table E allows additional lumens for unique site conditions.

Examples of allowances include:

- 1) Per building entrance/exit
- 2) Per length (linear feet) of Outdoor Sales Frontage Perimeter
- 3) Per area (SF) of Vehicle Service Station Canopy
- 4) Plus more ...

The Site Total Initial Site Lumens allowed are a combination of allowances from Table D and Table E.

IV. NON-RESIDENTIAL LIGHTING (cont.) - User's Guide

IV. NON-RESIDENTIAL LIGHTING (cont.) - Ordinance Text

LIMITS TO OFFSITE IMPACTS (cont.)

PERFORMANCE METHOD

The second step in the Performance Method is to determine if the proposed luminaires are producing off site impacts such as glare, sky glow and light trespass. One may either use Option A which are the Maximum Allowable BUG Ratings in Table C, or Option B through computer lighting calculations show compliance with Maximum Vertical Illuminance at any point in the plane of the property line in Table F. Option B will be required for all non-residential luminaires that

- A) do not have BUG ratings, or
- B) exceed the BUG ratings,
- C) are not fully shielded, or
- D) have adjustable mountings.

2. Limits to Off Site Impacts

All luminaires shall be rated and installed using either Option A or Option B. Only one option may be used per permit application.

Option A: All luminaires shall be rated and installed according to Table C.

Option B: The entire outdoor lighting design shall be analyzed using industry standard lighting software including inter-reflections in the following manner:

- 1) Input data shall describe the lighting system including luminaire locations, mounting heights, aiming directions, and employing photometric data tested in accordance with IES guidelines. Buildings or other physical objects on the site within three object heights of the property line must be included in the calculations.
- 2) Analysis shall utilize an enclosure comprised of calculation planes with zero reflectance values around the perimeter of the site. The top of the enclosure shall be no less than 33 feet (10 meters) above the tallest luminaire. Calculations shall include total lumens upon the inside surfaces of the box top and vertical sides and maximum vertical illuminance (footcandles and/or lux) on the sides of the enclosure.

For the performance method, Option B (2) requires photometric calculations for the site perimeter, to a height of no less than 33 feet (10 meters) above the tallest luminaire. Vertical illuminances at eye height (5 feet above grade) will give values that can be used to verify compliance by comparing actual site conditions to the photometric plan submitted during review.

Note that the MLO specifies 'total initial luminaire lumens' as a measurement in addition to footcandles/lux. The footcandle (lux) is equal to one lumen per square meter. Lux is the metric unit and is equal to one lumen per square meter.

The design complies if:

- a) The total lumens on the inside surfaces of the virtual enclosure are less than 15% of the total site lumen limit; and
- b) The maximum vertical illuminance on any vertical surface is less than the allowed maximum illuminance per Table F.

DESIGN COMPLIANCE - User's Guide

The application form will require information about the number of luminaires, the number of lamps in each luminaire, the initial luminaire lumens for each luminaire and the initial lumen output for each lamp (based on the wattage and type of lamp selected) as well as plans showing the site area measurements. This will allow the reviewer to verify that the lumen output of all the luminaires does not exceed the allowance.

Field verification can be achieved by asking the applicant and/or owner to verify that the luminaire type, lamp type and wattages specified have been used. Also ask the applicant for photometric data for each luminaire, since the initial luminaire lumens and B-U-G ratings are stated on the photometric report.

However, if a jurisdiction requires additional on-site verification, it may also request a point-by-point photometric plan. While this will not be a true measure of compliance with the criteria of this Ordinance, comparing the actual measured levels on site to the photometric plan can be an indication whether or not the installed lighting varies from the approved design.

V. RESIDENTIAL LIGHTING - User's Guide

This section applies to single family home, duplexes, row houses, and low rise multi-family buildings of 6 dwelling units or less.

RESIDENTIAL LIGHTING EXCEPTIONS

The exceptions allow for typical lighting that might exceed the specified limits.

Landscape Lighting - While not common in residential areas, it can cause light pollution and light trespass if it is not controlled.

Lighting controlled by Vacancy (Motion) Sensor - Reduces light pollution and light trespass and should be encouraged.

RESIDENTIAL LIGHTING EXAMPLE

In this example on the following page, five different luminaires are used on a residential property. Each luminaire must comply to meet the requirements. The site plan following shows luminaire types followed by a tabulation of each uminaire, whether or not it is fully shielded, lamp type, and initial luminaire lumens. If the luminaire lumens are not known, multiply the initial lamp lumens by the luminaire efficiency. If the efficiency is not known, multiply the initial lamp lumens by 0.7 as a reasonable assumption. The maximum allowable lumen values come from Table G, based on the shielding classification and location on the site. In this case, each luminaire complies with the requirements of Table G.

Comparison of efficacy by power
(120 Volt Incandescent lamps)

| Output (Lumens) | Power (Watt) | | |
|--------------------|--------------|---------|---------|
| | Incan | CFL | LED |
| 500 | 40 | 8 - 10 | 9 |
| 850 | 60 | 13 - 18 | 12 - 15 |
| 1,200 | 75 | 18 - 22 | 15 |
| 1,700 | 100 | 23 - 28 | 18 |

V. RESIDENTIAL LIGHTING - Ordinance Text

A. General Requirements

For residential properties including multiple residential properties not having common areas, all outdoor luminaires shall be fully shielded and shall not exceed the allowed lumen output in Table G, row 2.

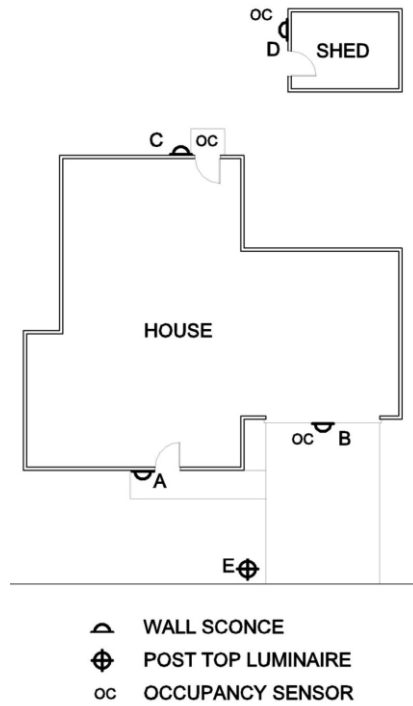
Exceptions

1. One partly shielded or unshielded luminaire at the main entry, not exceeding the allowed lumen output in Table G row 1.
2. Any other partly shielded or unshielded luminaires not exceeding the allowed lumen output in Table G row 3.
3. Low voltage landscape lighting aimed away from adjacent properties and not exceeding the allowed lumen output in Table G row 4.
4. Shielded directional flood lighting aimed so that direct glare is not visible from adjacent properties and not exceeding the allowed lumen output in Table G row 5.
5. Open flame gas lamps.
6. Lighting installed with a vacancy sensor, where the sensor extinguishes the lights no more than 15 minutes after the area is vacated.
7. Lighting exempt per Section III (B.).

