



City of Chula Vista

Staff Report

File#: 18-0030, **Item#:** 4.

ORDINANCE OF THE CITY OF CHULA VISTA AMENDING CHAPTER 15.26 OF THE CHULA VISTA MUNICIPAL CODE TO INCREASE OUTDOOR LIGHTING EFFICIENCY FOR SPECIFIC COMMERCIAL OUTDOOR LIGHTING APPLICATIONS (FIRST READING)

RECOMMENDED ACTION

Council place the ordinance on first reading.

SUMMARY

On September 26, 2017, the City Council adopted the 2017 Climate Action Plan (CAP), continuing Chula Vista's tradition as a nationally-recognized leader in addressing the local threat of climate change by reducing greenhouse gas (GHG) emissions and lowering Chula Vista's vulnerability to expected climate change impacts. The 2017 CAP called for requiring energy efficiency upgrades. The following proposed energy efficiency standards for specific commercial outdoor lighting applications is a significant step in Chula Vista's greenhouse gas (GHG) reduction strategy as outlined in the 2017 CAP.

ENVIRONMENTAL REVIEW

Environmental Notice

The activity is not a "Project" as defined under Section 15378 of the California Environmental Quality Act State Guidelines; therefore, pursuant to State Guidelines Section 15060(c)(3) no environmental review is required. Notwithstanding the foregoing, the activity qualifies for an Exemption pursuant to Section 15061(b)(3) of the California Environmental Quality Act State Guidelines.

Environmental Determination

In accordance with the California Environmental Quality Act (CEQA), the CEQA Guidelines, and the City's environmental procedures, the City Council finds that the adoption of this ordinance is not a "Project" as defined under Section 15378 of the State CEQA Guidelines; therefore, pursuant to Section 15060(c)(3) of the State CEQA Guidelines, the activity is not subject to CEQA. In addition, notwithstanding the foregoing, the City Council finds that the adoption of this ordinance covered by CEQA General Rule Exemption [Section 15061(b)(3)] which exempts activities that can be seen with certainty to have no possibility for causing a significant effect on the environment. A significant effect is defined as, "a substantial, or potentially substantial, adverse change in the physical conditions within the area," and the adoption of this Ordinance is therefore not subject to CEQA. Thus, no environmental review is required.

BOARD/COMMISSION RECOMMENDATION

City staff presented to the Development Services Citizen Oversight Committee on January 24, 2018 as an informational item. City Staff also presented to the Sustainability Commission (SSC) on February 12, 2018. The SSC unanimously supported the proposed requirements. In addition, staff

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presented to the Board of Appeals and Advisors on April 9, 2018 which recommended that City Council adopted the ordinance.

DISCUSSION

The 2017 Climate Action Plan (CAP) and related implementation actions were established through an extensive outreach effort to Chula Vista residents and communities. In 2014, Staff reconvened the previously formed Climate Change Working Group (CCWG). The CCWG was chaired by Sustainability Commission members and consisted of 13 other members representing various community sectors. The CCWG held a total of 11 meetings, including 10 publically-noticed meetings and one public forum to solicit input and engage the public on the development of the greenhouse gas reduction strategies through a consensus-building process. In November 2014, City Council adopted the 12 GHG reduction strategies that the CCWG presented, which included requiring energy savings retrofits.

These CCWG recommendations were subsequently incorporated into the 2017 (CAP) adopted by the City Council in September 2017. The 2017 CAP included an implementation schedule that identified requiring energy savings retrofits as an action that would start in the fourth quarter of 2017.

The proposed ordinance will leverage the City's significant past efforts to increase energy efficiency in commercial buildings such as implementing the Free Resource & Energy Business Evaluation (FREBE) program, working with Property Assessed Clean Energy (PACE) financing companies and the CLEAN Business program.

This proposed ordinance will be in place until it is superseded by the regular 2019 Building Energy Efficiency Standards (slated to be implemented starting January 1, 2020) that are expected to require similar, if not more stringent, power allowances for all outdoor lighting categories.

Task / Milestone	Date
Present to City Council (first reading)	April 24, 2018
City Council (second reading)	May 1, 2018
Submit California Energy Commission (CEC) Application	April 25, 2018
Receive CEC Response (expected)	July 12, 2018
File with California Building Standards Commission (expected)	July 13, 2018
Effective Date (30 days following CEC approval)	August 12, 2018

This action is being taken in an effort to leverage the significant growth in LED efficiency and

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continued drop in LED technology costs that has been seen in the market. This proposed ordinance will also help better prepare Chula Vista businesses, builders and contractors for the anticipated California State 2019 Building Energy Efficiency Standards.

Outdoor Lighting Zones:

California State lighting standards base the allowable outdoor lighting power, in part, on the brightness of the surrounding conditions. Existing standards contain lighting power allowances based on which Lighting Zone (LZ) the particular project is located in (see table below for description of all lighting zones).

