# 3.02 Table of Contents

Table of Contents 1

3.03 Description of Firm and Experience 2

3.04 Project Team and Equipment 9

3.05 Project Approach and Understanding – Conversion 13

3.06 Project Approach and Understanding – Pre- and Post-Conversion Maintenance 19

3.07 Proposed LED Luminaires and Controls Manufacturers Warranties and Cut Sheets 25

3.08 References 31

3.09 Price Proposals 32

# 3.03 Description of Firm and Experience

## Provide a company profile and describe your firm’s

## legal structure. Include:

### *Company ownership. If incorporated, the state in which the company is incorporated and the date of incorporation.*

PRISM Streetlights, Inc. is a membership organization that is incorporated as a Rhode Island nonprofit corporation recognized by the Internal Revenue Service under Section 501(c)(3). PRISM was incorporated at 3:32 pm on September 7, 2016. As a nonprofit corporation, PRISM has no “ownership” in the sense that no one owns the company. In the event of dissolution, PRISM’s assets by law would inure to another nonprofit. PRISM stands for the Partnership for Rhode Island Streetlights Management.

PRISM is governed by a Board of Directors made up of representatives of the member communities.

### *Location of the company offices.*

PRISM Streetlights

3205 Post Road PO Box 6792

Warwick, RI 02886

### Number of employees both locally and nationally.

PRISM has one full-time salaried employee in West Warwick. PRISM staff provides management and operational services and utilizes subcontractors for special activities. LightSmart Energy Consulting Services LLC has been contracted with to provide day to management of the PRISM program. LightSmart was an partner in the writing of the legislation to permit streetlight ownership by Cities and Towns in Rhode Island and helped form the PRISM program. LightSmart has provided the lighting expertise for PRISM and was responsible to write all of the reports, complete the lighting designs for all of the member communities, manage the audits, GIS data base and manage the control networks for the Towns with networked systems. LightSmart also supports the RI DOT. When the director of PRISM, Jeffery Broadhead retired, it was natural for LightSmart to step up and take on full management of the program. LightSmart has over 20 years experience managing streetlight programs and is a leading national expert in this business model. They also serve on the American National Streetlight Institute setting manufacturing standards for outdoor lighting.

* Rhode Island’s own K Electric provides LED conversion and Maintenance work. It has 8 master or journeyman electricians and one apprentice, in addition to labor and office staff.
* LightSmart provides day to day management, coordination with NGRID, LED design, pricing, and network solutions. It has two staff and contract employees when needed for specialized work.
* Handy Law LLC’s, Seth Handy has provided legal services to PRISM.

### Location(s) from which employees will be assigned.

PRISM and its projects are managed both remotely and locally from our Warwick location and . K Electric is based in Warwick. LightSmart is based in North Carolina with a location in Warwick.

### Name, address, and telephone number of the Bidder's point of contact for a contract resulting from this RFP.

Jeffrey A. Broadhead, Executive Director

PRISM Streetlights

344 Main Street, Suite 200

Wakefield, RI 02879

Office (401) 792-9900

### Company background/history and why Bidder is qualified to provide the services described in this RFP.

PRISM, the Partnership for RI Streetlights Management was formed solely to implement the Municipal Streetlights Investment At (now RIGL 39-30) that was written by Mr. Broadhead to reduce municipal expenditures and allow for better street lighting. PRISM operates differently from for-profit electrical contractors or from National Grid. If expenses are less than expected, funds are held in contingency accounts on behalf of customers. They do not go into any private corporate profits or create shareholder wealth.

Since 2016, PRISM’s work has saved communities over $10 million in avoided costs.

Mr. Broadhead, first at the Washington County Regional Planning Council and then its independent spin-off Partnership for RI Streetlights Management identified the need for statewide streetlights reform to reduce municipal expenditures by millions of dollars annually. He developed the Municipal Streetlights Investment Act (now RIGL 39-30) that allowed communities to purchase their streetlights from National Grid, requires National Grid to sell to the community, convert the lighting to LEDs with controls, and then manage them as public assets. PRISM was developed during the original legislative process to implement the Act statewide.

PRISM has converted some 43,000 streetlights from National Grid’s antiquated yellow sodium HID lights to bright, modern LED luminaires with controls. PRISM now manages 43,560 lights for routine and emergency maintenance and installs new lights on roadways, parks, parking lots, and public buildings.

PRISM uses K Electric of Warwick, RI as its subcontractor. K Electric is a high-integrity locally owned company that performs medium and low-voltage electrical work statewide.

### Length of time Bidder has been providing services described in this RFP. Please provide a brief description.

PRISM has been providing streetlight maintenance since April 2016 when it converted Rhode Island’s first LED streetlight on Elmwood Avenue in Providence. LightSmart, has converted over 300,000 lights, and began streetlight work in 1997, prior to LED conversions being cost-effective, but when changing to municipal ownership from utility ownership saved over 40% in annual expenses. LightSmart has completed projects in 13 States, and three countries representing over 125 communities.

### Resumes for key staff to be responsible for performance of any contract resulting from this RFP.

### **Key PRISM Staff**

PRISM’s staffing philosophy is to operated effectively for its member communities at the lowest possible cost and to that end we minimize overhead, working with a small number of highly competent and deeply committed individuals. As such we have one full time maintenance manager , Elaine Russo and contract for the balance of the needed services. We have a local CPA and bookkeeper and a local attorney. LightSmart Energy Consulting is managing the day to day operations and performing all of the required field audit work, lighting design, report writing , procurement and managing the contract personnel. This allows us to minimize payroll costs and keep other operating costs to a minimum. We have a contract answering service that receives all calls and provides daily reports to Elaine.

#### Elaine A. Russo, Maintenance Coordinator

Elaine Russo is a staple part of the team in the everyday functions of PRISM. Elaine receives every form of contact regarding incoming maintenance service calls (email, telephone, in-person, web, apps, municipal referrals, our call center, etc.), the consistent communications with PRISM’s field techs and contractors. She works closely with LightSmart and the Contractor to coordinate the work. She holds her BA in Business from the University of Rhode Island and is a devoted wife, mother of two little boys and in her spare time is an Associate Team Leader for Target Brands, Inc.

## **Key players proposed for use on this project**

PRISM manages the project, handles all administrative matters including project management, scheduling, dispatch, quality control, billing, purchasing, and representation at PUC, DPUC, and legislature.

### **LightSmart Energy Consulting Services, LLC**

LightSmart provides neutral expert advice and testimony when needed, reviews current PRISM member utility expense, and analyzes potential savings for PRISM member communities. LightSmart has served as an expert witness on utility matters around street lighting for over 17 years and dealt with utility providers for over twenty years. It’s President, George Woodbury, has served as an expert witness on streetlighting tariff matters in several states and has worked extensively with NGRID over the years. He is also a voting member of the outdoor lighting committees of the National Electrical Manufacturers Association’s (NEMA,) and American National Standards Institute (ANSI,) helping set standards for outdoor lighting and is a member of the Illuminating Engineering Society. Mr. Woodbury is also a licensed energy broker and has managed municipal gas and electricity contracts for over fifteen years as well as a former municipal power company director.

As a part of PRISM’s free review process, Mr. Woodbury reviews utility bills for each member community, including one community that is not a PRISM member, and has found discrepancies, in some cases saving those communities almost $50,000 per year. In addition, he has extensive experience working with the electric utilities in providing the needed information to correct bills, correct inventories, recover overcharges, and providing needed data as part of conversion projects etc.

More recently LightSmart has been brought in to assist the utility companies in Jamaica and Costa Rica under a USTDA grant to develop the necessary documents for them to convert their streetlighting to LED technology and to integrate a networked control system into the utility system management. In addition, he was brought into a team under the New York Energy Research and Development Authority, NYSERDA to assist with developing LED streetlight programs in New York.

LightSmart and PRISM are managing the audit process, developing the GIS data, integrating it into ARC GIS systems and using it to support later conversion work as well as correcting utility databases. Brian Woodbury, LightSmart Vice President of Operations, has developed a unique ARCgis platform for auditing, project management and tracking that is being used for all of our projects as well as by the utility company in Jamaica. This system allows our customers to see the work being done in real time and has been deployed in over fifteen projects that include well over 100,000 street lights.

LightSmart has been completing LED conversions now since 2010 in projects ranging in size from 70 lights to over 100,000 lights. All of these projects have been completed on time and under budget.

#### **Brian Woodbury, Vice President LightSmart and Partner Acting Director of PRISM**

With over 15 years of experience in the energy sector and almost 10 years of experience in project management, Brian brings a unique skill set to the team that are critical when dealing with large, complex data sets and managing projects with complex and interactive work flows and multiple vendors. He is currently managing several streetlighting retrofit projects in Massachusetts and Rhode Island. These include over 40,000 lights with control systems. He is actively assisting the RI DOT with their system.

Mr. Woodbury has a business degree from the University of New Hampshire. While acquiring his degree he served as a field auditor and data analyst for LightSmart. After graduating college, he began a career at Fidelity Investments where he further refined his data analysis skills, gained extensive experience in project management for a large number of projects of varying types, and managed vendor and client relationships. After nearly nine years at Fidelity, Brian returned to LightSmart to serve as the head of operations.

