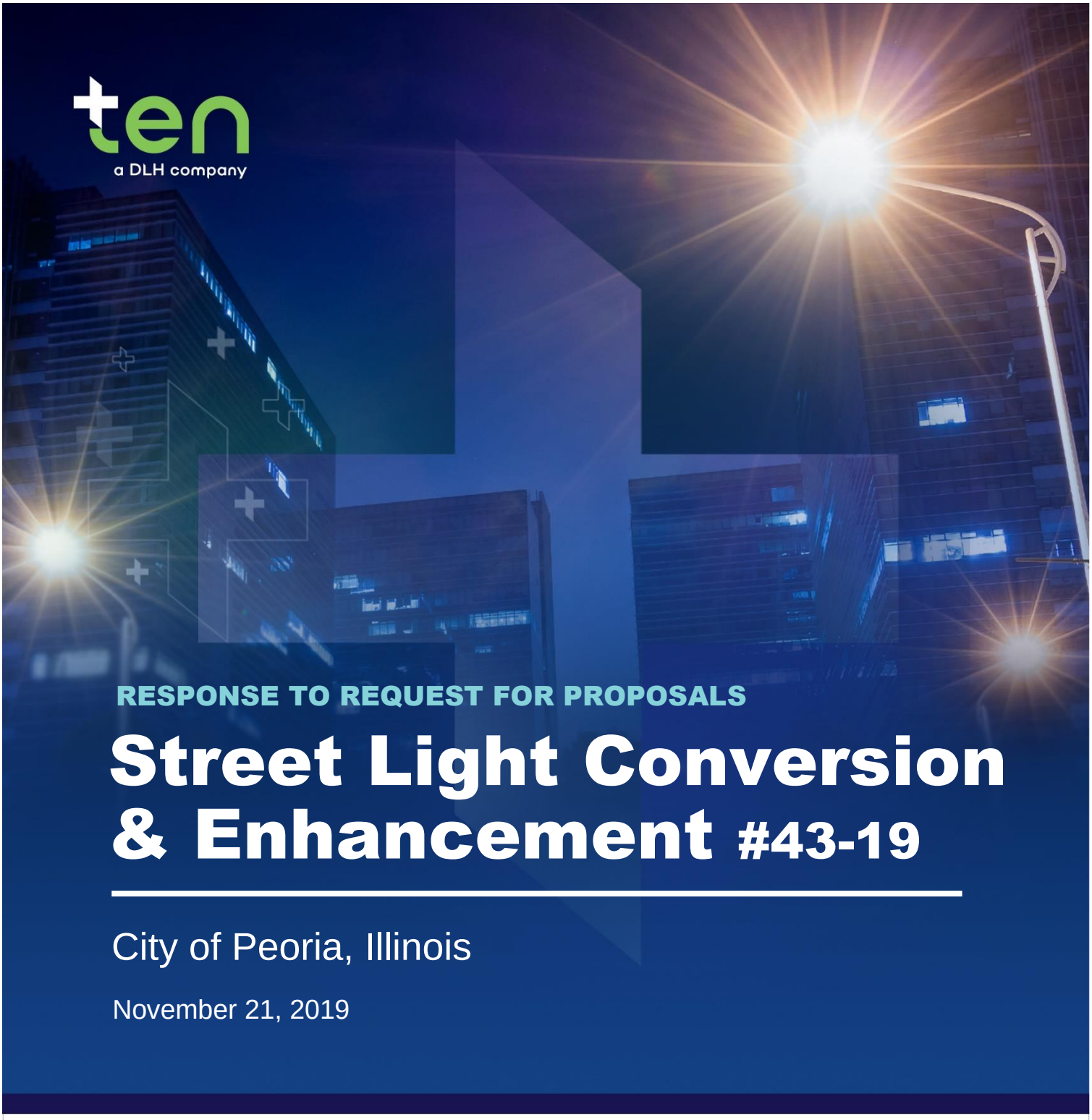


RESPONSE TO REQUEST FOR PROPOSALS

Street Light Conversion & Enhancement #43-19

City of Peoria, Illinois

November 21, 2019

SUBMITTED BY:

The Efficiency Network (TEN)
1501 Reedsdale Street, Suite 401
Pittsburgh, PA 15233

Jim Schriver

Director, Smart City Solutions
412.992.1397
jim.schriver@tensaves.com

CITY OF PEORIA
PROPOSAL

The executing of this form certifies understanding and compliance with the total proposal package.

PROPOSAL SUBMITTED BY:

TEN	#43-19
Company	Peoria EEO Certificate of Compliance Number

1501 Reedsdale St. Ste. 401
Address

Pittsburgh	PA	15233	412-429-8888
City	State	Zip	Daytime Telephone #

412-992-1397	Jim Schriver
After Hours Telephone #	Contact Person (Please print or type)

Jim.Schriver@tensaves.com
Email

Robert G. Campbell	President and COO
Name of Authorized Agent or Officer	Title

	11/20/19
Signature of Authorized Agent or Officer	Date

MARK ENVELOPE: PROPOSAL # 43-19

Contents

A. Cover Letter

November 21, 2019

Mr. Chris Switzer
Purchasing Manager, City of Peoria
419 Fulton, Room 108
Peoria, IL 61602

Dear Mr. Switzer:

On behalf of The Efficiency Network, Inc. (TEN), I am pleased to present you with TEN's response to the City of Peoria's Request for Proposals – Street Light Conversion & Enhancement (#43-19). The intent of our response is to highlight our experience and to show why TEN is the best choice to help the City of Peoria complete its visionary street lighting and smart cities project. While lots of companies can swap a legacy HID light for a new LED luminaire, TEN is one of the nation's leading companies delivering LED streetlight conversions with Smart Cities components. TEN is uniquely qualified and has great experience helping cities understand how streetlights and Smart City applications are linked, why they are more efficient and often more cost-effective when done together in the same project, and how the loosely-defined term "Smart City" can be applied and be impactful to a City like Peoria.

As a technology and vendor neutral company, TEN's approach is to bring the various technology options to the table, then provide guidance and context to help Peoria decide which options best fit the City's needs. Instead of exclusively partnering with a single light or control vendor, TEN intentionally maintains strong relationships with all major manufacturers, to give the City the broadest range of options, at the most competitive pricing possible, to fit the unique requirements of Peoria.

While TEN brings best practices and proven technology from around the country, a project with TEN also contains a large local component. TEN believes strongly in employing local service providers, contractors, and distributers of equipment to provide as much of the project as possible. This keeps a large portion of your project's total cost here in Peoria – investing it in local firms and local employees. This makes good local economic sense and engenders a sense of civic pride with the local workforce.

TEN has the proven expertise and track record to deliver a world-class lighting and Smart City project for the City of Peoria. Peoria will benefit from lower costs, better light quality, safer streets, and brighter, more beautiful city neighborhoods. And you will be working with a team that is committed to your success – helping you transform your City.

We thank you for the opportunity to submit this response and we look forward to working with you. The information contained in this proposal accurately describes the services to be provided.

Robert G. Campbell, President and COO

B. Company Profile

- Provide a description of the firm's company or business, its purpose, history and successes, including the number of years in the LED street lighting business and major successes.

TEN is one of the nation's leading LED street lighting design, conversion, and Smart Cities technology integration companies. TEN's smart street lighting solutions deliver lower costs, better lights, safer streets, and brighter, more beautiful communities.

TEN has been in the energy-efficiency and smart city solutions business since its inception in February 2012 and has operated under this firm name for nearly seven years. It is important to note that TEN's in-house team has designed and implemented over $700 million in energy efficiency projects for a multitude of customers over the past several decades. And TEN's seasoned professionals have, in the past, worked in material roles for some of the country's most well-known energy efficiency companies, including TEN, Siemens, Johnson Controls, NORESCO, Opterra, Chevron, and Constellation Exelon.

TEN is part of the Duquesne Light Holdings (DLH) portfolio of companies, which includes Duquesne Light Company and DQE Communications, LLC. Under the ownership of DLH, TEN has the full financial, operational, and technical support of a recognized energy industry leader. As a result, TEN will remain nimble and cost effective, but now offers a broader and more robust suite of fiscally sound, environmentally responsible energy efficiency products and services under the umbrella of a regional corporate leader.

TEN's commitment to offering street lighting and Smart City technology solutions is evident based on the credentialed, high-caliber team assembled at TEN to provide world-class energy efficiency projects – including a significant focus on performance contracting which encompasses, to a large degree, municipality-wide roadway and street lighting LED conversions, city and college-owned parking facility upgrades, as well as smart energy efficiency projects. *This is our exclusive focus*. There are few, if any, energy and utility situations TEN has not already encountered and successfully addressed (even most recently) for other street lighting clients such as the cities of Cleveland, OH, Portland, ME, Harrisburg, PA, and Danville, VA.

- List any similar projects completed or underway, the client/owner, and the approximate value of the work.

Year	Project	Number of Streetlights Converted to LED	Project Value*
2019	City of Cleveland, OH	60,000	$25M
2019	City of Belfast, ME	500	$0.3M
2018	City of Danville, VA	7,300	$1.0M
2018	City of Lewiston, ME	2,500	$1.0M
2018	Town of Scarborough, ME	1,100	$0.6M
2017	City of Portland, ME	6,500	$8.0M
2016	City of Scranton, PA	6,000+	$3.9M
2016	City of Harrisburg, PA	6,000+	$3.6M
2014	City of Baltimore, MD	7,000	$3.5M
2014	City of Bethlehem, PA	5,400	$3.9M

*Reflects overall project value.

- Describe your firm's experience developing projects that conform to relevant state laws, local standards, and local Public Utility Commission rules.
- Provide examples where the firm has successfully assisted municipalities with evaluation and acquisition of their streetlights from electric utilities.

Since most streetlights have a connection back to a utility's secondary supply line, there are typically multiple state, local, and/or PUC requirements with which TEN must comply when conducting a Streetlight Conversion and Enhancement Smart City project. In some cases, a patient approach is required to navigate a complex regulated environment.

In Harrisburg PA, we assisted the City with complying with PUC requirements as well as negotiating light purchases from the local utility (PPL). For the communities of Portland, Scarborough, and Belfast, Maine, we assisted those municipalities with obtaining their streetlights from the local utility (Central Maine Power) and navigate a somewhat challenging set of requirements from a recent PUC ruling. The PUC requirements were initially so restrictive, that no contractors were able to conduct business in the state. It was TEN's effort on behalf of our clients that led to a unique workflow being created with the local utility and local contractors, and advanced training coordinated by our construction team, which led to the first lighting buyback and conversion to take place in the state of Maine.

We consider understanding these regulatory requirements a core part of our capabilities and intend to provide that expertise for Peoria if we are fortunate to be selected.

- Describe the firm's experience deploying smart city and IoT (internet of things) technology as part of LED street lighting projects.

TEN has been helping cities explore what "Smart City" means for several years. Due to the ubiquity of light poles in a city, and the inherent availability of power, each community's streetlight infrastructure is a great platform on which to build additional Smart City technologies and applications.

