

Memorandum
Department of Public Works



TO: Michael O. Geisel, P.E.
 City Administrator

FROM: James A. Eckrich, P.E. *JAE*
 Public Works Dir. / City Engineer

DATE: February 29, 2020

RE: August Hill Drive Streetlighting

City Council Policy PW36 (attached) covers the installation of streetlights within the City of Chesterfield. Streetlights are typically required as part of subdivision development, and are funded and maintained by the subdivision. However, there are cases where the City has decided to fund streetlights (Chesterfield Parkway, Veterans Place Drive), and the Policy specifically states that nothing prevents the City Council from installing lighting “along or within City property, trails, and beautification areas.”

At its February 6, 2020 meeting, the Planning and Public Works Committee directed Staff to obtain costs for streetlighting on August Hill Drive from Central Park to Baxter Road, for the purpose of lighting the road for pedestrians accessing Central Park. Accordingly, I have compiled two estimates. Both estimates include nine new streetlights beginning approximately 230 feet west of the existing light at Monarch Trace and extending to the intersection at Baxter Road. In both cases I have skipped the intersection of August Hill and Stone Brook / Willow Weald Path, which is lit by two streetlights. The lights would be spaced roughly 200 to 230 feet apart. See the attached schematic drawing.

The first estimate is for electric streetlights through Ameren. These would be conventional “dusk to dawn” lights constructed of black fiberglass with an Early American style post top. In order to install these lights, Ameren requires that the customer (in this case the City) install underground conduit in order for Ameren to pull the electric necessary to power the lights. The estimated costs for conventional streetlights are as follows:

Conduit at \$32.70/LF	2,350 LF	\$76,845
Ameren Connection Cost @ \$300/EA	10 EA	\$3,000
Ameren Cost to Pull Cable @ \$4.12/LF	2,350 LF	\$9,682
TOTAL COST		\$89,527

In addition to the costs above, there would be a \$22.59 per month, per light charge for the street lighting. This would result in an annual charge to the City of Chesterfield of \$2,440.

The second estimate is for solar streetlights. I have found a company called ClearWorld which has a patented system utilizing solar LED technology. The ClearWorld lights eliminate the raised solar panel / pad you see on most conventional solar lights. Instead, the solar power system is incorporated into the light, as shown in the attached proposal. In my opinion, this results in a more aesthetically pleasing light. The cost estimate for nine lights provided by ClearWorld is \$38,907, excluding shipping and installation (see attached Sales Proposal). It is my understanding that these lights could be installed by Public Works maintenance personnel, with training provided by ClearWorld. As these lights are solar, there would be no annual charge associated with these lights.

When this matter is considered by the Planning and Public Works Committee I will provide a brief presentation showing the different styles of lights and lighting options.

Action Recommended

The Planning and Public Works Committee of City Council should consider whether the City of Chesterfield should install streetlighting on August Hill Drive from Central Park to Baxter Road. If the PPW Committee determines that lighting should not be installed, no action is required.

If lighting is desired, PPW should determine whether lighting should be conventional streetlighting, solar streetlighting provided by ClearWorld, or another type of lighting. Depending upon the style chosen, PPW should recommend an appropriate budget adjustment to the full City Council. As the numbers provided herein are rough estimates, I would recommend the use of a budget adjustment of \$100,000 for conventional streetlights (plus monthly charge) and \$50,000 for ClearWorld solar streetlights.

Please forward to PPW for review and direction.

 2/26/2020

August Hill Dr - Street Lights



Esri, Inc., City of Chesterfield, Missouri

Street Lights

* Existing (5)

* Proposed (9)



**CITY OF CHESTERFIELD
POLICY STATEMENT**

PUBLIC WORKS

NO. 36

SUBJECT Streetlight Installation

INDEX PW

DATE ISSUED 10/7/1991 (as PH&S #7)

DATE REVISED 5/01/2017

POLICY

Streetlights are required as part of development, as detailed in the City of Chesterfield Municipal Code. These streetlights are to be funded and maintained by the Subdivision. The City of Chesterfield will not construct, fund, or maintain streetlights unless those streetlights are specifically approved by City Council.