As the head of operations for LightSmart, Brian is responsible for all operational aspects of streetlight retrofit projects including: acquisition analysis and utility engagement, lighting design, incentive applications, procurement, vendor IFB/RFPs, GIS auditing, hardware logistics management, project coordination, state and local regulation compliance, technical field support, data collection software design and support, asset tracking and management, streetlight database administration, streetlight control software set up and management, utility negotiations, billing analysis and updating, providing smart control device expertise and research, construction/conversion oversight, call center management, and utility reporting

#### **George Woodbury, President, LightSmart**

Mr. Woodbury is a leading expert on municipal streetlighting. He started LightSmart after a career in the U.S. Army from which he retired as a full Colonel. He has held energy-related positions including running the municipal utility in Fort Knox, KY and serving as Director of Public Works for Lexington, MA. His municipal experience is a valuable aid in understanding the challenges communities face. In MA, where he wrote the state’s streetlight ownership legislation that served as a model for RI. Mr. Woodbury has helped some 130 municipalities purchase their streetlight systems from utilities and completed energy efficiency upgrades of nearly 200,000 streetlights across the country, including from National Grid as well as overseas.

Mr. Woodbury has served as an expert witness in many states from Maine to California and is on the ANSI technical committee developing standards for new street lighting and control technologies. He has been participating in the Department of Energy’s Solid-State Lighting programs for over 15 years in order to stay abreast of the latest developments and is a member of the Illuminating Engineering Society.

In Rhode Island, Mr. Woodbury joined the PRISM team as our Expert Witness for the entire two-year (and ongoing) PUC intervention. Mr. Woodbury donated his time and travel expenses, working pro bono for that entire effort. He is completely familiar with the positions National Grid took against municipalities and the strategies we used to counter them, as well as the economic impact had we not prevailed in all major issues. Mr. Woodbury is also accustomed to all the documents National Grid provides or proposes.

George will work with the community to develop the lighting design and final lighting plan. He will assist the community in reviewing a variety of manufacturers and looking at the pros and cons of each product. If the Town desires a pilot he will assist with selecting a location, the various products to pilot and the evaluation process..

### **Subcontractor: K Electric, Inc.**

Please refer to the detailed information about K Electric attached to this RFP response.

**PRISM is proud to have partnered with K Electric, Rhode Island’s most highly regarded Warwick-based, 24-hour service electrical construction company with 62 years of experience in utility, municipal, and private work.** All personal are on 24-hour call for emergencies. They own/maintain their own equipment to handle routine/emergency service calls. If a major emergency exceeds their equipment/staff, they have agreements with several companies for rental equipment. They are an IBEW Local #99 Union Company, therefore have access to any number of highly skilled electricians.

K Electric has ample space available in its warehouses to hold necessary inventory and can promptly access additional materials as needed from local supply houses.

K Electric has worked for National Grid gas for over 30 years and have also dealt with National Grid electric for any and all service requirements needed by them. They are ISNetworld-certified (safety program) through National Grid with an "A" rating and have a .81 experience modification rate with Beacon Mutual Insurance Company.

K Electric has a vast experience with parking/streetlight maintenance, as stated in the attached package.

#### Corey Fontaine, Vice President, Master Electrician

Mr. Fontaine oversees field operations and all PRISM’s workflow at K Electric. He comes with 21 years of experience as a certified master electrician and a holds a long list of certifications ranging from heavy equipment to OSHA qualified.

## Describe areas of expertise and other information that would be helpful in characterizing the firm. Describe the firm's internal procedures and/or policies associated or related to work quality and cost control. Describe the resource availability, which may include the various levels of experience of the personnel to be provided and vehicles and equipment to be used, to perform the work for the duration of the project. Describe your firm's workforce, including the prior experience of all qualified certified journeyman linemen on staff, who are capable of performing as Qualified Electrical Workers as described in this RFP.

*Areas of Expertise:* PRISM’s expertise is in problem-solving, Project Management, and team building using highly qualified sub-contractors and consultants instead of creating high levels of overhead. PRISM has completed LED conversions and is carrying our maintenance in 21 communities (both municipalities and fire districts). **There have been NO CHANGE ORDERS and NO COST OVERRUNS in the LED conversion process in 43,560 LED conversions; several towns had funds left over to use for other purposes.** **There have been NO INSTANCES OF OVERBUDGET MAINTENANCE, and most communities that are PRISM members now have funded contingency accounts that can reduce future streetlight costs, fund new lights in new neighborhoods, or add/modernize sports lighting or parks lighting.**

PRISM’s team includes Rhode Island’s K Electric, a 62-year experienced full-service firm expert in all aspects of electricity. K Electric is well known for completing jobs on time and in budget no matter what obstacles arise. K Electric has enough internal staff to complete this project’s conversion in two months but would likely add staff for the conversion from the available Local 99 members. K Electric has six bucket trucks (for comparison, PRISM used nine to convert Providence’s 16,000 lights in three months) can also add bucket trucks if needed. As an example of both K Electric’s flexibility and commitment to service, after starting Warren’s conversion the many very narrow streets with on-street parking made access with K’s utility-sized trucks difficult. K responded by acquiring two smaller bucket trucks to ensure the conversion and maintenance could proceed on time.

LightSmart has served as PRISM’s expert subcontractor and helped the streetlights reform pass the Public Utilities Commission, and has completed the designs and specifies all lighting for PRISM. LightSmart’s President, George Woodbury, has more municipal streetlight experience than anyone in the US and has designed internationally. He creates lighting designs that ensure pleasant and safe environments while reducing costs from over-lighting caused by poor lumen choices. Brian Woodbury, LightSmart’s Vice President, handles the control networks for PRISM as well as the acting director of PRISM operatins. The mesh networks common to most current streetlight control systems require maintenance expertise, and Brian provides that.

PRISM has other expertise available as needed, including field auditors, data analysts, CPAs, lawyers, and GIS consultants.

*Work Quality and Control:* Maintenance quality is being managed with a custom online work order system that is now integrating into our Streetlight Management System, so all changes of fixtures or controls show instantly in the control software. The new software is now being tested in two RI communities-one large and one smaller. As this new system is implemented, PRISM is continuing to use its daily log of work orders, and a thrice-weekly dispatch list to our subcontractor. **All outage calls are returned (when a number is available) twice—first to thank the caller for reporting the outage and to confirm the problem or location and assure the caller that the work will be done, and then again after the work is done to let them know the work has been performed back to operational.** All complaints, whether received via our 24/7 call center, our office, from municipal staff, are through email or other online sources, are logged and tracked until resolved, billed, and paid. LED conversions are tracked as the installation crews input each light into our Arc-GIS based custom schema so we have access to real-time progress and location of all work.

K Electric owns its’ own trucks and other equipment for normal usage. For high-intensity conversions, K Electric will lease or purchase additional trucks. Currently in the stable are 6 bucket trucks to 60’, an elevator truck, and 3 line-trucks to 65’, so this project can likely be handled with existing equipment. Wood poles frequently require replacement, and K Electric is unique in having two auger trucks to handle wood pole knockdowns immediately. K Electric also has a mobile sign truck, dump truck, stake truck, multiple heavy-duty trailers, a skid steer, excavator, two ditch witches, and a cable puller. They have other equipment, including a mobile office that will likely not be needed for this project so are not listed. For decades K electric has been known to adapt to changing conditions on jobs and is never stopped by lack of available equipment.

K Electric has 4 Master electricians, 4 journeyman electricians and one electrician apprentice., in addition to office staff and labor. All of K Electric’s electricians are Qualified Electrical Workers, the certification required to access National Grid’s poles.

## Briefly describe other engagements by your firm that demonstrate relevant experience and that best characterize the firm's capabilities, work quality, and cost control. Provide references that include three (3) previous municipalities or other government agencies for which similar LED conversion work was performed and (3) previous municipalities or other government agencies for which similar maintenance work was performed. Include the project manager's name, address, email address and phone number. Note that extensive descriptions or references to vaguely related projects are discouraged and may negatively impact the overall outcome of the evaluation. References may be called and their responses used in the evaluation process.

* 43,560 LED conversions in 21 communities successfully completed.
* Zero cost overruns on LED conversions.
* Zero change orders.
* Zero over-budget events in maintenance work.
* PRISM is committed to producing projects on time and under budget.

REFERENCES are requested in two sections of the RFP. We have included them in Section 3.08 below.

## Describe your firm's familiarity and experience working with utility and other incentive programs.

So far, PRISM communities have been approved for $2,917,261.70 in rebates, of which $2,686,280.94 has been paid out. PRISM communities have received 80% of the rebates approved by NGRID and OER. Has prepared the applications for 5 fire districts and these are now being paid out.

PRISM has prepared more than 30 incentive applications. None have been rejected, and millions of dollars have been paid to our member communities. These incentives include both the Rhode Island ratepayer-funded program administered by National Grid as well as the RGGI and other funds administered by the RI Office of Energy Resources. LightSmart has also prepared incentive applications for over 100 communities in Massachusetts and worked closely with NGRID to develop the current procedures and forms to help streamline the process and to help with the new dimming Tariff. We have been working with NGRID for over 20 years.

# 3.04 Project Team and Equipment

This section could be duplicative of the firm description of 3.03 above, so we have treated it as direct project staff and not overall firm capacity/expertise. Full bios of management at PRISM, LightSmart, and K Electric are found in 3.03.