However, not all Smart City applications will "fit" into a streetlight network. Either due to bandwidth requirements, or proximity to other assets, sometimes Smart City systems and devices can't or shouldn't be co-located with the streetlight network.

TEN has helped a number of cities understand the factors that lead to a properly architected Smart City network and assisted them in building a system that is robust and effective, and fits into their budget.

In Portland, Maine, the City leadership had an appetite for a wide range of Smart City applications, and we deployed for them, as part of our contract, traffic-easement technology, public Wifi, renewable energy solar panels, EV charging infrastructure, environmental sensors, pedestrian detection, and other special projects. But in Cleveland, Ohio, their interests initially were much narrower. The Mayor and his team knew they wanted a transformative LED-lighting project and wanted more video-surveillance technology for high-crime areas within their City, so TEN focused on those two areas initially, while consulting on other related Smart City technologies and applications as the project progressed.

In some other cities (Lewiston, Maine, Danville, Virginia, and Harrisburg, PA) the City leadership wanted to focus on basic lighting upgrades, but they wanted to approach the project in such a way that they could set themselves up for future Smart City upgrades. Each City had different requirements and ended up using different lighting control platforms to achieve their goals each time looking to TEN to be their trusted advisor on the topic.

- Describe partnerships with vendors, technology providers, or service providers and describe how these have added value to previous projects.

TEN's business model combines the best of both worlds: we bring the best technologies from around the country or around the world and combine with the best local talent for skilled labor and installation work. TEN maintains relationships with the best national luminaire manufacturers (AEL, Cooper, Cree, GE, Leotek, Philips) and lighting control manufacturers (Acuity, Cimcon, DimOnOff, Itron, Philips, Sensus, Telematics, Telensa, Ubicquia, Verizon). As these manufacturers and new aspiring competitors develop new technologies, TEN tracks these developments and brings the most promising options to each of our municipal customers.

When we work with each City, we consult with them to understand the project factors that are important to the City, then bring a small subset of luminaire and control manufacturers to the table, and invite the "pre-qualified" finalists to competitively bid on that City's project. This ensures that the technology match is good for the city, and the price is the most competitive.

For the rapidly changing Smart City space, TEN also maintains a large network of manufacturers and technology partners to cover virtually every conceivable Smart City category. This landscape is evolving quickly, with new companies entering the market each year.

TEN looks forward to leveraging this powerful partner network to deliver a world-class project for the City of Peoria.

Luminaire Manufacturers
AEL
Cooper
Cree
GE
Leotek
Philips

Lighting Control Manufacturers
Acuity
Cimcon
DimOnOff
Itron
Philips
Sensus
Telematics
Telensa
Ubicquia
Verizon

C. Key Personnel

Identify key personnel that would be employed for this program and provide a detailed resume of their relevant experience, education & successes. Key personnel should demonstrate ample experience in managing turn-key street lighting projects.

TEN's team below consists of industry veterans that each have up to 25 years of experience in the energy services industry. Our company was created to offer energy efficiency under an altogether different price level and with economic terms to create unmatched value for our clients. TEN's key personnel have worked for leading energy services companies such as TEN, Constellation an Exelon Company, NORESCO, Johnson Controls, Siemens, Opterra, Chevron, and others.

Please see Appendix 1 for an Organizational Chart and detailed key personnel resumes.

When it comes time for installation, TEN's dedicated project delivery staff of experienced project and construction managers specialize in delivering Streetlight conversion and enhancement solutions as planned on budget and on time. After TEN has competitively procured all luminaires, other materials, and control system components (approved by the City during the design phase), the installation will begin. TEN's project management is key to a quality installation, and we guarantee that there will be accountable TEN employees assigned to this project throughout the installation. The TEN team is as follows:

Jim Schriver – Director, Smart City Solutions
Mr. Schriver is focused on leveraging technology to help cities enhance engagement with residents and guests and improve its efficiency in delivering services to its constituents. With his background in communications, networking, and Internet of Things, Jim helps leaders understand how they can best leverage the promise of Smart City technologies for practical use in their city. As TEN's Director of Smart City Solutions, Mr. Schriver will assist in the overall development of the project and manage project-related communications to ensure effective coordination and customer satisfaction. He will also advise on Smart City applications that may be considered within the project.

Joe Statler – Director of Construction
Mr. Statler is responsible for all aspects of project construction, including but not limited to cost-estimating, coordination of subcontractors, inspections and commissioning, quality assurance and quality control. He also manages relationships with supplier and contractor Network Partners. As the Project Manager, Mr. Statler will be responsible for all onsite project management and subcontractor supervision overseeing field installations. He will ensure the worksite is safe and supervised in an effective and efficient manner. Mr. Statler will be the liaison between the construction team, engineers, and designers and the owners and stakeholders.

Mike Schneider, LC, CLEP, CEM – Director of Auditing and Design
Mr. Schneider's responsibilities include researching, designing, and overseeing field installations and testing of high-quality, cost-effective lighting and water conservation measures. Mr. Schneider will research, design, and oversee field installations and testing of high-quality, cost-effective lighting and water conservation measures. His extensive field experience allows him to improvise and revise designs to best meet all situations. Having worked with nearly 60 lighting manufacturers, he knows the products, how they work, and the best applications for each option.

Bobby Hall – Senior Project Manager
Mr. Hall is responsible for all onsite project management and subcontractor supervision during construction. He ensures the worksite is safe and supervised in an effective and efficient manner. Mr. Hall

is the liaison between the construction team, engineers, and designers and the owners and stakeholders. In this role, he facilitates effective communication, safety decision-making and problem solving. With over 18 years of experience in construction. Mr. Hall is adept at project supervision, customer service, project development and management, building and installing.

Joe Richards – Senior Project Manager
Mr. Richards is the liaison between the construction team, engineers, and designers and the owners and stakeholders. In this role, he facilitates effective communication, safety decision-making and problem solving. With over 11 years of experience in construction. Mr. Richards is adept at project supervision, customer service, project development and management, building and installing. In conjunction with the Director of Construction, Mr. Richards plans, coordinates, implements and concludes projects per specifications, deadlines and budget, with an overall objective of customer satisfaction.

Robert Campbell, PE, MBA – President and COO
Mr. Campbell will manage goal development and strategic planning. Mr. Campbell's primary responsibilities will involve coordination and assignment of resources and project personnel/subcontractors to ensure construction and engineering audit timelines are met.

In addition to the team listed above, TEN's staff possess several different certifications, outlined in the table below.

Number of Staff Members	Certification
6	**PE – Professional Engineer**
8	**CEM – Certified Energy Manager**
2	**CPM – Certified Project Manager**
1	**EBCP – Existing Building Commissioning Professional**
1	**CBCP – Certified Building Commissioning Professional**
1	**BAP – Building Analyst Professional**
4	**CMVP - Certified Measurement and Verification Professional**
1	**DGCP - Distributed Generation Certified Professional**
2	**PMP – Project Management Professional**
1	**LC – Lighting Certified**
1	**CLEP – Certified Lighting Efficiency Professional**
2	**LEED GA - Green Associate**

D. References

Include a list of at least three (3) projects that the Service Provider has successfully completed an LED retrofit and provide associated references and contact information for the persons or organizations that engaged the Service Provider. By submitting a proposal, the Service Provider consents to City contacting these references, and consents to City also contacting any other organization for the purposes of evaluating the Proposal.

Municipality/State	Contact Information	Construction Start	# of Lights Converted	Smart City Application Development
City of Portland, ME	Troy Moon—Sustainability Coordinator thm@portlandmaine.gov (207) 756-8362	January 2018	6,500	Yes
City of Harrisburg, PA	Wayne Martin, PE—City Engineer wsmartin@cityofhbg.com (717) 315-4255	November 2015	6,000	Yes
City of Cleveland, OH	Larry Jones – Program Mgr, Public Safety Ljones4@city.cleveland.oh.us (216) 664-3733	June 2019	~18K of 60K	Yes
City of Bethlehem, PA	Michael Alkhal – Dir. of Public Works malkkal@bethlehempa.gov (610) 865-7050	November 2017	5,841	No
City of Danville, VA	J. Gary Via – Director of Purchasing viajg@danvilleva.gov (434) 799-6528	June 2019	3,065+	Consulting
City of Lewiston, ME	Dennis Caron—Electrical Superintendent dcaron@lewistonmaine.gov (207) 513-3078	January 2019	2,550	Consulting

Please see Appendix 2 for more detailed project references, including descriptions of the scope of work.

E. Approach

Describe the approach and/or process proposed to address the project requirements. Include any notable methodologies, tools and techniques, and their respective suitability to this project. Also provide a project plan that reflects your proposed approach/process and demonstrates your ability to meet the milestones.

TEN's Approach

Designing a smart street lighting system for an entire city can be complex. The City of Peoria will require a high level of coordination, expertise, specialization, and experience to deliver the desired result of new street lights (equipped with technology that will enable the installation of a controls system if desired), possible infrastructure improvements, and positioning the City for any current and future smart city technology integration. TEN will utilize proven methods, tools, and techniques to deliver a project that meets and even exceeds the City's expectations.

TEN has been a first mover nationally, helping cities of various sizes upgrade their street lighting systems. The team at TEN has done everything from developing a street lighting design to helping facilitate the procurement of materials to ensuring that all ideas are communicated with installation sub-contractors so that our customers receive the absolute best prices in the marketplace. Because of TEN's turn-key role on numerous projects**, including the direct purchase of millions of dollars of street lighting and related lighting materials from the likes of Philips, Eaton/Cooper, GE, Leotek, Holophane (AEL), and CREE,** TEN has established substantial and diplomatic manufacturer relationships resulting in TEN's ability to analyze for our customers and then to deliver to them the highest quality commercialized lighting and smart city technologies, at the absolute lowest possible cost.

To meet the needs of the City, any contractor or manufacturer will require significant experience serving a city as well as being well versed in the latest smart lighting technologies. TEN is intimately familiar with the significant coordination needs of a street lighting project and TEN will design, develop and deliver to the City the best possible project at the lowest cost – **by driving down the costs of each project component – specifically including labor and material – at every level.**

General Scope Understanding, Project Goals, and Objectives

TEN believes that clear communication and meeting the City's expectations every step of the way from the initial audit through the construction process and training the City on new technologies and reporting results are all key components to successful project coordination and implementation. TEN will work closely with Peoria to help prioritize and to ensure that the project is implemented on-schedule, as budgeted, and that the benefits of the project survive for the long term.

TEN will work with Peoria to meet all goals related to design, product procurement, and installation, and TEN is committed to working with the City to meet and exceed project goals:

- For the City: TEN will produce a final design plan that maximizes energy and cost savings, that improves standardization while reducing the variety needed for inventory, and that matches communicated needs and improves overall public safety.
- For the City: TEN will produce an Inventory Audit Report that will provide the desired information to secure funding and/or to provide further economic justification for remaining project-related costs, including locating each new asset by its GPS location – with 100% accuracy - rather than a 10-15 feet margin of error.

