CITY OF TUALATIN
Staff Report

TO:	Honorable Mayor and Members of the City Council
THROUGH:	Sherilyn Lombos, City Manager
FROM:	Nic Westendorf, Management Analyst II
DATE:	6/24/2019

SUBJECT:
Discuss which ownership and maintenance option the City should use for street lights.

RECOMMENDATION:
Staff recommends converting street lights and poles to Option A, which means PGE would own and maintain all lights and poles in the City.

Option A would reduce the amount of upfront capital cost the City would need to convert existing City-owned, non-supported, high-pressure sodium (HPS) lights to LED. Option A would also relieve the City from the need to replace street lights and poles that are currently nearing the end of their useful life.

EXECUTIVE SUMMARY:

Background
The City currently uses high-pressure sodium (HPS) street lights. Many of the HPS lights in the City are nearing the end of their useful life and most manufactures no longer support this technology, making it hard for the City to replace lights when they burn out. As the industry standard shifts to LED, the City has been unable to continue purchasing HPS lighting. Due to the lack of availability and high cost of HPS lights, all future light replacements will be LED lights.

There are a few examples of this already around the City (shown in Attachment A). The City is currently replacing HPS lights with LED on an as needed basis. As a fixture breaks it is replaced with a comparable LED fixture. The City is not proactively converting lights to LED.

Ideally, the City should have a plan to strategically convert our streetlights to LED because HPS is no longer readily available.

The Difference between HPS and LED
<u>High-Pressure Sodium (HPS)</u>
HPS lights have been around since the 1970s and were once considered very efficient. They were the standard for the City and for PGE. The majority of the lights in the City are HPS. Despite their widespread use, they have some deficiencies, particularly when compared to new technologies.

Advantages
- Emit a warm, comfortable light
- People are used to the look and feel
- Frequently utilized and fit within our current street light fixtures

Disadvantages

- Less efficient than LED
- Difficult to obtain parts
- Being phased out by PGE
- Higher cost to operate
- Bulbs burn out more frequently
- Less visibility

Light Emitting Diode (LED)

LED lights are the modern-day version of the HPS light. LED lights are efficient, widely available, cost-effective, and the technology has greatly improved over the years.

Advantages

- More efficient than HPS
- Lower cost to operate
- PGE's chosen lights are Dark Sky approved (less light scatter)
- Easier to get fixtures and parts
- Bulbs last longer
- PGE has lowered the temperature (color) of the LED lights to 3,500 kelvin to more closely match HPS
- PGE now offers decorative style lights consistent with current street lights throughout the City, such as town and country lights
- Improved light distribution and visibility

Disadvantages

- Requires conversion of almost all City street lights
- The stigma of LED lights as white, unnatural light. This has been addressed with PGE's new LED options

Current Situation

Currently, most street lights in Tualatin (87%) are owned by the City and maintained by PGE. This is called Option B.

Under Option B, the cost for routine repair and maintenance by PGE is passed through to the City in the monthly bill for electric usage. While PGE does all routine maintenance, the City is responsible for replacing a pole or fixture when it reaches the end of its useful life and for replacing poles and lights damaged more than two times in one year.

Advantages of HPS Option B

- Currently budgeted
- City is familiar with this technology
- City can collect lease fee on attachments

Disadvantages of HPS Option B

- Lights and Poles are failing and require costly conversion to LED and fiberglass poles
- Anticipated replacement cost for older poles is $1.27 million
- Difficult to obtain replacement lights and fixtures
- More expensive than Option B LED
- Less energy efficient

Current Situation - Option B Cost HPS Lights and Poles

Total Annual Budget for FY 20/21: $471,000

$24,647 per month for electricity and maintenance
$90,000 per year to replace end of life lights and poles

The Issue
The City is facing a large capital outlay to convert the end of life HPS lights to LED. This cost is not covered under the Option B agreement as the fixtures are considered end of life. The estimated cost provided by PGE to convert all existing Option B lights to LED is $1.45 million.

In addition to the HPS lighting, the City currently has 635 end of life wood poles that will need replacing in the near future. Many of these poles were installed in the 1980s. The cost estimate to replace a wood pole with a fiberglass pole is approximately $2,000. The estimated cost provided by PGE is $1.27 million to replace the all wood poles with modern fiberglass poles.