## Provide the approximate number of people and how many crews will be assigned to the LED conversion and maintenance sections of this project. Provide crew make-up and crewmember qualifications and experience on similar or related projects:

PRISM will manage the project. The project team will expand and contract as needed. Initially, Mr. Woodbury will largely carry out the design and negotiation phases and work with the community to make final equipment selections. He will prepare the incentive applications and the required A1 and A2 forms for NGRID and OER for the Town’s signature. Then Brian Woodbury will lead the procurement, and will coordinate with Mr. Fontaine for the LED conversions and ongoing maintenance. Brian will prepare the installation GIS maps and set up the installation APPs for the installers to use

This is a relatively small project and will take approximately four weeks for one crew to do. PRISM/K Electric will start the LED conversion with one crew dedicated to this project’s LED conversion and one on both LED conversion and maintenance (there will also be one crew for conversion for each of the other two communities.) As more lights arrive (they usually come in multiple shipments over a month,) more LED conversion crews can be added. Generally, a community this size will need 0.2 FTE for maintenance, so one crew can reasonably do both conversions and maintenance, or focus mostly on maintenance for all three communities, or be combined with crews working maintenance for PRISM’s other northern RI members. If the crews each perform an average of 35 conversions per day, the basic conversion will be completed in approximately 100 days, less than the 180 called out in the RFP. If work progresses more slowly than expected, K Electric has in-house trucks and experienced personnel to double this crew level, but it is our experience that it will not be necessary.

Each crew for most areas is a single master or journeyman electrician who is also a Qualified Electrical Worker with an approved, insulated bucket truck. All of K Electric’s electricians have streetlight experience since the firm is PRISM’s subcontractor in more than 20 communities.

Occasionally, two trucks are needed in some locations with access problems or when installing a 10’ or greater mast arm (not usually part of LED conversion but sporadically in maintenance and pole transfer work.) In these cases, the crews communicate directly to accomplish the work with the least disruption to either crew’s daily work.

The text below addresses the following information requirements for each “key team member,” including those of any subcontractors, who will be performing the work on this project. Note that we have not named each electrician because the start date is uncertain and K Electric reserves the right to assign whichever of their personnel is both qualified and available to the project:

* their responsibilities on this project
* current assignments and location
* experience on similar or related projects
* unique qualifications
* percentage of their time that will be devoted to the project.

Brian Woodbury will provide direct management. He works full-time on streetlight projects across PRISM’s members, and for this project will devote as much time as needed working with George Woodbury to complete design and LED conversion. We expect at least one to two in person meetings (assuming the Town is comfortable with this) with key Town personnel to review various options and to discuss design approaches. Brian will procure all equipment. Elaine coordinates maintenance on PRISM’s 44,000 lights and has purchase over $12.6 million worth of equipment for communities from Providence to Westerly. She works full time servicing PRISM’s members of her time during procurement for this project, and then 50-70% during LED conversion, and then as necessary during maintenance. LightSmart’s George Woodbury will participate in design and specification and any decisions regarding controls systems. He works world-wide but is always easy to schedule for PRISM work and will devote less than 10% of his annual hours to Warwick’s project, but will be here at times to work full time when needed. Corey Fontaine, of K Electric, will plan and deliver all receiving, warehousing, distribution, and all electrical field work for conversions and maintenance. Mr. Fontaine has converted seven communities for PRISM and oversees the crews performing maintenance and special projects on all PRISM’s lights. He works on K Electric’s full workload but prioritizes PRISM-related work. He will vary between 40% and 80% of his time on this project. During the actual project construction

It is important to note this is a small project. It will not require a great deal of time so more important is the priority it is assigned to get it done expeditiously. Our goal and commitment is to be responsive to the Town and work diligently to meet their desired timelines. We cannot control the speed of NGRID or the political processes nor the current product order to ship times. What we do is to try and complete work ahead so when the approval is given the papers are already to signed or the order is placed. NGRID is notoriously slow so while waiting on them we can complete the design, set up the purchase orders , complete any pilots etc. so that once they deliver the required documents and approvals for us to proceed we are ready to execute.

## Contractors must notify and receive approval of the City of any changes to proposed subcontractors.

The community will be notified and given the chance to approve if any change in subcontractors is necessary.

## Provide a list and descriptions of the vehicle(s) and equipment to be used including important features such as the main vehicle (bucket truck) which is equipped with Type D Arrow Board for mobile operation.

1. 2019 GMC SAVANA 3500 KUV SERVICEBODY
2. 2018 CHEVROLETSILVERADO 3500HD PICKUP
3. 2017 CHEVROLET EXPRESS G2500 CARGO VAN
4. 2015 FORD F350 PICK UP TRUCK
5. 2012 FORD F350 UTILITY TRUCK
6. 2002 GMC DUMP TRUCK - GVW 52,000 LBS.
7. 2001FREIGHTLINER STAKE BODY TRUCK 27,000 LBS.
8. 2011 FORD F550 ALTEC AT37G 42' BUCKET TRUCK
9. 2011FORD FSS0 ALTEC AT37G 42' BUCKET TRUCK
10. 2010 FREIGHTLINER M2106 CUMMINS UTILITY TRUCK ALTEC TA40 46' BUCKET TRUCK
11. 2009 INTERNATIONAL 4300 DURASTAR UTILITY ALTEC TA40 46' BUCKET TRUCK
12. 2007 FREIGHTLINER ALTEC TA41M-LS1 ELEVATOR 57' BUCKET TRUCK
13. 2000 FREIGHTLINER 60' BUCKET TRUCK

N. 2014 FREIGHTLINER M2-106 ALTEC DIGGER DERRICK 0 . 2001INTERNATIONAL 2674 6X4 60' DIGGER ERRICK

P. 1998 INTERNATIONAL ALTEC47' DIGGER DERRICK

Q . 2001 MACK CH612, M-3, 6 WHEEL TRACTOR

1. 2003 TRAILMOBILE VAN 32X102X13'6" TANDEM AXLE, ROLL DOOR
2. 2018 JOHN DEERE GATOR HPX61SE
3. 2018 BOBCAT E35 25 HP ZTS COMPACT EXCAVATOR
4. 2011 BOBCAT S750 SKID STEER
5. 2007 JOHN DEERE 310 SJ BACKHOE
6. DITCH WITCH TRENCHER
7. 2000 EPT LIFT A LOAD TRAILER
8. 2017 ECONOLINE DOVE TAIL TRAILER
9. 2002 SUPERIOR FLAT BED TRAILER AA. SHAUGHNESSY SCISSOR LIFTS

3 - SHAUG HNESSY 16' SCISSOR LIFTS

1-SHAUGHNESSY 20' SCISSOR LIFT

1 - SHAUGHNESSY 25' SCISSOR LIFT BB. PORTABLE SIGN BOARD

## Provide an overview of the call center operations including location, staffing, oversight, and arrangement of operation.

PRISM has contracted with LiveVoice (dba TelAssist) for nearly four years now to operate its call center. LiveVoice (TelAssist) is an Illinois-based answering service focused on small-medium sized businesses. They are staffed 24/7 and most agents are at the Bedford Park headquarters, with several remote locations all throughout the United States. LiveVoice (TelAssist) has more than 60 agents on duty at all times.

LiveVoice (TelAssist) provides highly flexible answering services and can integrate into a CRM if needed. PRISM is exploring this integration into our new workflow management system at present.

PRISM needed this flexibility and complexity because the agents have the authority to call our emergency crews directly at night if certain conditions are met (vehicle accidents, injuries, sparks or fire, police request, blocked roadway, etc.) PRISM developed, and LiveVoice (TelAssist) implements, a rapid decision tree to determine whether the light in question is one of ours, if it is an emergency, and what actions to take—to log it for our twice daily report from them, to refer it to National Grid or others, or to transfer the call to our subcontractor for dispatch. All calls are recorded so we can verify actions, and all are logged. PRISM receives these logs twice daily for incorporation into our incident management system.

LiveVoice (TelAssist) was formed and is managed as an affiliate company to TeleServices Direct, with over 25 years of experience in training and managing customer care and sales support for major Fortune 50 brands.  LiveVoice (TelAssist) has the resources and capital to utilize the best technology, equipment, redundancy, security and management, but LiveVoice (TelAssist) is not a typical call center.  Nor is it a neighborhood answering service.

**LiveVoice (TelAssist) is a boutique phone support service with a specific focus on its agents, its culture and we as clients. LiveVoice** (TelAssist) **has a culture of highly qualified, fully supported, and well-trained agents. PRISM has been very well serviced by these agents.**

**Even though streetlight maintenance is not a high-security item, we do collect identifying information from callers (name, address, phone number) so security is important. LiveVoice**(TelAssist) **is HIPPA compliant and PCI DSS Level 1 Certified.**

# 3.05 Project Approach and Understanding – Conversion

## l . Describe how you will work with the City to determine appropriate wattages, lumen output, color temperature, color rendering, and overall quantity of light. Describe your process for choosing and installing sample fixtures for visual review within the Pilot Program area in the City.

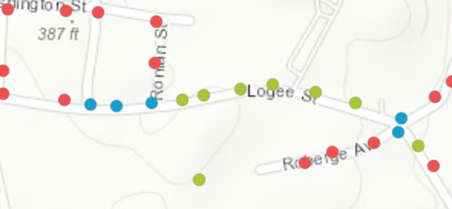
PRISM has worked with communities across the state to determine appropriate design. We design street-by-street and sometimes block-by-block to set lumen levels and select wattages to achieve those levels. CRI, or Color Rendering Index, is usually chosen city-wide. CCT (color temperature) is either a single (3000 kelvin or 4000 kelvin) city-wide, or a combination such as 3000 k for residential areas and 4000 k for busy collector streets. (see below for information on CCT and CRI.)

Before designing a system, PRISM meets with the community to determine its focus. Some communities prefer to focus on ambiance, while others on safety and choose brighter lights. We meet with police departments to gain their input and have mapped things like school bus stops in some areas to ensure safety in the early morning and early evening winter seasons. Then George Woodbury designs the system and we meet with the community to review it.