1. Audit

TEN will conduct a City-wide sample photometric field survey and audit, delivered to the City of Peoria and sortable by asset, street, neighborhood, district, and by roadway type (access road, two-lane, etc.). The audit will verify compliance with existing regulations and lighting standards, address any deficiencies in the current street lighting systems, and will address any over-lit or under-lit areas of Peoria.

Data collected, concerning over-lit areas and discrepancies in lighting uniformity or irregularities in lighting levels, will be used in preparation for reducing installed wattages to optimize energy savings to benefit the economics and payback of the project, while at the same time delivering recommended light level standards. Additionally, this data will be given to the City in an electronic file that can be seamlessly used with the City's existing GIS software.

The data associated with under-lit areas will be utilized to improve lighting levels in some areas to ensure greater public safety, security, and proper visibility. For this purpose, TEN has a fully-engineered process and dedicated audit team—equipped with the latest photometric measuring equipment—to inventory the existing lighting levels; the result of which are accurate, street-level field measurements. In addition to photometric results, TEN's inventory audit also gathers additional details and characteristics of the entire system.

TEN's analysis will not only completely and accurately identify and inventory all assets of the street lighting system, but will also be cross-checked against the latest inventory data, to the extent available and from actual bills, provided by the City of Peoria and uploaded onto TEN's audit platform, to reveal any discrepancies. This will allow TEN and the City of Peoria to correct the data at the field level, at the time it is discovered.

TEN's city-wide asset inventory audit, designed to facilitate a seamless transition to TEN's project lighting design and installation, can capture each of the following electronically:

Variables to be Collected – Base Survey Information, including Verification and GIS Level Mapping

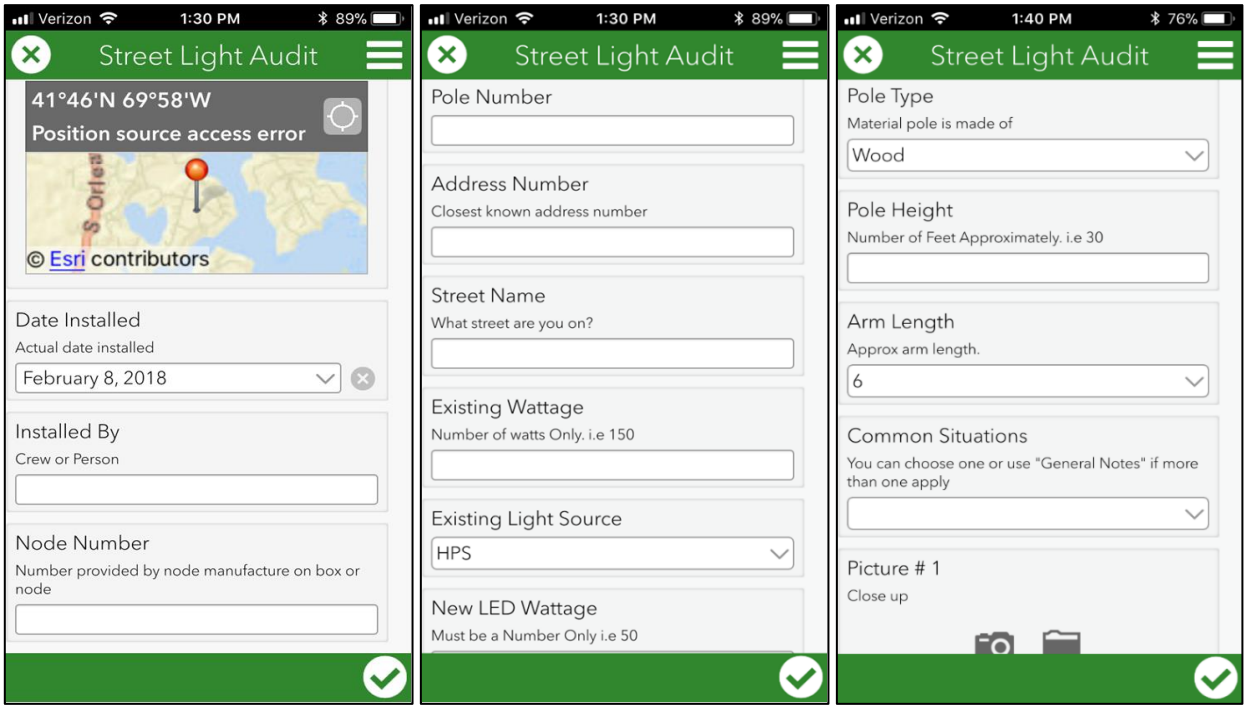
1. All current streetlight luminaires;
2. Luminaire styles and types;
3. Wattages for all luminaires;
4. Establish each pole's GPS location (with 100% accurate GPS location technology);
5. Cross reference with the City's existing asset inventory and lighting level and wattage information to identify inconsistencies in lamp type and wattage uniformity;
6. Current condition of pole and mast arms and;
7. Notation (comments and/or photos) of visual infrastructure issues related to poles and wiring or tree/limb obstruction or interference
8. Confirmation of ownership and maintenance for each luminaire and pole; and
9. Compliance with state roadway lighting requirements (where necessary).

Optional Audit Information:

1. Roadway widths;
2. Discrepancies or irregularities in lighting levels;
3. Pole height of each asset; and
4. Values and averages for lighting levels and uniformity; and compare them to current lighting standards, IES recommendations and any other specific City requirements.

TEN will collaborate with the City of Peoria through a final scoping analysis of the audit. Additionally, daily or weekly status reports will be made available through TEN 's **GIS LIVE TRACK** system for each location to track the progress of the audits. Using our mobile-based inventory audit program, Peoria officials will be able to access audit updates on the progress of the inventory assessment.

The following is a sample depiction of the system that will be used to collect data and to report to the City of Peoria daily or weekly updates to the audit provided through TEN's mobile-based audit platform.

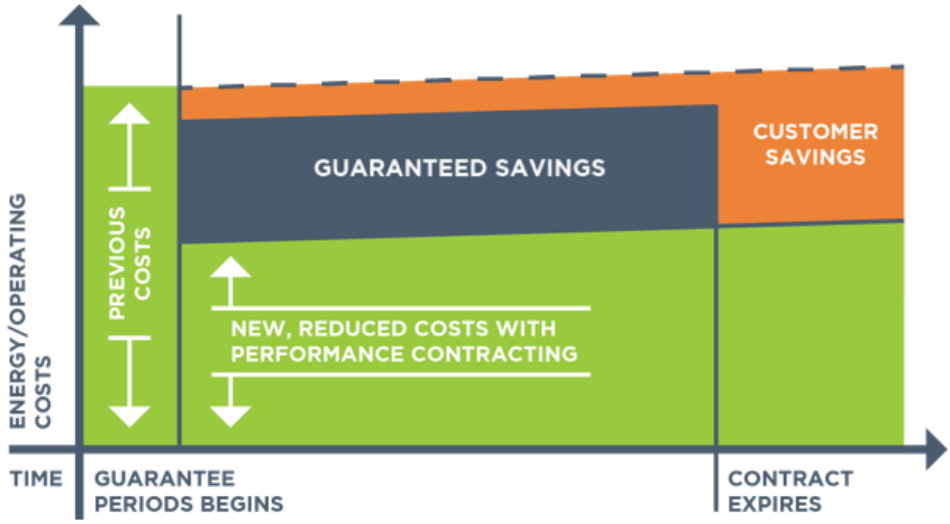


2. Financial Stability and Capability

Service Provider should demonstrate the capacity to finance street lighting projects by having financed or been part of a financing project using an Energy Savings Performance Contract (ESPC).

- Should the City opt for this type of financing, the Service Provider must produce an ESPC contract at the time of opt in.
- Service Provider must have experience with a range of financing mechanisms in order to advise the City on the most advantageous approach.

TEN is a financially stable, capable, and well qualified to provide the City of Peoria with custom financing options for funding 100% of the project. Because the economic and financial structure of each project is just as important as the technical outcomes, the proven financial capabilities of our team will result in the lowest possible cost financing options available at the time of financing. Since the streetlight costs are budgeted annually, the significant savings generated by an LED upgrade project will finance the capital costs required to complete the project, and often create additional cash flow that can be invested into important City projects – including Smart City initiatives.



Our team's experience in creating project financing for municipal customers over the past several decades will enable TEN to assist Peoria in meeting its internal financial requirements. Financing structures can vary based upon the types of equipment and systems to be installed, the available savings to be leveraged, and the type of accounting recognition and treatment requested by the City. TEN will customize the terms of our contract for the City of Peoria to ensure that the City receives the absolute lowest cost financing.

TEN does not have any monetary interest in financing the project, nor will TEN receive any commissions related to a financed project should TEN introduce the City to an eventual funding source.

2.05%
10 Year
Municipal Lease

TEN recently obtained aggressive finance rates for a Street Light upgrade and Smart City installation

Tax-Exempt Lease Purchase Option

A third-party funded, tax-exempt lease is a common method of funding LED street lighting conversion projects. The tax-exempt lease structure generally offers the advantage of quick availability of funding, low issuance costs and flexible payment terms that can match up to the savings cash flow, thereby always assuring the City borrowing the funds is cash flow positive, or at the very least, neutral.

3. Design

There are important aesthetic, performance, operational, and ethical decisions that must be made when deciding on the street lighting package and installation configuration. These include determining the lighting levels required to accomplish the objectives; balancing the cost, energy efficiency, public safety, maintenance regime, and life cycle of the product chosen; choosing a luminaire and pole style; addressing sky glow and light trespass through cut-off options; consideration of control systems; deciding on a light curfew (if appropriate); deciding on pole height and spacing; and evaluating the effect of lighting on nearby ecological habitats, such as parks, greenways, and riparian corridors. We discuss a few of these items for consideration in detail within this section, because important design decisions are informed by these considerations and the quality of the field audit.

The main goal of a TEN-converted streetlight system is to ensure that safety, security and visibility are maintained throughout the City of Peoria by ensuring appropriate lighting levels. At the same time, the volatility of electricity markets, how electricity is priced into the market and, the seemingly inevitable rise in electricity prices, require TEN to focus directly on reducing excess energy consumption wherever possible to offset all costs of the project.

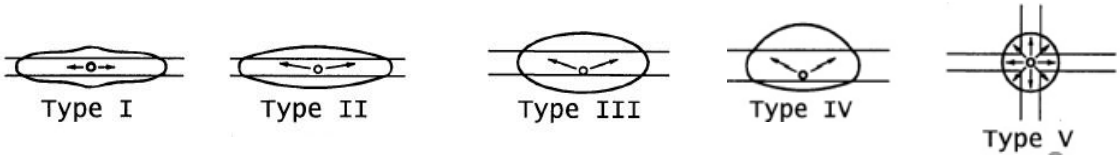
In addition to the goal of improving safety, security and visibility for residents, motorists, cyclists and pedestrians, TEN's design will detail and verify lighting levels and discrepancies in uniformity of existing installations, and will identify any areas requiring corrective action to ensure that, municipality-wide, the lighting system, designed and installed by TEN, will be consistent with nationally recommended lighting level standards post-conversion.