Zone	Ambient Illumination	State-wide Default Location
LZ1	Dark	Government designated parks, recreation areas and wildlife preserves.
LZ2	Low	Rural areas
LZ3	Medium	Urban areas
LZ4	High	High intensity nighttime use, such as entertainment or commercial districts or areas with special security considerations requiring very high light levels.

According to the State, different outdoor lighting zones are created because the eyes adapt to darker surrounding conditions, resulting in less necessary light needed to properly see; when the surrounding conditions get brighter, more light is needed to see.

The City of Chula Vista consists of three outdoor Lighting Zones per the attached Outdoor Lighting Zones Map. These include:

- Lighting Zone 3, urban areas that are State default areas as adopted by the California Energy Commission (CEC) and defined by the 2000 Census,
- Lighting Zone 2, rural areas that are State default areas as adopted by the CEC and defined by the 2000 Census, and
- Lighting Zone 3, Urban areas as Amended by City of Chula Vista Ordinance # 3023.

The City's most recent Lighting Zone Map adopted in 2005 lists a majority of the City as LZ3, but due to significant development since it was adopted, City staff will be working to update the map and bring back to City Council in the third quarter of 2018.

Proposed Implementation Approach:

In development of the proposed standards, the City utilized documents and analyses prepared for future state energy codes and a model outdoor lighting efficiency ordinance that was created by the four California Investor Owned Utilities (IOU) with feedback from local governments and other stakeholders. Under this ordinance, non-residential new construction, additions or certain alterations would need to meet lower power allowances for ten specific outdoor lighting uses (see table below).

The new power allowances are calibrated to provide the same light output levels with less energy, by utilizing Light Emitting Diode (LED) lighting products instead of Pulse Start Metal Halide (PSMH) lighting which is an older and less efficient technology. A Codes and Standards Enhancement (CASE) study performed in 2017 by California utilities found that LED products achieving these output and efficiency levels were commercially available already and are cost effective alternatives to the older PSMH technology.

The table below compares the existing power allowance alongside the proposed lower power allowance. Each lighting application has a unique power allowance that is applied based on its installation characteristics, such as being applied per application, per unit length, or per specific area, see table below for how each power allowance is applied. The proposed ordinance amends power allowances for ten specific outdoor lighting applications. In total, the California Energy Code sets power allowances for 17 specific outdoor non-residential lighting applications. It is expected that all 17 power allowances for outdoor non-residential lighting applications will be reduced as part of the regular 2019 Building Energy Efficiency Standards, slated to be implemented starting January 1, 2020. Therefore, this ordinance will help building owners save energy by putting some of the expected 2019 requirements in place early.

	Lighting Zone 1		Lighting Zone 2		Lighting Zone 3		Lighting Zone 4	
Lighting Application*	Existing Value (watts)	Proposed Value (watts)	Existing Value (watts)	Proposed Value (watts)	Existing Value (watts)	Proposed Value (watts)	Existing Value (watts)	Proposed Value (watts)
WATTAGE ALLOWANCE PER APPLICATION.								
Building Entrances or Exits. Allowance per door.	15	9	25	15	35	19	45	21
Primary Entrances to Senior Care Facilities, Police Stations, Hospitals, Fire Stations, and Emergency Vehicle Facilities. Allowance per primary entrance(s) only. This allowance shall be in 'addition to the building entrance or exit allowance above.	45	20	80	40	120	57	130	60

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Drive-Up Windows. Allowance per customer service location.	40	16	75	30	125	50	200	75
WATTAGE ALLOWANCE PER UNIT LENGTH (w/linear ft).								
Outdoor Sales Frontage. Allowance for frontage immediately adjacent to the principal viewing location(s) and unobstructed for its viewing length.	No Allowance	No Allowance	22.5	11	36	19	45	25
WATTAGE ALLOWANCE PER SPECIFIC AREA (W/ft²).								
Building Facades. Only areas of building façade that are illuminated shall qualify for this allowance.	No Allowance	No Allowance	0.18	0.100	0.35	0.170	0.50	0.225
Outdoor Sales Lots. Allowance for uncovered sales lots used exclusively for the display of vehicles or other merchandise for sale.	0.164	0.06	0.555	0.21	0.758	0.28	1.285	0.485
Vehicle Service Station Hardscape. Allowance for the total illuminated hardscape area less area of buildings, under canopies, off property, or obstructed by signs or structures.	0.014	0.006	0.155	0.068	0.308	0.138	0.485	0.200

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Vehicle Service Station Canopies. Allowance for the total area within the drip line of the canopy.	0.514	0.220	1.005	0.430	1.300	0.580	2.200	1.010
Non-Sales Canopies and Tunnels. Allowance for the total area within the drip line of the canopy or inside the tunnel.	0.084	0.057	0.205	0.137	0.408	0.27	0.585	0.37
Outdoor Dining. Allowance for the total illuminated hardscape of outdoor dining.	0.014	0.004	0.135	0.030	0.240	0.050	0.400	0.075

* Lighting Zone 0 is not applicable in Chula Vista

Cost Effectiveness:

A proposed requirement is considered cost effective when it will save the user money over the lifecycle of the measure in comparison with the existing requirement. Based on the findings in the "Outdoor Lighting Power Allowances - Final Report", (Attachment three) staff have determined this ordinance to be cost-effective. This study was conducted in 2017 with the goal of studying LED technology in the market in an effort to inform the states 2019 Building Energy Efficiency Standards update.