Given that NGRID bills on a tiered basis and the incentives are also affected by lighting choices all of these factors are taken into account and reviewed with the Town. There are ways to “game” the system to achieve the Town’s desired result and also maximize the incentives.

Nationally, many communities end up with improper lighting levels when converting to LEDs. PRISM is careful to avoid this mistake, which comes by focusing on maximizing energy savings and rebate/incentive payments without fully understanding lumen levels. Likewise, too much light produces immediate negative reactions by residents and drivers. Since this project is a retrofit and not new construction, the existing light spacing does not allow for modern min/max ratios to be used. Instead, lights produce areas of light with dark in between. If the lights are too bright, the eyestrain on drivers increases, the inability to see in the dark areas is exacerbated, and residents experience glaring light in their homes.

This RFP has tables that require lumen levels that are extracted from the IESNA Guidelines without thought to the required information needed to ensure compliance. In addition these tables are based on HID sources not L+ED sources. Absent information on the mounting heights, pole set backs, pole spacing, roadway widths and mast arm lengths it is not possible to perform the calculations. We have met these lumen and wattage requirements but would like to discuss light levels prior to design and procurement. Once lights are up it is too late and/or too expensive to change. Likewise, the RFP requires certain min/max ratios that simply cannot be calculated in a retrofit with wide pole spacing-there is no measurable light between widely spaced poles and calculating by zero is impossible. Again, there is no substitute for expertise and on-the-ground experience.

We base our design on existing lighting levels and then adjust based on the Town’s input. We take into account recommendations from the AMA, IESNA, and various studies by professional lighting associations and at the same time look at the incentives and future billing of the lights.

PRISM has mapped the community’s existing streetlights, and this will aid us in facilitating the design. Jamestown has 105 named streets with streetlights and of these 35 have multiple wattages on them that should be reviewed to determine if it is warranted This presents a confusing streetscape. Instead, PRISM would assess the area’s needs and then propose a single wattage along this (and every other) section of roadway in Woonsocket.

### Color Temperature and Color Rendering

The Color Rendering Index (CRI) of a light source does not indicate the apparent color of the light source; that information is given by the [correlated color temperature](https://en.wikipedia.org/wiki/Correlated_color_temperature) (CCT). The CRI is determined by the light source's [spectrum](https://en.wikipedia.org/wiki/Spectrum).

While wattage and resultant lumen levels are localized on a street-by-street basis, color temperature and color rendering are best determined community-wide. For these, either an interior display or outdoor Pilot can provide useful information. Indoors, streetlights of different color temperatures show the differences clearly because ambient light can be controlled. Outdoors is a more “real’ setting, and stray light form other streetlights, moonlight, cars, homes, and businesses compete and throw off easy perceptions. However, the real-world experience of a pilot is hard to beat. Therefore, PRISM will do either or both for this project—it is entirely up to the client. We have lights that can be immediately used for indoor or outdoor tests that are identical or similar to the exact models proposed. For an outdoor test we recommend a residential street where the ambient lighting is relatively uniform and the different color temperature lights can be seen simultaneously—this enables clear comparisons.

Color Rendering is different. Generally, the higher the better. This is how clearly one sees colors. The higher the color rendering, the easier it is to differentiate colors, for pedestrians, flowers look great. For police officers, discerning what color dark clothing or vehicles are is made much easier. It is in color rendering that LED lights excel. For the community’s current sodium (HPS) lights, the CRI is 20 or less and the world appears monochromatic. For modern LEDs it is 70, 80 or even 90. Colors pop. PRISM has proposed lights that are generally 80 or higher that exceed the RFP minimum of 70.

## 2. Describe your strategy for using network control systems to maximize incentives and limit on-going utility costs.

PRISM has installed about 40,000 controllers in Rhode Island, using two systems of intelligent controls and one system (not allowed by this RFP but highly efficient, reliable, and less expensive) that does not allow remote monitoring. We understand the pros and cons of these systems.

PRISM believes that the control system should be chosen primarily to allow lights to be managed and dimmed, brightened, and to report/diagnose outages. Rebates do increase with a control system, but not enough to justify its increased cost on that factor alone. The high lumen levels specified in this RFP means higher light costs and virtually requires an expensive control system to dim the lights to an acceptable level.

The table to the right compares two controlled dimming schedules with the same outcome to one with no controller. Using either of the two dimming scenarios (one with a higher wattage replacement relying on deeper dimming as required by the RFP, and the other with a lower wattage fixture and less dimming) both result in rebates of about $66. Simply installing a 25-watt fixture with no dimming reduces the rebate to $46, but the $20 one-time rebate decrease is more than offset by the avoided cost of the control system and the higher cost of the larger fixture.

However, if the flexibility, control, and error reporting are desired by the community, PRISM is adept at securing incentive rebates, and has done so for $2.98 million so far.

RI has two incentive programs. The one from the RI Office of Energy Resources pays per watt reduced and a fixed amount per control. This is maximized by choosing lower wattage fixtures that meet needed lumen levels and would be unnecessarily reduced by installing the high lumen levels specified in this RFP. National Grid handles a ratepayer funded efficiency incentive program. This program pays for kWh savings, with a lower rate for fixture-selected wattage reductions and a higher rate for reductions by a control system.

## 3. Describe storage and staging areas you will require during the project. You may include a discussion of how your firm will make personnel adjustments if project goals and standard are not being attained. Provide a short description of how traffic control will be handled on residential streets and on arterial streets.

PRISM’s partner, K Electric is based in Warwick and most work will be handled from there. If the community makes a staging area available, K Electric has mobile storage units and a tractor trailer it brings to more convenient locations when needed. However, the crews usually unload removed fixtures and replenish new fixture for the next day at the end of each day, so the separate location is not necessary.

If goals are not being met, K Electric has adequate in-house personnel to assign more electricians to the project. It also may, at its discretion, add from the Local 99 bench if that is more conducive to a successful job.

Traffic control is using a mobile arrow trailer when needed, setting cones, and flashers. PRISM allows crews to call for police details whenever they feel unsafe for any reason—because of traffic or because of unsafe areas. Additionally, if the community or the Police Department prefer details, we schedule them. Usually residential streets do not need details—there trucks are at lights for only about 10-15 minutes and can usually move to allow traffic to pass when needed. Major arterials usually do require details, and these are routinely scheduled. Finally, since police details add to the project cost, PRISM always has its crews start early when working on busy streets (sometimes 4 am,) before traffic levels warrant details.

## 4. Describe the type of handheld devices to be used by your crews and how you will furnish and utilize these devices in the field to verify and update the municipalities' streetlight databases as the conversion to LEDs, perhaps with network controls, is completed. Specify the type of device to be used and explain how the device will interface with and update the streetlight databases. Explain how you will format the databases as needed to work with the handheld devices and to have data available to the City through Excel or other approved software. Explain how you propose to work with maps to track progress. Explain how you will share the database, train municipal representative(s), and report monthly progress to National Grid.

PRISM uses a system developed in coordination with LightSmart for managing the LED conversion and subsequent maintenance activities. The system uses either iOS or Android devices in the field. We provide iPads, but auditors and crews may use their own if they prefer. Below are key points to the system. The steps below are what PRISM has used across Rhode Island, although some are shortcuts with the smart controls proposed in Option 2 of the Controls Price Sheet:

* PRISM merges its inventory with the community’s inventory.
* Resultant inventory is preloaded into ArcGIS
* PRISM’s custom schema within ArcGIS is loaded so all needed data can be selected from drop-down menus in the field.
* If a field audit is chosen for the project, our auditors visit each pole and verify light type, wattage, visual condition (audits are done in daytime so operations cannot be checked), and add maintenance/design information like light height, mast arm length, etc.
* Audit results are then loaded into the ARCGIS database.
* PRISM then designs the system and once the design is agreed to, it is loaded into this program.
* Electricians then use iPads to update information in real time as lights are installed. They use the iPads and Bluetooth scanners (for the QR codes on controllers.)
* The finished installer file is then uploaded along with a marriage file from the controls manufacturer into the streetlight management software.
* Output from the streetlight management software is then exported and reconfigured to submit to National Grid. This has to meet standards of the billing and efficiency.

PRISM has developed a single program to handle all the coordination above. It is entirely web-based relying on handheld and desktop devices for access and entry, and at this writing is being field tested in two communities (totaling over 5,000 lights.) If accepted in time the program will be deployed for this project as well.

## 5. Provide a Proposed Project Schedule to complete the work within the required timeframe as described in this RFP. Provide the impact of multiple participating communities on the project schedule.

|  |  |
| --- | --- |
| **Schedule Item** | **Estimated Business Days** |
| Contract development and Preliminary equipment choices | 30 |
| PILOT equipment procurement | 40 |
| PILOT open to public | 10 |
| Final equip. choice and design | 14 |
| Equipment procurement | 60 |
| Conversion | 14 |
| Project Completion NGRID pays Incentives and adjusts billing | 120 |
| **Total days** | **288** |

Once under contract, PRISM will work with the community to make choices about light characteristics (CCT, lumen levels, etc.) then will design the system. If a PILOT outdoor installation is chosen and equipment must be procured, up to 80 days must be planned for, although usually this can be shortened. Assuming a PILOT program that is open to the public for ten days, and timely design/procurement by PRISM and related decisions by the community. PRISM is accustomed to municipal schedules and knows there is some uncertainty therein. Actual conversion will not be delayed substantially from the above schedule. By deploying one more crew, K Electric can install all 7,873 lights in the three communities in 70-80 days. Please note that outdoor electrical work is always subject to inclement or windy weather and all schedules must adjust accordingly.