Importantly, TEN shares the City's perspective that, although IES RP-8-14 recommends adequate light levels for the safety of pedestrians, cyclists, and vehicles, existing pole placements limit the degree to which IES standards can be met. Therefore, TEN has independently developed design methodologies that will best deliver adequate lighting for the City for the expected product life cycle while at the same time supporting Peoria's specific goals for the project. And therefore, IES standards may not be the standard selected by the City of Peoria.

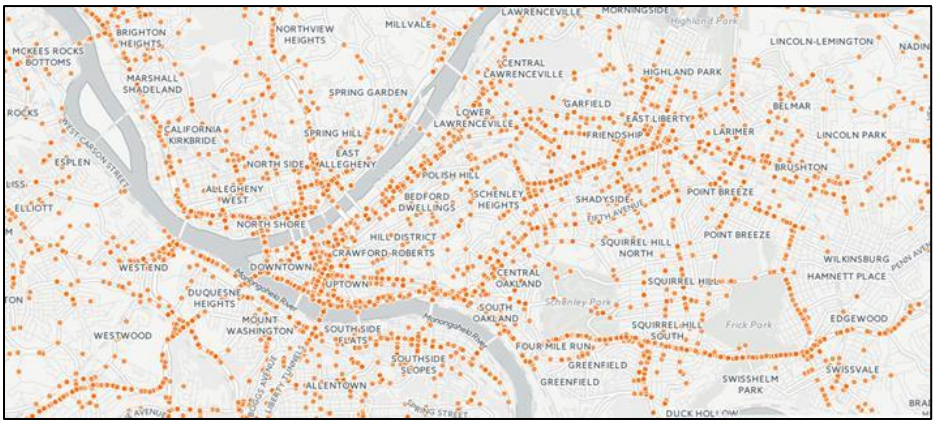
For example, enhanced public safety/homeland security is the primary focus of the City of Baltimore's Phase I LED conversion project. So much so, that the City asked TEN to evaluate luminaires best suited in high crime areas to shine a light on potential criminal activity – with the added feature to be able to dim the LED in the future if necessary, to preserve its life cycle. TEN's customized design methodologies (based on life cycle costs and luminaire performance analyses), after having been fully understood by Baltimore, were used by Baltimore to make its final selection on luminaires.

Appropriate Lighting – Pedestrian/Vehicle and Bicycle/Vehicle Crash Data, Light Levels/Spacing, Localized Land Uses, Volumes of Bicycle Activity, and Unique Neighborhood Activities.

In the City of Harrisburg, PA, TEN was also asked to identify areas where lighting could be increased – public safety corridors, parking enforcement zones, and high crime locations, and then to recommend the most appropriate light levels and technology to meet those specific goals. TEN's design methodologies and recommendations were used by Harrisburg to inform their final luminaire selection decision.



Reported Bicycle Crash Data Since 2004, Pittsburgh, PA



Addressing Localized Land Uses

TEN has experience working with cities to address lighting in areas like parks and waterfronts or where cultural facilities or public safety buildings require specialized lighting design. For example, TEN has received positive feedback from Fire officials in the City of Harrisburg regarding the new LED streetlights. Both firemen and local residents of Harrisburg feel the new lighting is an asset to the area and that it encourages better community engagement.

4. Project Management

TEN's team has managed LED conversion projects of nearly identical size and complexity to the City of Peoria in Harrisburg, Bethlehem, Baltimore, and most recently Scranton. TEN's experienced in-house project managers will utilize our automated platform to update the City on project success, in addition to regularly scheduled in-person progress meetings. Starting in the design phase, and continuing through the implementation phase, TEN will develop our partnership approach with Peoria to identify the personnel required to efficiently execute the project.

More detailed information about TEN's Project Team can be found in Appendix 1.

TEN believes that clear communication and meeting (or exceeding) the City's expectations every step of the way through the construction process is key to successful project coordination and implementation and garnering an excellent project reference from the City. TEN will partner with the City to help prioritize and to ensure that the project is implemented on-schedule, as budgeted and that the benefits of this program survive for the long term.

When TEN is invited to assist in optimizing equipment selection and system design, our team goal is purely to serve the City with a high-quality project implementation which saves operating costs (energy and maintenance) while delivering a street lighting system providing optimal comfort and safety, and other required environmental needs. TEN's team researches, designs, and oversees field installations and testing of the high-quality, cost-effective lighting conversion project. TEN will assist the City in analyzing the efficiency and other characteristics of several world-class LED luminaires for possible selection. TEN's independence from any manufacturer enables us to provide the City of Peoria with the most appropriate lighting solutions that efficiently address specific needs – further enhancing your results. TEN's engineers and lighting designers have been able to diplomatically work with product manufacturers and suppliers on a national level to help in the selection of equipment and systems that can deliver a lower life cycle cost and better controls functionality.

Our team has experience project managing multiple projects simultaneously – from LED street lighting upgrades to smart city technology implementations to parking garage upgrades and more – and TEN will bring that same level of expertise, experience, and coordination to the City of Peoria.

Implementation

The major general steps of a TEN construction implementation plan are as follows:

Initial Project Startup

Immediately upon award of the project, TEN will further develop the partnership strategy with the City and identify all of the personnel required to efficiently execute this project. Once all the members of the project team are identified, the expectations for the project and its implementation will be clearly outlined. The project's implementation milestones will be established in the contract and in more detail in the project's regular construction meetings. These milestones will be confirmed regularly through clear lines of communication which have been established to facilitate a successful project implementation.

Procurement

As each project submittal is approved by the City, purchase orders will be issued for materials and subcontracts entered into for installation. TEN will carefully evaluate the pre-identified subcontractors to determine the most appropriate fit for the project scope. TEN's independence from any particular subcontractor or manufacturer ensures that it is able to provide the most appropriate solutions that efficiently address the City's needs. As a result, TEN can develop an objective and unbiased partnership with the City by implementing the lighting equipment and system upgrades that generate maximum returns often times through local community resources.

FOUR CRITICAL STEPS that TEN has identified in the project implementation phase, that require precise record-keeping, and that are handled directly by TEN's Project Manager are as follows:

1. MONTHLY Utility Notification of work complete - Allows savings to be "activated" on a monthly basis
2. MONTHLY Rebate Notification of work complete - Keeps a steady rebate cash flow returning to customer
3. MONTHLY Customer Invoicing of work complete - Systematically spaces project costs to customer
4. MONTHLY Subcontractor Invoicing of work complete - Provides cash flow for equipment and miscellaneous costs

Construction

Regular meetings will be held with the City to establish construction guidelines and TEN will also work with the City to minimize the impact to the City's operation of the construction activities. Standard project management tools, such as a Gantt chart and detailed meeting minutes will be used to track progress. TEN prides itself on a proven track record of successful project implementations in varied settings which include everything from installations in offices, classrooms, gymnasiums and major sports stadiums, to special access situations in correctional and medical facilities – and certainly street lighting projects where traffic and pedestrian safety is of critical importance.

Inspections & Reporting

As part of our Quality Control program, continuous inspections during construction are performed to ensure compliance with the scope of work and any City of Peoria requirements. TEN's project managers and engineers, along with the City's representatives, will inspect the construction of the project.

Project Commissioning Plan

In the street lighting industry, the term "commissioning" is often applied to lighting control system activation and applies to the entire City and its energy-using systems, including luminaires and controls. System activation and functional testing are steps within a larger process of ensuring all installed systems satisfy the design intent and owner requirements.

Using a Global Positioning System ("GPS") and a GPS functional control node embedded into each luminaire, TEN installs and activates the new streetlights to be able to identify themselves and network instantly ("real time"). This approach reduces the cost of programming each luminaire and eliminates on-site commissioning.

If the City's street lighting configuration resides on its own Geographic Information System ("GIS"), various types of lights including traffic signals, decorative, park lights, and various types of decorative lighting can be combined with the existing streetlights ("layered GIS"). TEN has (for other cities) and, will for Peoria, integrate the LED converted streetlights into Peoria's GIS as the City sees necessary to do so.

Project Acceptance

TEN's Project Manager will work in conjunction with the City's assigned project representative(s) and other personnel to make sure all systems, luminaires and equipment are performing as designed. Any deficiencies will be identified as punch list items and will be used to track and correct the deficiencies. Once the City and Project Manager have signed off on the completion of the Project, it is turned over to the City of Peoria's street lighting operations personnel. The Project Acceptance date marks the start of the material workmanship warranties from the manufacturer, and the savings measurement period.

In addition, a functional customized Operations and Maintenance (O&M) Manual will be provided to help optimize operation to provide significant energy savings and other lighting upgrade-related benefits. TEN views its O&M Manual as a risk reduction strategy, which will help systems run efficiently, function properly, and deliver its full life expectancy of value.

5. Technology Procurement

a. Fixtures - Describe the process for selecting appropriate fixtures.

There are important aesthetic, performance, operational, and ethical decisions that must be made when deciding on the street lighting package and installation configuration. These include determining the lighting levels required to accomplish the objectives; balancing the cost, energy efficiency, public safety, maintenance regime, and life cycle of the product chosen; choosing a luminaire and maybe a pole style; addressing sky glow and light trespass through cut-off options; consideration of control systems node or photocell; deciding on a light curfew (if appropriate); deciding on pole height and spacing; and evaluating the effect of lighting on nearby ecological habitats, such as parks, greenways, and riparian corridors.

The main goal of a TEN-converted streetlight system is to ensure that safety, security and visibility are maintained throughout the City of Peoria by ensuring appropriate lighting levels. At the same time, the volatility of electricity markets, how electricity is priced into the market and, the seemingly inevitable rise in electricity prices, require TEN to focus directly on reducing excess energy consumption wherever possible.

TEN Will Deliver World-Class Options for Peoria

TEN will work with the City to determine if incorporating a pilot would help in the education of the new technologies available and in the final selection of a new LED street lighting luminaire. As a feature of

TEN's approach to lighting design and street lighting, if the City decides to engage in a pilot process, this process will not result in any additional installation costs. TEN will work with the lighting manufacturers and the distributors to negotiate free samples.

TEN will work with Peoria to obtain products for comparison that detail each characteristic – everything from color temperature to ease of installation to length of manufacturer's warranty – and that are appropriate for various locations throughout the City. Special consideration will be given to areas where Peoria may want increased or decreased lighting. Again, in Baltimore and in Harrisburg, TEN developed a lighting design that allowed City officials to improve light levels in target communities and safety corridors.

b. Smart Controls, IoT, and other Smart City solutions

TEN recommends the serious consideration of using intelligent lighting controls in every project. While a small number of projects may not warrant controls, most cities can benefit greatly by integrating intelligent streetlight controls into their LED upgrade project. TEN looks forward to outlining those benefits for the City of Peoria if we are fortunate to be selected for this project.