The study shows that installing lighting systems compliant with the proposed allowances will save businesses money under typical operating conditions. In other words, the energy bill savings will more than compensate for any increase in initial installation cost. As shown in the table below, for seven out of ten of the affected outdoor lighting categories, the new lighting technologies needed to meet the proposed lighting power allowance standards were actually found to *cost less* to purchase and install. Therefore, the proposed requirements for these seven categories have an infinite benefit-to-cost ratio. The remaining three categories have an average benefit to cost ratio of 22.2, which means that over their expected lifetime, they are expected to save the users much more in utility costs than the incremental cost to implement the upgrades.

Outdoor Lighting Category	Additional Installation Cost	Lifecycle Energy Bill Savings	Benefit to Cost Ratio
Building Entrances	Lower	\$173 per installed fixture	Not applicable

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Primary Entrances	Lower	\$672 per installed fixture	Not applicable
Drive Up Windows	Lower	\$550 per installed fixture	Not applicable
Outdoor Sales Frontage	\$11.17 per ft.	\$82 per ft.	7.35
Building Facades	\$0.02 per sq. ft.	\$132 per sq. ft.	51.4
Outdoor Sales Lots	Lower	\$4.60 per sq. ft.	Not applicable
Vehicle Service Station Hardscape	\$0.21 per sq. ft.	\$1.63 per sq. ft.	7.9
Vehicle Service Station Canopies	Lower	\$7.13 per sq. ft.	Not applicable
Non-sales Canopies	Lower	\$0.68 per sq. ft.	Not applicable
Outdoor Dining	Lower	\$0.87 per sq. ft.	Not applicable

Reductions in Energy Use and GHG Emissions & Other Cities Taking Similar Action:

Higher efficiency lighting required by this ordinance will consume between 32% and 81% less energy depending on the specific lighting application and lighting zone. Citywide, the ordinance is estimated to save more than 3,300 MTCO₂e emissions from covered buildings over the useful life of the products. The City of Fremont, California implemented a similar outdoor lighting efficiency requirement in April of 2017.

Required Next Steps:

In order for the City to adopt and enforce increased building energy standards, the City must submit an application to the California Energy Commission and obtain approval before the increased standards can take effect. The application submittal must include:

- 1) The proposed standards as adopted by Council,
- 2) The City's determination that the proposed standards will save energy and are cost-effective
- 3) A study with supporting analysis for the City's energy savings and cost effectiveness findings
- 4) A statement that the proposed standards will require buildings to be designed to consume no more energy than permitted by the State Building Energy Efficiency Standards and

The ordinance includes the necessary energy savings and cost effectiveness findings. By reviewing the attached cost effectiveness study and adopting this proposed ordinance, Council will be making

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the cost effectiveness and energy savings determinations mentioned above. After City Council votes on the proposed Ordinance after first reading, staff will submit the application to the CEC for their review and approval. The CEC review and approval process can take up to three months. After CEC approval, staff will file the ordinance with the California Building Standards Commission and the ordinance will go into effect 30 days after the CEC approval.

DECISION-MAKER CONFLICT

Staff has reviewed the decision contemplated by this action and has determined that it is not site specific and consequently, the 500-foot rule found in California Code of Regulations section 18704.2 (a)(1), is not applicable to this decision. Staff is not independently aware, and has not been informed by any City Council member, of any other fact that may constitute a basis for a decision maker conflict of interest in this matter.

LINK TO STRATEGIC GOALS

The City's Strategic Plan has five major goals: Operational Excellence, Economic Vitality, Healthy Community, Strong and Secure Neighborhoods and a Connected Community. This ordinance is a part of the 2017 Climate Action Plan implementation which was identified under the Strategic Plan's Healthy Community goal 3.2.2 and goal 3.1.1 which seeks to implement policies that support a healthy community.

CURRENT YEAR FISCAL IMPACT

No current year fiscal impact. The building permit review and inspection time associated with implementing this Ordinance will be funded through building permit fees.

ONGOING FISCAL IMPACT

No ongoing fiscal impact. The building permit review and inspection time associated with implementing this Ordinance will be funded through building permit fees.

ATTACHMENTS

- 1) Attachment 1 - LED Ordinance Overview
- 2) Attachment 2 - Outdoor Lighting Power Allowances - Final Report
- 3) Attachment 3 - Outdoor Lighting Zones Map

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