



**PROPOSAL TO THE CITY OF LEWISVILLE, TX
FOR
STREETLIGHT OWNERSHIP, LED CONVERSION, &
MAINTENANCE SUPPORT**

TankoLighting |

Submitted by:

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Submitted to:

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Date Submitted:

August 14, 2025

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COVER LETTER

August 14, 2025

Aaron Russell
Public Works Director
City of Lewisville
arussell@cityoflewisville.com

Dear Mr. Russell,

Tanko Streetlighting, Inc. ("Tanko Lighting") appreciates the opportunity to submit this proposal for Streetlight Ownership, LED Conversion, and Maintenance Support to the City of Lewisville.

Tanko Lighting is the only nationwide firm focused solely on providing professional services for turn-key municipal streetlight energy efficiency and ownership projects. Our experience has been developed from more than 280 contracts in 27 states - with 55 utilities, representing more than 948,000 streetlight fixtures. We have also provided similar services for other municipalities in Texas, including the Cities of League City, Round Rock, Killeen, Houston, Corinth, Keller, Coppell, Victoria, and Grapevine, TX to provide support for their streetlight systems.

Given Tanko Lighting's extensive involvement with municipal streetlight acquisition and LED conversion projects nationwide, our team can leverage its expertise to provide the necessary context and value to assist the City with all the support, recommendations and coordination necessary to ensure the success of this project.

Please let us know should you have any questions. We look forward to your feedback.

Regards,

Jason Tanko
Chief Executive Officer

Enclosures

COMPANY PROFILE

Our History: For more than 20 years – since 2003, Tanko Lighting has assisted municipalities with their streetlighting needs and is a national firm solely focused on providing professional services for turn-key municipal streetlighting projects. In our early days, we focused on re-manufacturing High Pressure Sodium (HPS) fixtures, providing a cost-effective waste diversion strategy by rebuilding existing fixtures to be re-deployed back into the field. This kept costs low and was a better option for clients than buying new streetlights. However, with the advent of Light Emitting Diode (LED) technology, we realized that we could no longer compete with commodity-priced and energy efficient LED streetlight fixtures. Thus, in 2011, we shifted our business model to focus on services to help municipalities comprehensively upgrade their streetlight systems to the most energy efficient and municipal-owned options.

“Tanko Lighting’s... vast experience with technical aspects of streetlight infrastructure [has] been incredibly helpful. The City has especially appreciated Tanko’s guidance, ability to augment the City’s existing resources and their professionalism while working alongside City staff.”

Eric Eddy
Assistant City Manager
City of Centennial, CO

Our project in Centennial, CO.

Our Qualifications: As a municipal streetlighting expert, Tanko Lighting is uniquely qualified to assist the City with this project. Our firm holds electrical contractor licenses in the States of California and Arizona. Additionally, our firm is a Certified Contractor by the Commonwealth of Massachusetts’ Division of Capital Management and Maintenance (DCAMM), a Qualified Vendor with the Connecticut Conference of Municipalities, a registered Energy Services Company (ESCO) with the United States Department of Energy, and a registered Small Business Entity with the Small Business Administration. Please find several elements demonstrating our firm’s capabilities to accomplish this project below:

- Municipal Streetlight Experience:** We are solely dedicated to municipal streetlighting projects – with an entire staff exclusively focused on such projects. As such, we have a large portfolio of active municipal streetlight projects, have previously been or are currently involved with more than 928,000 streetlights throughout the nation, and are actively developing projects for an additional 550,000+ streetlight fixtures. Additionally, our work spans more than twenty-six states, and fifty-five utilities. Our company’s sole focus on streetlighting distinguishes it from others, which focus on diverse measures and renders them generalists, while we are streetlight specialists. Finally, our expertise has been forged by diverse project types – including various sized projects (ranging from as large as 38,000+ fixtures to as few as 49 fixtures), as well as incredibly complex projects, derived from such factors as square mileage/area, complicated data, inconsistent existing design, and complex scopes of work.
- Technical Knowledge:** Tanko Lighting has significant technical expertise centered on municipal streetlighting infrastructure. Led by an electrical engineer and licensed electrical contractor, Jason Tanko (Chief Executive Officer), our team understands the field conditions and system constraints that are often involved with municipal streetlighting projects. This enables the team to accurately design projects to prevent anticipated challenges, as well as quickly respond with streamlined solutions in the event of technical difficulties during a project.
- Experience with Ownership Projects:** There is a growing nationwide industry trend in which municipalities are acquiring their streetlight infrastructure from their local private utility companies. This poses tremendous advantages to the municipality, in that not only does it allow the municipality to control the management of the system within its geographic borders, but it also involves tremendous cost savings – particularly related to maintenance and energy (as many utilities charge exorbitant fees for energy and maintenance rates for the systems). Further, once a municipality purchases its system, it can reap additional savings benefits by converting to LED fixtures. Tanko Lighting has been working with several municipalities nationwide to assist in their streetlight ownership strategies from investor-owned utilities. Our team’s experience with ownership projects includes providing

valuation, field data collection, ownership feasibility analysis, and ownership negotiations with the utility on behalf of the client. A list of our projects involving ownership support includes the municipalities outlined in the table to the right.

Tanko's Utility-Owned Streetlight Acquisition Projects		
Utility	# of Projects	# of Streetlights
Ameren (MO)	2	6,613
American Electric Power (OH)	1	1,100
Centerpoint Energy (TX)	1	175,000
Duke Energy (OH)	1	18,000
Eversource (CT, MA)	31	48,024
Emera (ME)	2	840
Entergy (AR)	1	16
First Energy (OH)	1	1,000
Georgia Power (GA)	1	10,000
The Illuminating Company (OH)	1	2,497
National Grid (NY, MA)	43	103,156
New York State Electric & Gas (NY)	2	6,889
Northwest Edison (MT)	1	6,000
Oncor Electric (TX)	4	11,238
Pacific Gas & Electric (CA)	2	1,745
Poudre Valley (CO)	1	1,229
Puget Sound Energy (WA)	1	741
San Diego Gas & Electric (CA)	1	532
Seattle City Light (WA)	1	392
Southern California Edison (CA)	23	116,511
United Power (CO)	1	915
Xcel Energy (CO)	6	21,313
Total	128	533,751

- Financial Analysis:** Tanko Lighting has conducted hundreds of financial analyses for public agencies nationwide, representing thousands of fixtures, to ascertain the value of converting to energy efficient streetlight systems. Leveraging our team’s vast industry knowledge to accurately estimate relevant costs and savings to provide the most accurate energy and CO2 savings estimates and integrating the information into the implementation phase of a project is one of our company’s core competencies.

Our Successes: Our success lies in our unique passion for streetlighting, which translates into a drive to ensure that projects are successfully completed. We are tremendously aware that client satisfaction is essential to our success. Thus, we strive to make every client an enthusiastic reference for future work. Clients are receptive to this drive, to the point that they frequently recommend us to other municipalities. Please find more detailed information on our projects in Appendix A. References can be provided upon request. A few of our major successes include:

- City of Houston, TX:** Tanko Lighting is currently working with the City to identify and report on best practices related to streetlight ownership and operations/maintenance nationwide.
- City of Round Rock, TX:** Tanko Lighting performed a comprehensive audit and data reconciliation of the City’s extensive streetlight system (upwards of 10,000 fixtures) to determine the current field conditions and discrepancies with the City’s utility bills and will continue to work with the City to support its ownership process.
- City of Killeen, TX:** Tanko Lighting performed an audit and data reconciliation of the City’s 4,440 streetlight fixtures and is currently assisting the City with purchasing its streetlight system from its utility.
- City of Keller, TX:** Tanko Lighting performed an analysis for the City to determine the feasibility of the City purchasing its 3,200 streetlight fixtures from its utility and converting them to LED fixtures.
- City of Corinth, TX:** Tanko Lighting performed a comprehensive audit and data reconciliation of the 898 existing streetlight fixtures within the City and continues to support the City’s efforts to purchase these fixtures from its utility.
- City of Grapevine, TX:** Tanko Lighting performed an analysis to determine the feasibility of the City purchasing its 2,625 streetlight fixtures from its utility and converting them to LED fixtures, as well as conducted an audit and data reconciliation of the existing streetlight system.