The City Council will consider requests for streetlights only at intersections involving a City roadway with a State roadway, a County roadway, or a City Collector or Arterial roadway. All requests shall be submitted in writing to the City Engineer, and shall include the reasoning for the request.

In considering a request for street lighting, one or more of the following criteria must be met:

1. The presence of a marked pedestrian crosswalk.
2. Close proximity to a public or private school.
3. Adjacent to large population concentrations (i.e. apartment complex, subdivision clubhouse facility, recreational facility, etc.)
4. Any quantitatively identifiable high accident location where lack of lighting has been determined to be a causative factor or contributing circumstance.
5. Any intersection not currently illuminated by a light system, the lack of which, in the opinion of the City Engineer, poses a hazard to pedestrian or vehicular traffic.

Nothing in this Policy shall be construed as preventing the City Council from approving the installation of streetlights which, in its determination, benefit the City of Chesterfield. This includes lighting along or within City property, trails, and beautification areas.

RECOMMENDED BY:

[Signature] 3/15/2017 PPW Committee 3/23/2017
Department Head / Council Committee (if applicable) / Date

APPROVED BY:

City Administrator

Date

M. Gense
City Council (if applicable)

5/1/2017
Date

Ameren Missouri

LED Dusk-To-Dawn Outdoor Lighting

LED Area Lighting

Type of Fixture	Lamp Rating**	Monthly Rate*
Bracket Mount	100 LED (Light Emitting Diode)	\$ 10.31
Bracket Mount	250 LED	\$ 16.70
Bracket Mount	400 LED	\$ 30.89
Directional	Small	\$ 21.61
Directional	Medium	\$ 34.69
Directional	Large	\$ 69.13

* Less Federal Tax Rate Reduction plus FAC and all applicable sales and municipal taxes

** Lamp Rating for Bracket Mount LED is high-pressure sodium watts equivalent. LEDs are more efficient and use less energy than the rating shown. For more information please go to AmerenMissouri.com/Streetlights.

Monthly rate includes fixture, electricity and maintenance. If wire span or pole is required, installation charges will apply.



Bracket Mount



Directional

LED Post Top Lantern

All Styles	Lamp Rating**	Monthly Rate*
	100 LED	\$22.59

Overall height is approximately 16 feet on a tapered pole.

* Less Federal Tax Rate Reduction plus FAC and all applicable sales and municipal taxes

** Lamp Rating for Post Top Lantern LED is high-pressure sodium watts equivalent. LEDs are more efficient and use less energy than the rating shown. For more information please go to AmerenMissouri.com/Streetlights.

All post top fixtures require underground wiring (cost of which is not included in the above).

Monthly rate includes fiberglass pole, fixture, lamp electricity and maintenance.



Early American



Colonial



Contemporary**



Aspen**

**Additional initial charge applies

Rates effective August 1, 2018

Ameren Missouri

Dusk-To-Dawn Outdoor Lighting

The Safety and Security of Outdoor Lighting for Your Home or Business

- Provides optimum security over a large area
- Turns on at dusk and off at dawn automatically

Two Options Available

- Post Top Lantern – freestanding pole lamp
- Area Lighting – mounted to utility pole

To find out more about Dusk-To-Dawn Outdoor Lighting, contact Ameren Missouri Construction Hotline toll-free at **1.866.992.6619**. For more information go to **BuildWithAmeren.com**.

For more information on LED lights or Ameren Missouri's conversion project, go to **AmerenMissouri.com/Streetlights**





LIGHTING THE WAY IN SOLAR LED TECHNOLOGY

Sales Proposal

Proposal No. City of Chesterfield-01

February 18th 2020

Attention:
James A. Eckrich, P.E.
Director of Public Works / City Engineer
City of Chesterfield
(636) 537-4764

Re: Proposal for 9- RetroFlex Systems w/ 20' poles and hardware

Dear Jim,

ClearWorld is pleased to submit this proposal for the sale of our advanced RetroFlex Solar LED Systems. We're confident the multiple applications and the associated benefits of our RetroFlex systems will far exceed other options being considered for new and existing projects. RetroFlex is an easy choice for our customers looking for immediate cost savings, favorable project economics, and improved safety through a sustainable, renewable solar lighting system.