Total Capital Outlay: $2.72 million.

At current funding levels ($90,000 per year for replacements), it would take just over 30 years to complete the conversion. Due to the rate of failure of the wood poles and HPS lighting the City will need a plan to accelerate the replacement of these assets.

Options available for Ownership
PGE offers three ownership options for street lights in the public right of way:

Option A – PGE owns and maintains
Option B - the City owns but PGE maintains
Option C – the City owns and maintains

Because of the very high costs associated with owning and maintaining all street lights, light poles, and associated underground conduits, we did not consider Option C in this evaluation.

It should also be noted that it is possible to blend Options A and B into a hybrid option that is discussed below.

COST COMPARISON CHART

	Option B HPS (Current)	Option A LED and Poles	Option B LED and Poles	Hybrid – Option A LED Lights and mixed Option A & B Poles
Monthly Cost	$25,734	$44,726	$10,261	$29,898
Capital Outlay	($2,720,000) Cost to replace poles and light	$1,600,000** Revenue from sale of poles and lights to PGE	($2,720,000) Cost to replace poles and lights	$0
Change in Total Annual Budget (Electricity & Pole Replacement)	-	13.95%	-73.86%	-23.83%
Years for City to replace wood poles/ HPS lights with remaining budget	30*	PGE will upgrade as assets hit end of life / budget allows	8*	PGE will upgrade as assets hit end of life / budget allows
	City pays estimated $2.72M to upgrade end of life assets	PGE pays $1.6M to City for poles and lights. No upgrade cost / no upfront Cost to the City	City pays estimated $2.72M to upgrade end of life assets	PGE pays upgrade cost / no upfront Cost to the City

**Estimated years to replace all end of life poles and lights with the remaining total budget (current budget for electricity and poles replacement) remaining after the associated Option is entered into.*

*** This is an estimated purchase price provided by PGE. Additional review by PGE legal and finance would be required before the purchase amount is finalized.*

Managing Attachments on Street Lights
In December, the Council passed design standards and an annual attachment fee for small-cellular attachments in the right of way, including on street lights.

The adopted standards and fees apply to all attachments regardless of who owns the pole. The City will still collect the $625 annual attachment fee and the design standards will still apply even if PGE owns the pole the small cellular equipment is attached to.

PGE has the ability to collect an additional lease payment in addition to the City's attachment fee for attachments on their poles. This arrangement is no different than any poles currently owned by PGE within the City. If the City maintained ownership of the street lights, the City could collect the additional lease fee, but would also have an additional administrative cost.

City staff looked at the revenue potential for leasing poles for small cell and found that even this additional revenue would not offset the overall costs of managing the street lights under Option B.

OPTIONS FOR MOVING FORWARD
There are two ownership options that we could utilize to accomplish the conversion from HPS to LED. We could also use a combination of the two options if it makes sense.

Option A LED and Poles
The City could choose to convert all streetlights and poles to Option A and sell them to PGE to own and maintain them into the future. The revenue from the sale of the poles could be used to offset the increase in monthly cost incurred under Option A, described in the Cost Comparison Chart. The City currently has 228 Option A LED lights throughout the City, some of which are shown in Attachment A.

<u>Advantages of Option A LED</u>
- City would receive an estimated $1.6 million for the sale of all street lights and poles to PGE
- PGE would own, operate, and maintain all the street lights
- PGE would convert all lights to LED and replace the existing end of life wood poles at no upfront cost to the City
- City would not have to manage replacement/installation of lights and poles
- City would not have to manage lease agreements for pole attachments

<u>Disadvantages of Option A LED</u>
- Monthly cost would rise due to the increase in the level of service received by PGE (see Cost Comparison Chart)
- PGE would collect lease fees from attachments on street lights, in addition to the attachment fee the City would continue to collect.