B. Requirements for Residential Landscape Lighting

1. Shall comply with Table G.
2. Shall not be aimed onto adjacent properties.

V. RESIDENTIAL LIGHTING - User's Guide



| Property Type: Residential Lighting Zone 1 | | | | | | | | |
|---|-------------|--------------------------|----------------|-----------|---------------------------|--|------------------|-----------|
| Luminaire Type | Location | Luminaire Description | Fully Shielded | Lamp Type | Initial Luminaire Lumens* | Maximum Allowed Initial Luminaire Lumens (Table G) | Controls | Compliant |
| A | Front Entry | Decorative wall sconce | No | 9W CFL | 420 | 420 | None | Yes |
| B | Garage Door | Fully shielded wall pack | Yes | 23W CFL | 1050 | 1260 | Occupancy Sensor | Yes |
| C | Back Entry | Decorative wall sconce | No | 7W CFL | 280 | 315 | Occupancy Sensor | Yes |
| D | Shed Entry | Fully shielded wall pack | Yes | 40W INC | 343 | 1260 | Occupancy Sensor | Yes |
| E | Driveway | Fully shielded post top | Yes | 13W CFL | 1260 | 1260 | None | Yes |

*Initial Luminaire Lumens are calculated by multiplying the total initial lamp lumens by the luminaire efficiency. If the luminaire efficiency is not known, assume an efficiency of 70% and multiply the lamp lumens value by 0.7.

VI. LIGHTING BY SPECIAL PERMIT ONLY - User's Guide

VI. LIGHTING BY SPECIAL PERMIT ONLY - Ordinance Text

This section addresses types of lighting that are intrusive or complex in their impacts and need a higher level of scrutiny and/or site sensitivity.

It should be noted that safety could be compromised if lighting conforming to this ordinance is located adjacent to excessively bright and/or glaring lighting.

It is important that the authority set clear and reasonable guidelines for applying for a special lighting use permit, and establish rules and procedures for granting or refusing them. They may differ from existing special use policies, in which case one or the other may be changed to achieve the overall goal of effective lighting without glare, sky glow, or light trespass.

SPORTS FIELD LIGHTING

For athletic and sports fields, the appropriate level of lighting will depend on the Class of Play and Facilities. Class of Play is divided into 4 categories, depending on the number of fixed spectator seats. (Competition play intended for nighttime TV broadcast may require higher lighting levels).

CLASS I: Competition play at facilities with 5,000 or more fixed spectator seats. (Professional, Colleges & Universities, some Semi-Professional & Large Sports Cubs)

CLASS II: Games at facilities with over 1,500 fixed spectator seats. (Smaller Universities and Colleges, some Semi-pro, large amateur leagues and high schools with large spectator facilities)

CLASS III: Games at facilities with over 500 fixed spectator seats. (Sports Clubs and amateur leagues, some high schools and large training professional training facilities with spectator sections)

CLASS IV: Competition or recreational play at facilities with 500 fixed spectator seats or less. Class IV Class of Play applies to games at which family and close friends of the players and staff are usually the majority of spectators. (Smaller amateur leagues, park and recreation department facilities, most Little Leagues smaller high schools, elementary and middle schools, and social events)

A. High Intensity and Special Purpose Lighting

The following lighting systems are prohibited from being installed or used except by special use permit:

1. Temporary lighting in which any single luminaire exceeds 20,000 initial luminaire lumens or the total lighting load exceeds 160,000 lumens.
2. Aerial Lasers.
3. Searchlights.
4. Other very intense lighting defined as having a light source exceeding 200,000 initial luminaire lumens or an intensity in any direction of more than 2,000,000 candelas.

B. Complex and Non-Conforming Uses

Upon special permit issued by the Authority, lighting not complying with the technical requirements of this ordinance but consistent with its intent may be installed for complex sites or uses or special uses including, but not limited to, the following applications:

1. Sports facilities, including but not limited to unconditioned rinks, open courts, fields, and stadiums.
2. Construction lighting.
3. Lighting for industrial sites having special requirements, such as petrochemical manufacturing or storage, shipping piers, etc.
4. Parking structures.
5. Urban parks
6. Ornamental and architectural lighting of bridges, public monuments, statuary and public buildings.
7. Theme and amusement parks.
8. Correctional facilities.

To obtain such a permit, applicants shall demonstrate that the proposed lighting installation:

- a. Has sustained every reasonable effort to mitigate the effects of light on the environment and surrounding properties, supported by a signed statement describing the mitigation measures. Such statement shall be accompanied by the calculations required for the Performance Method.

SPORTS FIELD LIGHTING

When Class of Play is above Class IV, a dual control should be installed to limit illumination to Class IV levels during practices where spectators are fewer than 500.

(See IES Recommended Practice for Sports and Recreational Area Lighting RP-6)

VII. EXISTING LIGHTING - User's Guide

Adoption of this section on existing lighting is strongly encouraged.

If the adopting jurisdiction has criteria in place that require a property to come into compliance with the current zoning ordinance, it is recommended that the criteria also be applied to bringing existing lighting into compliance. If there are no established criteria, this section of the MLO is recommended.

Amortization allows existing lighting to gradually and gracefully come into compliance. Substantial changes or additions to existing properties are considered the same as new construction, and must comply.

Most outdoor lighting can be fully depreciated once it is fully amortized, usually no longer than 10 years, if not sooner, from the date of initial installation. Some jurisdictions may prefer to require phase-out in a substantially shorter period. The Authority may also wish to require compliance much sooner for "easy fixes" such as re-aiming or lowering lumen output of lamps. Where lighting is judged to be a safety hazard, immediate compliance can be required.

VI. LIGHTING BY SPECIAL PERMIT ONLY (cont.) - Ordinance Text

- b. Employs lighting controls to reduce lighting at a Project Specific Curfew ("Curfew") time to be established in the Permit.
- c. Complies with the Performance Method after Curfew.

The Authority shall review each such application. A permit may be granted if, upon review, the Authority believes that the proposed lighting will not create unwarranted glare, sky glow, or light trespass.

VII. EXISTING LIGHTING - Ordinance Text

Lighting installed prior to the effective date of this ordinance shall comply with the following.

A. Amortization

On or before [amortization date], all outdoor lighting shall comply with this Code.

B. New Uses or Structures, or Change of Use

Whenever there is a new use of a property (zoning or variance change) or the use on the property is changed, all outdoor lighting on the property shall be brought into compliance with this Ordinance before the new or changed use commences.

C. Additions or Alterations

1. Major Additions.

If a major addition occurs on a property, lighting for the entire property shall comply with the requirements of this Code. For purposes of this section, the following are considered to be major additions:

VII. EXISTING LIGHTING (cont.) - Ordinance Text

Additions of 25 percent or more in terms of additional dwelling units, gross floor area, seating capacity, or parking spaces, either with a single addition or with cumulative additions after the effective date of this Ordinance.

Single or cumulative additions, modification or replacement of 25 percent or more of installed outdoor lighting luminaires existing as of the effective date of this Ordinance.