## 6. Describe your firm's safety policies and procedures as they relate to handling high-pressure sodium lamps and other hazardous items. How are employees directed to deal with broken lamps? What precautions are taken to prevent damage to lamps during luminaire removal, clean-up activities, and transport? Do the procedures specifically address handling high-pressure sodium lamps and other types, including mercury vapor lamps, in public areas or in environmentally sensitive areas?

After the HPS lights are removed in the field, they are returned to the staging area each evening. Since our crews are experienced with emergency responses to knockdowns, broken lamps are normal occurrences. A few lights that are in especially good condition are saved for replacements, but most HPS lights are dismantled at K Electric’s own shop by technicians certified in all areas of relevant hazardous materials from bulbs or ballasts. All such materials are carefully packaged and sent in appropriate containers to recycling facilities. K Electric’s certificates are attached in the firm’s write-up. Mercury Vapor lamps are treated appropriately. According to the inventory there are few such lights, although in PRISM’s experience we will find at least half of lights inventoried and billed by Ngrid as MV have actually been replaced by HPS floodlights without billing corrections.

## Describe your firm's environmental spill or release response procedures and training in general and specifically as they would apply to the materials to be handled for this project and the firm's equipment that will be used.

K Electric is experienced and fully certified (see certificates in their materials, attached) and is prepared for much higher quantities of hazardous materials than would ever be generated with the streetlights project. Since K Electric routinely handles medium voltage transformers, insulating fluids, capacitors, etc., its facilities and staff can easily handle the tiny risks from HPS lights. The only hazardous waste or materials involved with this project are the removed HID bulbs. These are delivered to a licensed company for disposal and proper MSDS sheets obtained for the record.

## 7. Describe how you propose to commission the streetlights and controls including provision of commissioning reports.

Commissioning controls has greatly simplified since PRISM converted its first streetlights in 2016. For the current proposal we have proposed two versions of the Verizon control systems.

The controller is attached to the streetlight on installation/conversion, and as soon as the light is energized the node received power and begins communicating automatically, showing up on the control system within minutes. Later, in batches from the office, identifying information like pole number, street name, etc., is uploaded to complete the file and allow for accurate maintenance calls.

## 8. Describe your firms approach to training of municipal staff on the network control software.

PRISM has found that in most cases municipal staff want access to the system but rely on us for any changes. There are two reasons for this: First, any operating change causes a change in kWh usage and therefore must be reported to National Grid, and second, the systems are more complex and less user-friendly that one would wish (upgrades are now appearing regularly and the interfaces are improving so muni staff will likely do more going forward.) PRISM has trained several muni staff on their use and are willing to either provide hands-on training at the municipal offices or if a larger group wishes to share access, we can arrange for a trainer to come. The logistics of this vary between control systems, so until the particular system is chosen, we cannot be more specific.

## 9. Include any other information you feel will be helpful in assessing your firm's ability to meet the LED conversion requirements of this RFP.

PRISM has managed 44,000 LED conversions. There have been zero change orders and zero cost overruns. PRISM is willing to make needed changes midstream to ensure customer satisfaction. In 2018, after our subcontractor, Siemens had fallen behind schedule for conversions, they promised a schedule and within a month were significantly behind it. PRISM then removed lights from the Siemens warehouse and gave the work to K Electric who performed over 5,000 conversions immediately and flawlessly. It should be noted that K Electric had little notice of this sudden increase in their workload but responded without hesitation.

# 3.06 Project Approach and Understanding – Pre- and Post-Conversion Maintenance

## 1. Describe in detail the services to be offered to meet the requirements of this RFP. Responses must include a clear explanation of warranty, routine, emergency, and additional maintenance definitions, scope, and practices.

Maintenance is ongoing and PRISM is ready 24/7. Outage calls are received direct to our office, our call center 24/7, or via website (PRISMs and/or municipal), by email, or by any notification system preferred by the community (like Providence’s PVD311 system.) Some communities use SeeClickFix but take the calls themselves and forward them to us. Key municipal personnel are also provided with the mobile numbers of PRISM’s Executive Director and Operations Manager who can respond day or night.

Once an outage report is received by PRISM, whether to the call center or to our office, we contact the caller to gain the information listed in bullets in the Call Center portion of this question. This call lets the community’s constituent feeling included and heard.

PRISM calls the outage-reporting person twice. First to go over the outage report to make sure of the needed details, then again after a repair is completed. We thank the caller for reporting and ask that they make sure it comes on that night. PRISM’s focus with these calls is to make the municipality look responsive to constituent issues and the town/city received its due credit.

When handling an outage report, PRISM determines the appropriate response as follows:

* Is it a municipal light or is it third-party or state?
  + If third-party we refer the call to National Grid.
  + If state, we refer to RIDOT.
  + If municipal, is it in a PRISM community?
* Is it routine or emergency? If emergency, it is dispatched immediately (our call center has authority to call K Electric directly day or night if certain “emergency” conditions are met. Our crew will be on scene within two hours. (Usually our response is less than an hour.)
  + Emergency calls are those that meet criteria agreed to by the municipality, but usually include vehicle accidents, injury, pole down in street or sidewalk, hanging fixture, obvious threat to public safety, sparks, fire, or multiple lights out in one area.

PRISM maintains detailed logs of all outage calls, including all call details, when sent to our sub-contractor, and the results of their work.

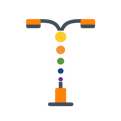
Warranty and routine or emergency calls are handled the same. PRISM does not dispatch any call any differently between warranty or routine calls. The point is to get the light operational as soon as possible.

Once the defective or broken light/control is brought back to the shop, it is handled differently. If a warranty claim, the light is set aside until a sufficient number are gathered to warrant a shipment to the distributor or manufacturer. This is usually done twice a year because there are few warranty failures. (We have had zero warranty failures with any of our Leotek lights or any of the CREE RSW lights.)

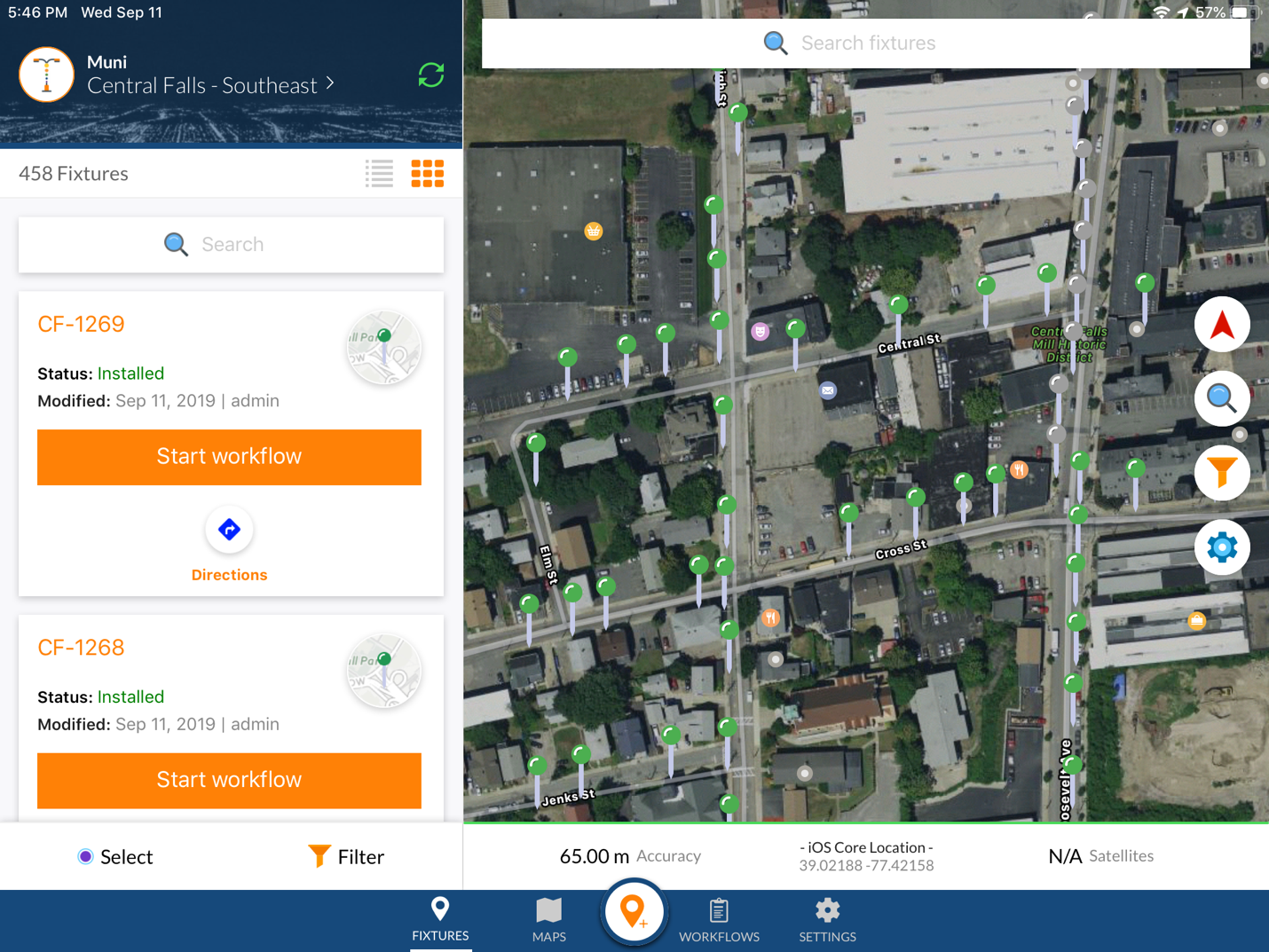
Routine maintenance is well-defined in this RFP and PRISM will follow it.