SCOPE OF SERVICES

Our assistance will involve four primary areas of services: Project Development, Streetlight System Purchase, LED Conversion, and Maintenance. Several tasks will be worked on simultaneously to ensure the City is prepared for streetlight operations once ownership transfer has occurred. Find a detailed description of each of these areas of service below.



Phase 1 – Project Development

Task 1: Exploratory Utility Negotiations

Exploring the opportunity to purchase the City’s streetlight system from its utilities – Texas New Mexico Power (TNMP) and Denton County Electric Cooperative, Inc. (CoServ) could be very beneficial. Our team is comprised of experts in municipal streetlight system purchases and will guide the City through the process via the tasks outlined below.

Please note that this approach assumes favorable responses from the utilities, and they are willing to negotiate. In the event that the utilities are not interested in negotiating, the City may want to consider a more formal legal process to acquire the streetlight fixtures. We can assist with such an approach as well, but it is not included in the activities described below. Should the City be interested in a scope of services for an approach related to a more formal legal process, we can provide (along with pricing), upon request.

Task 1a: Streetlight Purchase Negotiations Preparation

Our team will conduct the following activities in preparation for negotiations between the City and the utilities:

- **Needs Assessment:** We will communicate with the City to document its motivations for potentially purchasing the streetlight system, including review of existing operations and challenges, as well as expectations for optimal conditions.
- **Preliminary Inventory Review:** We will review and reference the City’s streetlight bills and other available inventory data for the estimated quantities and types of existing streetlight fixtures.
- **National Research:** We will utilize our nationwide database of municipal records to identify relevant data on previous streetlight municipalizations.
- **Estimated Valuation:** Based on the estimated current system and local and national data, we will develop an estimated book value of the streetlight system.
- **Utility Business Proposition:** We will develop the framework with a variety of elements for why the utility should sell to the City that will be presented during negotiations.

Deliverables:

- **Purchase Preparation Meeting:** A virtual meeting with City staff to outline key talking points for negotiations, such as the City’s streetlight system needs, estimated system valuation, and negotiation strategies.

Task 1b: Coordination of Utility Negotiations

We will coordinate the utility negotiations, including:

- Facilitating two meetings (per utility) with our team, City staff, and the utilities, including presenting the business case and background information (our pricing assumes the meetings are virtual).
- Developing meeting minutes and a list of next steps and action items from the meetings.
- Developing draft follow-up letter to the utilities expressing the City’s intention to purchase.
- Follow up with utilities to get a commitment (or rejection) to selling the streetlights to the City.

Deliverables:

- **Negotiations Documentation:** Agenda, meeting minutes, action items, and follow-up correspondence.

Task 1 will conclude once we obtain a definitive response from the utilities, either confirming intention to sell the streetlights or denying the request to sell the streetlights. If the utilities confirm their intention to sell the streetlights to the City, we will commence with the final negotiations and ownership transfer (see Phase 2, below).

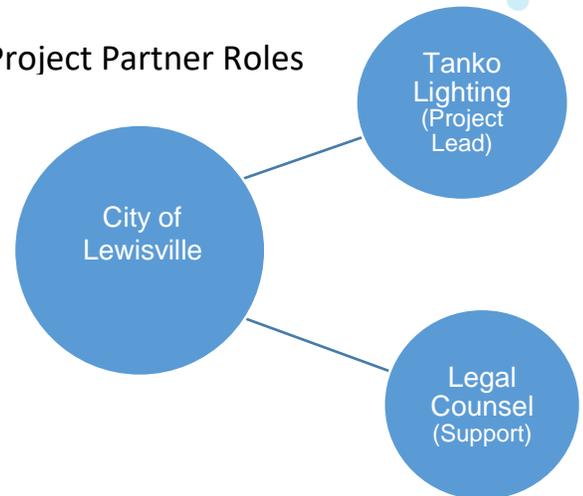
Please see the Roles & Responsibilities section (below) for how we will coordinate with the City on the negotiations task.

Roles & Responsibilities

To optimize the streetlight acquisition process, it is imperative that Tanko Lighting takes the lead role on the project, coordinating all City staff and legal counsel throughout the entire project. In our experience, streetlight acquisition missteps typically occur when inexperienced actors are leading because they are unaware of how to navigate the nuanced process. Because we have completed more than one hundred such projects, we have the expertise to ensure a seamless process. While our team is not comprised of licensed attorneys, we are well-versed in the legal process and understand the critical role that legal counsel plays in this process. However, it is essential to understand that the role of legal counsel in this project is limited by design, as this ensures that the streetlight acquisition expert (Tanko Lighting) is at the helm to lead the project cost effectively and to utilize legal counsel surgically, as needed.

Below is a list of anticipated responsibilities for each core team member for this project. These responsibilities, as outlined, will keep the project's progress moving as smoothly and efficiently as possible. Thus, it is important that these responsibilities are adhered to throughout the project.

Project Partner Roles



Tanko Lighting's Responsibilities

- Serve as the project lead, responsible for all project deadlines, reporting, and compliance.
- Coordinate with both City staff and legal counsel via ongoing meetings and correspondence.
- Lead negotiations with the utilities.
- Advise City staff on ongoing potential options and strategies.
- Provide relevant documentation on previous precedents, technical elements, case law, and legal arguments.
- Draft documents for City staff and legal counsel's review.
- Provide final edits for negotiation documents.
- Provide documentation and justification for valuation estimates.
- Provide ongoing reporting as needed.

City's Responsibilities

- Serve as the project owner and decision maker.
- Assign a decision maker as the primary point of contract for the project.
- Commit to a regular meeting schedule with the main point of contact and Tanko Lighting.
 - The minimum requirement is to meet at least once every three weeks.
- Participate in a monthly meeting with either the legal counselor(s) or the Public Works Director or other City executive.

Legal Counsel's Responsibilities

- Serve in a supportive role for the project.
- Commit to attending regular monthly meetings (if needed).
- Utilize drafted documents and work closely with Tanko Lighting on the finalization of documents.
 - Tanko Lighting will provide all drafts to counsel and review documents before counsel finalizes.
- When requested, work with Tanko Lighting to negotiate with the utilities.
- Contribute to the development of strategies.
- Provide document review and feedback in a timely manner.
- Represent the City in all regulatory processes and proceedings (if needed).

Task 2: Inventory Conditions

This work will identify the field conditions and data records of the existing system, so that the City understands the current state of the streetlight system.

Task 2a: Inventory Audit of Existing Streetlights

In our experience, a proper GIS audit is essential to equipping the client with a comprehensive and accurate understanding of its existing infrastructure. The GIS audit is pivotal, as the data collected positions the municipality or its contractor to effectively maintain the system, as well as manage any system upgrades (such as LED conversions or Smart City technologies), which require detailed field data to properly design and install.

Our data-driven approach to project implementation has defined our success. From GPS location coordinates to fixture wattages, accurate data collection and data management is the backbone from which our methodology stems. Our auditors collect more than thirty fields of data per streetlight fixture. This approach enables us and our clients to streamline maintenance processes, as we know exactly where each light is, the type of pole it is on, the type of fixture that is installed, existing wattage, etc., so that maintenance crews can be prepared ahead of time to respond to requests and minimize visiting the same fixture multiple times.

The preparation phase for the audit will involve the following activities that are critical to the accuracy of the data collection:

- Tanko Lighting working with City staff to clearly define audit scope, including priority areas, municipal boundaries, and any areas outside the right-of-way that should be included.
- Our team developing and providing to municipal staff a list of the attributes that will be collected at each light during the audit.
- City staff providing our team with all available City and utility records for streetlights.
- Our team reviewing these data records to determine which should be utilized for the data reconciliation phase.
- Our team developing audit maps, scheduling, and dispatching auditors to the field.

