

**CITY OF WEST ALLIS
AMENDED WORK ORDER #1**

TO: **KL ENGINEERING, INC.**

DATE: **December 18, 2019**

PROJECT: **ENGINEERING SERVICES FOR STREET LIGHTING CONVERSION PLAN**

SUBJECT: Engineering Consultant Services



In accordance with Resolution No. 2019-0236 and Resolution No. 2019-0910 and the Agreement for Professional Services dated as of April 16, 2019 (the "Agreement"), you are directed to proceed with work on the Project as outlined below:

Work: See attached Scope of Services dated December 10, 2019.

Estimate: \$ 116,515.00

Schedule: Work to commence immediately. To be completed as part of the Basic Services under the Agreement.

This Work Order, including any attachments, is incorporated into the Agreement. All work defined in this Work Order and payment therefor shall be performed in accordance with the terms and conditions of the Agreement, unless otherwise modified herein. Any modification(s) of this Work Order is subject to approval and acceptance pursuant to the Agreement.

Issued:	Received and Approved:
CITY OF WEST ALLIS	KL ENGINEERING, INC.
By: <u></u> Peter C. Daniels, P.E.	By: <u></u>
Title: <u>City Engineer</u>	Title: <u>PRESIDENT</u>
Date: <u>1/31/20</u>	Date: <u>1/29/2020</u>

ATTACHMENTS:
Scope of Services

COMPTROLLER'S CERTIFICATE February
Countersigned this 16th day of December, 2019 2020
and I certify that the necessary funds have been provided to pay the liability that may be incurred by the City of West Allis under this Contract.


Peggy Steeno, Director of Finance/Comptroller



5400 King James Way I Suite 200
Madison, WI 53719
608.663.1218
Toll Free: 800.810.4012
www.klengineering.com

December 10, 2019

Peter Daniels, P.E.
City Engineer
City of West Allis Engineering Department
7525 W Greenfield Ave. Room 212
West Allis, WI 53214

RE: Proposal for Lighting Design Services – City of West Allis – 2020 Lighting Circuit Upgrades

Dear Peter:

KL Engineering, Inc. is pleased to provide you with this proposal to perform lighting and electrical design for the 2020 Lighting Circuit Upgrades. The following attachments are included with this letter, and should be considered part of our contract for engineering services:

- Attachment A – Project Background, Design Team, and Schedule
- Attachment B – Contract Assumptions and Scope of Services
- Attachment B.1 – Circuit C-3 Description
- Attachment B.2 – Circuit D-1 Description
- Attachment B.3 – Circuit N-5 Description
- Attachment B.4 – Circuit P-3 Description
- Attachment C – Construction Engineering Contingency
- Attachment D – Design Fee Estimates
- Attachment E – Billing Schedule
- Attachment F – General Terms and Conditions

The total cost for the services listed below will be billed on a lump sum basis for a total cost of **\$28,015**.

- Additional Planning Efforts

The total cost for the services listed below will be billed on an hourly basis utilizing the enclosed billing schedule with a maximum cost of **\$88,500**. We will bill to each project individually, and our invoices will include subtotals for each project.

- C-3: \$24,560
 - Preliminary Engineering: \$5,337
 - Design Engineering: \$10,446
 - Bidding and Administration: \$8,777
- D-1: \$7,881
 - Preliminary Engineering: \$420
 - Design Engineering: \$3,258
 - Bidding and Administration: \$4,203
- N-5: \$41,543
 - Preliminary Engineering: \$8,715
 - Design Engineering: \$17,804
 - Bidding and Administration: \$15,024
- P-3: \$14,516
 - Preliminary Engineering: \$3,118
 - Design Engineering: \$5,744
 - Bidding and Administration: \$5,654
- *Total for all Circuits: \$88,500*
 - *Total for Preliminary Engineering: \$17,590*
 - *Total for Design Engineering: \$37,252*
 - *Total for Bidding and Administration: \$33,658*

Attachment A

Project Background, Design Team, and Schedule

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

Project Background:

The City of West Allis Department of Public Works Electrical Services Division is responsible for maintaining and operating the City's street lighting system, comprised of 51 low voltage parallel circuits and 77 high voltage series circuits. Although high voltage series circuits can serve larger areas than their counterpart, they pose a higher risk to worker safety when performing routine maintenance on high voltage systems. Not only does this require specialized training for all City electrical staff, but contractors often lack sufficient experience working with high voltage systems.