In addition to the cost/benefit discussion, we will present the City with the financial analysis, to show the additional cost required for controls, and help the City assess the expected return from that investment.

The ultimate choice of lighting control platform will be heavily influenced by the Smart City applications you referenced in your question (environmental sensors, traffic/parking/public safety applications). TEN looks forward to exploring these applications with the City and providing input and guidance.

6. Installation & Maintenance

Based on the finalized design, the Service Provider will describe their approach to installation and maintenance or oversight as an owner representative.

Description of Work

TEN will provide and Investment Grade Audit to the City of Peoria, detailing the scope of work to be completed. Additionally, once construction begins, TEN will manage and maintain daily progress information and track quantities, contractor payments, and change orders. We will prepare and recommend for approval, periodic installation quantities satisfactory to the City.

Installation Schedule

TEN will develop, monitor and maintain a master project schedule for the entire project to integrate and coordinate the activities of the various ongoing design and construction activities and contracts.

TEN will adhere to the required installation schedule unless otherwise agreed upon by the City and TEN to change the timeframe for installation based on the number of luminaires and smart cities technologies to be installed.

Reference Standards

There are important aesthetic, performance, operational, and ethical decisions that must be made when deciding on the street lighting package and installation configuration. These include determining the lighting levels required to accomplish the objectives; balancing the cost, energy efficiency, public safety, maintenance regime, and life cycle of the product chosen; choosing a luminaire and pole style; addressing sky glow and light trespass through cut-off options; consideration of control systems; deciding on a light curfew (if appropriate); deciding on pole height and spacing; and evaluating the effect of lighting on nearby ecological habitats, such as parks, greenways, and riparian corridors.

The main goal of a TEN-converted streetlight system is to ensure that safety, security and visibility are maintained throughout the City of Peoria by ensuring appropriate lighting levels. At the same time, the

volatility of electricity markets, how electricity is priced into the market and, the seemingly inevitable rise in electricity prices, require TEN to focus directly on reducing excess energy consumption wherever possible to offset all costs of the project.

In addition to the goal of improving safety, security and visibility for residents, motorists, cyclists and pedestrians, TEN's design will detail and verify lighting levels and discrepancies in uniformity of existing installations, and will identify any areas requiring corrective action to ensure that, municipality-wide, the lighting system, designed and installed by TEN, will be consistent with nationally recommended lighting level standards post-conversion.

Importantly, TEN shares the City's perspective that, although IES RP-8-14 recommends adequate light levels for the safety of pedestrians, cyclists, and vehicles, existing pole placements limit the degree to which IES standards can be met. Therefore, TEN has independently developed design methodologies that will best deliver adequate lighting for the City for the expected product life cycle while at the same time supporting Peoria's specific goals for the project. And therefore, IES standards may not be the standard selected by the City of Peoria.

For example, enhanced public safety/homeland security is the primary focus of the City of Baltimore's Phase I LED conversion project. So much so, that the City asked TEN to evaluate luminaires best suited to "overdrive them" in high crime areas to shine a light on potential criminal activity – with the added feature to be able to dim the LED in the future if necessary to preserve its life cycle. TEN's customized design methodologies (based on life cycle costs and luminaire performance analyses), after having been fully understood by Baltimore, were used by Baltimore to make its final selection on luminaires.

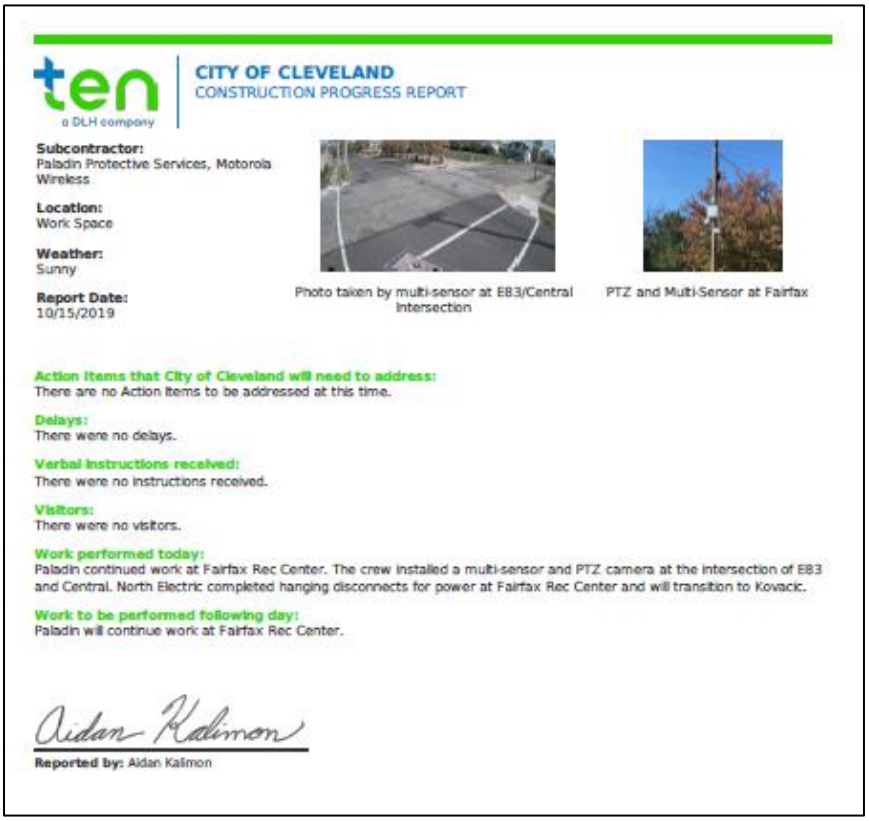
Submittals

TEN believes that quality control starts in the development stage and continues all the way through construction and measurement and verification. An effective energy savings program requires a delicate balance between engineering and construction management. We establish this balance by involving the construction team during the development phase of the project to ensure the constructability of the lighting and lighting controls solutions we propose. The ultimate success of any energy savings project is measured by the ability of the installed systems to achieve the projected savings targets and to meet environmental expectations, while the success of a brilliant design is predicated by its ability to be constructed. TEN takes a comprehensive approach to development and engineering to establish this critical balance. This approach is possible because TEN utilizes in-house design, engineering and construction management.

Our design, engineering and construction teams work closely with each other to develop the scopes of work that are competitively bid to the City's qualified vendors and contractors to ensure that the design intent is met, the project/system can be installed properly and maintained, and the construction team is very familiar with the project before installation begins. This seamless and transparent hand-off to construction ensures quality control. TEN's team is also open to our subcontractors' input when it improves the design and/or lowers the cost to provide a better solution for the City.

Reporting to TEN's Director of Construction, the on-site 30-hour OSHA Certified Project Manager is accountable for the management of all assigned project construction activities taking place. The Project Manager, through their on-site management, will ensure that the worksite is safe, supervised and managed in an effective and efficient manner for the City. Maintaining and managing daily communications with and directing the activities of all subcontractors is key to the success of the project. Our project managers utilize TEN's proprietary cTEN application to quickly and efficiently report worksite progress, concerns and work scheduled to be performed the following day.

This communication (depicted below) is shared with both our Director of Construction and designated personnel of the City as another procedure to monitor quality control.



ten a DLH company

CITY OF CLEVELAND
CONSTRUCTION PROGRESS REPORT

Subcontractor:
Paladin Protective Services, Motorola Wireless

Location:
Work Space

Weather:
Sunny

Report Date:
10/15/2019

Photo taken by multi-sensor at EB3/Central Intersection

PTZ and Multi-Sensor at Fairfax

Action Items that City of Cleveland will need to address:
There are no Action Items to be addressed at this time.

Delays:
There were no delays.

Verbal instructions received:
There were no instructions received.

Visitors:
There were no visitors.

Work performed today:
Paladin continued work at Fairfax Rec Center. The crew installed a multi-sensor and PTZ camera at the intersection of EB3 and Central. North Electric completed hanging disconnects for power at Fairfax Rec Center and will transition to Kovacic.

Work to be performed following day:
Paladin will continue work at Fairfax Rec Center.

Aidan Kalimon

Reported by: Aidan Kalimon

Quality Assurance and Warranty

TEN will conduct spot inspections, a final inspection, and semi-final inspection if directed, and generate a punch list of work to be completed for each contract. TEN will monitor the punch list until it is complete. TEN will provide written notice to the City when all project work is complete and recommend project acceptance.

TEN will provide an individual experienced with safety programs in construction to serve as the City's agent and representative in matters of construction safety, specifically one with experience which directly relates to state and local safety laws, including statutes, rules, regulations, and ordinances. Tasks will include the following: a) Review the timeliness of safety and accident prevention procedures on the project and review and accept Contractor Safety Programs; b) In the event certain individuals are found to be in violation of safety requirements, direct the subcontractor to remove the individual employee, or to invoke any other contractual remedy deemed appropriate; c) Observe and monitor subcontractor compliance with OSHA, the City, and local and state laws and regulations; d) Periodically attend Foremen's 'tool box" safety meetings and evaluate effectiveness; e) Review and accept subcontractor emergency and safety plans and procedures; f) Organize and participate in monthly site inspections and report on findings; g) Continually coordinate the City's general and specific safety concerns with the Project; h) TEN's involvement in the Safety of the project shall in no way relieve or decrease the Contractor's obligation for safety.

Installation

TEN will conduct bi-weekly on-site job progress meetings for the project with Project Management representation in attendance as needed. We will attend/facilitate pre-job and preconstruction conferences and all job-related meetings. TEN will discuss issues and actions to be taken with all responsible parties, and dates when issues are to be resolved. TEN will review and negotiate costs for additional extra work. TEN's team can provide detailed engineer's cost estimates, and our project managers will document the contractor's work force for any extra work that may be required or requested.

Field Quality Control

TEN will provide daily management while the project is on-going. TEN's project managers will be available to coordinate with contractors, utilities, and City of Peoria operations personnel to evaluate progress and activity daily. TEN's project managers will also provide regular emailed progress reports and updates from our proprietary cTEN construction management program.

Adjusting and Cleaning

For each of its customers, TEN delivers a custom Operations and Maintenance (O&M) manual for luminaires and controls systems. Minimal maintenance is required considering 20-year luminaire life and extremely low failure rates of LEDs (i.e. less than 1% in TEN's experience). The development of the maintenance plan starts during the Audit phase of the project. TEN carefully evaluates operating procedures and characteristics so that the luminaires, controls, and ancillary equipment have the most appropriate maintenance plan. TEN's maintenance analysis process yields benefit because the systems can then be operated at the highest level of efficiency.