### PRISM Workflow System

PRISM Streetlights has developed a workflow management system so its techs can more easily track their assignments, report on progress, and so PRISM can use this information for project management and reporting back to our communities. The system is currently integrated with Streetlight Vision, the streetlight management software PRISM has used across much of Rhode Island but is not included in this Proposal. The following section describes how it works. It is being PILOTED in the communities of North Providence (3,900 lights) and Central Falls (1,200 lights) beginning December 1, with system wide SLV rollout hopefully this March. We integrated our other control system LightingGale in mid 2020 and are working on the integration with Verizon’s system (included in this proposal) but do not have a date yet. Please note that this system improves workflow and reduces steps whether or not it is fully integrated with the streetlight control system. LightSmart was the consulting firm for the first deployment of the Verizon system in Beverly Massachusetts and as a result are familiar with the process.



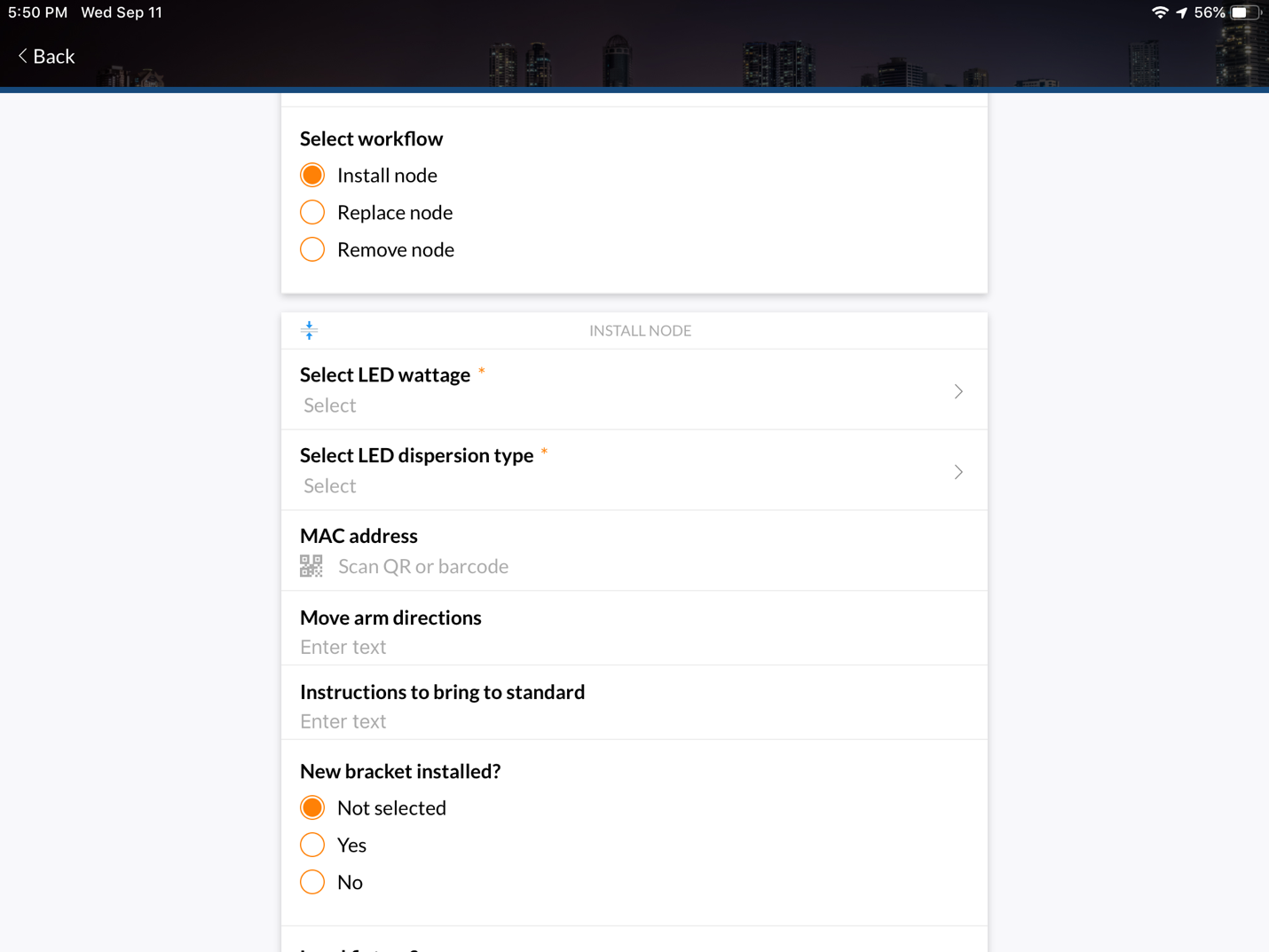
The PRISM Streetlights app consists of iOS, Android and mobile apps that help customers achieve rollout targets, lower project expenses, reduce O&M costs and accelerate energy savings.



Prism Streetlights provides full-lifecycle management including planning, installation, maintenance, inventory and analytics modules.

**PRISM Streetlights Maintenance Module**

* Configurable maintenance and operations workflows including outages, replacements, removals, inspections and more
* Generate automated maintenance work order notifications based on workflows
* View failure reports (current and historical) and outage status directly on mobile devices as updated directly from CMS
* Control in real-time, one or more (based on configurable parameters) lights from a mobile device through CMS
* View meter readings from CMS for lights being controlled directly on mobile devices to help field crews troubleshoot issues
* Includes simple replace/remove node and calendar/schedule update workflows with automatic updates to CMS



**Operations & Maintenance Benefit Areas**

Application features focused on improving *efficiency and productivity* of field crews drive direct costs savings in two benefit areas:

1. Reducing Number of Resources and Crew Time on Field Operations Functions

* Perform installation and maintenance work faster with less resources
* Field crews can see exactly what dispatchers in the office see. In an instant, they can be notified where an outage is, what caused the outage and steps to fix

2. Accelerating Energy Savings with Schedule Compression

* Shorten overall time to completion and duration of maintenance, conversion projects & deployments for LED and smart lighting systems
* A smaller number of field crews over a shorter period of time and a successful project means lower overall costs and realizing the energy savings and other benefits sooner

**Maintenance Features, Benefits & Efficiencies**

* **Customized Maintenance Workflows with Data Validations**

Customizable maintenance diagnostic, replacement and removal workflows with data validations and exceptions for FASTER, MORE CONSISTENT PROCEDURES

* **Automate Maintenance Work Order Management**

Deliver automated mobile app notifications to the right field crews with the right information to IMPROVE RESPONSE TIMES AND SUCCESS RATES

* **Control Lights Directly from Mobile Devices**

Real-time control to turn on one or many lights from a mobile app to enhance the diagnostics process, reduce unnecessary field-to-dispatch communications and PREVENT REPEAT VISITS

* **View Failure Reports and Meter Readings in the Field**

View failure reports/outages (current and historical) and real-time meter readings on mobile devices for field crew utilization during maintenance to TROUBLESHOOT AND RESOLVE ISSUES ON THE SPOT

* **Real-time Maintenance Analytics & Reports**

Measure crew performance and network performance against key performance indicators to CONTINUOUSLY IMPROVE OPERATIONS

.

## Describe Call Center operations including intake and response protocols for routine and emergency calls, reporting practices, online portal, etc.

This section is somewhat duplicative of Section 3.04 (page 12,) so we ask that you refer to both sections for a full description of PRISM’s Call Center capability and operations. PRISM’s call center receives calls 24/7. All calls are answered personally by a US-based agent, almost always in LiveVoice’s (TelAssist) headquarters in Bedford Park, Illinois.

Emergency calls are logged and immediately transferred to the electrician on call. Routine outages are logged and reported to PRISM via email to PRISM twice daily during the business week. Every call is recorded and PRISM can, when and if it chooses, listen to any call to ascertain if procedures are followed correctly.

The Call Center’s portal is fully accessible to PRISM management, and includes both the agent’s notes, actions taken, and the call recordings.

Once an outage is received, PRISM ascertains (either from the original call or by calling the person who filed the complaint) a series of questions to make certain it is appropriate to respond. Such questions may vary depending on the call content, but generally include:

* What town/city are you calling about?
* Is it a traffic light or a streetlight?
  + What is the street and pole number?
* What is your name and number in case we have questions?
* Is this an emergency? (Vehicle accident, pole blocking traffic, sparks, fire, injury, etc)
  + If an emergency, a truck is dispatched at this point.
* If not an emergency, other questions are asked so the problem is clearly identified:
  + Is the light out or on or flashing?
  + Is there apparent damage (tree limb fell, etc)
  + Is the light taped to the bottom of the pole (NGRID does this when installing new poles despite being required to notify the municipality to remove the light for the pole transfer.)