Tanko Lighting's approach to the audit is an in-field strategy that poses the following advantages:

- Deploying trained professional auditors to the field at the onset of the project enables our team to obtain the most definitive, up-to-date data set possible. While we supplement our field data with digital data sources (e.g., aerial imagery, street-level imagery, and municipal/utility inventories), the integrity of our audit is never dependent on the age or accuracy of available digital data sources.
- Our in-field approach provides the greatest accuracy and access to the pole and fixture. In person, we can identify potential safety issues, such as leaning poles or structural damage to the pole/arm/fixture. We can also verify pole numbers/labels and confirm any locations where numbers/labels are damaged or missing. This in-person verification of pole labels and exact locations is also invaluable in reconciling the utility billing inventory with what we find in the field (see Phase 1, Task 2b).
- Collecting data in person gives our team the highest confidence in the accuracy of our data. This precision means that should the municipality move forward with system-wide updates, the municipality will be able to budget and procure for exactly what is in the field - money is not wasted on over-ordering, nor is project completion delayed by under-ordering. This precision also minimizes sloppy design (and inherent lower energy savings) – which are more likely from a subcontracted audit.

Once the preparation phase is complete, the audit will commence. We will collect data on all the existing inventory in the field – including any known new developments and both cobra head and decorative fixtures – and identify over thirty attributes on-site, including (but not limited to):

- Global Positioning Service (GPS) coordinates (latitude, longitude) of each fixture location and date of capture
- Fixture technology
- Lamp type and wattage

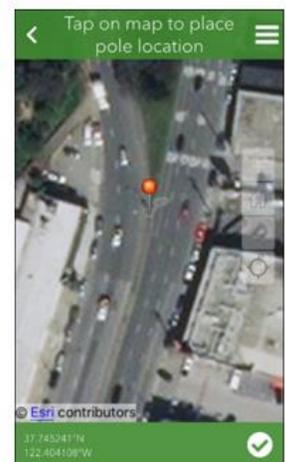
Auditor Data Collection Screens

The screenshot shows a mobile application interface for data collection. On the left is a satellite map view of a street with yellow markers. On the right is a form with the following sections:

- Fixture Type ***: A list of radio button options: Cobra Head, Shoe Box, Wall Pack, Bollard, NEMA / barn light, Security Light, Stadium, Decorative, Flood, Soffit, Spot Light, High Bay, Bulb (selected), and Other (text picture).
- Mounted on Pole ***: Radio button options for Yes and No.
- Fixture Mounting Type ***: Radio button options: Surface Mount, Trunnion/Yoke, Slipfitter/Tenon Mount, and Standard Pole.

A green checkmark is visible at the bottom right of the form.

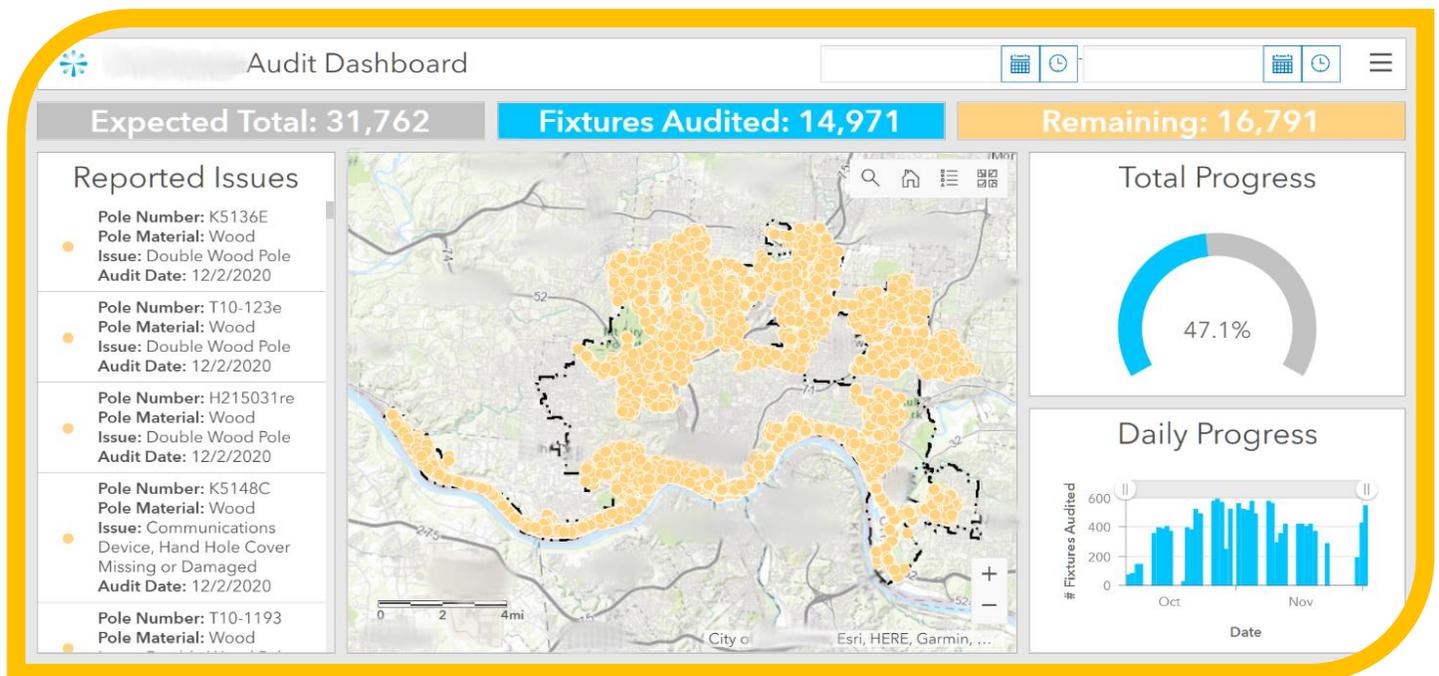
Our GIS auditing team uses dedicated tools, refined over hundreds of similar streetlighting projects, to ensure the accuracy of the data collection.



- Pole material, mounting height, and arm length
- Pole ID number
- Date of data capture
- Nearest street address
- Street width and configuration (e.g., intersection, crosswalk, cul-de-sac)
- Electrical feed (overhead, underground)
- Visible issues (e.g., pole leaning, fixture damage, tree obstruction)

During the course of the field audit, we will ensure to inspect every fixture and pole specified by the City and will provide City staff with access to an interactive, online dashboard that will display the daily and overall progress of the audit, any issues encountered, and a map that can be explored. Please see below for a sample audit dashboard.

A sample of our Audit Dashboard



Our pricing for the audit assumes the existing utility data quality is decent. Poor utility data quality is typically defined by such issues as (but not limited to):

- Typos in pole numbers or street names
- Incorrect addresses
- Blank values
- Duplicate records
- Outdated records that do not match current field conditions
- Non-unique or non-sequential pole numbers in the field
- Mismatched pole numbers in the field compared with utility records
- Missing pole numbers
- Lack of addresses and/or GIS coordinates
- An audit scope listed in the utility inventory

These types of issues can be rare, but depending on the details, they can require considerable additional time to reconcile the data. If the City's utility data is poor, if needed, we will provide the City with a scope of services and estimated additional price to remedy such issues.

Deliverables:

- **Audit Dashboard:** An online, interactive dashboard listing the locations completed during the data collection phase, along with a description of any issues that the municipality or utility would need to devote immediate attention to – including electrical hazards, tree trimming needs, etc.
- **Audit Data:** Finalized inventory summary listing quantities by type and wattage, as well as a list of fixtures found in the field audit and their associated attributes, to be provided in a file suitable for use in common GIS software (e.g., ESRI, ArcMap), as well as Microsoft Excel (this deliverable will be provided after the completion of the project).

