

ALBUQUERQUE STREET LIGHTING

Operation and Maintenance

December 2014

The two issues of interest for street lighting on the City of Albuquerque's Operating Budget are; cost of operation / maintenance and cost of electricity. This paper specifically addresses street lights within the right of way and does not include areas in parks, parking lots, etc., but there may be some synergism available.

BACKGROUND

The City has four categories and various types of lights within our roadway right of way.

1. PNM owned and maintained street lights. PNM is responsible for routine O&M and the City of Albuquerque pays for electricity and non-routine maintenance such as knock downs. The reimbursement to PNM for non-routine maintenance is part of this discussion. This entire category is flat rate street lights. There are approximately 12,000 of these.
2. City of Albuquerque owned and PNM maintained street lights. These are similar to the above. These lights meet the standard for PNM maintenance. They are flat rate lights and have similar issues. There are approximately 17,000 of these.
3. City of Albuquerque owned and maintained street lights. When a street light is installed that does not meet the standard PNM configuration, type or kind, they will not maintain them and the City of Albuquerque must respond to outages and damages to these lights. There are approximately 2,000 of these and are primarily pedestrian level or decorative pole lighting.
4. NMDOT installed and City maintained High Mast Interchange Lights. These are along I-25 and I-40. They are high voltage lights on high speed roadways and require special equipment and tools. We do not receive any funding from NMDOT for these lights. The agreements to maintain these were signed years ago and there is no supporting backup as to why these lights are maintained by the City of Albuquerque. There are approximately 80 of these.

Residential Lighting Design

All new residential subdivisions are required to install street lighting within the subdivision as part of their project. Residential lighting standard consists of a 100 watt HPS fixture mounted on a 28 foot pole. The City Design Process Manual (DPM) defines street light locations in residential areas as one light per intersection and a light mid-block if the distance between the intersections is greater than 500 feet. Street lights in residential areas are not intended to light the entire roadway, but to make drivers aware of key elements such as intersections or help guide motorist if there is a large distance between intersections. Traffic Engineering receives numerous requests for additional street lighting in older subdivisions. Once a request is received, a field investigation is completed to determine if the lighting in the area meets existing DPM standards and if need be the process of having an additional light installed is started. Over the years we have discovered that not everyone wants street lights added in their

neighborhood. If it is determined that a light could be added in order to comply with DPM standards, we require the requestor to have the 4 property owners adjacent to where the light would be installed sign a document stating that they would like to have the light installed. Approximately 15 to 20 street lights are installed each year following this process. The cost for installing these infill lights is paid for out of a bond funds. Cost of a new light in an existing residential area can be from as little as \$8,000 if power is nearby to one recent estimate we received of over \$40,000 (for a single light) if power is far away and we would be required to install a transformer to power the light.

Major Roadway Lighting Design

The lighting on major roadways is designed to provide a lighting level that is maintained at all points on the roadway and there is a uniform distribution of lighting over the entire roadway, including the adjacent sidewalk. Standard pole/fixture combinations installed on arterials include 250 watt HPS fixtures mounted on 30 foot poles and 400 watt fixtures mounted on 40 foot poles. Lighting fixtures with larger light output mounted higher above the roadway provides the most economical and efficient lighting design. Street lighting installed at lower heights requires additional poles be installed in order to get the required lighting distribution and can result in hot or bright spots on the pavement. Arterial street lighting has historically been installed by the City under individual projects. A request for lighting is received and we review the location to determine the need and then look for a funding source for the project. Arterial lighting that is installed on a roadway near an existing neighborhood can generate as many complaints as it resolves. Light trespass into adjacent residential lots has historically generated a number of complaints.

Pedestrian Level / Decorative Lighting Design

The approximately 1800 City owned and maintained lights are in high visibility areas. When outages occur they are generally reported immediately and often at multiple levels in the City. The City has never budgeted for staff or equipment to perform inspections or preventive maintenance on these lights. The number of these has grown from 15 a decade ago to 1,800 today. More are planned in some of the current planning and corridor studies. Any new pedestrian or decorative street lights installed are expected to meet a new City standard as implemented in Nob Hill, Lead and Coal, and downtown in front of Convention Center and on 4th Street.

Electricity Costs

Please refer to Attachment for latest published PNM Electric Service Rates.

ISSUE

The City of Albuquerque does not have a street light maintenance section, street light equipment, or spare parts. At any given time there are a number of PNM Standard street lights out due to burned out bulbs and / or power interruptions. PNM has roving street light crews that replace bulbs and repair damages. Their response time vary depending on the number of lights out in an area and other workloads.

The maintenance of street lighting is currently the responsibility of DMD / Traffic Engineering. Traffic Engineering has the proper labor classifications and proper equipment for the majority of the required street lighting maintenance with exception of the 78 high mast lights. Their primary

responsibility is the public safety issues surrounding the operation of more than 620 traffic signaled intersections in the City of Albuquerque. Each intersection has one or two control boxes and 6 to 18 signal heads.

In order to respond to outage repair requests, a signal crew is moved off of preventative maintenance efforts but never emergency work. Five years ago, this occurred for a couple of days every other month. Today it is becoming a weekly requirement at the same time we are increasing the number of signalized intersections and reducing staff.

Depending on how you account for the PNM owned and operated lights, the electric consumption costs, and the existing street lighting system in general, this is potentially an unrecognized \$500,000,000 asset. In the 2013 Bond a total of \$425,000 was allocated 2014 and 2015 combined. Monthly PNM billing for non-routine maintenance ranges from \$10,000 to \$40,000, depending on the month's activity. 24 months at \$20,000 per month is a conservative estimate of the expected activity for PNM. It amounts to \$480,000 which is greater than the budget. It includes no funding for City owned and operated street lights and no funding for additional lights and no funding for any labor.

The above figures do not include the electric consumption which is in excess of \$5,800,000 and growing annually due to rate increases and additional lights being installed.

Recommendation

The City of Albuquerque is researching the following options:

1. Hire a private consultant and contractor to upgrade and maintain City street lighting responsibilities. There is a potential to work with PNM and consolidate all street lighting into one contract.
2. Increase the General Fund budget for street lighting to hire a City crew consisting of an engineer, a foreman, and two electricians and purchase an aerial truck and associated computes, equipment, and street light accessories to operate and maintain a City of Albuquerque street lighting system and continue to coordinate with PNM.

Neither has been recognized in prior budgets. In order to maintain a minimally acceptable level of service to this growing number of street lights, it needs to be funded and implemented as soon as funds can be made available.

The alternative is to continue to make due, but we believe this is less than an acceptable level of service and in the long run, responding by exception may be even more expensive than properly maintaining this asset.