Disposal

TEN will develop the strategy, identify vendors, and manage the overall process. Collected materials will be gathered including but not limited to capacitors, mercury containing devices, drums, bulbs, and ballasts and placed in an accumulation area. For each project, accumulation sea containers will be stored at strategic locations for ease of disposal. These locations, when selected, will provide several advantages; most notably the fact that it is a covered and relatively sealed environment. Hazardous products will be kept in the original containers unless they are not re-sealable. The original material safety data sheets (MSDS's) will be retained and available for review by City of Peoria. If surplus product must be disposed, disposal requirements set forth by the local, State, and Federal regulations will be followed as applicable. During the collection of materials, the selected recycling and disposal management vendor will ensure and certify that the integrity of the equipment or containers is sound. If the integrity is compromised, the vendor will immediately re-pack the containers or equipment. Temporary containment, if required, will be constructed of polyurethane sheeting and oil socks. The sheeting will be placed under the affected areas and oil socks will be placed around the perimeter of the sheeting.

7. Construction Administration

Regarding Spot-Checks

TEN offers a full commissioning of luminaires not simply a spot-check to determine if installation procedures are followed.

TEN recommends maintenance on a time and materials basis due to the extremely low failure rate of LEDs (less than 1%) and the availability of "attic stock" to be provided by TEN as part of the project.

Alternatively, TEN will offer to undertake a maintenance protocol which also provides a labor warranty directly to the City, and administers the materials warranty provided by the luminaire manufacturer.

TEN's specifications for Installation and Maintenance Contractors will include, but will not be limited to the following:

- Description of work
- Required Installation Schedule
- Order of Streets/Areas to be converted
- Availability of Maintenance Services
- References
- Submittals
- Quality Assurance
- Safety Record
- Commissioning Assistance
- Warranty
- Installation Plan
- Field Quality Control
- Adjusting & Cleaning
- Disposal

Regarding Status Updates

In addition to the language listed above, TEN will also include language relating to platform training for TEN's proprietary project management software (cTEN), luminaire recycling, traffic control and flagging, obtaining permits, or any other goals required of the City, such as M/W/DBE participation goals.

Please see Section E. Approach, 1. Audit for more details on TEN's mobile-based audit platform.

Regarding Satisfactory Installation

After working with the City to determine the minimum requirements for installation and maintenance contractor(s), and after Invitations for Bids (IFB) have been issued by the City, TEN will review each bid to confirm which vendors have met the minimum criteria, and will deliver to the City a concise summary of those bids for purposes of evaluating desired services and selecting and approving subcontractors.

All subcontractors will perform their work under the direction of TEN's in-house construction project management and will be required to use TEN's cTEN technology platform (for project progress reporting) that will enable the City, and the TEN project team, to receive daily installation updates. Our project management team also will be responsible for training, preparing customized Operations & Maintenance (O&M) manuals, and overseeing project commissioning.

TEN will conduct spot inspections in accordance with the RFP, a final inspection, and semi-final inspection if directed, and generate a punch list of work to be completed for each contract. TEN will monitor the punch list until it is complete. TEN will provide written notice to the City when all project work is complete and recommend project acceptance.

8. Acquisition of Street Lights

The Service Provider will describe their experience and methodology for assisting municipalities in acquiring utility owned streetlights within their communities.

TEN has worked with numerous utilities across the country. While each utility is different, and utility/city relationships vary from each project, TEN understands the core concerns and approaches typically held by utilities. TEN takes a very collaborative approach when discussing streetlight ownership with a utility and is often able to find common ground which leads to a deal which makes sense for all parties. TEN's parent company is a utility holding company, providing additional relevance and credibility during these discussions.

TEN Utility Billing Structure Experience

Due to TEN's numerous streetlight projects across the country, working with many different utilities, TEN has become intimately familiar with utility streetlight billing structures.

Our work often includes a technical analysis of utility billing structure, including utility bill reconciliation. TEN is confident that we will be able to provide this same comprehensive level of understanding, experience, and successes to the City of Peoria.

9. Rebates/Incentives

The Service Provider will describe their experience and approach to managing rebates/incentives for streetlights on behalf of municipalities.

While rebates and incentives often vary greatly from region to region, TEN believes they are extremely important to leverage wherever possible. There appear to be rebates available to Peoria, and TEN intends to help maximize them to further improve the economics of your streetlight upgrade project. TEN has contacted Ameren regarding rebates for other cities in Illinois, and we look forward to doing so on behalf of Peoria.

Prequalification Application

TEN will repair and submit, on the City's behalf, a prequalification application with to begin the rebate and incentive program process and will follow through with such application until all amounts are received that are due to the City.

Rebate Program Submission

TEN will establish and maintain necessary records for any products eligible for rebates and will submit rebate applications per the program's instructions (as completed or at the end of construction) to Ameren. Upon receipt from the City, TEN will submit itemized receipts or invoices with the manufacturer, model number, and purchase price of each qualifying product in addition to supplying manufacturers' specification sheets, as well as submitting any other required documentation.

F. Value Added Services

As we have described elsewhere in this document, TEN believes there are tremendous opportunities for Peoria to leverage the streetlight infrastructure for various Smart City applications, including the possibility of offering additional value-added services.

TEN looks forward to working with the City to understand which applications are the most important to the City and offer different methods of achieving these applications. Some of these approaches would directly leverage the streetlight infrastructure, while others would simply leverage the economic savings

Services

TEN has the expertise and the national network available to guide the City during the implementation of all smart cities technologies, including but not limited to public Wi-Fi, smart traffic and parking management, interactive electronic communication, advanced lighting controls, environmental sensing, electronic vehicle charging, waste management technologies, smart parking, video surveillance, solar installations, and various other opportunities.

We look forward to bringing this expertise to the City of Peoria, to assist the City in determining which applications would be most impactful for the City's residents, workers, and visitors.

G. Additional Information

The Service Provider may provide other information that may be relevant for the review and evaluation of the prospective vendor's experience or capabilities.

Upgrading of Ameren-owned streetlights:

TEN recognizes the City's desire to explore an upgrade of the Ameren-owned streetlight fixtures. While there are no guarantees that Ameren will allow this to occur, TEN is interested in pursuing this negotiation with the utility on the City's behalf. Our recommendation, regardless of which integration partner Peoria would select, would be to proceed with the core City-owned light upgrade while pursuing parallel conversations with the utility. If a deal can be reached, the upgrade of the utility-owned fixtures could be added at the end of the City's light upgrade process, creating a reasonably smooth process with continuity and cost efficiencies.

Additional detail – References and Resumes:

In order to keep our presentation as concise as possible, we provided summary information in the main body of our response. Additional detail for our project references, and our key employee resumes are provided in the Appendices

State of Illinois Endorsement:

In 2017, the State of Illinois conducted a competitive RFP to help municipalities vet potential partners for their streetlight upgrade projects. In December of 2017, TEN was one of three vendors awarded a master contract under this RFP. The State provides a website for more information about this validation of the TEN team, in addition to the contact information for Essam El-Beik, the project lead. A copy of the Press Release and Award Details from January 2018 are included in Appendix 3 and at the link below.

https://www2.illinois.gov/sites/doit/Strategy/Pages/smartlighting.aspx

H. Project Schedule

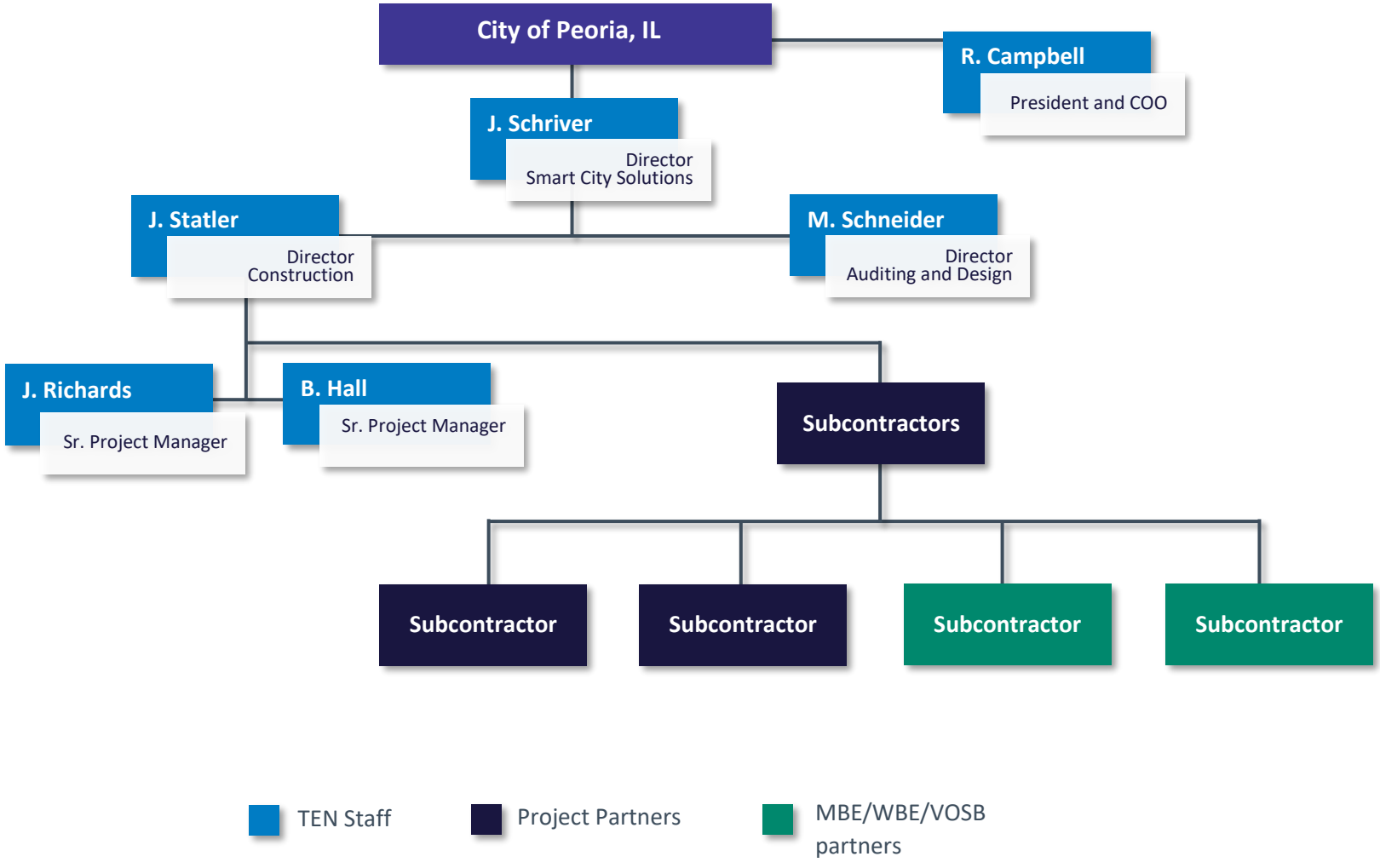
The selected Service Provider shall begin work immediately upon contract signing and complete the tasks in their entirety within a reasonable yet aggressive schedule.

Please see below for a tentative Project Schedule, beginning immediately upon contract signing.