2. Minor Modifications, Additions, or New Lighting Fixtures for Non-residential and Multiple Dwellings

For non-residential and multiple dwellings, all additions, modifications, or replacement of more than 25 percent of outdoor lighting fixtures existing as of the effective date of this Ordinance shall require the submission of a complete inventory and site plan detailing all existing and any proposed new outdoor lighting.

Any new lighting shall meet the requirements of this Ordinance.

3. Resumption of Use after Abandonment

If a property with non-conforming lighting is abandoned for a period of six months or more, then all outdoor lighting shall be brought into compliance with this Ordinance before any further use of the property occurs.

VIII. ENFORCEMENT & PENALTIES - Ordinance Text

(Reserved)

VIII. ENFORCEMENT AND PENALTIES - User's Guide

Enforcement and penalties will vary by jurisdiction. There are, however, certain practices that will promote compliance with lighting regulations. Education is a key tool in promoting compliance. Proactive enforcement procedures can include providing a copy of the lighting regulations to every contractor at the time they visit to obtain a building permit. Another effective tool is a requirement that the builder or developer acknowledge in writing that the he or she is familiar with the lighting requirements and will submit a lighting plan for approval.

VIII. ENFORCEMENT AND PENALTIES (cont.) - User's Guide

Submission of the Lighting Plan should be required as a precondition to any approvals. The Lighting Plan should include the location and BUG rating for each luminaire, specify whether compliance is by the performance or prescriptive method, and a worksheet to show that the luminaires and their BUG ratings are compliant.

IX. TABLES - User's Guide

The tables are to be reviewed periodically by a joint committee of the IES and IDA, and adjusted as standards and technology permit. If more research on the impacts of outdoor lighting shows the effects of light pollution to be a significant concern, then the values in the tables may be modified. Such changes will have no significant impact to the balance of the language of the Ordinance or Code.

VIII. ENFORCEMENT & PENALTIES - Ordinance Text

IX. TABLES - Ordinance Text

Table A - Allowed Total Initial Luminaire Lumens per Site for Non-residential Outdoor Lighting, Per Parking Space Method

May only be applied to properties up to 10 parking spaces (including handicapped accessible spaces).

| LZ-0 | LZ-1 | LZ-2 | LZ-3 | LZ-4 |
|------------------|------------------|------------------|------------------|--------------------|
| 350 lms/space | 490 lms/space | 630 lms/space | 840 lms/space | 1,050 lms/space |

Table B - Allowed Total Initial Lumens per Site for Non-residential Outdoor Lighting, Hardscape Area Method

May be used for any project. When lighting intersections of site drives and public streets or road, a total of 600 square feet for each intersection may be added to the actual site hardscape area to provide for intersection lighting.

| LZ-0 | LZ-1 | LZ-2 | LZ-3 | LZ-4 |
|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| Base Allowance | | | | |
| 0.5 lumens per SF of Hardscape | 1.25 lumens per SF of Hardscape | 2.5 lumens per SF of Hardscape | 5.0 lumens per SF of Hardscape | 7.5 lumens per SF of Hardscape |

IX. TABLES - Ordinance Text

Table B - Lumen Allowances, in Addition to Base Allowance

| | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|--|----------|--|---|--|--|
| Additional allowances for sales and service facilities. No more than two additional allowances per site, Use it or Lose it. | | | | | |
| Outdoor Sales Lots. This allowance is lumens per square foot of uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale, and may not include driveways, parking or other non sales areas. To use this allowance, luminaires must be within 2 mounting heights of sales lot area. | 0 | 4 lumens per square foot | 8 lumens per square foot | 16 lumens per square foot | 16 lumens per square foot |
| Outdoor Sales Frontage. This allowance is for lineal feet of sales frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides provided that a different principal viewing location exists for each side. In order to use this allowance, luminaires must be located between the principal viewing location and the frontage outdoor sales area | 0 | 0 | 1,000 per LF | 1,500 per LF | 2,000 per LF |
| Drive Up Windows. In order to use this allowance, luminaires must be within 20 feet horizontal distance of the center of the window. | 0 | 2,000 lumens per drive-up window | 4,000 lumens per drive-up window | 8,000 lumens per drive-up window | 8,000 lumens per drive-up window |
| Vehicle Service Station. This allowance is lumens per installed fuel pump. | 0 | 4,000 lumens per pump (based on 5 fc horiz) | 8,000 lumens per pump (based on 10 fc horiz) | 16,000 lumens per pump (based on 20 fc horiz) | 24,000 lumens per pump (based on 20 fc horiz) |

IX. TABLES - TABLE C BUG RATING - User's Guide

Work on the BUG system started in 2005 when the IES upgraded the roadway cutoff classification system. The original system, which included the ratings full cutoff, cutoff, semi-cutoff and non cutoff, had been designed as a rating system focused on brightness and glare control. However, with increasing demand for control of uplight and light trespass in addition to glare, IES realized that a more comprehensive system was needed. IES developed *TM-15 Luminaire Classification System for Outdoor Luminaires*.

As this is a relatively new rating system, and many people may not be familiar with it, more explanation of how the rating system works is provided here. For example, some people are familiar with terms such as "full cutoff" and they may expect the MLO to include those terms. It will be very important that all groups recognize that older terms and concepts are inadequate for the complex tasks of controlling light pollution. It is recommended that the new rating system adopted in TM-15, as followed herein by the MLO, be used intact and exclusively.

BUG requires downlight only with low glare (better than full cut off) in lighting zones 0, 1 and 2, but allows a minor amount of uplight in lighting zones 3 and 4. In lighting zones 3 and 4, the amount of allowed uplight is enough to permit the use of very well shielded luminaires that have a decorative drop lens or chimney so that dark sky friendly lighting can be installed in places that traditional-appearing luminaires are required. BUG typically cannot be used for residential luminaires unless they have been photometrically tested. For non-photometrically tested residential luminaires, shielding description is used instead.

The lumen limits established for each lighting zone apply to all types of lighting within that zone. This includes, but is not limited to, specialty lighting, façade lighting, security lighting and the front row lighting for auto dealerships. BUG rating limits are defined for each luminaire and

IX. TABLES (cont.) - Ordinance Text

Table C - Maximum Allowable Backlight, Uplight and Glare (BUG) Ratings

May be used for any project. A luminaire may be used if it is rated for the lighting zone of the site or lower in number for all ratings B, U and G. Luminaires equipped with adjustable mounting devices permitting alteration of luminaire aiming in the field shall not be permitted.

| TABLE C-1 | Lighting Zone 0 | Lighting Zone 1 | Lighting Zone 2 | Lighting Zone 3 | Lighting Zone 4 |
|--|------------------------|------------------------|------------------------|------------------------|------------------------|
| Allowed Backlight Rating* | | | | | |
| Greater than 2 mounting heights from property line | B1 | B3 | B4 | B5 | B5 |
| 1 to less than 2 mounting heights from property line and ideally oriented** | B1 | B2 | B3 | B4 | B4 |
| 0.5 to 1 mounting heights from property line and ideally oriented** | B0 | B1 | B2 | B3 | B3 |
| Less than 0.5 mounting height to property line and properly oriented** | B0 | B0 | B0 | B1 | B2 |

*For property lines that abut public walkways, bikeways, plazas, and parking lots, the property line may be considered to be 5 feet beyond the actual property line for purpose of determining compliance with this section. For property lines that abut public roadways and public transit corridors, the property line may be considered to be the center-line of the public roadway or public transit corridor for the purpose of determining compliance with this section. NOTE: This adjustment is relative to Table C-1 and C-3 only and shall not be used to increase the lighting area of the site.

