

# City Council Report

**Date:** October 20, 2014  
**To:** City Council  
**Through:** Kari Kent, Deputy City Manager  
**From:** Lenny Hulme, Transportation Director  
Al Zubi, Senior Transportation Engineer  
**Subject:** Mulberry Master Planned Community Public Street Lighting  
Council District 6

## Strategic Initiatives



### Purpose and Recommendation

The purpose of this report is to present a request by the developer of Mulberry Master Planned Community for approval to use a lower level of lighting on local public streets within the subdivision than what City standards prescribe. A low light level is one of the aesthetic design elements planned throughout the 172.5 acre Mulberry project and is part of the overall vision to create a community that recognizes and reflects the early American neighborhood character in its design. The lighting requested is similar to what is provided on local streets in other developments in the City such as Desert Uplands area of northeast Mesa, Eastmark, Morrison Ranch and Pacific Proving Grounds North.

Should the Council wish to grant the developer's request for lower local street lighting, it is recommended the street lighting requirements for local streets in this development be as follows:

1. All local public street intersections shall be illuminated per the City standards.
2. One light shall be installed at each elbow intersection.
3. Lights shall be installed at all marked or un-marked pedestrian, bicycle, equestrian or multi-use pathway street crossings (crosswalks) to meet City light level standards.
4. One light shall be installed at all public driveway entrances to schools.
5. Continuous lighting along sections of streets adjacent to school sites, parks, or activity centers shall be provided in accordance with subsection 9-6-4(D)(10) and City of Mesa Engineering and Design Standards.
6. One light shall be installed at the end of each cul-de-sac that is longer than 200' as measured from the centerline of the intersection at the beginning of the cul-de-sac to the face of curb at the farthest point of the cul-de-sac.

## **Background**

The proposed Mulberry subdivision is a 172.5 acre master planned community being developed on the northwest corner of Guadalupe Road and Signal Butte Road by Blandford Homes. See Figures 1 and 2.

As explained by the project's developer:

Mulberry is a master planned residential community on 172.5 acres located in East Mesa. It is being planned as a New Traditional Community that draws influence from modern smart growth principles as well as the timeless qualities of historic American neighborhoods. The street lights shall be appropriate to the community character, and shall provide for comfortable illumination for motorists and pedestrians. This can be achieved in a number of arrangements while holding the overall unique community character. In keeping with New Traditional Community theme street lighting will be similar to early American neighborhoods. Light levels and frequency of light poles will be reduced, similar to other neighborhoods in Mesa such as Desert Place at Morrison Ranch, Eastmark, and Desert Uplands.

City code requires street lighting on public streets built with a development project. The City's street lighting requirements are adopted in code, and with a few exceptions, are based on the Illuminating Engineering Society's Recommended Practice 8-2000 (IES RP8-2000). Many areas of the City have street lighting well below today's requirements because they were developed before the current lighting standards were adopted. Additional street lighting is one of the most common requests made by residents in these areas. Residents often cite crime deterrence and a perceived positive impact on personal safety in a neighborhood as reasons for wanting increased street lighting.

City Councils have previously approved reduced lighting standards on certain types of streets throughout the Desert Uplands area in northeast Mesa, for Eastmark, DMB's project at the former General Motors Proving Grounds in the southeast part of the City, for the Desert Place at Morrison Ranch development, and for the Pacific Proving Grounds North Development at the southeast corner of Ray Road and Ellsworth Road. Attachment A lists the specific requirements for each of these areas.

## **Discussion**

The safety benefit of street lighting in the form of lower crash rates is well documented. Studies have been done for both urban and rural roadways with a variety of traffic volumes. Studies have shown unlighted roadways have more fixed object, run off road, hit pedestrian, hit parked vehicle, and hit animal type collisions than lighted roadways. The Federal Highway Administration stated that roadway lighting is the only countermeasure that addresses all types of pedestrian crashes. Studies have also shown that intersection lighting is effective in reducing nighttime crashes. While there are numerous studies on this subject, staff has not located any studies that specifically addressed lighting on low volume local residential streets. This is probably because relatively few crashes occur on these types of streets.