<u>City Responsibility:</u>
- Energy cost
- City pays for Repair, maintenance, replacement, and installation
- Staff time to survey lights and report outages

<u>PGE Responsibility:</u>
- Purchase of all City-owned poles at approximately $1.6 million
- Conversion from HPS to LED
- Replacement of 635 wood poles
- PGE performs repair, maintenance, replacement, and installation
- Provide energy
- Replacement and installation of equipment regardless of the situation
- All staff time associated with coordinating maintenance and operation of street lights

Cost
$44,726 per month*

Breakdown
$25,183 for light operation and maintenance
$19,543 for pole operation and maintenance

Option B LED and Poles
The City could keep ownership of the street lights and continue to have PGE perform routine maintenance. The monthly cost for Option B LED lights is significantly lower, as shown in the Cost Comparison Chart, due to the decreased energy use of LED lights. The City would be responsible for the conversion of all end of life equipment.

Advantages of Option B LED
- Lower monthly energy cost (see Cost Comparison Chart)
- City could use monthly energy cost savings to upgrade end of life assets
- City can collect lease fees on City-owned poles

Disadvantages of Option B LED
- City pays to replace and install end of life lights and poles
- City is responsible for coordinating replacement/installation of lights and poles
- City has to manage lease agreements for attachments on City-owned poles

City Responsibility:
- Energy cost
- City pays for repair and maintenance
- Replacement and installation of end of life equipment
- Conversion from HPS to LED
- Replacement of 635 wood poles
- Repair/replacement of poles damaged more than 2 times in 12 months
- Staff time to survey the lights for functionality
- Staff time to coordinate repair/replacement of lights with PGE

PGE Responsibility:
- PGE performs routine repair and maintenance
- Provide Energy

Cost
$10,261 per month for electricity and routine maintenance of poles and lights*

The City would need to plan for the $2.72 million cost to replace the end of life wood poles and upgrade existing HPS lights to LED as both these asset types are considered end of life and not covered under the repair and maintenance under Option B. This would not need to happen all at once but would need to happen in the near future.

Using the monthly savings by converting to Option B LED paired with the current budget to replace end of life poles the City could convert all lights to LED and upgrade all wood poles in 8 years.

The City may be forced to complete the LED conversion and wood pole replacement faster than the 8 years current funding levels would achieve due to the volume of assets needing replacement.

Hybrid – Option A LED Lights and mixed Option A & B Poles
The City could convert all light fixtures and all 635 wood poles to Option A to accomplish the LED conversion and replacement of end of life poles at no upfront cost. The City could retain ownership of the rest of the Option B poles. Ownership of the remaining Option B poles could stay with the City or be transferred to PGE over time as they reach end of life.

Advantage of Hybrid Option

- PGE pays to upgrade all end of life assets when transitioned to Option A
- Keeps monthly cost increase lower than full conversion to Option A

Disadvantages of Hybrid Option

- City is still responsible for replacement and installation of any end of life assets still City owned
- Increased mix of ownership types is confusing
- City is still responsible for coordinating replacement/installation of lights and poles
- City still has to manage lease agreements for attachments on City-owned poles

City Responsibility:

- Energy cost
- City pays for repair and maintenance cost on remaining City-owned poles and lights
- Repair/replacement of end of life equipment on remaining City-owned poles and lights
- Repair/replacement of poles damaged more than 2 times in 12 months on remaining City-owned poles and lights
- Staff time to survey the lights for functionality
- Staff time to coordinate repair/replacement of lights on remaining City-owned poles and lights

PGE Responsibility:

- Repair/replacement of all PGE owned poles (635 wood poles)
- Conversion from HPS to LED on PGE owned poles and lights
- PGE performs repair/ replacement of end of life equipment on PGE owned poles and lights
- Provide energy
- All staff time associated with managing maintenance and operation of PGE owned poles and lights
- Management of small cell attachments on assets on PGE owned poles and lights

Cost

$29,898 per month*

This would raise the monthly cost by about $4,000, which could be absorbed in the current budgeted amount using funds currently allocated for light and pole replacement.

This would also place the upfront cost to convert the end of life assets on PGE by relinquishing ownership.

The City would still own and need to budget to replace the remaining poles or continue to transfer to PGE overtime.

**All rate estimates are provided by PGE and are subject to change. Rates are estimated to increase, on average, 3% per year*.

ATTACHMENTS:

- Attachment A - Map of Some Current LED lights in Tualatin

- PowerPoint Presentation