** To be considered 'ideally oriented', the luminaire must be mounted with the backlight portion of the light output oriented perpendicular and towards the property line of concern.

IX. TABLES - TABLE C BUG RATING (cont.) - User's Guide

IX. TABLES (cont.) - Ordinance Text

are based on the internal and external design of the luminaire, its aiming, and the initial luminaire lumens of the specified luminaires. The BUG rating limits also take into consideration the distance the luminaire is installed from the property line in multiples of the mounting height (See Table C).

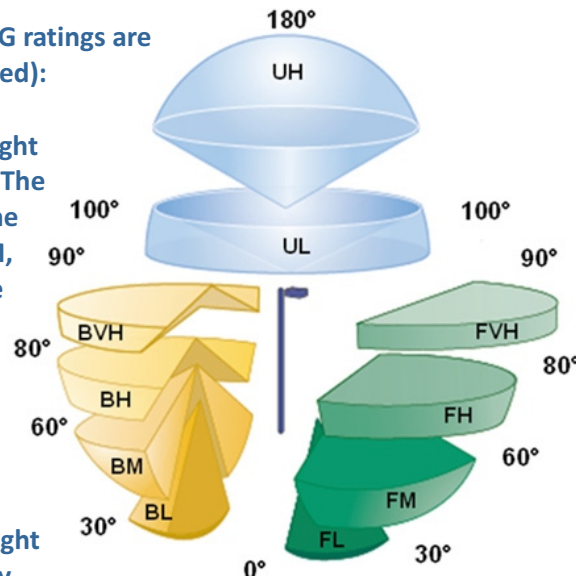
The three components of BUG ratings are based on IES TM-15-07 (revised):

Backlight, which creates light trespass onto adjacent sites. The B rating takes into account the amount of light in the BL, BM, BH and BVH zones, which are in the direction of the luminaire OPPOSITE from the area intended to be lighted.

Uplight, which causes artificial sky glow. Lower uplight (zone UL) causes the most sky glow and negatively affects professional and academic astronomy. Upper uplight (UH) not reflected off a surface is mostly energy waste. The U rating defines the amount of light into the upper hemisphere with greater concern for the light at or near the horizontal angles (UL).

Glare, which can be annoying or visually disabling. The G rating takes into account the amount of frontlight in the FH and FVH zones as well as BH and BVH zones.

BUG ratings apply to the Lighting Zone of the property under consideration.



IX. TABLES - TABLE C BUG RATING (cont.) - User's Guide

(Key: UH=Uplight High, UL=Uplight Low, BVH=Backlight Very High, BH=Backlight High, BM=Backlight Medium, BL=Backlight Low, FVH=Forward Light Very High, FH=Forward Light High, FM=Forward Light Medium, FL=Forward Light Low.)

In general, a higher BUG rating means more light is allowed in solid angles, and the rating increases with the lighting zone. However, a higher B (backlight) rating simply indicates that the luminaire directs a significant portion of light behind the pole, so B ratings are designated based on the location of the luminaire with respect to the property line. A high B rating luminaire maximizes the spread of light, and is effective and efficient when used far from the property line. When luminaires are located near the property line, a lower B rating will prevent unwanted light from interfering with neighboring properties.

At the 90-180 degree ranges:

- Zone 0 allows no light above 90 degrees.
- Zone 1 allows only 10 lumens in the UH and UL zones, 20 lumens total in the complete upper hemisphere. (This is roughly equivalent to a 5 W incandescent lamp).
- Zone 2 allows only 50 lumens in the UH and UL zones, 100 lumens total (less than a 25W incandescent lamp).
- Zone 3 allows only 500 lumens in the UH and UL zones, 1000 lumens total (about the output of a 75W incandescent bulb).
- Zone 4 allows only 1,000 lumens in the UH and UL zones, 2000 lumens total (about the output of a 100W incandescent bulb).

IX. TABLES (cont.) - Ordinance Text

Table C - 2 Maximum Allowable Uplight (BUG) Ratings - Continued

| TABLE C-2 | Lighting Zone 0 | Lighting Zone 1 | Lighting Zone 2 | Lighting Zone 3 | Lighting Zone 4 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Allowed Uplight Rating | U0 | U1 | U2 | U3 | U4 |
| Allowed % light emission above 90° for street or Area lighting | 0% | 0% | 0% | 0% | 0% |

Table C - 3 Maximum Allowable Glare (BUG) Ratings - Continued

| TABLE C-3 | Lighting Zone 0 | Lighting Zone 1 | Lighting Zone 2 | Lighting Zone 3 | Lighting Zone 4 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Allowed Glare Rating | G0 | G1 | G2 | G3 | G4 |
| Any luminaire not ideally oriented*** with 1 to less than 2 mounting heights to any property line of concern | G0 | G0 | G1 | G1 | G2 |
| Any luminaire not ideally oriented*** with 0.5 to 1 mounting heights to any property line of concern | G0 | G0 | G0 | G1 | G1 |
| Any luminaire not ideally oriented*** with less than 0.5 mounting heights to any property line of concern | G0 | G0 | G0 | G0 | G1 |

*** Any luminaire that cannot be mounted with its backlight perpendicular to any property line within 2X the mounting heights of the luminaire location shall meet the reduced Allowed Glare Rating in Table C-3.

TABLE D EXAMPLE - PERFORMANCE METHOD - User's Guide

The first step in the Performance Method is to establish the Site Total Initial Site Lumens which regulates overlighting. The performance method allows layers of light depending on the complexity of the site.

Table D establishes the basic total initial site lumens allowed. These lumen allowances are added together for a total initial site lumen allowance. Allowances include:

- 1) Initial lumen allowance per site
- 2) Per area (SF) of hardscape

IX. TABLES (cont.) - Ordinance Text

Table D Performance Method Allowed Total Initial Site Lumens

May be used on any project.

| Lighting Zone | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|------------------------------|------|-------|-------|--------|--------|
| Allowed Lumens Per SF | 0.5 | 1.25 | 2.5 | 5.0 | 7.5 |
| Allowed Base Lumens Per Site | 0 | 3,500 | 7,000 | 14,000 | 21,000 |

Table E Performance Method Additional Initial Luminaire Lumen Allowances. All of the following are “use it or lose it” allowances.