Other jurisdictions have various street lighting policies. Scottsdale has four lighting zones depending on land use and intensity. In the darkest zone lights are required only at signalized intersections. The highest density zones with strong pedestrian activity have lighting per

IES RP-8. In Tucson arterial and collector streets are lighted to IES standards, but residents or developers decide if local streets have lighting. Fountain Hills only lights signalized intersections. Cave Creek, Carefree and Maricopa County do not install street lighting. None of these jurisdictions reported any liability claims related to the lack of street lighting.

Council adoption of street lighting requirements is key to allowing different lighting standards in different areas of the City while minimizing liability risk. Absent any technical basis on which to apply different lighting requirements, it becomes a policy choice for the Council to determine if it is desirable for the City to allow a development with lower light levels on public streets for residents who may want to live in such an area.

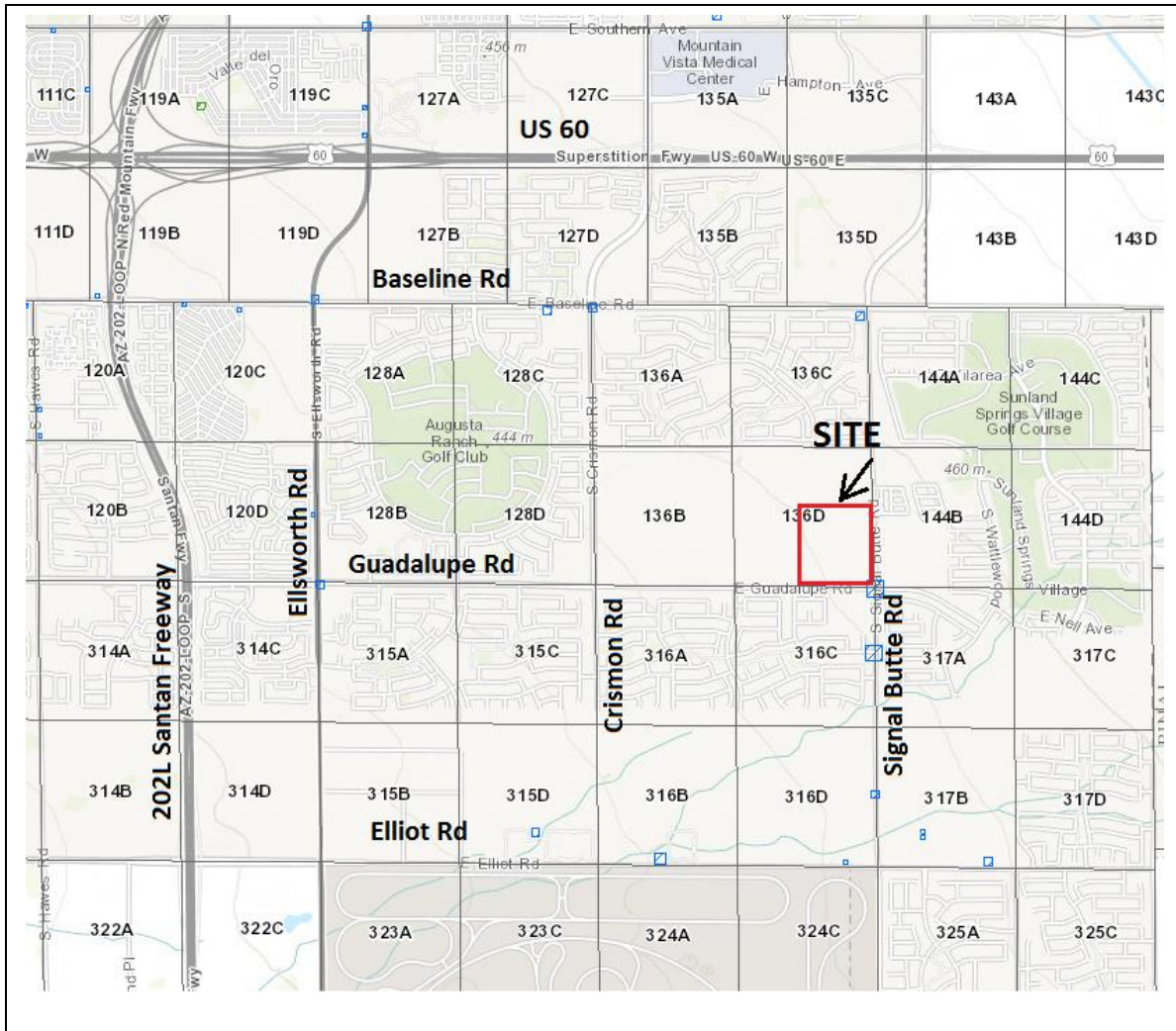
While the modified street lighting requirements previously approved by Council do reduce the amount of street lighting, they still require lighting at locations with the highest potential for vehicle-vehicle and vehicle-pedestrian conflicts. Mesa has not had any liability claims or notice of any problems related to the modified lighting standards.

