



Streetlight Conversion to Energy Efficient LED Fixtures

September 2016 Council Presentation



Streetlight Conversion to LED Fixtures =

Replacing existing high pressure sodium (HPS) light fixtures with more energy efficient light emitting diode (LED) light fixtures to reap the benefits of lower energy usage and costs

Basic comparison of HPS and LED lamps...

High Pressure Sodium (HPS) Lamps	Light Emitting Diode (LED) Lamps
Commercially available circa 1970	Commercially available since 2008
Cost of fixtures nearly level or constant	Cost of LED fixtures has fallen more than 85% since 2008 and continues to decrease
Less control over light spread and placement	Better light placement control
Lamp life of approximately 20,000 hours	Lamp life of 50,000 – 100,000 hours
Higher maintenance cost	Lower maintenance cost
Higher energy costs	Lower energy costs
Many manufacturers phasing HPS out	Many manufacturers are moving towards LED



Current yearly energy cost for streetlights = Approx. \$3.1M

LED fixtures use less energy

Maintenance costs are also lower for LED lights due to longer bulb/fixture life

Other Valley Cities Using LED for All New Installations:

- Phoenix
- Chandler
- Surprise
- Glendale

Cities Engaged in Doing Mass LED Conversion Projects:

- Phoenix
- Austin, TX
- Las Vegas, NV

Streetlight Conversion

- Number HPS fixtures currently in City of Mesa's streetlight system = 36,000 fixtures
- Replacement cost of HPS with LED fixtures = \$240- \$765 per fixture including labor and materials

Streetlight Conversion

- Total cost of LED conversion = Approximately \$14.6 million
- Return on investment period = 11.5 years



Transportation Department's Current practice relative to LED conversion...

- Replace HPS fixtures with LED only as the HPS fixtures or the poles to which they are mounted go bad
- Streetlight installations in new developments and installations are generally LED

Alternative time frames for LED conversions:

Alternative	Description	Annual Costs	Timeframe
1	Current practice: Replace only as HPS fixtures or poles fail	\$350,000	Approx. 40 years
2	Spread program over 5 years	\$2,920,000	5 years

Alternative finance options:

- Local sales tax – Likely viable only for 40+ year replacement time frame
- Bond funding – Future bond election
- Third-party financing – facilitated by energy services companies, who provide financing and guarantee energy savings performance

Staff Recommendation:

- **Seek bond funding for LED conversions (\$14.6M) as part of next transportation-related bond election, with costs of conversion spread over 5 years**





QUESTIONS?