High voltage series systems are more costly and time-consuming to repair and maintain when compared to low voltage systems. The replacement infrastructure for high voltage systems is rapidly becoming obsolete and it is difficult to obtain spare parts. Therefore, converting to low voltage parallel circuiting will result in significant savings. Furthermore, due to the recent phasing out of low-pressure sodium (LPS) luminaire manufacturing, the City has approximately 7 years before large numbers of streetlight fixtures begin to go dark.

In late spring 2019 the City of West Allis and KL Engineering completed a planning study which evaluated alternatives for upgrading the City's lighting systems. The purpose of this study was to ensure lighting remains operational, to increase overall efficiency and to take advantage of cost savings resulting from decreased energy usage and reduced maintenance. The study concluded that 225 LPS luminaires must be converted annually from high voltage series circuitry to low voltage parallel circuitry in order to keep pace with impending LPS outages.

The study identified that installation using City forces and equipment would be the most economical method to complete the circuit conversions. The study also recommended using locally and WisDOT let projects completed by contracted forces in order to maintain the minimum pace of 225 LPS luminaires per year. The ratio of City to contractor circuit conversions should be adjusted annually to match work force capabilities and take advantage of funding opportunities.

Throughout 2019, the City's electrical staff has been working on the conversion process of circuits F-1 and A-3. Due to the electrical staff's commitment to these projects, standard operations tasks have been neglected and are not being addressed. Additionally, routine maintenance and other daily activities are frequently disrupting the staff's commitment to the circuit conversion projects, thus hindering ideal production rates to complete the conversions. Based on these experiences, it has been determined that City work forces may have the capacity to perform a portion of the circuit conversion work for the year 2020, with the balance of the work to be done via let project(s).

All circuit conversion projects for 2020 have been selected to coincide with roadway reconstruction projects. Projects included in the 2020 Streetlighting Circuit Conversion scope are as follows:

1. Circuit C-3
2. Circuit D-1
3. Circuit N-5
4. Circuit P-3

Design Team:

KL is prepared to dedicate a team to fulfill the tasks outlined in this proposal. Professional resumes of the team members can be made available upon request. The KL project team consists of engineers, technicians, and a master electrician who have been selected based on experience and knowledge of the specific services offered with this proposal. A larger support staff beyond those mentioned will be available to supplement our planning, design, and construction efforts when required.

Mike Scarmon, PE (Project Manager, Madison, WI)

As the project manager for the 2020 street lighting circuit conversion project, Mike will be responsible for coordinating KL team performance and committing firm resources to ensure successful completion of project tasks. He will also provide internal quality control for KL's project tasks through preliminary and final design, and construction. Mike's primary focus will include developing standards, material procurement, contract documents, meetings and other planning tasks.

Jake Joyal, PE (Lead Design Engineer, Madison, WI)

As the lead design engineer and primary contact for the 2020 street lighting circuit conversion project, Jake will be responsible for leading the design team preparation of the plans and specifications and reviewing all project work for accuracy and completeness. Jake has established relationships with City of West Allis staff, and will be their primary contact for coordination through the preliminary and final design stages. His role will also include coordinating with utilities and other project stakeholders.