It is recognized that Mulberry desires to offer a unique neighborhood design. The requested lighting is similar to that approved for the Desert Uplands, areas within Eastmark, Morrison Ranch, and Pacific Proving Grounds North, with lighting provided at locations with the highest potential for vehicle-vehicle and vehicle-pedestrian conflicts. Compared to the City's normal standard, reduced lighting would reduce operation and maintenance costs by an average of \$95 per year for each street light that would be omitted.

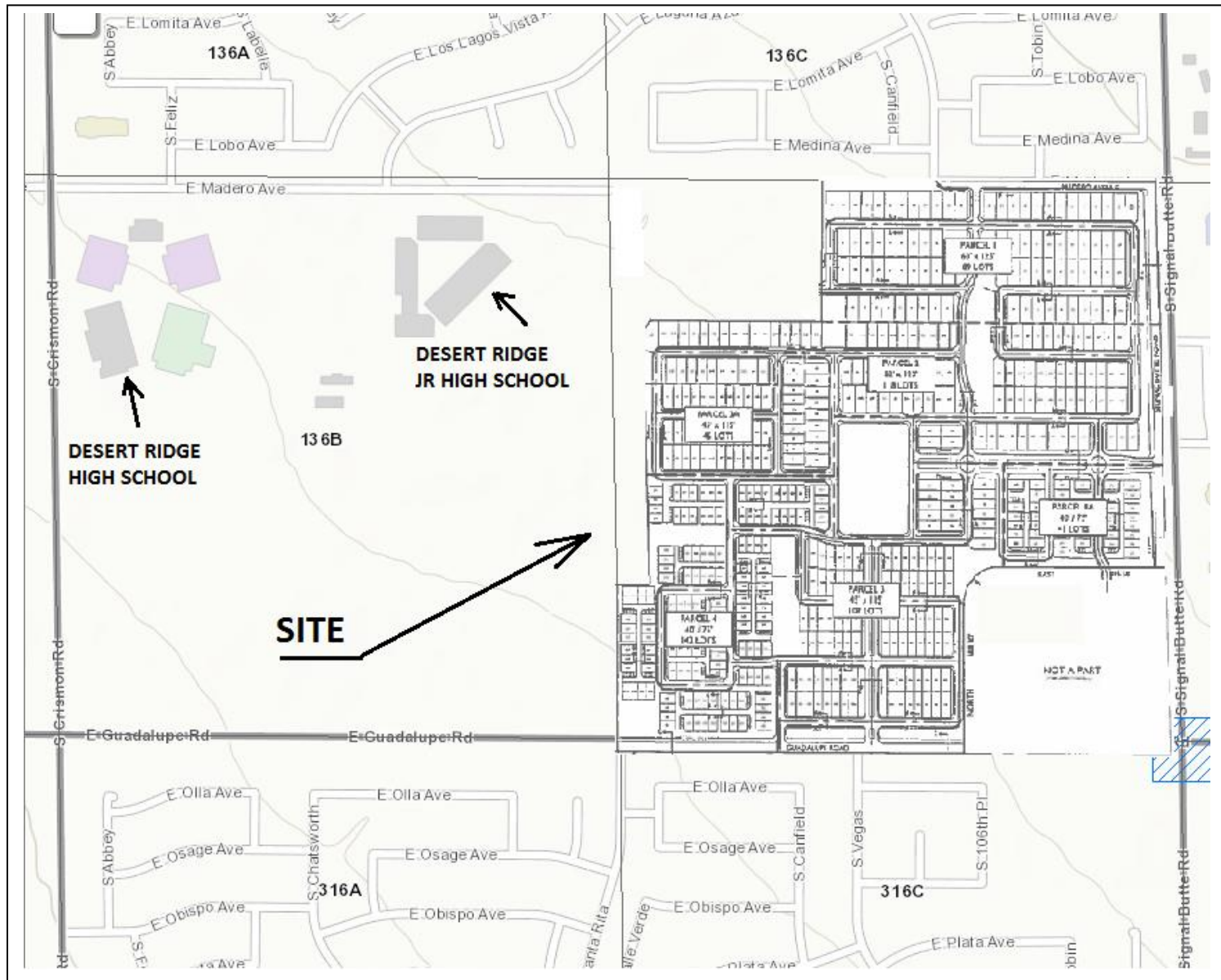
### **Alternatives**

REQUIRING ALL PUBLIC STREET LIGHTING TO MEET CITY STANDARDS is one alternative. This would not allow Mulberry to provide the unique neighborhood environment with the low lighting they desire. Operation and maintenance costs would be higher by an average of \$95 per year for each street light that could have been omitted.

CONTINUOUS STREET LIGHTING AT A LOWER LIGHT LEVEL is another option. In this alternative, instead of having lights installed to provide lighting at the requested level, streets would be continuously lit, but at a lower average light level than the City standard. This also would not allow Mulberry to provide the unique neighborhood environment with low lighting they desire. It would require fewer lights than the City standard, but more than what Mulberry is requesting.



**Figure 1. Vicinity Map**



**Figure 2. Site Map**

**ATTACHMENT A**  
**MODIFIED STREET LIGHTING STANDARDS**  
**PREVIOUSLY APPROVED BY MESA CITY COUNCIL**

**In 2004** Council passed an ordinance that established street lighting standards to be applied to the Desert Uplands area as follows:

1. Arterial streets are lit to the same standard throughout the City.
2. Thirty-four foot wide collector streets are lit at the lower local street lighting standard applied outside the Desert Uplands area.
3. Forty-six foot wide collector streets adjacent to school sites, parks, or activity centers are lit to City standard requirements for all collectors.
4. Local streets have one light at each intersection, at the end of cul-de-sacs that are longer than 200 feet, and mid-block as needed to maintain a maximum spacing of 400 feet between lights.
5. Street lighting is not required in R1-43 to R1-90 districts in the Desert Uplands with suburban ranch type streets.

**In 2006** Council changed lighting requirements for the area north of McDowell Road, east of Hawes Road and west of Utery Mountain Regional Park. Within this area no public street lighting is required. A private area light is required at each entrance to a multi-unit subdivision.