Task 2b: Billing Inventory Review

Our team has developed a methodology to capture every streetlight asset owned by and/or billed to a municipality. Using precise GPS technology and expert streetlighting GIS Analysts, our team reviews every asset it locates in the field with each record in the utility's billing inventory to ensure that all assets have been identified. In our team's experience, cross-reference of these various data sources results in extremely precise and clean data. Projects typically have a utility billing discrepancy of approximately 5 – 10 percent of the inventory quantity, which can result in cities being over-billed by their utility. Any such discrepancies will be identified during this phase of the project, included in a billing inventory review report to the municipality.

We will begin reviewing the data upon commencement of the audit. The billing inventory review report will include the following items:

- Analysis of locations confirmed during the audit
- Analysis of locations appearing in the utility records but not in the confirmed audit records
- Analysis of locations confirmed in the audit records but not in the utility records

It should be noted that no field audit is perfect because varying and unknown field conditions can impact the data collected. As such, there is sometimes an error rate associated with data collection that may require the development of an Audit Punch List and a plan to remedy. Depending on the quantity of fixtures and the nature of the issues, there are typically three options to remedy the Audit Punch List:

1. Our team revisits specific locations to collect additional audit points (note this may involve additional costs for the City, which we can provide estimates for once the Audit Punch List is developed); or
2. City staff revisits specific locations to collect additional audit points and provides the streetlight information to our team; or
3. The City opts not to remedy the Audit Punch List – in which case, anything on the Audit Punch List will be removed from the project's scope of work. This option may result in missing opportunities to remove lights from the field that are currently on the utility's billing inventory.

Once the audit is completed, we will inform the City if there is a need for an Audit Punch List, as well as potential remedies for the City to decide which one best meets its needs.

Deliverables:

- **Billing Inventory Review Report:** A report detailing any discrepancies found between field data and utility billing records, as well as where records match cleanly (including nearest address and pole number, if applicable). Further, addressing these discrepancy locations with the utility will be the responsibility of the City, unless it requests our team to do so (which will require an additional cost).

Task 3: Streetlight Master Plan

In our experience, most cities that own and operate streetlight systems either do not have a comprehensive streetlight master plan in place or have one that is very outdated. That is why we routinely work with clients on developing streetlight master plans when they are acquiring streetlights from their utilities. Our team will:

- Review any existing streetlight standards the City already has in place
- Coordinate with TNMP and CoServ to determine the process for energizing new streetlights, including required communications, required elements utility engineers need, and timelines for when responsibilities would transfer
- Coordinate the development of any necessary technical drawings (note that these would be developed by City staff or by an engineering firm and the cost of the drawings is excluded from our pricing in the Pricing section, below)
- Develop the initial draft of the Streetlight Master Plan (which, depending on the City's needs, will include installation and operations standards, policies for both existing and new developments, tax assessment fee schedules, residential and commercial lighting standards, intersection standards, and maintenance procedures)

- Review the first draft of the Streetlight Master Plan with the City
- Integrate the City's feedback into the development of a second draft of the Streetlight Master Plan
- Review the second draft of the Streetlight Master Plan with the City
- Integrate the City's feedback into the development of a final draft of the Streetlight Master Plan

Deliverables:

- **First Draft Streetlight Master Plan:** An initial draft of the Streetlight Master Plan.
- **Second Draft Streetlight Master Plan:** A second draft of the Streetlight Master Plan, based on the City's feedback of the initial draft.
- **Final Draft Streetlight Master Plan:** A final draft of the Streetlight Master Plan, based on the City's feedback of the second draft.

"Any concerns I had with Tanko's ability to perform their duties because they are based out of California were quickly eliminated ..."

James A. Duggan
Town Manager
Town of Dracut, MA

Phase 2 – Streetlight System Purchase

Task 1: Final Purchase and Sale Support

Our team will support the City with its final negotiations with Texas New Mexico Power (TNMP) and Denton County Electric Cooperative, Inc. (CoServ), culminating in a final bill of sale and transition of streetlight assets to the City, including such activities (if necessary) as:

- Coordination of communication with City attorney
- Assistance with presentations to City Council
- Coordination of final TNMP and CoServ correspondence/negotiations
- Review of separation requirements
- Review of the pole attachment agreement terms
- Review of purchase and sale agreement terms
- Review and outline of ongoing maintenance options (post-ownership transfer)
- Support of final determination of the system's value and purchase price, including assistance with data on previous sales, rate analysis, etc.
- Review of existing customer-owned rates and coordination of negotiations with TNMP and CoServ to optimize the rate structure for the City
- Coordination of any necessary requirements with the state Public Utility Commission or regulator

Deliverables:

- **Streetlight System Transfer Support:** Support, feedback, and recommendations for all documentation, agreements, and final negotiations towards the completion and execution of the transfer of streetlight ownership.

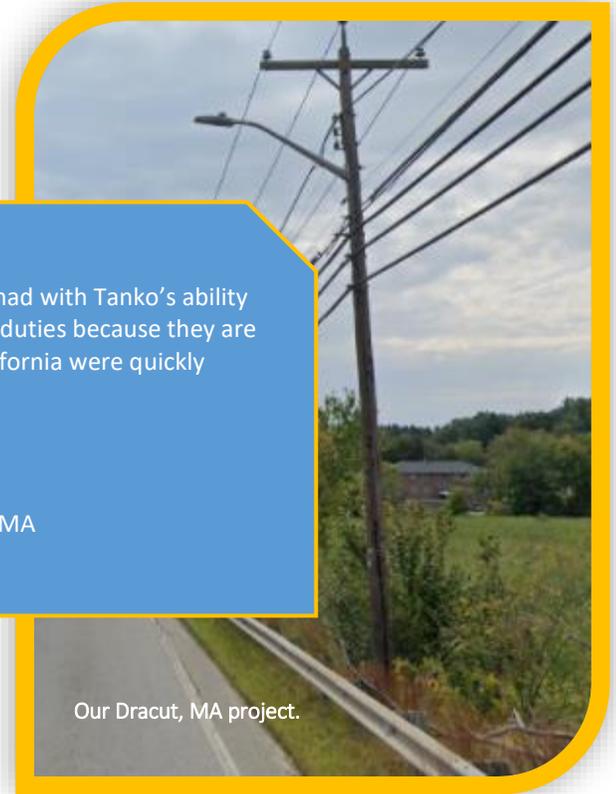
Task 2: Streetlight Maintenance Strategy

Our team will serve as the City's expert consultant, developing the initial maintenance administrative procedures to ensure the City is prepared to maintain the streetlight system. The work includes the following tasks:

Needs Assessment

Our team will conduct in 1 – 2 remote meetings with City staff to obtain feedback regarding the City's preferences for streetlight maintenance management, including the City's preferences related to:

- Reporting
- Response times
- Liquidated damages policies



Our Dracut, MA project.

- Installer qualifications
- Administrative organization
- Inventory management
- Software capabilities
- Dispatch processes
- Warranty processes
- Invoicing requirements
- Procurement considerations
- Coordination with other City departments

Streetlight Maintenance Recommendations

Based on the results from our needs assessment, as well as our experience with successful municipal streetlight maintenance services nationwide, our team will develop a set of recommendations for the design of the City's ongoing maintenance services management. Items will include recommendations on administrative functions, management, dispatch, reporting, data management, contract terms, etc.

Deliverables:

- Streetlight Maintenance Recommendations Report: A report outlining the parameters of the recommended approach to the City's streetlight maintenance management.

Task 3: Streetlight Deficiency Analysis

The goal of this task is to improve the public safety of the City by identifying gaps in the streetlighting system and providing a cost assessment for any recommended additional streetlighting. Additional streetlighting fixtures will help motorists and pedestrians travel safer at night.