All area and distance measurements in plan view unless otherwise noted.

| Lighting Application | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|--|------|-------|-------|-------|-------|
| Additional Lumens Allowances for All Buildings except service stations and outdoor sales facilities. A MAXIMUM OF THREE (3) ALLOWANCES ARE PERMITTED. THESE ALLOWANCES ARE “USE IT OR LOSE IT”. | | | | | |
| Building Entrances or Exits. This allowance is per door. In order to use this allowance, luminaires must be within 20 feet of the door. | 400 | 1,000 | 2,000 | 4,000 | 6,000 |
| Building Facades. This allowance is lumens per unit area of building façade that are illuminated. To use this allowance, luminaires must be aimed at the façade and capable of illuminating it without obstruction. | 0 | 0 | 8/SF | 16/SF | 24/SF |

TABLE E PERFORMANCE METHOD - User's Guide

The allowable light levels for these uses defined in Table E may be used to set a prescriptive lighting allowance for these uses in each lighting zone. It should be noted that the lighting allowance defined in Table E is only applicable for the area defined for that use and cannot be transferred to another area of the site. For some uses, such as outdoor sales, the jurisdiction is encouraged to define a percentage of the total hardscape area that is eligible for the additional lighting allowance. For example, a set percentage of a car dealership's lot may be considered a display area and receive the additional lighting allowance where the remainder of the lot would be considered storage, visitor parking, etc. and cannot exceed the base light levels defined in Table A.

TABLE E EXAMPLE - PERFORMANCE METHOD - User's Guide

IX. TABLES (cont.) - Ordinance Text

Table E - Performance Method Additional Initial Lumen Allowances (cont.)

| Lighting Application | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|---|------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Sales or Non-sales Canopies. This allowance is lumens per unit area for the total area within the drip line of the canopy. In order to qualify for this allowance, luminaires must be located under the canopy. | 0 | 3/SF | 6/SF | 12/SF | 18/SF |
| Guard Stations. This allowance is lumens per unit area of guardhouse plus 2000 sf per vehicle lane. In order to use this allowance, luminaires must be within 2 mounting heights of a vehicle lane or the guardhouse. | 0 | 6/SF | 12/SF | 24/SF | 36/SF |
| Outdoor Dining. This allowance is lumens per unit area for the total illuminated hardscape of outdoor dining. In order to use this allowance, luminaires must be within 2 mounting heights of the hardscape area of outdoor dining | 0 | 1/SF | 5/SF | 10/SF | 15/SF |
| Drive Up Windows. This allowance is lumens per window. In order to use this allowance, luminaires must be within 20 feet of the center of the window. | 0 | 2,000 lumens per drive-up window | 4,000 lumens per drive-up window | 8,000 lumens per drive-up window | 8,000 lumens per drive-up window |
| Additional Lumens Allowances for Service Stations only. Service stations may not use any other additional allowances. | | | | | |
| Vehicle Service Station Hardscape. This allowance is lumens per unit area for the total illuminated hardscape area less area of buildings, area under canopies, area off property, or areas obstructed by signs or structures. In order to use this allowance, luminaires must be illuminating the hardscape area and must not be within a building below a canopy, beyond property lines, or obstructed by a sign or other structure. | 0 | 4/SF | 8/SF | 16/SF | 24/SF |

IX. TABLES (cont.) - Ordinance Text

Table E - Performance Method Additional Initial Lumen Allowances (cont.)

| Lighting Application | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|--|-------------|-------------|-----------------|-----------------|-----------------|
| <p>Vehicle Service Station Canopies. This allowance is lumens per unit area for the total area within the drip line of the canopy. In order to use this allowance, luminaires must be located under the canopy.</p> | 0 | 8/SF | 16/SF | 32/SF | 32/SF |
| <p>Additional Lumens Allowances for Outdoor Sales facilities only. Outdoor Sales facilities may not use any other additional allowances. NOTICE: lighting permitted by these allowances shall employ controls extinguishing this lighting after a curfew time to be determined by the Authority.</p> | | | | | |
| <p>Outdoor Sales Lots. This allowance is lumens per square foot of uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale, and may not include driveways, parking or other non sales areas and shall not exceed 25% of the total hardscape area. To use this allowance, Luminaires must be within 2 mounting heights of the sales lot area.</p> | 0 | 4/SF | 8/SF | 12/SF | 18/SF |
| <p>Outdoor Sales Frontage. This allowance is for lineal feet of sales frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length. A corner sales lot may include two adjacent sides provided that a different principal viewing location exists for each side. In order to use this allowance, luminaires must be located between the principal viewing location and the frontage outdoor sales area.</p> | 0 | 0 | 1,000/LF | 1,500/LF | 2,000/LF |

IX. TABLES (cont.) - Ordinance Text

Table F Maximum Vertical Illuminance at any point in the plane of the property line

| Lighting Zone 0 | Lighting Zone 1 | Lighting Zone 2 | Lighting Zone 3 | Lighting Zone 4 |
|---------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| 0.05 FC or 0.5 LUX | 0.1 FC or 1.0 LUX | 0.3 FC or 3.0 LUX | 0.8 FC or 8.0 LUX | 1.5 FC or 15.0 LUX |

IX. TABLES (cont.) - Ordinance Text

Table G - Residential Lighting Limits

| Lighting Application | LZ 0 | LZ 1 | LZ 2 | LZ 3 | LZ 4 |
|---|-------------|--------------|--------------|--------------|--------------|
| Row 1 Maximum Allowed Luminaire Lumens* for Unshielded Luminaires at one entry only | Not allowed | 420 lumens | 630 lumens | 630 lumens | 630 lumens |
| Row 2 Maximum Allowed Luminaire Lumens* for each Fully Shielded Luminaire | 630 lumens | 1,260 lumens | 1,260 lumens | 1,260 lumens | 1,260 lumens |
| Row 3 Maximum Allowed Luminaire Lumens* for each Unshielded Luminaire excluding main entry | Not allowed | 315 lumens | 315 lumens | 315 lumens | 315 lumens |
| Row 4 Maximum Allowed Luminaire Lumens* for each Landscape Lighting | Not allowed | Not allowed | 1,050 lumens | 2,100 lumens | 2,100 lumens |
| Row 5 Maximum Allowed Luminaire Lumens* for each Shielded Directional Flood Lighting | Not allowed | Not allowed | 1,260 lumens | 2,100 lumens | 2,100 lumens |
| Row 6 Maximum Allowed Luminaire Lumens* for each Low Voltage Landscape Lighting | Not allowed | Not allowed | 525 lumens | 525 lumens | 525 lumens |

*** Luminaire lumens equals Initial Lamp Lumens for a lamp, multiplied by the number of lamps in the luminaire**

TABLE G RESIDENTIAL LIGHTING - User's Guide

Residential Light Levels

Most residential lighting has traditionally used incandescent lamps which are identified by their wattage. However, since new technologies provide more light for fewer watts, it is no longer possible to regulate residential lighting solely by providing a maximum wattage. Table G, therefore, lists maximum initial luminaire lumens only.