Task Title	Task Duration in weeks	Task Description
Audit / Project Design Phase	**3**	TEN shall complete final design from the date of execution of the Guaranteed Energy Savings Agreement.
Final Design Review	**2**	Customer shall review final design from the date of presentation by TEN and suggest any changes thereto and commence with notice to proceed
Material Procurement	**6**	Weeks after Customer's Final Design Approval.
* **Substantial Project Completion**	**20**	Weeks after installation commencement.
Closeout Phase	**4**	Weeks after Lighting Substantial Completion, 30 days of operation acceptance
Total Weeks	**35**	Contract Signing to Project Completion
* Task duration represents **4 working crews in 4 independent** areas throughout the City. Crew availability dependent, this time can be increased or decreased to meet the customer's goals for calendar length of completion.		

Appendix 1

Organizational Chart and Detailed Key Staff Resumes


City of Peoria, IL
R. Campbell
President and COO
J. Schriver
Director
Smart City Solutions
J. Statler
Director
Construction
M. Schneider
Director
Auditing and Design
J. Richards
Sr. Project Manager
B. Hall
Sr. Project Manager
Subcontractors
Subcontractor
Subcontractor
Subcontractor
Subcontractor
TEN Staff
Project Partners
MBE/WBE/VOSB
partners

Jim Schriver

Director, Smart City Solutions

Mr. Schriver is focused on leveraging technology to help cities enhance engagement with residents and guests and improve its efficiency in delivering services to its constituents. With his background in communications, networking, and Internet of Things, Jim helps City leaders understand how they can best leverage the promise of Smart City technologies for practical use in their city.

Education

B.S. Marketing and Logistics
Pennsylvania State University

Relevant Technology and Energy-Related Experience:

20+ Years

Anticipated Role

As TEN's Director of Smart City Solutions, Mr. Schriver will assist in the overall development of the project and manage project-related communications to ensure effective coordination and customer satisfaction. He will also advise on Smart City applications that may be considered within the project.

Employment History

Black Box Corporation
8 years
As Director of New Technologies, Mr. Schriver led product and service portfolio management at the billion-dollar technology provider. There was heavy focus on wireless, IOT, and other evolving and impactful technologies and market trends. Market sector experience includes government, industrial, and manufacturing.

PPG Industries
4 years
As Innovation and Brand Manager, Mr. Schriver drove new product innovation for the coating's division of PPG. Applying technology and material science advances to create unique offerings for the $10B+ Manufacturer.

Street Lighting Experience			
2019	City of Cleveland, OH	LED Streetlight Conversion, Controls, and Video Surveillance	$1.8M
2019	City of Belfast, ME	LED Streetlight Conversion with Intelligent Controls	$0.3M
2018	City of Danville, VA	LED Streetlight Conversion	$1.0M
2018	City of Lewiston, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2018	Town of Scarborough, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2017	City of Portland, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$8M

Joe Statler

Director of Construction

Mr. Statler is responsible for all aspects of project construction, including but not limited to cost-estimating, coordination of subcontractors, inspections and commissioning, quality assurance and quality control. He also manages relationships with supplier and contractor Network Partners.

Education

Associates Degree
Beaver County Community College

Professional/Technical

PMP (Project Management Professional)
OSHA 30 Hour Training
Certified Lift Operator
Competent Person/Scaffolding Erecting
CP/AED Certified
OSHA 10-hour Training
Traffic Control Certified

Relevant Energy-Related Experience:

18 Years

Anticipated Role

In this role, Mr. Statler will be responsible for all onsite project management and subcontractor supervision overseeing field installations. He will ensure the worksite is safe and supervised in an effective and efficient manner. Mr. Statler will be the liaison between the construction team, engineers, and designers and the owners and stakeholders.

Employment History

Constellation
10 years
As Director of Site Operations, Mr. Statler was responsible for all aspects of project construction, including cost-estimating, coordination of subcontractors, inspections and commissioning.

Street Lighting Experience			
2019	City of Cleveland, OH	LED Streetlight Conversion, Controls and Video Surveillance	$1.8M
2019	City of Belfast, ME	LED Streetlight Conversion with Intelligent Controls	$0.3M
2018	City of Danville, VA	LED Streetlight Conversion	$1.0M
2018	City of Lewiston, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2018	Town of Scarborough, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2017	City of Portland, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$8M
2016	City of Scranton, PA	LED Streetlight Conversion with Intelligent Controls	$3.9M
2016	City of Harrisburg, PA	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$3.6M
2014	City of Bethlehem, PA	LED Streetlight Conversion with Intelligent Controls	$3.9M
2014	City of Baltimore, MD	LED Streetlight Conversion	$3.5M

Bobby Hall

Sr. Project Manager

As one of TEN's Sr. Project Managers, Mr. Hall will be responsible for all onsite project management and subcontractor supervision during construction. He will ensure the worksite is safe and supervised in an effective and efficient manner. Mr. Hall will be the liaison between the construction team, engineers, and designers and the owners and stakeholders.

Professional/Technical

Infectious Control Risk Assessment (ICRA-8) **Certification**
Kentucky Masters Electrical License
OSHA 30 Hour Training
OSHA 10-hour Training
CPR/AED Certified – Red Cross

Traffic Control Certified

Relevant Energy-Related Experience:

18 Years

Anticipated Role

In this role, Mr. Hall facilitates effective communication, safety decision-making and problem solving. With over 18 years of experience in construction. Mr. Hall is adept at project supervision, customer service, project development and management, building and installing. In conjunction with the Director of Construction, Mr. Hall plans, coordinates, implements and concludes projects according to specifications, deadlines and budget, with an overall objective of customer satisfaction.

Employment History

Constellation
7 years
As a Project Manager, Mr. Hall was responsible for project site operations management, financial management, project development, project safety, closeout and quality control on a wide array of energy efficiency projects.

Street Lighting Experience			
2019	City of Cleveland, OH	LED Streetlight Conversion, Controls and Video Surveillance	$1.8M
2019	City of Belfast, ME	LED Streetlight Conversion with Intelligent Controls	$0.3M
2016	City of Harrisburg, PA	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$3.6M
2016	Washington College, Chestertown MD	Campus-Wide Walkway/Safety/Interior Lighting	$1M
2017	University of Penn State, Behrend PA	Campus-Wide Walkway/Safety/Interior Lighting	$560K
2019	University of Pittsburgh, PA	Campus-Wide Walkway/Safety Lighting	$1M (est.)
2014	Eastern Gateway Community College, Steubenville, Ohio	Campus-Wide Walkway/Safety/Interior Lighting	$1.8M
2014	City of Baltimore, MD	LED Streetlight Conversion	$3.5M

Joe Richards

Sr. Project Manager

As one of TEN's Sr. Project Managers, Mr. Richards will be accountable for all project and subcontractor management for the duration of the project. He will ensure the worksite is safe and supervised in an effective and efficient manner. Mr. Richards will be the liaison between the owners, engineers, designers, subcontractors and construction team.

Education

Shippensburg University of PA
BSBA – Business Administration

Professional/Technical

OSHA 30 Hour Training
Traffic Control Certified

Relevant Energy-Related Experience:

7 Years

Anticipated Role

In this role, Mr. Richards facilitates effective communication, safety decision-making and problem solving. With over 14 years of experience in construction. Mr. Richards is adept at project supervision, customer service, project development and management, building and installing. In conjunction with the Director of Construction, Mr. Richards plans, coordinates, implements and concludes projects per specifications, deadlines and budget, with an overall objective of customer satisfaction.

Employment History

Energy Stewards, Inc.
3 years
As a Project Manager, Mr. Richards was responsible for project site operations management, project development, project safety, profitability, closeout and quality control on a wide array of energy efficiency projects.

Street Lighting Experience			
2019	City of Cleveland, OH	LED Streetlight Conversion, Controls and Video Surveillance	$1.8M
2019	City of Belfast, ME	LED Streetlight Conversion with Intelligent Controls	$0.3M
2018	City of Danville, VA	LED Streetlight Conversion	$1.0M
2016	City of Scranton, PA	LED Streetlight Conversion with Intelligent Controls	$3.9M
2017	Dickinson College, Carlisle PA	Campus-Wide Walkway/Safety/Interior Lighting	$1.8M

Robert Campbell PE, MBA

President and CEO

Mr. Campbell is responsible for the day-to-day operations at TEN and manages the strategic planning and development goals of the clients.

Education

Carnegie Mellon University
Master of Business Administration
University of Toronto
B.S. Mechanical Engineering

Professional/Technical

Professional Engineer
Association of Professional Engineers of Ontario

Relevant Energy-Related Experience:

25 Years

Anticipated Role

As TEN's President and COO, Mr. Campbell will manage the City's goal development and strategic planning. Mr. Campbell's primary responsibilities will involve coordination and assignment of resources and project personnel/subcontractors to ensure construction and engineering audit timelines are met.

Employment History

Constellation NewEnergy
7 years
As Vice President for Business Operations and Project Management, Mr. Campbell provided strategic guidance and support to Constellation's project portfolio.

Street Lighting Experience			
2019	City of Cleveland, OH	LED Streetlight Conversion, Controls, and Video Surveillance	$1.8M
2019	City of Belfast, ME	LED Streetlight Conversion with Intelligent Controls	$0.3M
2018	City of Danville, VA	LED Streetlight Conversion	$1.0M
2018	City of Lewiston, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2018	Town of Scarborough, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$1M
2017	City of Portland, ME	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$8M
2016	City of Scranton, PA	LED Streetlight Conversion with Intelligent Controls	$3.9M
2016	City of Harrisburg, PA	LED Streetlight Conversion, exploration of Intelligent Controls/Smart City Applications	$3.6M
2014	City of Baltimore, MD	LED Streetlight Conversion	$3.5M
2014	City of Bethlehem, PA	LED Streetlight Conversion with Intelligent Controls	$3.9M

Appendix 2

Detailed Project References

City of Portland, ME

Portland, Maine

The City of Portland, Maine relied on TEN for the design and construction of their LED Streetlight upgrade and Smart City deployment. TEN provided the investigation and validation of the various vendor partners for an LED streetlight conversion, intelligent lighting controls, and numerous Smart City technologies. Portland, a community which embraces its environment, green technologies and Smart City opportunities, found TEN to be a dedicated partner in building the foundation of its Smart City.

After working together to uncover and define the needs of the City, TEN brought objective and fact-based assessments to the City for each major component of the project. The partnership between the City and TEN yielded an effort that defined the important components of each decision: balancing cost with lighting quality or system performance, while also including important elements such as support, warranty, and energy consumption.

Scope of Services

- Comprehensive Lighting Upgrade
- Smart Cities Upgrades
- 6,500 Lights converted

Project Overview

Project Size $8M

Annual Savings $1.1M

Contact:
Troy Moon
Sustainability Coordinator
(207) 756-8362
thm@portlandmaine.gov

"We are very pleased with the job TEN Connected has done and is doing for our City. They helped us through the complicated process of purchasing the existing streetlights from our utility and have assembled a great team to convert them to LED. They have helped us evaluate the numerous options for lighting equipment, lighting controls, and smart city technologies in a very fair and objective manner. Everyone at TEN Connected has been great to work with. They are helping us maximize our resources for the benefit of our citizens and visitors."