Based on the streetlight inventories that will be requested from the City, as well as a desktop review of various locations in Google Streetview, we will analyze the current spacing configurations for the standard streetlights to determine any under-lit areas throughout the City. Where deficiencies are identified, we will provide recommendations for remedies – including but not limited to adding a pole/fixture or adding a fixture to an existing pole, or other changes to existing fixtures/poles. Recommendations will be limited to a maximum of 300 locations. Additionally:

- Arterial, collector, and residential roads with pedestrian conflict will be assessed. High traffic areas such as schools, parks, intersections, and crosswalks will also be assessed.
- Ellipse halos will not be presented in the final deliverable, as these will be less visually helpful. Instead, each streetlight will indicate the cardinal direction in which the proposed fixture is facing.
- The recommendations (see Deliverables section below) will include one revision in order to incorporate any areas where the City and its police department specify additional streetlighting.



An example of our approach to analyzing the current spacing configurations and identifying under-lit areas.

Virtually all municipalities we have worked with have the ultimate goal of converting all of their lights to LED to save on energy and maintenance costs if they have not done so already. Because of this, our team will perform the analysis under the assumption that all lights are LED, regardless of existing lamp type. This will avoid recommendations to install new lighting where it may have once been required with an outdated HID system but will not be required with an LED system due to LED lighting's optimal light distribution.

Deliverables:

- Additional Streetlighting Recommendations: Maps of recommendations – for up to a maximum of 300 locations, as well as budgetary material/installation costs based on the defined categories. Streetlighting recommendations will be provided in Excel format and via an online map, which will be available for 90 days after the deliverable is submitted.

Phase 3: LED Conversion

Task 1: Streetlight LED Replacement Design

Once the inventory audit is completed, it will be important for the City to proceed with a design for the LED conversion of the existing streetlights, as this will result in additional cost savings through the reduction of energy. Note that we will be designing for an estimated quantity of 3,245 fixtures, as we understand there are several that are currently LED fixtures (which we will not be converting).

In Tanko Lighting's experience, a comprehensive LED streetlight audit and acquisition is the ideal opportunity for a municipality to reassess its entire streetlighting design and ensure that it has been optimized for existing field conditions. To achieve this, our team routinely conducts municipal-wide design processes for each of its turn-key streetlighting projects. Recent projects in which design processes were implemented include Simi Valley, CA, La Verne, CA, Santa Clarita, CA, Chino Hills, CA, Fullerton, CA, Vernon, CT, and Malden, MA Bristol, CT, and Norwich, CT. This experience has led to our team's streamlined approach to design.

Once our team has canvassed the City through the audit and established a "clean" data set of the existing conditions (via the billing inventory review process), it can then develop and apply a replacement design. Our team utilizes Illuminating Engineering Society (IES) RP8 standards for roadways and right of ways. Additionally, we maintain a working knowledge of all the latest publications and updates in the market. However, there are many instances when municipal customers need to alter these standards to best meet their specific needs. Thus, our team uses these types of industry accepted standards as guidelines and works closely with the City to develop customized proposed standards of comfort and functionality that match its needs.

Our goal will be to provide the City with an appropriate replacement design that includes the brand of fixture, photocell, replacement wattages, color temperatures, distribution patterns and other appropriate settings and options to optimize the LED streetlight retrofit. The design will ultimately result in a replacement plan for all existing streetlights that includes photometric data, lifecycle cost analysis (including the initial capital outlay), net present value and return on investment, energy savings, as well as maps of the replacement plan (see Figure 1).

Our proven process may include both theoretical photometrics modeling (demonstrating the light distribution from an aerial perspective at the fixture location), as well as photopic (which measures the light that the cones of the eyes typically perceive) and scotopic (which measures the light that the rods of the eyes typically perceive) field measurements obtained from directly under the fixture and at varying distances to the sides of and across the street from the fixture. The results from these models portray the most accurate existing and replacement conditions that verify that the replacement LED fixtures will improve the system.

Tanko Lighting's approach to comprehensive design for this project will include the following elements:

- Applying standard LED replacement wattage recommendations based on the location of each existing fixture.
- Conferring with the City's safety coordinators and police officers to solicit feedback on areas that are currently over- or under-lit and are public safety concerns.
- Coordinating an (optional) pilot of potential products (note that the optional pilot is not included in our pricing but can be provided upon request).
- Selecting appropriate wattages and distribution types for replacement fixtures to meet the City's needs, while maintaining the objective of providing a simplified design that standardizes inventory (so that the system has consistency and can be more easily maintained over time).
- Applying the City's preferred products, typical models and special considerations to its GIS inventory to produce maps of the type and wattages by location (see sample map below), as well as an analysis of the total cost, incentives, savings, and payback for the potential retrofit design.
- Presenting the options and total cost/incentives/savings/payback to the City and obtain its final approval on design.

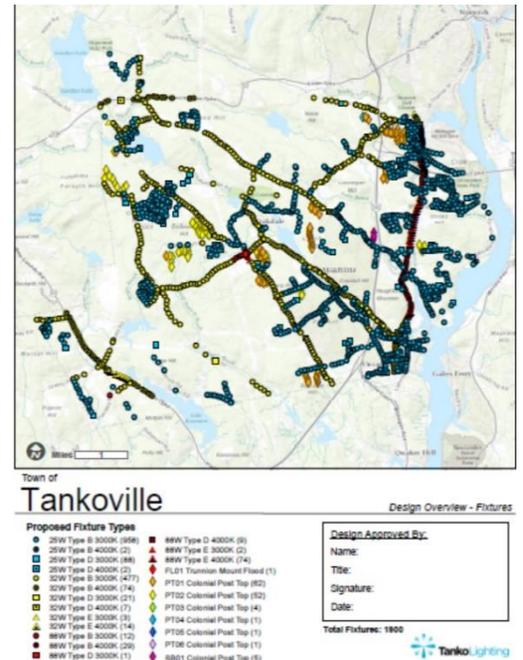
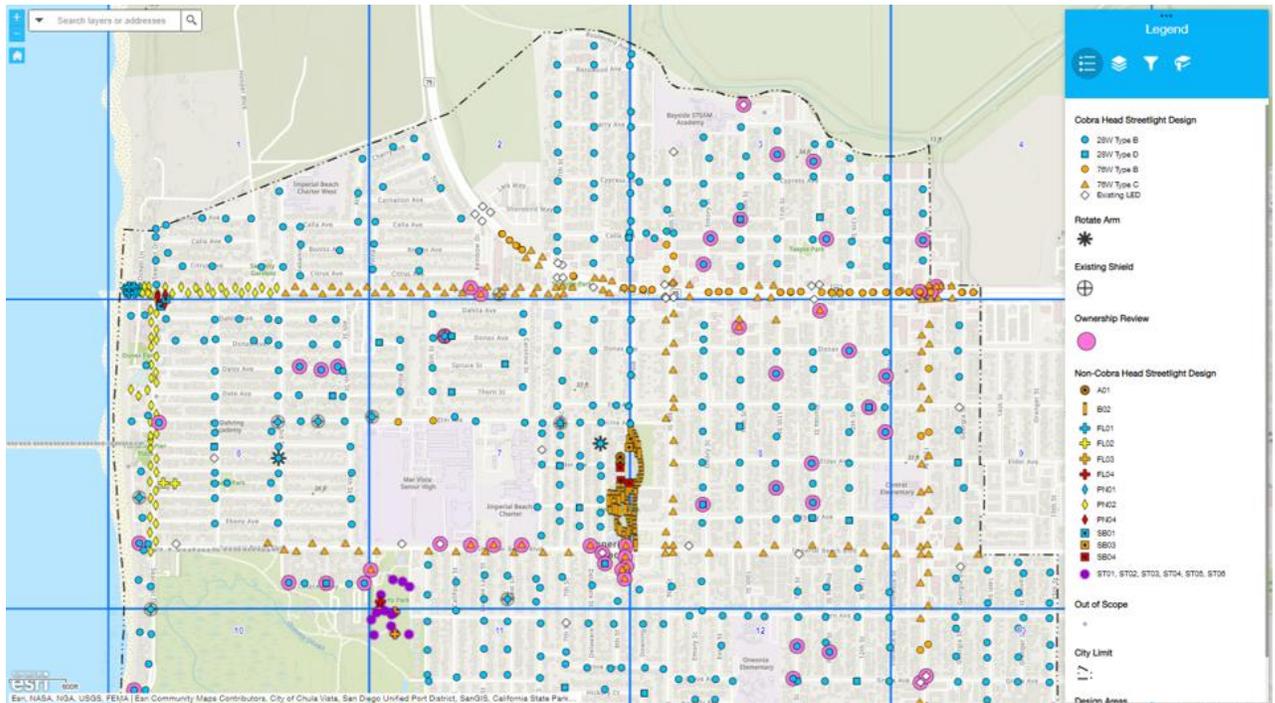


Figure 1: Tanko Lighting's Municipal Overview Map shows an entire municipality with recommended replacement fixtures.