X. DEFINITIONS - User's Guide

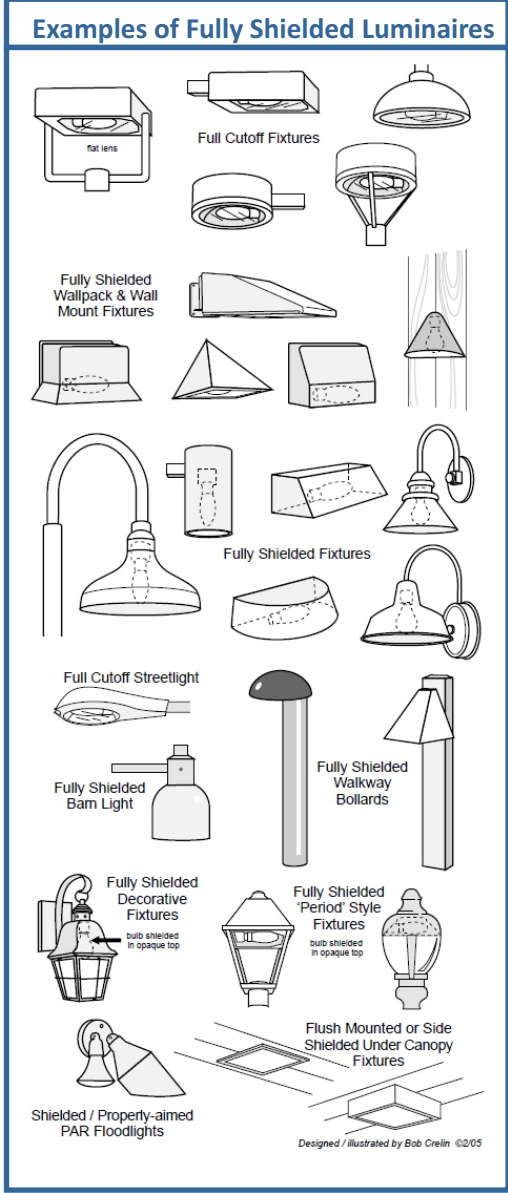
Definitions are typically generally added to any code when new code sections are added. The definitions are legally required and play a significant role in the interpretation of the ordinance and code.

Most city attorneys will not accept references to outside sources regardless of credibility, such as the IES Handbook. Thus as a general rule, a definition for an unfamiliar term (e.g. lumens) must be added by the adopting ordinance.

When adopting or integrating the MLO definitions, be sure to retire conflicting technical terminology. In particular, the latest IES Luminaire Classification System as defined in IES TM-15-07 is likely to need attention.

X. DEFINITIONS - Ordinance Text

| | |
|--------------------------------------|---|
| <i>Absolute Photometry</i> | Photometric measurements (usually of a solid-state luminaire) that directly measures the footprint of the luminaire. Reference Standard IES LM-79 |
| <i>Architectural Lighting</i> | Lighting designed to reveal architectural beauty, shape and/or form and for which lighting for any other purpose is incidental. |
| <i>Authority</i> | The adopting municipality, agency or other governing body. |
| <i>Astronomic Time Switch</i> | An automatic lighting control device that switches outdoor lighting relative to time of solar day with time of year correction. |
| <i>Backlight</i> | For an exterior luminaire, lumens emitted in the quarter sphere below horizontal and in the opposite direction of the intended orientation of the luminaire. For luminaires with symmetric distribution, backlight will be the same as front light. |
| <i>BUG</i> | A luminaire classification system that classifies backlight (B), uplight (U) and glare (G). |
| <i>Canopy</i> | A covered, unconditioned structure with at least one side open for pedestrian and/or vehicular access. (An unconditioned structure is one that may be open to the elements and has no heat or air conditioning.) |
| <i>Common Outdoor Areas</i> | One or more of the following: a parking lot; a parking structure or covered vehicular entrance; a common entrance or public space shared by all occupants of the domiciles. |
| <i>Curfew</i> | A time defined by the authority when outdoor lighting is reduced or extinguished. |



X. DEFINITIONS - Ordinance Text

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| <p>Emergency conditions</p> | <p>Generally, lighting that is only energized during an emergency; lighting fed from a backup power source; or lighting for illuminating the path of egress solely during a fire or other emergency situation; or, lighting for security purposes used solely during an alarm.</p> |
| <p>Footcandle</p> | <p>The unit of measure expressing the quantity of light received on a surface. One footcandle is the illuminance produced by a candle on a surface one foot square from a distance of one foot.</p> |
| <p>Forward Light</p> | <p>For an exterior luminaire, lumens emitted in the quarter sphere below horizontal and in the direction of the intended orientation of the luminaire.</p> |
| <p>Fully Shielded Luminaire</p> | <p>A luminaire constructed and installed in such a manner that all light emitted by the luminaire, either directly from the lamp or a diffusing element, or indirectly by reflection or refraction from any part of the luminaire, is projected below the horizontal plane through the luminaire's lowest light-emitting part.</p> |
| <p>Glare</p> | <p>Lighting entering the eye directly from luminaires or indirectly from reflective surfaces that causes visual discomfort or reduced visibility.</p> |
| <p>Hardscape</p> | <p>Permanent hardscape improvements to the site including parking lots, drives, entrances, curbs, ramps, stairs, steps, medians, walkways and non-vegetated landscaping that is 10 feet or less in width. Materials may include concrete, asphalt, stone, gravel, etc.</p> |
| <p>Hardscape Area</p> | <p>The area measured in square feet of all hardscape. It is used to calculate the Total Site Lumen Limit in both the Prescriptive Method and Performance Methods. Refer to Hardscape definition.</p> |

X. DEFINITIONS - Ordinance Text

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| <i>Hardscape Perimeter</i> | The perimeter measured in linear feet is used to calculate the Total Site Lumen Limit in the Performance Method. Refer to Hardscape definition. |
| <i>IDA</i> | International Dark-Sky Association. |
| <i>IESNA</i> | Illuminating Engineering Society of North America. |
| <i>Impervious Material</i> | Sealed to severely restrict water entry and movement |
| <i>Industry Standard Lighting Software</i> | Lighting software that calculates point-by-point illuminance that includes reflected light using either ray-tracing or radiosity methods. |
| <i>Lamp</i> | A generic term for a source of optical radiation (i.e. “light”), often called a “bulb” or “tube”. Examples include incandescent, fluorescent, high-intensity discharge (HID) lamps, and low pressure sodium (LPS) lamps, as well as light-emitting diode (LED) modules and arrays. |
| <i>Landscape Lighting</i> | Lighting of trees, shrubs, or other plant material as well as ponds and other landscape features. |
| <i>LED</i> | Light Emitting Diode. |
| <i>Light Pollution</i> | Any adverse effect of artificial light including, but not limited to, glare, light trespass, sky-glow, energy waste, compromised safety and security, and impacts on the nocturnal environment. |