ClearWorld can provide you and your team the support you need throughout the proposal process. We are available to meet and discuss product specifications with your engineering group, provide an independent ClearWorld cost-benefit analysis to support your financial review, and be on-site to discuss the installation process once the RetroFlex systems are delivered. We are confident that we can meet the challenges ahead, and look forward to working with you now and in the future. If you have questions on this proposal, feel free to contact us at your convenience. We will be in touch with you next week to arrange a follow-up conversation on the proposal.

Thank you for your consideration,

Larry Tittle
Founder/CEO
504-615-9000

Proposal Summary

ClearWorld is an alternative energy systems solution provider responsible for the creation of RetroFlex: a retrofit energy-efficient system that reduces utility operating and maintenance costs in pursuit of grid independence.

This Proposal is for 9 RetroFlex systems with Hardware. The project is with the City of Chesterfield M.O.. The project is located between Baxter and end of August Hill Rd: - These RetroFlex systems are to add to existing light poles in other areas and eliminate the need to replace with conventional street light infrastructure.

Benefits of RetroFlex New Installations:

- **Reduced costs and maintenance:** RetroFlex is an easy decision for any projects requiring new infrastructure or in lieu of replacing existing infrastructure. RetroFlex can provide you with up to 100% savings on recurring costs; it also eliminates the need for trenching and reduces costs for new infrastructure. It can also be installed to replace existing infrastructure to eliminate significant repair and replacement costs.
- **Reliability and Safety:** When the grid goes down, RetroFlex won't leave you in the dark, and it provides improved illumination to help reduce crime.
- **Environment:** ClearWorld's Retroflex eliminates the carbon footprint of traditional utility light poles.

ClearWorld Planning & Support:

ClearWorld coordinates site planning with the customer to ensure adequate lighting based on the customer's needs. ClearWorld provides shading analysis to the customer prior to any installations to ensure proper sunlight levels during all seasons and all weather conditions. This shading analysis is conducted by ClearWorld at no additional cost to the customer.

Proposal Pricing – Systems and Installation

The following table is an estimate of the basic RetroFlex system design. The details include costs for RetroFlex, poles and associated hardware.

Product/Work Description	Cost per Unit	# Units	Total Price
RetroFlex Solar LED Off-Grid System (Model #RW240W) 40W LED @162 LM/W (6,480)	\$2,825.00	9	\$25,425.00
18' power coated black Pole w/ 4' straight pole and 6" base (Taller pole additional)	\$1,350.00	9	\$12,150.00
Installation kit includes: Four J-bolts, 18" x 1", eight 1" washers and nuts, ClearWorld bolt pattern,	\$148.00	9	\$1,332.00
Total Cost for 9 RetroFlex Units with poles		9	\$38,907.00

The Pricing for Systems does not include any permitting fees, impact fees, or other fees that may be assessed for installation of each system. The Pricing for Systems does not include shipping and handling for delivery. All contract terms and conditions shall be mutually agreed to by the parties.

Payment terms: 50% down payment to begin production. The remaining balance 30 days from shipping.

Pricing – Additional System Features (Optional)

Product/Work Description	Cost per Unit	# Units	Total Price
Gateway Communications per unit (wireless monitoring/controls)	N/A	0	N/A
RetroFlex Installation Training by certified ClearWorld Installer	\$500	3 day min.	\$1,500
RetroFlex Bluetooth App	Included	1	Included
Total Cost for Additional System Features			\$1,500

Total: \$38,907.00

Proposal – Product Details

Product Details for Model RW2402460 – Off-Grid

SPECIFICATIONS	RW240
Description	Roadway 240
Model #	RW2402460-OG
Hardware	Patented Adjustable Aluminum Array
Solar Panels	240W
Battery Pack	24V, 60AH Lithium Ion
Charge Controller	Smart MPPT Smart Controller
Lighting Control	Integrated Bluetooth (via iOS & Android) ³
LED Light	40W LED, 162 lumens per watt
Dimensions (length)	8' 6"
Weight (lbs.)	88