We provide an interactive design web map to facilitate our design process. Please see the graphic below.



A sample of our interactive design web map.

The overall benefits to our design approach include:

- **Standardization** – The City is ensured that there is a consistent design method resulting in wattage continuity on its streets. Standardization also leads to a reduction in the variety of fixtures that the City must keep in its inventory
- **Safety** – Based on the most updated field conditions, the City can be assured that the design matches the system’s current needs and results in improved public safety from streets no longer being under or over lit
- **Efficiency** – The process takes a very thorough approach by examining all relevant field factors and thereby maximizes the available savings by utilizing the most efficient design, while meeting light output needs
- **Streamlined Installation** – The process allows for the development of a detailed scope of work (via a map of all replacements) by fixture for the installers to follow in the field – which enables more efficient materials gathering at the start of each workday during the LED conversion

Deliverables:

- **Replacement Plan Maps:** City-wide maps with recommended LED replacement wattages for the City to review and approve.
- **Recommended Product Submittals:** Technical specification submittal sheets for recommended products.

Task 2: Pole Labeling

Our team will specify number sequence, tag characteristics, material specifications and location on the pole for a City pole ID system. This may include a specific label indicating City ownership. Typically, we specify a tag recommendation that consists of five to eight digits. We coordinate procurement of the approved materials and installation of them on the poles during the installation phase, see below.

Deliverables

- **Tag Recommendation Specification:** Material and specification information for the City to review/approve.

Task 3: Contractor Bid Solicitation

Given that the in-field installer for the LED conversion and maintenance will be directly contracted to the City, our team will develop maintenance services specifications for an Invitation-for-Bids for qualified local electrical contractors. We will ensure that the specification language includes:



- Description of work
- Required installation schedule
- Reference standards
- Submittals
- Quality assurance
- Warranty
- Installation
- Field quality control
- Adjusting and cleaning
- Disposal
- Requirements for handling any potential field issues, including no power, missing wire, etc.
- Safety standards
- Equipment requirements
- Licensing/reporting requirements
- Pricing requirements/templates
- Communication requirements, including pre-construction and regular project progress meetings, as well as data collection, training, documentation, and reporting requirements
- Minimum qualifications
- Key service requirements for the maintenance scope of work, including required response times for both routine and emergency services

In addition to developing the solicitation, our team will advise the City's Purchasing Department on the lowest bidder's submission and any questions the Department may have on submitted bids.

Deliverables:

- Bid Documents: Draft language and supporting materials for the City's installation/materials/maintenance bid.

Task 4: Streetlight LED Conversion

Task 4a: Community Outreach

We believe that proper coordination of information and outreach to stakeholders is an essential part of ensuring a successful streetlight conversion project. To that end, our team will coordinate with the City's media office to help develop a community outreach and notification plan prior to the commencement of any project activities. The plan will ensure project awareness and minimize public disturbance. Specifically, our team will develop the message and provide the schedule to the City's media staff for distribution through the City's existing media outlets (press releases, website, etc.).

Deliverables:

- Project Messaging and Schedule: Specific language, draft press release, and timelines related to project activities to assist with notifying community members of the project.

Task 4b: Pre-Construction Coordination

We will ensure that the selected installation contractor stages the receipt of fixture shipments for installation in a manner that ensures the secured storage of materials. We routinely coordinate this in all our projects and are familiar with how to optimize material shipments in releases so as to allow the installation contractor ample time to receive, process and securely store the materials. We will provide the City with a schedule of anticipated shipping dates for materials once the materials order is placed.

Further, we will ensure that all logistics are carefully coordinated for the project. Our team will work with the City's main point of contact to develop an installation plan that minimizes inconvenience to the City and includes ordering schedules, traffic control plans, waste disposal and recycling procedures (that comply with all applicable State and Federal laws), and installation and commissioning schedules as required to the City.

Our team is very familiar with the traffic control needs of a municipal streetlight conversion project, as traffic control is an element of virtually every one of our projects. Given that a streetlight conversion project is a mobile operation requiring just a few minutes of work at each location, it can easily be likened to the same traffic control needs as the typical trash collection service in a city. As such, we will work closely with the City and the installation contractor during this task to confirm the traffic control plan that will seamlessly maintain safe traffic conditions, including locations where police details will be needed.

Our team will facilitate a pre-construction Kick-Off meeting with City staff and the installation contractor to review the traffic control plans, work safety, public safety and waste material handling procedures and requirements prior to the start of installation. We will also coordinate and participate in regularly scheduled progress meetings with City staff.

Deliverables:

- Pre-Construction Details: Ordering, traffic control plans, required permits, disposal strategy, pre-construction meeting, ongoing meetings, installation and commissioning schedules.

Task 4c: Installation Management

Our team will ensure that the installation contractor utilizes highly trained professionals, properly trained in and abiding by all company and industry safety standards. The installation contractor will be fully insured and responsible for meeting all federal, state, and local codes and laws.

The installation contractor will provide safety, installation, traffic control, and environmental disposal services for this project. The installation contractor efforts will be directed by a foreman, who will be responsible for all logistics and field installation, including safety and traffic control, and all management of field staff. The installation contractor will provide all required safety equipment for the project and will also install a sequenced pole tag on each City-owned pole as the crews install each LED fixture.

Completion of the project commissioning (see Commissioning section below) will coincide at the end of the installation phase to quickly address any errors, punch list items, or troubleshooting needs.

Utilizing the data from the design process, we will develop installation maps (a sample can be provided upon request) and provide to installers and relevant City staff for accurate project tracking.

An additional feature of our approach is that its GPS data collection activities are integrated throughout project implementation – as a routine practice. We can stay intimately involved with the daily installation phase via its data collection protocols that are required of all installers. We will ensure that installers are equipped with handheld devices and train them in collecting relevant data on both the HPS fixtures being removed, as well as the LED fixtures being installed. Installers will be required to collect data at every location and transmit it *in real time* to Tanko Lighting. We can track each crew's daily progress via time-stamped data on every fixture location. This not only enables our team to know every location where each crew has been, it also allows us to track the routes that each crew has used and any inefficiencies in the process. We review this information daily, which allows us to provide immediate instruction to crews on any course corrections necessary. Our proven experience with managing installation crews through data collection activities routinely integrated into the installation phase ensures the accuracy and accountability of project partners.

We will use the installation data to provide real-time installation progress in a live, online interactive web map (see graphic below).



Deliverables:

- Online Installation Tracker: Online maps with locations and fixture information used to dispatch installation crews and allow City staff to monitor installation progress.

Task 4d: Commissioning Coordination

Given our significant focus on thorough data collection during both the audit and installation phases, approximately ninety-five percent of the commissioning efforts take place during the time of installation. This is because our team can quickly validate the installation data against the confirmed audit data and accurately identify any locations where both data sets do not match. This ensures tremendous precision that establishes a finite subset of the installation locations that require additional review.