# 3.07 Proposed LED Luminaires and Controls Manufacturers Warranties and Cut Sheets

## LED Luminaires-Jamestown

### *All proposed luminaires are eligible for National Grid and Office of Energy Resource incentives. They are to be Design Lights Consortium, DLC, qualified, dimmable through the use of proposed controls except as may be noted, and meet the requirements described in Specification for LED Luminaires. Specify the preferred LED luminaires proposed to replace the HPS MV, and/or other streetlights as depicted in the streetlight inventory in your proposal. Respondents shall provide two (2) options for LED luminaires as follows*:

I think it is important to understand that there are many choices when it comes to LED fixtures. There are four manufacturers that now offer reduced glare fixtures to address the most common complaint around LED fixtures. These are Leotek, Cree, Acuity, and Philips. However these fixtures tend to be more expensive and because the glare is addressed using defusers the overall efficacy of the light is slightly reduced and as a result they may not meet the required specifications. The nature of this RFP does not allow us to present all of the available options along with their comparative prices and we are fully conscious of the fact that the final selection of a vendor will be largely based on price. As a consequence we are driven to lowest cost for a fixture meeting the minimum specifications. If selected we would sit down with the Town and look at all of the options and if desired arrange to have them installed at a pilot location for viewing. We also believe the lighting levels in the specifications are excessive and if installed would result in a significant number of citizen complaints.

**Option 1: Acuity ATBS Series.**

Option 1 is the Acuity Autobahn series fixtures that use the borosilicate glass optics which is listed as “preferred.” We chose to present this as our second option as the overall costs, incentives, energy consumption, and glare factors are slightly higher than the Option 1 Leotek This product meets or exceeds the technical specifications herein and includes the preferred glass optics. Please note that Acuity does not offer the glass optics in the high wattage applications. While the Acuity is an excellent fixture when considering all factors including costs, higher energy efficiency and design flexibility of the Leotek fixture we believe outweigh the benefits of the glass optics. At the same time if we were provided some flexibility in the fixture required performance per the RFP specifications to allow slight deviation, then the advantages of the Leotek might be mitigated. The Acuity ATBX series which would be a more likely choice for actual installation in the field does offer the glass optics, the visual refractor option and is at much lower cost. However, in order to fully comply with the product required specifications in the bid we were forced to make some selections and adjustments with the Acuity series fixtures to meet those requirements we would not ordinarily make. On the following page are the required energy calculations.



**Option 2: Leotek GCJ Series**

The Leotek J series fixtures have the highest overall efficiency at the lowest relative costs of the LED fixtures in the market that will meet the required specifications. Leotek is one of the leading LED manufacturers in the world. This fixture has superior light distribution with low glare and is fully compatible with all 0-10 volt dimming systems. In a side-by-side comparison with other fixtures meeting the specifications and requirements of this RFP, this fixture will result in higher overall energy savings, increased incentives, and offers range of light outputs that can be selected with an internal dimming switch. It meets all of the required specifications except the “preferred” glass optics[[1]](#footnote-1). In addition, it offers the best shielding options in the industry, offering, backlight, side, cul-de-sac, and all-around shielding options not offered by our Option 1 product. Below is a chart depicting the energy savings and incentives for the LEOTEK products selected that meet or exceed the required lumen and wattage specifications. You will note that most of the fixtures can be replaced with the same LED from Leotek greatly simplifying spares and future maintenance as well as flexibility to adjust lighting levels without having to change the fixture.

Please note we propose the Howard XFLE series flood lights as they are DLC approved, have the dimming driver, a warranty that can be extended to ten years, a L70 at 150,000 hours and can come equipped with motion sensor. The minimum RFP requirement is for 13,500 lumens to replace the existing 250w floods. We selected the 97-watt version which would put it in the lower billing bucket (billed at 80 watts,) but it produces 13,494 lumens and as such is just short of the RFP minimum of 13,500 although well within the +/- 3% accuracy of most meters and would produce more than adequate light. If Jamestown determines that 13,500 is the absolute minimum, we can provide a much more expensive fixture that will exceed the 13,500 but we know from experience a difference of only 6 lumens is not only invisible to the human eye, is within the error factor in most meters (at the normal streetlight height,) and the higher incentive and lower billing bucket make this a more economical choice. We believe it would be a better choice for both the incentives and long-term energy savings. The alternative would be either the Lumecon LFS-SFL 110 that provides 13,967 lumens at 109 watts and would be billed at 120 watts, or the Howard UFA series which can produce a range from 11,500 at 75 watts, 15,100 at 101 watts up to 30,700 at 272 watts verses the Howard XFLE and would be billed at 80 watts. While more expensive the Howard UFA series will provide a wide range of outputs and meet the requirements for both the 250w Flood and the 400 watt flood in the same fixture by using the internal dialer. This would reduce spares stockage. We trust the evaluators will allow a deviation of .00044% from the 13,500 listed. If not, we are providing the price of the Howard UFA series which may be substituted.



## Streetlight Controls

### *Proposed controls shall be “state of the art” in terms of technology and shall be fully functional in salt air environments and capable of operating within the variable voltage range allowed by regulation. Quoted controls should include all streetlights listed in the initial inventory, including decorative lights. Bidders are encouraged to offer up to three (3) types of controls with varying capabilities and prices, as described below*:

It is important to note that the addition of controls will provide for increased incentives from both NGRID and the OER. By understanding the dimming operation incentives and the impact on the billing we can increase the incentives and maximize the benefit of the long-term energy cost savings. In addition, OER offers an added $20 per control deployed.

### **Option 1:** *Products proposed under option one (1) shall be a dimming controls system with capabilities for lighting management such as scheduling, alarms/notifications, and remote control*.

We have chosen to lead with the Verizon control as option 1. It is price competitive with the other options but does not rely on either gateways or towers to communicate but rather the Verizon cellular network. As such each node communicates directly via the network back to the control center. This provides great flexibility in deploying network, and lights can be more widely spaced than on the “mesh” networks we and others have used all over Rhode Island. With mesh networks, nodes communicate with and through each other to get to gateways to the internet. With the new Verizon solution, each node communicated directly, speeding communication and making more reliable and predictable connections. Communities can install controls in limited areas that can be widely scattered where they want the advanced controls and use conventional photocells in others or the Dimulator discussed later. In addition, Verizon allows for a mix of controls so that controls with HD capability or other low latency high data requirements can be deployed only where needed. We believe the point to point cellular based system will provide greater reliability at lower overall initial and long-term costs. In LightSmart’s Verizon deployment in Beverly Massachusetts, Verizon’s on-site support was superior to any manufacturer response we have yet seen, and when there was an issue it was all-hands-on-deck to resolve the issue. We believe given Verizon’s financial strength and commitment to this program, they will be there to support for the long haul.

### **Option 2:** *Products proposed under option two (2) shall be a networked controls system that allows for integration of additional smart features, beyond dimming and scheduling*.

We are also offering the Verizon system for option 2 for the reasons specified in Option 1. However, it should be pointed out the option 1 proposal does allow for integration of added smart features, but it would be limited to high latency low data bandwidth devices. Option 2 would provide for high definition cameras, low latency and high data bandwidth requirement on every streetlight. **As a practical matter this does not make sense and the language of the RFP is not clear if it intended for every streetlight to have the HD capability.** **It is far more likely that this requirement would be limited to specific locations such as high traffic intersections, and the cost would be far less than we had to propose to meet the RFP requirement.** The Verizon system in option 1 would provide for the intermingling of the Option 2 controls where needed and the added flexibility to easily move them around. Most systems from current intelligent controls provide for the ability to use their systems to support some ancillary capabilities. Verizon is using a system that has already a proven capability for HD cameras, license plate detection etc. They recognized this is not needed on every streetlight so created a much less expensive system for managing the streetlights and low level capabilities but the ability to integrate the more expensive high capable units in the system where needed. We in fact believe the Option 1 offer meets both Option 1 and option 2 requirements.

### **Option 3:** *Standard photocell for on/off operation*.

We have selected a long-life photocell that uses zero-cross technology to protect against the problems that can be associated with inrush current and the required NGRID fusing. Zero cross circuitry will eliminate the potential voltage spikes (in-rush current) that can occur with LED lights that can lead to fuse failures under certain conditions. We believe this will lead to less maintenance calls and a more overall reliable system.

Not offered is the Dimulator photocell (DIM4) that automatically dims lights at a set time and increases light levels at a set time. These do not offer remote operation but will qualify for the added control incentive from OER and the increased incentive rates from NGRID. They also produce an added 26% savings year over year on the energy bills so should be considered by any community not choosing wireless control networks. We would be happy to review this option should you be interested.

## Decorative / Post Top Fixtures:

### *Specify the LED luminaires proposed to replace the post top streetlights in the Towns inventories. Describe the technical capabilities and features of the proposed products. Specify the manufacturer, model numbers, rated wattage and manufacturer’s warrantees, and attach cut sheets for the proposed luminaires. Include an estimate of the energy and demand (kWh and KW) savings as described in this RFP.*

### *Respondents may offer up to two (2) Proposals for different types of Decorative Luminaires as detailed below*:

NOTE: The “Decorative – All Options” tab on the Jamestown Price Proposal spreadsheet has a table at the bottom for “Decorative Poles and Base Replacement.” This table is locked, and the price cannot be inserted. Further, no locations are shown, and the brief description means the exact models cannot be ascertained, nor can the condition of the concrete base or if there is a concrete base be determined. The concrete base, wiring, and embedded bolts determine the success of a fixed price replacement. PRISM prefers to work without change orders, so before quoting prices we would require seeing the installations. **However, PRISM can procure and install any such lights, pole, and base, and commits to do so for these 25 lights at our cost for labor and materials with the standard markup.**

### **Option 1:** A replacement fixture for Decorative Streetlights.

The RFP is not clear as to what is needed for a “replacement” fixture. We assume that the entire fixture would be replaced Given the lack of specific information we have written in a typical Colonial style head which would use 38 watts and fall into the 20 to 40 watt billing range. There are a number of available brands. Our recommendation is to use Option 2, but if the City wishes the kit, we recommend the Vega retrofit kit as a replacement for the current HID bulbs listed because the Vega system is very energy efficient and would allow for Bluetooth control, dimming, uplight shields, type three distribution reducing backlight glare and trespass, and in the very near future the ability to connect with a mesh system

We can only identify replacement lights that would be appropriate for these lights given their current wattages but believe following a pilot that a lower wattage fixture might be selected, or they would be dimmed down to be more appealing for normal operation. In addition, Vega offers a kit for the teardrop-style decorative fixtures but because no unit counts were provided, we are unable to determine how many of these might be required. The Vega system offers a ten- year warranty, can be ordered in a type-three distribution providing less light trespass on the house side, can come with a built-in Bluetooth control allowing control of uplight, dimming, diagnostic reporting and asset tag ID. The release of a network mesh networking capability is imminent. It also offers CCT down to 2200K up to 5000K. It should be noted the Vega light in 3000K version produces 4857 lumens and in the 4000K version 5119 so the 30.5 watt version can replace both the 50 and 100 watt lights.