X. DEFINITIONS - Ordinance Text

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|--|---|
| <i>Light Trespass</i> | Light that falls beyond the property it is intended to illuminate. |
| <i>Lighting</i> | “Electric” or “man-made” or “artificial” lighting. See “lighting equipment”. |
| <i>Lighting Equipment</i> | Equipment specifically intended to provide gas or electric illumination, including but not limited to, lamp(s), luminaire(s), ballast(s), poles, posts, lens(s), and related structures, electrical wiring, and other necessary or auxiliary components. |
| <i>Lighting Zone</i> | An overlay zoning system establishing legal limits for lighting for particular parcels, areas, or districts in a community. |
| <i>Lighting Equipment</i> | Equipment specifically intended to provide gas or electric illumination, including but not limited to, lamp(s), luminaire(s), ballast(s), poles, posts, lens(s), and related structures, electrical wiring, and other necessary or auxiliary components. |
| <i>Low Voltage Landscape Lighting</i> | Landscape lighting powered at less than 15 volts and limited to luminaires having a rated initial luminaire lumen output of 525 lumens or less. |
| <i>Lumen</i> | The unit of measure used to quantify the amount of light produced by a lamp or emitted from a luminaire (as distinct from “watt,” a measure of power consumption). |
| <i>Luminaire</i> | The complete lighting unit (fixture), consisting of a lamp, or lamps and ballast(s) (when applicable), together with the parts designed to distribute the light (reflector, lens, diffuser), to position and protect the lamps, and to connect the lamps to the power supply. |

X. DEFINITIONS - Ordinance Text

Mounting Height: The horizontal spacing of poles is often measured in units of “mounting height”. Example: “The luminaires can be spaced up to 4 mounting heights apart.”

| | |
|-----------------------------------|--|
| <i>Luminaire Lumens</i> | For luminaires with relative photometry per IES, it is calculated as the sum of the initial lamp lumens for all lamps within an individual luminaire, multiplied by the luminaire efficiency. If the efficiency is not known for a residential luminaire, assume 70%. For luminaires with absolute photometry per IES LM-79, it is the total luminaire lumens. The lumen rating of a luminaire assumes the lamp or luminaire is new and has not depreciated in light output. |
| <i>Lux</i> | The SI unit of illuminance. One lux is one lumen per square meter. 1 Lux is a unit of incident illuminance approximately equal to 1/10 footcandle. |
| <i>Mounting height</i> | The height of the photometric center of a luminaire above grade level. |
| <i>New lighting</i> | Lighting for areas not previously illuminated; newly installed lighting of any type except for replacement lighting or lighting repairs. |
| <i>Object</i> | A permanent structure located on a site. Objects may include statues or artwork, garages or canopies, outbuildings, etc. |
| <i>Object Height</i> | The highest point of an entity, but shall not include antennas or similar structures. |
| <i>Ornamental lighting</i> | Lighting that does not impact the function and safety of an area but is purely decorative, or used to illuminate architecture and/or landscaping, and installed for aesthetic effect. |

X. DEFINITIONS - Ordinance Text

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|---|---|
| <p><i>Ornamental Street Lighting</i></p> | <p>A luminaire intended for illuminating streets that serves a decorative function in addition to providing optics that effectively deliver street lighting. It has a historical period appearance or decorative appearance, and has the following design characteristics:</p> <ul style="list-style-type: none"> · designed to mount on a pole using an arm, pendant, or vertical tenon; · opaque or translucent top and/or sides; · an optical aperture that is either open or enclosed with a flat, sag or drop lens; · mounted in a fixed position; and · with its photometric output measured using Type C photometry per IESNA LM-75-01. |
| <p><i>Outdoor Lighting</i></p> | <p>Lighting equipment installed within the property line and outside the building envelopes, whether attached to poles, building structures, the earth, or any other location; and any associated lighting control equipment.</p> |
| <p><i>Partly shielded luminaire</i></p> | <p>A luminaire with opaque top and translucent or perforated sides, designed to emit most light downward.</p> |
| <p><i>Pedestrian Hardscape</i></p> | <p>Stone, brick, concrete, asphalt or other similar finished surfaces intended primarily for walking, such as sidewalks and pathways.</p> |
| <p><i>Photoelectric Switch</i></p> | <p>A control device employing a photocell or photodiode to detect daylight and automatically switch lights off when sufficient daylight is available.</p> |
| <p><i>Property line</i></p> | <p>The edges of the legally-defined extent of privately owned property.</p> |

X. DEFINITIONS - Ordinance Text

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|---------------------------------------|---|
| <i>Relative photometry</i> | Photometric measurements made of the lamp plus luminaire, and adjusted to allow for light loss due to reflection or absorption within the luminaire. Reference standard: IES LM-63. |
| <i>Repair(s)</i> | The reconstruction or renewal of any part of an existing luminaire for the purpose of its on-going operation, other than relamping or replacement of components including capacitor, ballast or photocell. Note that retrofitting a luminaire with new lamp and/or ballast technology is not considered a repair and for the purposes of this ordinance the luminaire shall be treated as if new. "Repair" does not include normal relamping or replacement of components including capacitor, ballast or photocell. |
| <i>Replacement Lighting</i> | Lighting installed specifically to replace existing lighting that is sufficiently broken to be beyond repair. |
| <i>Sales area</i> | Uncovered area used for sales of retail goods and materials, including but not limited to automobiles, boats, tractors and other farm equipment, building supplies, and gardening and nursery products. |
| <i>Seasonal lighting</i> | Temporary lighting installed and operated in connection with holidays or traditions. |
| <i>Shielded Directional Luminaire</i> | A luminaire that includes an adjustable mounting device allowing aiming in any direction and contains a shield, louver, or baffle to reduce direct view of the lamp. |
| <i>Sign</i> | Advertising, directional or other outdoor promotional display of art, words and/or pictures. |

X. DEFINITIONS - Ordinance Text

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| <i>Sky Glow</i> | The brightening of the nighttime sky that results from scattering and reflection of artificial light by moisture and dust particles in the atmosphere. Skyglow is caused by light directed or reflected upwards or sideways and reduces one's ability to view the night sky. |
| <i>Temporary lighting</i> | Lighting installed and operated for periods not to exceed 60 days, completely removed and not operated again for at least 30 days. |
| <i>Third Party</i> | A party contracted to provide lighting, such as a utility company. |
| <i>Time Switch</i> | An automatic lighting control device that switches lights according to time of day. |
| <i>Translucent</i> | Allowing light to pass through, diffusing it so that objects beyond cannot be seen clearly (not transparent or clear). |
| <i>Unshielded Luminaire</i> | A luminaire capable of emitting light in any direction including downwards. |
| <i>Uplight</i> | For an exterior luminaire, flux radiated in the hemisphere at or above the horizontal plane. |
| <i>Vertical Illuminance</i> | Illuminance measured or calculated in a plane perpendicular to the site boundary or property line. |

XI. OPTIONAL STREETLIGHT ORDINANCE - User's Guide

This section was added since the first public review. It is designed to work closely with the proposed revision to ANSI/IES RP-8 Standard Practice for Roadway and Street Lighting.

Street and roadway lighting is one of the world's largest causes of artificial skyglow. Many adopting agencies will recognize that the MLO will make privately owned lighting more efficient and environmentally responsible than their street lighting systems. But because the process of designing street lighting often requires more precise lighting calculations, applying the MLO directly to street lighting is not advised. Using existing standards of street lighting is recommended, particularly IES RP-8 and AASHTO standards.