Upon completion of the installation, we will ensure that the installers perform final inspection on all fixtures, correct any “punch list” items, test lights to ensure that they work, and identify locations where repair needs City assistance. We will provide the City with a complete commissioning report outlining any errors and actions taken to correct errors.

Deliverables:

- Commissioning Report: Detailed analysis of final installation verification and testing, including an outline of any errors and actions taken to correct errors.

Task 4e: Rate Change Coordination

We will coordinate with the utilities on changing tariffs to the newly installed LED fixture rates. We will prepare the necessary documentation, submit to the utilities, confirm the materials have been received and obtain the timing for the modification to be processed. If known, we will provide contact information for the appropriate party addressing any rate changes for the City. Based on the timeframe provided by the utility, the City staff will need to confirm that the modification appears on the City utility bills. If there are any inquiries from the utilities to the City regarding the submitted applications, we will assist the City with responding to any questions.

Deliverables:

- Rate Change Documentation: A compilation of copies of paperwork submitted and processed with the utility regarding rebate applications and tariff changes.

Task 4f: Final Reporting

A project is never completed until the final documentation and administrative requirements are met. We understand that proper follow-through is essential to considering a project successfully executed. To that end, our team will coordinate all final reporting and data requirements to ensure that the City considers the project is compliant and complete. This includes finalizing the GIS layer with design

and construction data and updating the analysis of gross cost, savings, incentives, net cost, and payback of finalized design, including any operation and maintenance of costs and savings. We will also provide contacts and the process whereby the City can obtain warranty support with the manufacturer(s) should it be necessary.

Deliverables:

- **Final Reporting Documentation:** Final requirements necessary to process the available rebates and tariff changes with the City, as well as post-construction electronic GIS records for all newly installed streetlights in the City, including all wattages, badge numbers, locations, and other associate attributes, and environmental disposal documentation.

Phase 4: Ongoing Streetlight Maintenance Support

Task 1: Coordination of Ongoing Maintenance Services

Our team will provide the necessary oversight to ensure the City's streetlight system is receiving proper routine and emergency maintenance services. The work includes the following activities:

Coordination of Repair Requests

Tanko Lighting will coordinate repair requests through the following mechanisms:

- **Online Repair Requests:** Tanko Lighting will provide the City with a link to a website that will allow a user to interface with an online form. The form will require the user to submit information about the location and observed issue(s). We will review any online form submissions each working day. To ensure a prompt response to an emergency situation, emergency reports must be submitted through our call center. For any non-emergency issues reported, we will dispatch an installer to respond to the location within seven (7) working days (unless the degree of repair dictates an alternative schedule to be coordinated and approved by the City on a case-by-case basis). Note that this response time is based on industry standards and if the City's contractor contract differs, we will comply with the City's requirements.
- **Call Center Repair Requests:** Tanko Lighting will provide the City with a toll-free phone number by which callers can reach a live operator at a Call Center twenty-four hours per day, seven days per week. Call Center staff will have access to the Online Repair Form and will guide each caller through the questions and submit the responses via the Online Form to our team. We will review any online form submissions each working day. If an emergency is reported, we will dispatch an installer to respond to the location within two to four (2 – 4) hours of the received report (please note that the actual remedy may require a longer duration to complete and that response times only include the time to first arrive on scene, address any immediate obstructions/hazards, identify issues and develop either a temporary or permanent remediation). Note that this response time is based on industry standards and if the City's contractor contract differs, we will comply with the City's requirements. For any non-emergency issues reported, we will dispatch an installer to respond to the location within seven (7) working days (unless the degree of repair dictates an alternative schedule to be coordinated and approved by the City on a case-by-case basis).

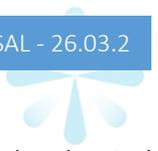
Remedy of Routine Repair Requests

The following characteristics will define a Routine Repair:

- Replacement of a failed photocell
- Replacement of a failed fixture

Upon receipt of a routine repair request, Tanko Lighting will:

- Dispatch the City's contractor to respond to the location within seven (7) working days from dispatch request and remedy the fixture issue with the appropriate parts and materials. Please note that, when possible, Tanko Lighting can batch routine repair requests so as to be more efficient with dispatch and more cost-effective for the City. We will coordinate with the City to determine whether this is an option that the City prefers for this project.
- Ensure that anytime a fixture is serviced, it is cleaned as necessary, broken lenses and covers replaced, and the entire fixture assembly left in a clean, fully serviceable condition
- Ensure that all waste materials generated from the maintenance services are properly disposed of in accordance with all applicable laws and regulations
- Provide a record of the location, date of the visit, identified issue, remedy, date of remedy completion, and any additional notes



It should be noted that when required to perform service, the making and breaking of the electrical connection to the electrical distribution network must be performed by the utility. Tanko Lighting will be responsible for all coordination with the utility in the event that repair of a streetlight outage requires involvement by the utility. If the City's contractor is unable to complete a repair as the result of action or inaction by the utility, our team will note on our monthly report and include the date and time of all verbal and written communication with the utility.

Remedy of Emergency Repair Requests

The following characteristics will define an Emergency Repair:

- Establishment of a safe and secure scene in the event of a pole knockdown or any electrical or other potential hazard resulting from the streetlighting equipment

Upon receipt of an emergency repair request, and notification to the City, Tanko Lighting will:

- Dispatch the City's contractor to respond to the location within two to four (2 – 4) hours of receipt of the request (please note that the actual remedy may require a longer duration to complete and that response times only include the time to first arrive on scene, address any immediate obstructions/hazards, identify issues and develop either a temporary or permanent remediation)
- Ensure that the City's contractor de-energizes streetlight fixtures that have been knocked down or conductors that have been severed; makes repairs or alterations to streetlight structural components to protect the immediate safety of the public
- If possible, ensure the City's contractor remedies the fixture issue with the appropriate parts and materials
- Ensure that anytime a fixture is serviced, it is cleaned as necessary, broken lenses and covers replaced, and the entire fixture assembly left in a clean, fully serviceable condition
- Ensure that all waste materials generated from the maintenance services are properly disposed of in accordance with all applicable laws and regulations
- Provide a record of the location, date of the visit, identified issue, remedy, date of remedy completion, and any additional notes
- In the event of a knockdown of a pole, Tanko Lighting will ensure that the City's contractor coordinates with the utility regarding disconnection of power, removes and disposes of the pole and lighting fixture, retaining any salvageable components, and ensures the site is secured in a safe manner. Tanko Lighting will ensure that the City's contractor coordinates with the utility regarding the emergency cleanup and, in particular, the retrieval of the City-owned lighting components
- Once any hazardous conditions are remedied, if additional work is needed to properly restore function to the fixture, within seven (7) working days following the date of emergency response, Tanko Lighting will obtain from the City's contractor a detailed written quotation of the cost and time required to restore the affected light fixture to fully operable condition, including re-installation of the pole where applicable. Tanko Lighting will ensure the City's contractor commences such repairs following approval and notification to proceed from the City
- In the event that Tanko Lighting cannot be contacted after hours, the City has the ability to contact its contractor directly

It should be noted that when required to perform service, the making and breaking of the electrical connection to the electrical distribution network (whether for routine or emergency service) must be performed by the utility. Tanko Lighting will be responsible for all coordination with the utility in the event that repair of a streetlight outage requires involvement by the utility. If the City's contractor is unable to complete a repair as the result of action or inaction by the utility, our team will note on our monthly report and include the date and time of all verbal and written communication with the utility.

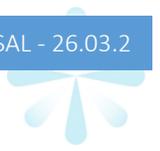
Remedy of Warranty Repairs

Tanko Lighting will ensure that the City's contractor serves as the "first responder" and, in the event that the repair issue is identified as a result of a material warranty issue, Tanko Lighting will work with the manufacturer to remedy the warranty issue on behalf of the City.