Tony Steinert (Electrical Designer and Construction Lead, Green Bay, WI)

Tony will provide field documentation and electrical design for the circuit conversion projects. He will focus on establishing existing infrastructure location, condition, and electrical capacity. Tony's role will include reviewing plans, developing specifications, estimates, and constructability. He will also coordinate with contractors, utilities, and other project stakeholders

Dave Tollefson (GIS Specialist, Madison, WI)

Dave will provide GIS services for the 2020 circuit conversion projects. He will assist with data migration of the City's mapping to be used for the project plans. Dave will also focus on establishing conventions for mapping the as-built circuit data after each system is constructed.

Jared Baltes (Design Engineer, Madison, WI)

Jared will assist with the plans, specifications, and estimates developed for the street lighting circuit conversion project. His experience includes developing design alternatives, roadway and intersection lighting design, photometric analysis, traffic control plans, utility coordination, plan development, and quantity computations.

Project Schedule:

We anticipate quickly mobilizing upon receiving authorization to proceed and will focus on compiling GIS and other mapping resources and other field data for the projects. In parallel, KL's team will be developing standards for the design process to follow. See below for the anticipated design schedule for the 2020 lighting upgrade projects:

- January 1, 2020: Authorization to proceed
- Week of January 12th: Kickoff meeting
- Week of February 9th: Design review meeting #1
- Week of March 8th: Design review meeting #2
- Late March: Plans advertised for bids
- Week of April 5th: Pre-bid meeting (tentative)
- Late April: Award bids
- Early May: Start construction

The schedule for the remainder of the construction season will be dictated by the contractor(s) who will be selected to complete the work and other factors that will be determined through the design process.

Attachment B

Contract Assumptions and Scope of Services

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

Additional Planning Efforts:

This task involves engineering and planning efforts that are suggested first steps to establish design parameters that will be subsequently used in the Preliminary and Design Engineering phases, further described below. These planning tasks are uniquely required for the first year of implementation of the City's lighting conversion plan, meaning these steps should not be required in subsequent years.

The additional planning sub-tasks include the following:

- Develop Budget Forecasts for Circuit Conversion Projects
 - High voltage series circuits were previously analyzed to determine which circuits should be correlated with proposed roadway reconstruction projects by the City and WisDOT.
 - A near term and multi-year forecast (3-5 years) will allow for increased budgeting reliability by forecasting project costs based on specific characteristics of each segment.
 - Includes developing a "one-page" budget summary document, intended to communicate current and future project costs to City staff and officials.
- Update the Lighting System Analyzer Database
 - The database prepared as part of the planning study will be updated and maintained on an ongoing basis.
 - Updates include building the functionality to estimate partial circuits.
 - Includes adding the functionality for tracking project costs and savings.
- Develop Lighting Infrastructure Standardization
 - Documenting, and in some cases developing, material and design standards will be an important step to establish with a multi-year project. It is anticipated the City will be able to use established standards from WisDOT and other municipalities to most efficiently develop standards unique to West Allis.
 - Includes providing the City of West Allis Engineering and electrical department staff with alternatives for standardized materials, and other design standards. These standards will be used with all high voltage circuit conversion projects moving forward.
 - Developing material standards will account for the following equipment:
 - Electrical Controls and Metering
 - Conduit and Conductors
 - Pull boxes
 - Concrete Bases
 - Standard Cobra-head lighting units (base, pole, arm, luminaire, accessories)
 - Standard decorative post top lighting units (base, pole, luminaire, accessories)
 - Standard decorative pendant lighting units (base, pole, arm luminaire, accessories)
 - Developing design standards will account for the following construction operations:
 - Conduit install by directional boring
 - Conduit install by trench
 - Pullbox connections
 - Services and cabinet configurations
 - Wiring, splicing, fusing
 - Temporary connections, high voltage protocols
 - Developing other standards:
 - Includes identifying preferred vendors, procurement contracts and other purchasing strategies
 - Includes coordination with Focus on Energy to ensure proposed luminaires are acceptable for rebate incentive program. Ideally a long-term commitment can be secured up front while the program is funded.