RetroFlex System Warranty Information

1. Overall full system parts warranty for 10 years.
2. Solar Panels: 25 years.
 - At least 90% output on years 0-10
 - At least 83.5% output on years 10-20
 - At least 80% output on years 20-25

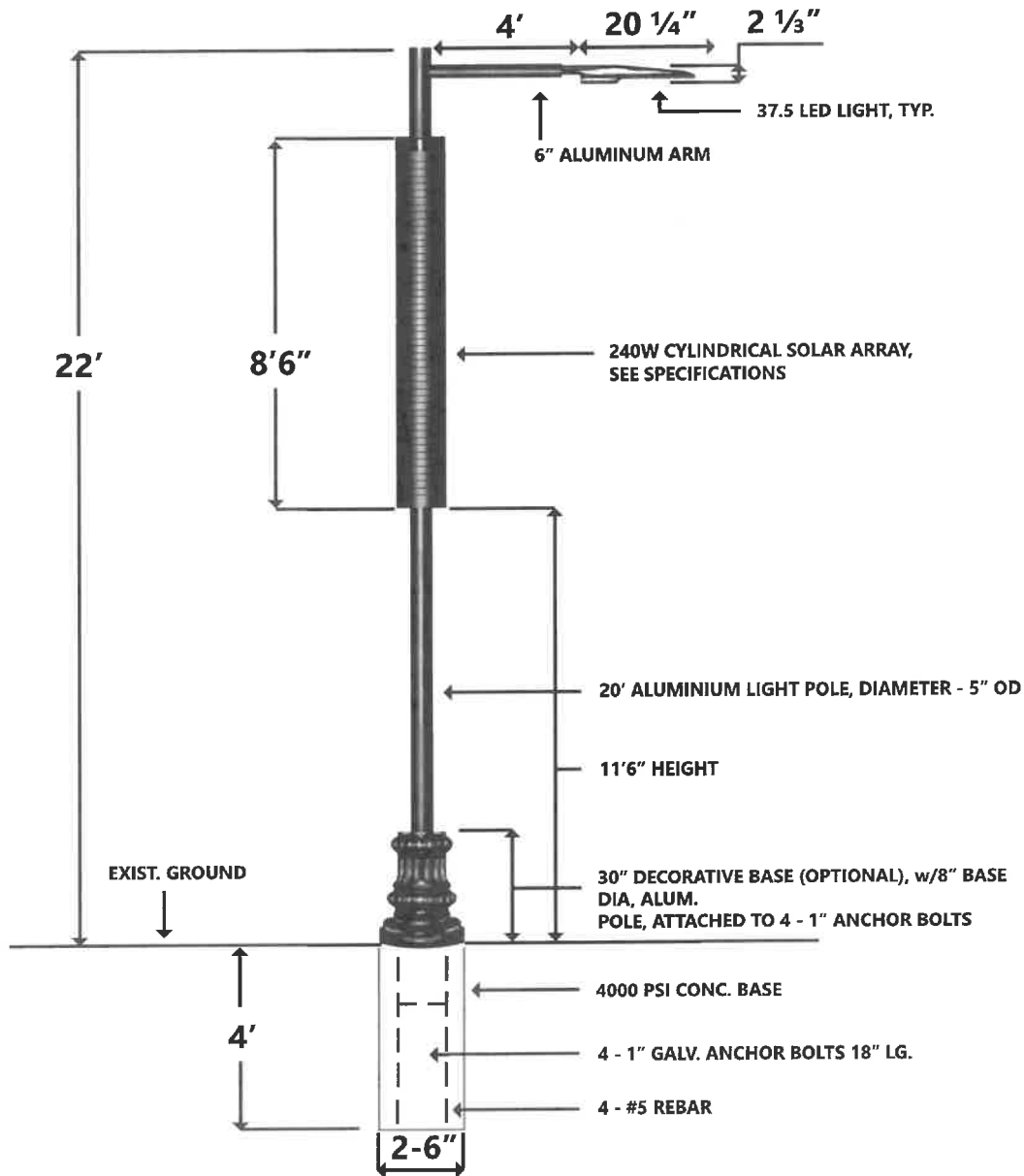
Proposal – Additional Details

ClearWorld Manufacturing & Quality Controls

ClearWorld continues to expand its QC systems to ensure RetroFlex continues to be the most reliable, effective solar LED lighting solution system on the market. RetroFlex is manufactured at our facility in Louisiana and shipped directly to customer locations nationwide. We maintain a spare parts inventory and expert technicians on-hand to remedy any customer issues post-installation. To date, ClearWorld's installed systems have met or exceeded our base performance measures including total illumination and adverse weather performance.