Until a new recommended practice for street lighting can be developed, this section can serve to prevent most of the uplift of street lighting systems without setting specific requirements for the amount of light, uniformity of light, or other performance factors. Adopting agencies should include these basic improvements to street lighting along with regulations to private lighting.

Lighting streets with "period" ornamental luminaires that evoke the look of a time when the light source was a gas flame can cause glare if high-lumen lamps are used. Such ornamental street lights should not exceed a BUG rating of G1. If additional illuminance and/or uniformity is desired, the ornamental fixtures should be supplemented by higher mounted fully shielded luminaires, as illustrated in RP-33-99.

Few street lighting warranting processes exist. The adopting agency needs to gauge whether a complex warranting systems is required, or if a simple one using posted speeds, presence of pedestrians, or other practical considerations is sufficient.

Examples of a current street lighting warranting system are included in the Transportation Association of Canada's Guide for the Design of Roadway Lighting 2006.

XI. OPTIONAL STREETLIGHT ORDINANCE - Ordinance Text

Note to the adopting authority: the intent of this section is that it only applies to streets and not to roadways or highways.

A. Preamble

The purpose of this Ordinance is to control the light pollution of street lighting, including all collectors, local streets, alleys, sidewalks and bike-ways, as defined by ANSI/IES RP-8 Standard Practice for Roadway and Street Lighting and in a manner consistent with the Model Lighting Ordinance.

B. Definitions

Roadway or Highway lighting is defined as lighting provided for freeways, expressways, limited access roadways, and roads on which pedestrians, cyclists, and parked vehicles are generally not present. The primary purpose of roadway or highway lighting is to help the motorist remain on the roadway and help with the detection of obstacles within and beyond the range of the vehicle's headlights.

Street lighting is defined as lighting provided for major, collector, and local roads where pedestrians and cyclists are generally present. The primary purpose of street lighting is to help the motorist identify obstacles, provide adequate visibility of pedestrians and cyclists, and assist in visual search tasks, both on and adjacent to the roadway.

Ornamental Street Lighting is defined as a luminaire intended for illuminating streets that serves a decorative function in addition to providing optics that effectively deliver street lighting. It has a historical period appearance or decorative appearance, and has the following design characteristics:

- designed to mount on a pole using an arm, pendant, or vertical tenon;
- opaque or translucent top and/or sides;
- an optical aperture that is either open or enclosed with a flat, sag or drop lens;
- mounted in a fixed position; and
- with its photometric output measured using Type C photometry per IESNA LM-75-01.

XI. OPTIONAL STREETLIGHT ORDINANCE - Ordinance Text***C. Scope***

All street lighting not governed by regulations of federal, state or other superceding jurisdiction.

EXCEPTION: lighting systems mounted less than 10.5 feet above street level and having less than 1000 initial lumens each.

D. Master Lighting Plan

The Authority shall develop a Master Lighting Plan based on the American Association of State Highway and Transportation Officials (AASHTO) Roadway Lighting Design Guide GL-6, October 2005, Chapter 2. Such plan shall include, but not be limited to, the Adoption of Lighting Zones and:

1. Goals of street lighting in the jurisdiction by Lighting Zone
2. Assessment of the safety and security issues in the jurisdiction by Lighting Zone
3. Environmentally judicious use of resources by Lighting Zone
4. Energy use and efficiency by Lighting Zone
5. Curfews to reduce or extinguish lighting when no longer needed by Lighting Zone

E. Warranting

The Authority shall establish a warranting process to determine whether lighting is required. Such warranting process shall not assume the need for any lighting nor for continuous lighting unless conditions warrant the need. Lighting shall only be installed where warranted.

XI. OPTIONAL STREETLIGHT ORDINANCE - Ordinance Text

F. Light Shielding and Distribution

All street lighting shall have no light emitted above 90 degrees.

Exception: Ornamental street lighting for specific districts or projects shall be permitted by special permit only, and shall meet the requirements of Table H below without the need for external field-added modifications.

Table H - Uplight Control Requirements for Ornamental Street Lights - by Special Permit Only

| Lighting Zone | Maximum Uplight Rating |
|----------------------|-------------------------------|
| LZ-0 | U-0 |
| LZ-1 | U-1 |
| LZ-2 | U-2 |
| LZ-3 | U-3 |
| LZ-4 | U-4 |

10.28.100 Parking Requirements Of Private Recreational Vehicles In Residential Zones

The location or storage of mobile homes, travel trailers, recreational vehicles, boats, camping trailers and truck campers, and other recreational vehicles and equipment owned by the property owner, may be parked, subject to the following:

- A. Recreational vehicles, including boats, travel trailers, motor homes, horse trailers and similar vehicles kept in reasonable repair and operable condition, may be located in a detached or attached garage, or other accessory building, or parked in the rear yard or side yard and screened from front yards and streets by a wall, fence, gate, landscaping or other suitable screening material.
- B. A mobile home, travel trailer, recreational vehicle, boat, camping trailer or truck camper may be located in the front yard for the purposes of loading and unloading for a period not to exceed forty eight (48) hours.
- C. A recreational vehicle may be occupied temporarily by family members or guests of the owner. However, no boat, trailer, motor home, travel trailer or similar recreational vehicle shall be occupied for a period greater than one hundred twenty (120) days.

HISTORY

Adopted by Ord. [2019-09](#) on 6/12/2019

OPENING

Chairperson Browning brought the meeting to order at 6: p.m. and led the Pledge of Allegiance.

ROLL CALL/PRESENT

Chairperson Browning
Commissioner Prentice
Commissioner Kuehne

Town Deputy Recorder Ben Billingsley

DISCUSSION

A. Planned Development Zone, Revision Discussion-Forrest Kuehne.

Discussion took place between all commission members as to when the last revision of the Planned Development zone was most recently revised.

Commissioner Kuehne was under the impression that it may have been edited in February 2018. Chairperson Browning was confident it had not been updated since 2015.

Chairperson Browning indicated that our legal counsel advised that as long as we are not changing the meaning of the code it does not require a public hearing. All of changes being discussed do not change the meaning of the code.

Changes as discussed will be redlined and presented to the Planning Commission in the next meeting.

APPROVAL OF MINUTES

B. Minutes for April 24, 2019; May 8, 2019; May 22, 2019; June 12, 2019

MOTION: Chairperson Browning moves to accept the minutes for April 24th, May 8th, May 22nd, and June 12th 2019.

SECOND: Commissioner Kuehne

VOTE: Chairperson called for a vote:

| | |
|-----------------------|-----|
| Chairperson Browning | Aye |
| Commissioner Prentice | Aye |
| Commissioner Kuehne | Aye |

The vote was unanimous and the motion carried.

ADJOURNMENT

MOTION: Commissioner Prentice motions to adjourn
SECOND: Commissioner Kuehne
VOTE: Chairperson called for a vote:
Chairperson Browning Aye
Commissioner Janet Prentice Aye
Commissioner Kuehne Aye

The vote was unanimous and the motion carried

Meeting adjourned at 6:56 pm.

Date approved: _____

Chairperson Browning

ATTEST BY: _____
Michelle Kinney, Recorder