Traffic Control

Tanko Lighting will ensure that the following traffic control activities are properly coordinated by the City's contractor:

- Conduct operations so as to cause the least possible obstruction and inconvenience to public traffic. To the extent possible, all traffic will be permitted to pass through the work area. The City's contractor will furnish, erect, and maintain sufficient warning and directional signs, barricades and lights and furnish adequate warning to the public at all times of any dangerous condition to be encountered. The City's contractor's vehicles and equipment will be equipped with suitable warning lights and reflective



markings for working in daylight and dark.

- In the event that police details are required, the City's contractor will notify Tanko Lighting and Tanko Lighting will coordinate with the City to schedule the details. The cost of the police details will be paid directly by the City.

Additional Work

Any special and additional work not included above by routine or emergency maintenance of fixture (including but not limited to arm transfer service on utility poles, pole knockdown replacements, foundation replacements, starting aids, wire inside pole, remedies related to acts of vandalism, access hole covers, underground/overhead conductors and cables, tree trimming, loose anchor bolts, pole/fixture painting, leaning poles, repair/replacements of streetlight equipment due to storm damage, police detail) is subject to custom pricing. Thus, Tanko Lighting will coordinate with the contractor to provide a detailed written quotation of the cost and time required to restore the affected light fixture to fully operable condition, including re-installation of the pole where applicable. (Please note that additional work may not necessarily conform to the standard labor rates for regular maintenance work and may include additional equipment, if needed). Tanko Lighting shall ensure the City's contractor commences such repairs following approval and notification to proceed from the City.

Materials Management

Following the City approval, Tanko Lighting will ensure the City's contractor purchases and maintains an inventory of materials (such as photocells, fuses, and wiring) of sufficient quantity to be able to perform the routine service work described herein. Such parts and materials, which are part of the performance of routine streetlight maintenance, will be quoted as costs on an as-needed basis. Tanko Lighting will ensure the City's contractor warrants that materials furnished conform to the requirements specified, are of good merchantable quality and suitable for the purpose intended.

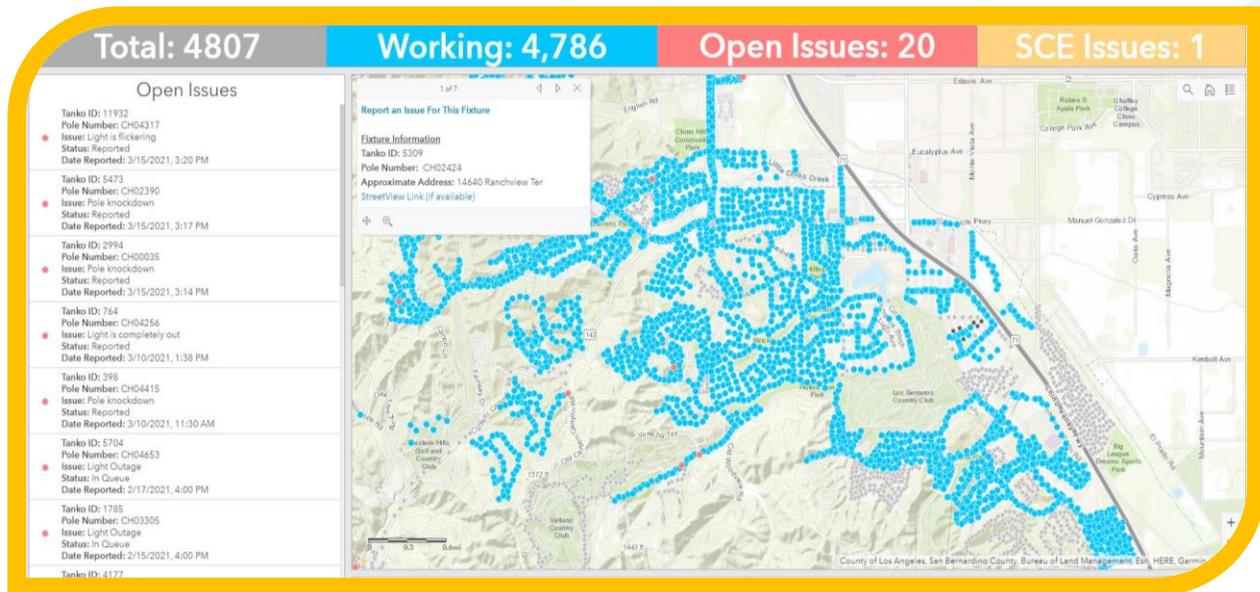
Tanko Lighting will ensure the City's contractor accesses and stores (if requested) any the City -purchased inventory of materials (spare fixtures, arms and poles) in order to facilitate expedient fixture replacement in case of failure. Tanko Lighting will monitor spare fixture inventory and recommend that the City consider purchasing additional fixture stock as needed to maintain a sufficient fixture inventory.

Administrative Support

If requested by the City, Tanko Lighting will provide a detailed written quotation of the cost and time required to provide supporting documentation to assist the City with its pursuit of third parties for any insurance claims.

Reporting

We will provide a web-based portal for the City to regularly access and monitor an up-to-date and real-time summary of current and completed tasks (this is included in our pricing). Data will include work order tracking and status updates, asset and equipment management, maintenance requests, and maintenance checklists that are maintained and updated regularly. Please find a sample snapshot of our web-based portal below.



Our online maintenance dashboard allows clients to track progress in real-time.

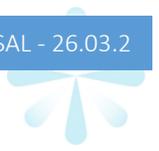
Please note that we expect the City will provide our team with written notification of any changes to the inventory (including new pole installations and/or removals (regardless of streetlight ownership)) throughout the term of the contract. Our team will not be responsible and/or liable for servicing any locations for which it is not properly notified.

Billing Coordination

In coordination with the City's Procurement and Payables team, Tanko Lighting will develop a billing structure and schedule with the City's contractor to ensure proper and timely invoicing. Our team will review monthly invoices and request any missing information from the City's contractor. Once the monthly invoices have been reviewed, our team will batch these, along with our monthly billing, and provide to the City in a batched invoice submission.

Deliverables:

- Maintenance Services Contract Template: Draft content for the maintenance services contract.
- Reporting Dashboard: Web-based portal of current and completed tasks.



PRICING

Please note that this pricing is valid for sixty (60) days from the date of this proposal.

Pricing		
Phase	Task	Price
Phase 1 – Project Development Total Price: \$268,405	1: Exploratory Utility Negotiations	\$10,000
	2: Inventory Conditions	\$223,405
	3: Streetlight Master Plan	\$35,000
Phase 2 – Streetlight System Purchase Total Price: \$205,000	1: Final Purchase and Sale Support	\$165,000
	2: Streetlight Maintenance Strategy	\$12,500
	3: Streetlight Deficiency Analysis	\$27,500
Phase 3 – LED Conversion Total Price: \$239,580	1: Streetlight LED Replacement Design	\$48,675
	2: Pole Labeling	\$58,410
	3: Contractor Bid Solicitation	\$25,000
	4: Streetlight LED Conversion	\$107,495
Phases 1 – 3 Subtotal:		\$ 712,985
Phases 1 – 3 Suggested Contingency (@ 10%):		\$71,299
Phases 1 – 3 Total:		\$784,284
Phase 4 – Ongoing Streetlight Maintenance Support Total Price: \$41,244 (annually)	1: Coordination of Ongoing Maintenance Services	\$41,244 annually (\$1.00 per fixture per month, based on 3,437 fixtures)

Pricing Notes

- For Phases 1 – 3, Tanko Lighting will invoice the City monthly, based on the percentage completed each month.
- For Phase 4, Tanko Lighting will invoice the City monthly, based on the per fixture monthly fee.
- Phase 1 assumes a total of 3,437 fixtures. We suggest the City includes a 10% contingency for this phase to be utilized in the event additional fixtures are identified in the field and/or additional scope needs to be included.
- Phase 3 assumes a total of 3,245 fixtures will be designed and converted to LED (existing LED fixtures will not be converted).
- The City shall pay Tanko within thirty (30) days of receipt of an invoice.

APPENDICES

Appendix A – Projects List