

City Council Meeting

November 11, 2023

Responses to City Council Agenda Questions

5:30pm Special Meeting

Item 4b Regulated Output Streetlight Replacement Project

Streetlights

- The staff report lists 295 streetlights on RO circuits, the Pearce attachment lists 285 and 295 streetlights on RO Circuits. How many are there?
Response: There are 295 total streetlights. The discrepancy in the report will be corrected.
- How many streetlights are currently out? **53?**
Response: 56 is the current count of ROs that are out as of November 14, 2023.
- How many streetlights are in each zone?
Response: It varies and can range from 10 to 95 lights, depending on the RO circuit.
- Where and when did the 12 outages occur and how long did they last?
Response: The 12 outages that required significant repair lasted longer than a few weeks. Staff will look into the location and times and report back.
- Will additional data be collected from the Grid Shift Predator and Fonroche Smartlight units?
Response: No, we are moving onto the next phase of testing which is to evaluate the functionality of the entire streetlight network.
- What data is available for these units?
Response: Data is available online at the manufacturer website for these units. The Grid Shift Predator information is available here:
<https://static1.squarespace.com/static/5ea4865f5268e243ced4fa43/t/63e41e9b8c70314f9275d3a4/1675894430713/CS-PRE-%2820W-40W-60W-80W-100W%29+Cut+Sheet.pdf>.
- The staff report provides relative working percentages for each of the solar test lights that were evaluated. Looking to understand what the percentage means...for example the Grid Shift Siege units were observed to be working at 87-88%. Does this mean that 12-13% of the time they did not come on at all at sunset? That they made it 87-88% of the way through the night before running out of stored power? Or something else?
Response: The percentage metrics are when staff inspected the lights in the morning hours. Diagnostic reports later ran by the vendors showed that the lights either failed at dusk, during the middle of the night, or did not last until the morning due to battery and charging issues. As previously stated, weather clouds, fog, trees in the way of the sun's rotation affected charging.
- Do any of the evaluated solar lights have an option/add on for motion detection, so that in order to stretch functionality through the night in areas that may not get enough daytime sun to fully

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charge the lights, we could set them to for example stay on from sunset to 1am and then switch to motion activation for the remainder of the night?

Response: At the time of testing, they did not. However, some solar light systems have motion sensors. There have been questions on the reliability of activation from passing cars and pedestrians in addition to the concerns that no lights are on.

- When evaluating procurement process for each, was inventory/supply chain for each taken into consideration? Asking since if the procurement process is easier but the vendor has a backlog of orders for six months that's important info.

Response: Yes. We followed the same procurement process for all solar streetlights purchased. Any delays in procurement were on the vendors' side to supply the product.

Working/Not Working

- What defines a streetlight as working? Do the solar streetlights provide enough light? How many lumens is standard? How many lumens did each vendor generate in the study?
Response: A street light working is defined as delivering light when it is dark outside. The solar streetlights utilize the same street light heads in some cases. There are no universal standards for the amount of lumens for a minor road or residential street. However, typical guidelines state that 2500-3000 lumens are sufficient. The study measured street light power in watts and for the existing electrical streetlights, 38 watts is utilized which approximates to 2,630 lumens. With current solar light technology, there is always a balance between brightness of lights versus duration of the light. If the lights are brighter, they will draw power from the battery much more quickly. If the lights are dimmer, they can stay on longer. Our staff have adjusted the settings during the initial phase of testing. We will investigate this matter further as we move onto the next phase of testing with the Grid Shift Predators.
- Is the scoring system an industry standard?
Response: The scoring system was developed by the designer.
- The staff report indicates "both Grid Shift Siege units were observed to be working at 87% and 88%, respectively, compared to the two Clear World Retroflex units with only 71% and 77%, respectively." When were the lights not working? After cloudy days?
Response: There were a variety of reasons why the lights might not have been working. But typically, it was due to the availability of solar power the day before, locations due to interference from trees, or battery performance.
- The Grid Shift Predator units are being installed however they did not undergo the longer testing period. Is this an upgrade from the tested units?
Response: Our goal was to ensure that we had at minimum 6 months of test data. The additional Grid Shift Predator units are not an upgrade. They are the same units to test the connectivity between lights for monitoring.
- What are the unit costs for each of the vendors?

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Response: It costs approximately \$3,700 per unit for each Grid Shift Predator, not including installation or pole replacement.

- How long did it take for these streetlights to be installed?

Response: Installation varied depending on the brand and model. The City chose Grid Shift Predator due to installation being the quickest at approx. 4 hours with staff and equipment.

- “The software may still be compatible with other solar powered streetlights.” When will this be confirmed?

Response: We are working with the vendors to confirm as we continue onto design.

Grant

- In October 2023, staff applied for a Strengthening Mobility and Revolutionizing Transportation (SMART) Stage 1 Planning and Prototyping grant through the Office of the Assistant Secretary for Research and Technology (OST-R), U.S. Department of Transportation (USDOT or the Department) to fund the design effort. This will allow funds to return to the general fund if the grant is awarded. How much is the grant?

Response: \$525,000 for design.

- Based on the information provided could we expand the test to replace the 53 streetlights that are currently out? This will light up the neighborhood and provide a larger test sample.

Response: Yes, we can expand it after we identify the cost and have Council authorization and approval.