**In 2007** Council approved lighting standards for the Mountain Bridge development area at the request of that developer. Those requirements are as follows:

Street lighting on public collector and local streets shall be provided to the light level required by City standards based on street classification and land use as follows:

- A. At all public street intersections and all locations where private driveways intersect a public street.
- B. At all marked or unmarked pedestrian crosswalks.
- C. At all pedestrian crossing points adjacent to parks or other activity centers.
- D. At all pedestrian, bike, equestrian, or joint use pathway crossings where pathway lighting is provided.
- E. At locations adjacent to parks or other outdoor activity centers continuous street lighting shall be provided where the park or activity center provides lighting for nighttime use and there is no fence or other physical barrier between the street and the outdoor facility that limits pedestrian access to specific crossing points.
- F. At the end of a cul-de-sac.

**In 2008** Council approved modified lighting standards for Eastmark, then known as Mesa Proving Grounds, as follows:

Street lighting shall be provided to the light level required by City standards based on street classification and land use on public Neighborhood Streets in LUG V-Village and LUG D-District where continuous sidewalk lighting and landscape/hardscape lighting are provided, and in LUG OS-Open Space, LUG CS-Civic Space, LUG E-Estate, LUG R-Retreat and in Service Lanes irrespective of sidewalk and landscape/hardscape lighting, as follows:

- A. At all public street intersections and all locations where private commercial driveways with heavy nighttime use, multi-family driveways serving twenty (20) or more units, or service lanes intersect a public street

## **ATTACHMENT A, continued**

- B. At all marked or unmarked pedestrian crosswalks
- C. At all marked or unmarked pedestrian, bicycle, equestrian or multi-use pathway crossings
- D. At the end of a cul-de-sac or hammerhead
- E. At all public use driveway entrances to schools or civic buildings
- F. Continuously along streets where adjacent major nighttime gathering locations are brightly lighted and there is no fence or other physical barrier between the street and the outdoor facility that limits pedestrian access to specific crossing points
- G. In Service Lanes, additional privately owned and maintained lighting shall be provided as specified at the Development Unit Plan level

**In 2012** Council approved modified lighting standards for Desert Place at Morrison Ranch, as follows:

- 1. A minimum of one street light shall be placed at each intersection and at the end of each cul-de-sac that is more than two-hundred-feet (200') long.
- 2. A minimum of one street light shall be placed at each marked and unmarked pedestrian crosswalk, and at each marked and unmarked pedestrian, bicycle, equestrian or multi-use pathway crossing if such crosswalks and pathway crossings are not lighted with intersection lights specified above.
- 3. On continuous street sections, street lights shall be placed at a maximum spacing of four hundred feet (400').
- 4. Street lights may consist of decorative poles and decorative post top mounted fixtures as approved by the City Traffic Engineer, with a typical mounting height of sixteen feet (16'), but in no case shall the mounting height be less than sixteen feet (16') or greater than twenty-five feet (25').
- 5. Continuous lighting along sections of streets adjacent to school sites, public parks, or activity centers shall be provided in accordance with subsection 9-6-4(D)(10) and City of Mesa Engineering and Design Standards.

**In 2014** Council approved modified lighting standards for Pacific Proving Grounds North, as follows:

- 1. All local public street intersections shall be illuminated per the City standards.
- 2. One light shall be installed at each elbow intersection.
- 3. Lights shall be installed at all marked or un-marked pedestrian, bicycle, equestrian or multi-use pathway street crossings (crosswalks) to meet City light level standards.
- 4. One light shall be installed at all public driveway entrances to schools.
- 5. Continuous lighting along sections of streets adjacent to school sites, parks, or activity centers shall be provided in accordance with subsection 9-6-4(D)(10) and City of Mesa Engineering and Design Standards.
- 6. One light shall be installed at the end of each cul-de-sac that is longer than 200' as measured from the centerline of the intersection at the beginning of the cul-de-sac to the face of curb at the farthest point of the cul-de-sac.
- 7. Street lights may be decorative post top style fixtures, as approved by the City Traffic Engineer, to meet the theme of the community. Light source will be either HPS (high pressure sodium) or LED (light emitting diode).
- 8. Street lights will have an approximate 15' to 25' mounting height.