Solar Incentives

ClearWorld's RetroFlex can qualify for Federal Investment Tax Credits and associated accelerated depreciation for taxable entities. These incentives typically reduce overall system costs by ~50% in the form of tax credit and cash equivalent via depreciation. ClearWorld can provide additional details to the City or its partners upon request. *Note: ClearWorld is not offering legal, tax or accounting advice.*



Component Specifications : RW2402460	
Solar Array	240W (8' 6" in length) with adjustable aluminum array
Lighting	37.1W LED Module @ 161 LM/W 5,973 Lumens, Dimmable @ 3,000 - 5,000K
Battery	24V - 60AH Lithium Ion 1.44 KWH (12+ years life expectancy)
Controller	Electronic MPPT Charge Controller/Regulator
Lighting Controls	Bluetooth Monitoring
EPA	3.09 ft2 (Solar Panel); .62 ft2 (Fixture); 2.4 ft2 (Arm)



1613 Justin Rd
Metairie, Louisiana 70001

November 21, 1019

Wayne Davis, CIO
City of Hampton
22 Lincoln Street, 6th Floor
Hampton, VA 23669

ClearWorld, LLC, a limited liability company duly organized and operating under the laws of the State of Louisiana, is the sole source provider for a retro-fitting solar LED street light application. This sole source status was confirmed by the granting of a patent to Larry Tittle for the application (abstract to follow) from the United States Patent and Trademark Office on May 6, 2014, patent number US 8,714,768 B2. By definition, the granting of the patent to Larry Tittle, who is the sole managing member of ClearWorld, LLC, provides sole source status to the application covered by the granted patent.

For your convenience, the abstract of the patent states as follows:

"A solar retrofit lighting system for light poles with a solar array panel assembly having semi-circular backing panels attached to adjustable internal mounting brackets or pole frames suitable to any size light pole and mounted in parallel with the longitudinal axis of the light pole with thin film photovoltaic laminate adhesively attached to the outer convex sides of the backing panels. A battery for storage of electrical energy from the thin film photovoltaic laminate will be provided along with a charge controller to regulate the charging of the battery, an inverter to convert DC to AC power and an LED light fixture extending from the pole. Alternatively, an on-grid option will be utilized at the pole, to convert and send energy back to the grid and draw power from the grid as needed when sunlight is unavailable."

Via the statutory language and protection of federal and state laws for patented products, ClearWorld, LLC is the only company capable of providing the above listed application, which has been designated and marketed as the ClearWorld's Retroflex unit.

We understand that Virginia state procurement laws normally require any purchase, not meeting an exception, must be competitively bid; however, we feel that our position as a sole source provider of the Retroflex unit covered by Federal patent may satisfy Virginia procurement laws.

ClearWorld's patented Retroflex unit and ClearWorld's federal and state protections over the same should allow for a local governmental entity in Virginia to contract with ClearWorld for the purchase and acquisition of the Retroflex unit without having to proceed through the competitive bidding process normally associated with such a purchase by local governmental entities.



1613 Justin Rd
Metairie, Louisiana 70001

We look forward to cooperating with you regardless of the method of acquisition deemed appropriate after due consideration from your counsel; however, we are and will remain confident in our position that we are the sole source provider for the Retroflex product by virtue of the previously mentioned federal patent granted to Larry Tittle, sole managing-member of ClearWorld, LLC. Obviously, by federal and state law provisions and protection, no other company nor individual may manufacture, sell, or distribute said product with the sole exception of ClearWorld, LLC.

Please, do not hesitate to contact us if there are any questions or concerns. We are more than happy to work with you to bring ClearWorld's patented Retroflex unit to your area.

Sincerely,

Larry Tittle
Managing Member
ClearWorld, LLC