Alternatively there are “corncob” style LED lamps from Philips that are very low cost and just screw in replacements once the HIDS ballast is bypassed. These have no connectivity nor can they be dimmed.

We would assist the Town in making a good selection.

### **Option 2:** *A drop in retrofit kit for Decorative Streetlights.*

Normally Option 2 would be the less expensive option, calling for a retrofit kit while the Option 1 is a complete fixture. In Jamestown’s case we offer a Vega D4a replacement for Option 2, and for the reasons discussed above and assume a typical Colonial style Fixture for Option 1.

Option 2 is a much lower cost option that does not provide for dimming or remote monitoring but is simply a high-quality screw-in replacement LED bulb rated for outdoor use that has the features described above.

# 3.08 References

Please see attached.

# 3.09 Price Proposals

## Please see enclosed sealed envelope.

### LED Luminaires

#### Proposed luminaires shall be eligible for National Grid and Office of Energy Resource incentives. They shall be Design Lights Consortium qualified, Dark Sky-compliant, dimmable through the use of proposed controls, and meet the requirements described in Specification for LED Luminaires.

PRISM has selected its proposed luminaires carefully to exactly meet or exceed the minimum lumen requirements, wattage limits, surge protection, and other specified requirements. The Ave/Min ratio cannot be calculated because division by zero is arithmetically impossible. This metric is for new installations and is based on HID lamp sources not LED’s. In order to properly complete these calculations additional information is required that was not included in the bid documents-mounting height, mast arm length, pole set back, roadway width, and pole spacing. The application of max to min rations and average illuminance applies to new designs where the pole spacing and fixture spacing can be controlled. PRISM notes that it is our belief and experience that using lumen levels as required will result is significantly over-lit streets at each location, with the areas between lights appearing even darker. This would lead to less safe and far less attractive streets.

#### Include an estimate of the energy and demand (kWh and KW) savings as described in this RFP.

The worksheets in the Pricing Proposal calculate these savings. THEY ARE NOT CORRECT. First, the spreadsheets calculate total wattage reduced, but label it kWh, not watts. Then, to calculate total annual kWh, it uses part of the correct equation: multiplying saved wattage by 4,175 results in total watt hours not kWh. This figure should be divided by 1,000 to convert to kWh from watt-hours.

### Technical Discussion

The RFP specifies minimum lumen levels to be met by each fixture replacement. Our proposal meets those requirements but we sincerely hope the City is not contemplating operating the LED lights at these levels. In most cases the specified minimums are significantly above the existing light outputs. As an example, for the 100watt HPS fixture the minimum specified lumens is 7100. A 100-watt HPS bulb can produces a nominal 9600 lumens but the fixture only produces 6,540 lumens[[2]](#footnote-2) due to internal fixture loses and this is initial lumens. Mean lumens is even less due to rapid normal HPS lumen depreciation. Similarly, a 50w HPS lamp produces a nominal internal 4000 lumens when new but has a design with a mean lumen level of 3200- 3600 (See e.g. Sylvania Lumalux LU50/ECO or Philips Ceramalux 50w 36867-0) and accounting for the internal 32% losses, the fixture output is less than 2448 mean lumens. The 3900 lumen minimum specified in the RFP is 159% higher than the existing lights when they were brand new.

In addition, the human eye perceives a high color rendering light source as brighter than a low color rendering source. Unfortunately, the IESNA RP-8 Guidelines do not account for the color rendering index of the light source and treat every lumen the same regardless of the source. Strict adherence to the RP-8 Guidelines with high color rendering lights results in higher lighting levels than necessary to achieve the same visual effectiveness. IESNA is working on this and is expected to address this in future guidelines. The Table below comes from the European Professional Lighting Association, which is ahead of the US on this issue. What this table shows is the amount you can reduce the lux levels by when using a higher color rendering source. This study is further affirmed by work done by Rensselaer Polytechnic Institute[[3]](#footnote-3).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Benchmark HPS | | S/P = 2 LED | | | | |
| Lighting Class | E Average (lux) | E Minimum (Lux) | | E Average (lux) | % Reduction from Benchmark | E Minimum (Lux) | % Reduction from Benchmark | |
| P3 | 7.5 | 1.5 | | 5.5 | 27% | 1.1 | 27% | |
| P4 | 5 | 1 | | 3.4 | 32% | 0.7 | 30% | |

Table from Presentation by the European Professional Lighting Association

The impact of these higher than needed levels is of course higher energy usage, less savings a, a reduction in incentives and grants and most importantly citizen complaints.

The lights we have proposed does come with the ability to internally adjust the fixture output, but setting them to produce the wattage we believe will be most acceptable in the field would mean not meeting the RFP’s minimum lumen levels, so we have not done so. PRISM does typically recommend fixtures with both an upside and downside capability with internal adjustability. This allows you the flexibility if you have a control system to increase light levels for emergencies and special events. It also allows for adjustments in the field if you later determine the lights are too bright or not bright enough. So, if the intent of the Town is to have this flexibility then we agree with these unusually high minimum lumens specified, but we would recommend some field trials to select the right operating wattages to meet the lighting level requirements with the least complaints. PRISM has used significantly lower light levels in all of its installations with no complaints. In fact, the only complaints have been the light is too bright even at the reduced level. In completing this review we can take into account the needed lighting levels, fixture costs, the incentives and visual comfort resulting in the highest level of citizen satisfaction

Typical streetlight mounting heights are 25 to 30 feet. At these mounting heights there is no justification for a 400-watt (or equivalent) streetlight. This light is way too bright and creates excessive glare and an intense hotspot under the light. The human eye does not respond well to high contrast and drastically varying lighting levels. Further during periods of inclement weather excessively bright streetlights will reduce visibility due to glare on the windshield. In all of our installations we have treated the 400-watt fixtures at typical mounting heights as if they were 250-watt fixtures with great success and to date no one has noticed. Uniformity in lighting is more important than overall brightness to achieve good nighttime visibility. In association with this

The City should consider at least a minimum review of lighting level street-by-street to achieve uniformity. The City has 1668 named streets and 200 of these have more than one wattage streetlight on them. Some as many as five different wattages. In addition, the City has some 400 lights temporarily turned off.

The expectation is that most streets should be lit the same throughout their length unless there is some justification for higher levels due to increased activity areas. We have found that being more consistent not only increases savings by an average of 15 to 17% it also simplifies maintenance. As a minimum we would recommend at least visiting the streets that are not uniform and making a determination of the appropriate lighting levels as part of the design process and determining if the lights currently temporarily turned off should be restored to service or removed altogether. We understand the City not wanting the expense of a full audit, preferring to gather this information as part of the conversion process.

One advantage of an audit in advance is the audit file can be used to set up the installation map that is provided to the installer. They can document their work as they go and also document any issues found in the field. Having them collect the information during the install increases their time at each location, slowing the work pace and increasing their costs. Audits typically would represent about 2% of the project costs which is largely offset by having a more accurate inventory therefore a more accurate material ordering basis, a better over all design and faster production rates which will result in getting to the savings faster.

#### **AMA**

The AMA has recommended that towns and cities should use lights that are 3000 Kelvin temperature or lower to reduce their blue light content which affects sleep patterns. While this recommendation’s basis has been largely debunked the fact remains that the lower Kelvin temperature LEDs are preferred by most people. At the same time both domestic (Virginia Tech) and British studies have shown that the 4000 Kelvin lights provide faster reaction and recognition times and therefore improve safety. In addition, the police fire and DPW plow operators also prefer the 4000 Kelvin lights. The human eye is more sensitive to blue light and will perceive a 4000 K light as brighter than a corresponding 3000K light even if they produce the identical Lumen output. Some communities have opted to use the 3000k lights in the neighborhoods and the 4000K lights on the main thoroughfares.

PRISM’s goal is to provide the community with as much information as possible so as to help them make an informed decision. We are agnostic to brand.

1. The only manufacturer using the glass or borosilicate optics is the Acuity ATBX or their ATBM series fixture. The ATBX will not meet the required lumen levels at the stated maximum wattages. The ATBX P40 will produce 3603 lumens at 28 watts in the Type 2 distribution pattern. [↑](#footnote-ref-1)
2. DOE Table 1a Caliper Summary of Results Round 7 of Product Testing January 2009 [↑](#footnote-ref-2)
3. Rensselaer Outdoor Lighting: Visual Efficacy Volume 6, Issue 2. [↑](#footnote-ref-3)