Troy Moon, Sustainability Coordinator, City of Portland

City of Harrisburg, PA

Harrisburg, Pennsylvania

The City of Harrisburg, Pennsylvania selected TEN to convert the City's street lighting system to state-of-the-art LEDs. TEN worked with Harrisburg through its streetlight buyback from local utility PPL and took approximately 6 months to install and commission 6,000+ fixtures. This project was financed through the first major borrowing by the City after going into receivership, creating cash flows that supported a number of community investments.

TEN delivered to Harrisburg as part of the project a comprehensive asset inventory audit of the entire street lighting system, loaded onto Harrisburg's GIS system. All of the roadway and street lighting in Pennsylvania's state capital owned by the City, including bridge lighting, is illuminated with LEDs with intelligent controls.

TEN delivered through this project other decorative lighting solutions to enhance the community further. In both the Market Street Bridge project and Harrisburg's Band Shell project, TEN delivered color changing artistic LED's that can be set to different schedules with colors and timing in order to enhance the aesthetics of these City assets.

Market Street Bridge, Harrisburg, PA

"The new LED streetlights are not only more energy efficient, they are brighter than the old lighting. I am confident a brighter Harrisburg will mean a safer and more beautiful city for us all.

Mayor Eric Papenfuse

Scope of Services

6,100 Streetlight Fixtures

Project Overview

Project Size	**$3.6M**
Annual Savings	**$510,333**

Contact:
Wayne Martin, P.E.
City Engineer
(717) 315-4255
wsmartin@cityofhbg.com

City of Cleveland, OH

Cleveland, Ohio

The City of Cleveland selected TEN to manage their critically important "Safe Smart CLE" project – involving the upgrade of over 61,000 streetlights to LED, and installing almost 1,000 video surveillance cameras to support Cleveland's Public Safety team. TEN's team works closely with the City's Utility (Cleveland Public Power) as well as representatives from the Mayor's office, City IT team, Public Safety, Communications team, and other stakeholders to help ensure the project runs smoothly.

Of particular interest was TEN's ability to advise the City on both technical and communications architecture issues, such as the implications of selecting a licensed spectrum for their intelligent lighting control platform, or how to weigh the advantages and disadvantages of using fiber versus PTP or PTMP wireless backhaul.

For video surveillance applications, TEN worked with Public Safety teams, plus RF and Video engineers to determine camera placement and backhaul networks for single- and multi-sensor cameras, as well as PTZ devices.

SAFE SMART CLE

Safe Smart CLE is a new initiative introduced by Mayor Frank G. Jackson in April 2018 that combines cost-saving and energy-efficient LED streetlights with smart camera technology to make the City of Cleveland's neighborhoods safer and more sustainable.

Scope of Services

61,000+ Streetlight Fixtures
1000+ video surveillance cameras

Project Overview

Project Size **$2.0M**

Contact:
Larry Jones II
Program Manager, Public Safety
(216) 664-3733
Ljones4@city.cleveland.oh.us

City of Bethlehem, PA

Bethlehem, Pennsylvania

The City of Bethlehem selected TEN to replace 5,400 of the City's existing High-Pressure Sodium streetlamp fixtures with 60% more efficient LED fixtures. At the time, this project represented the largest and most comprehensive city-wide LED streetlight conversion project completed to date in Pennsylvania, including pilot projects already completed in Philadelphia and Pittsburgh. It is now the second largest and most comprehensive LED streetlight conversion project in Pennsylvania, after TEN's Harrisburg, PA project. TEN acted as project manager, designer, and primary point of contact between Bethlehem and TEN's local subcontractor and the fixture manufacturer. Bethlehem chose Philips fixtures as the result of a highly competitive bid process facilitated by TEN.

Scope of Services

- 5,841 LED Lighting Fixtures
- City-wide advanced control

Project Overview

Project Size	**$3.8 Million**
Annual Savings	**$473,000**

Contact:
Michael Alkhal
Director, Public Works & City Engineer
(610) 865-7050
malkkal@bethlehempa.gov

" **TEN's professional approach** to project management, responsiveness, coordination, and communication along with the timeliness of output ensured that I would recommend TEN's project team. It has been a pleasure working with them at all levels. Deadlines were met and communication, with the appropriate people, in both verbal and written form, was of high quality.

The project diligently addressed our community member's concerns and emphasized public safety to the highest level. The aesthetic appearance of the Historic District was a high priority and TEN conscientiously worked with the Historic District's non-profit organization and the City to meet their needs; not only to meet their visual goals but to stay within the confines of the project budget."

- Michael Alkhal, P.E., Director of Public Works and City Engineer

City of Danville, VA

Danville, Virginia

TEN has helped Danville VA upgrade their 8,000 streetlights across the City. They were interested in saving electricity and improving light quality. Danville selected TEN as their partner based on our broad capabilities, excellent references and cost-effective approach.

While they initially executed about 40% of the lights in a Phase 1 portion of the project, the City was so pleased with TEN's approach and project management capabilities, they extended the project and asked TEN to finish all 8,000+ lights.

Scope of Services

8,000+ Streetlight Fixtures

Project Overview

Project Size **$1.0M**

Contact:
David Witcher
Electric Engineer
(434) 799-5268
witchDL@danvilleva.gov

City of Lewiston, ME

Lewiston, Maine

The City of Lewiston selected TEN after we proved to be the most qualified and cost effective. TEN's team worked with Lewiston to determine its luminaire manufacturer and color temperature, assess the value of controls, select a local electrical contractor, and negotiate with CMP on several ownership and policy issues. While the City had owned most of its streetlights, there was some dispute as to whether the City must comply with newer guidelines required by CMP. TEN used its relationship with CMP and technical knowledge to support Lewiston in its conversations, which ultimately resulted in decisions in Lewiston's favor.

In working with TEN, Lewiston found a partner that was both cost effective and knowledgeable, and ultimately decided to double the size of its project in order to include all the City's fixtures. TEN Converted 100% of Lewiston's 2,551 streetlights in 4 months.

"**TEN has been great** to work with on our street Light conversion project. They staged all materials in preparation of the project, so that once final authorization was given they moved efficiently and professionally to complete the project. They kept the community appraised of their progress on a daily basis through a GIS interface. They performed all their work with very little impact to the traveling public. They replaced over 2,500 fixtures in a seamless and highly professional manner."

- Dale F. Doughty Public Works Director, City of Lewiston, Maine

Scope of Services

2,551 Streetlight Fixtures

Project Overview

Project Size $1.0M

Annual Savings $122,569

Contact:
Dennis Caron
Electrical Superintendent
(207) 513-3078
dcaron@lewistonmaine.com

Appendix 3

Former Illinois Award Details

Illinois Department of Innovation & Technology

Bruce Rauner, Governor
Kirk Lonbom, Acting Secretary

For Immediate Release:
January 4, 2018

Contact:
Jennifer Schultz, PIO
Jennifer.Schultz@illinois.gov

State of Illinois Announces Smart Street Lighting Vendors

Master contracts offer efficiency opportunities for Illinois municipalities

Springfield, IL – The State of Illinois today announced its intent to enter into a state master contract for Smart Street Lighting, following a Request for Proposal (RFP) issued in January 2017. The initiative was announced by Governor Rauner's office, as part of his vision to transform technology in Illinois.

The master contracts will enable any Illinois unit of local government, qualified under the Illinois joint purchasing program, to upgrade their street lights to light emitting diode (LED) light fixtures. This initiative provides Illinois communities with the resources needed to manage, maintain and monitor their street lighting systems to improve efficiencies and enhance connectivity through the Internet of Things (IoT).

The RFP was released by the Illinois Department of Central Management Services, in consultation with Illinois Department of Innovation & Technology (DoIT) as a component of their smart state efforts to capitalize on Internet of Things (IoT) opportunities that can modernize the state's technology infrastructure. Illinois is currently on an accelerated path of digital transformation that began with the formation of DoIT on July 1, 2016 through Governor Rauner's Executive Order 2016-01.

Kirk Lonbom, DoIT Acting Secretary commented, "We are pleased to continue advancing our mission for a Smart State and including the Smart Street Lighting initiative is one of the first concrete steps to get there. Under these master contracts, Illinois municipalities can now realize the benefits of Smart Street Lighting through operational efficiencies and smart technology. Illinois is being recognized around the nation as the first Smart State and this milestone is one of many achievements of that effort."

Smart Street Lighting is an emerging area that brings the opportunity for savings in energy and maintenance costs, as well as improved services such as air quality monitoring, traffic management, smart parking, gunshot detection and electric vehicle charging. Municipalities across Illinois have shown a strong interest in exploring the benefits of Smart Street Lighting.

Rockford is one of several cities in Illinois closely watching the opportunities available through Smart Street Lighting. Tom McNamara, Mayor of Rockford commented, "We are excited about Illinois' Smart Street Lighting project. This contract would allow Rockford to control costs, improve the aesthetics of our neighborhoods and increase public safety."

Upcoming plans include holding a Smart Street Lighting workshop in early 2018 and forming Municipal Group 1, comprised of the first municipalities to utilize the master contracts.

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Notice

Help

Reference Number
22040067

Solicitation
Closed
Addendum
Closed
Addendum
Closed
Addendum
Closed
Addendum
Closed
Award Notice
Closed

Close

Identification

Reference Number:	22040067
Request ID:	17-102850
Date First Offered	01/23/2017
Title:	CMS - Smart Street Lighting for Illinois Municipalities
Agency Reference Number:	17-102850
Agency:	CMS - Central Management Services
Purchasing Agency:	CMS - Central Management Services
Purchasing Agency SPO:	Ellen Daley; Amy Adams; Tom Sestak; David Littrell
Status:	Closed

Overview

Description and Specifications:

The Department of Central Management Services is giving notice of its intent to enter into contracts for turnkey services for street light upgrades to light emitting diode (LED) luminaires, luminaires and adaptive controls.

These contracts are being set up to provide any Illinois unit of local government qualified under the Illinois joint purchasing program a venue to upgrade street lighting. The award amount is estimated and does not guarantee any quantities of products or services to be purchased as this would be dependent upon the local governmental units utilizing the contract(s).

Primary Vendor: Johnson Controls Inc.
Secondary Vendor: Globetrotters Engineering
Tertiary Vendor: TEN Connected Solutions

There is a 20% Business Enterprise Program goal associated with this procurement. There is no Veteran Owned Business goal.

The anticipated start date is estimated.

Key Information

Notice Type:	Contract Award Notice
Published:	12/05/2017
Notice Expiration Date:	12/20/2017
Professional & Artistic:	No
Small Business Set-Aside:	No
Does this solicitation contain a BEP or DBE requirement?:	Yes