- Includes developing a long-term plan for electrical services and control cabinet locations.
 - Significant cost savings potential exists by strategically mapping out future low voltage electrical services and cabinets.
 - KL suggests additional effort can build upon a previous effort by the City to map out low voltage electrical services.
 - Deliverable includes a GIS format city-wide perspective map of current and future electrical services.
- Public Outreach
 - KL will work with the City of West Allis to determine a preferred method for public outreach to serve as a long-term model for the lighting conversion project.
 - Includes developing a “one-page” plain-spoken and graphical summary document with a brief description of the project work, impacts, schedule, and contact info. This document could be made available for multiple uses such as the City website, email, printed mail, hand-out, or similar communication.
 - Includes developing a door hanger to notify all residents living within the project limits prior to construction. The door hanger could identify project impacts, contact information, lighting outages, and other information pertinent to construction.
 - All documents would be created in common file formats for future updates and use by the City.
- Identify a Preferred Contracting Method and City Role
 - KL suggests more consideration be given to establishing a preferred contracting strategy for the lighting conversion projects. Several contract models may be available to most efficiently bid, award, and construct multiple lighting conversions projects each year. These include grouped bids, multiple project awards, and multi-year contracts.
 - Establishing preferred roles for City electrical staff will be critical to complete contracting arrangements for bidding. City roles should be based on leveraging the strengths of existing staff and equipment and balancing scheduling and funding risks. An example may be contracting up front work (directional boring, bases, wiring) then City staff could install above ground equipment with the option for the contractor to complete if needed. Many similar arrangements may be advantageous to consider.
 - Establish preferred methods for incorporating high voltage conversions into City street projects, and WisDOT projects.
 - All contract and bidding documents would be created in common file formats for future updates and use by the City.

Preliminary Engineering:

The preliminary engineering phase includes data collection and investigative efforts necessary to establish the design parameters that will be subsequently used in the Design Engineering phase.

The scope of preliminary engineering work is similar for all project segments. The preliminary engineering sub-tasks include the following:

- Meetings – KL will facilitate a kickoff meeting in early December at the City of West Allis to confirm the following project details:
 - Schedule and project milestones
 - Determination of standard infrastructure
 - Design methodology and standard practices
 - Points of contact and coordination
- Mapping
 - KL will use the City’s GIS database to develop a 2D layout of the extents of each circuit to be used in lieu of actual survey data. This database will also be used to obtain rough approximations of gas and electric utility locations, as well as existing streetlighting infrastructure.
 - KL will contact diggers hotline and request electronic and/or hard copy utility mapping for the circuit conversion area.
 - KL will perform a field review with a GPS locator and manually locate all streetlighting units and controls. Data will be uploaded into GIS and Civil 3D for design utilization to create removal plans.
 - Field survey will not be collected except for within roadway reconstruction limits, where KL will coordinate with the City to obtain survey data from others. KL may request additional survey to be completed by the City when more specific mapping data is required.

- Field Work
 - KL will perform field reviews to manually locate all existing streetlighting infrastructure for the specified high voltage series circuits.
 - KL will inspect all existing lighting infrastructure to determine and document its availability for re-use.
 - KL will measure all applicable panel amperages and circuit voltage drops on existing low voltage electrical services to determine capacity for carrying additional loads from converted high voltage systems.
 - KL will field verify and document any significant potential conflicts including complex overhead or underground utility configurations, steep grades, railroad corridors, tree canopy issues, and other similar features.
- Deliverables
 - Includes plans with existing conditions mapping and depiction of all features described above.
 - Includes site photos, GPS coordinates, electrical documentation, and other field notes.

Design Engineering:

This task includes completion of streetlighting and electrical design for the high voltage circuits, as well as development of plans, specifications and construction estimates for preliminary and final project intervals. The scope of design engineering work is similar for all project segments.

The design engineering sub-tasks include the following:

- Meetings – KL will meet with City staff at two (2) design intervals in late-December and late-January to review all circuit conversion design plans and determine any conflicts with scheduling or roadway reconstruction projects. Both meetings are anticipated to be half-day “workshop” type meetings with an extensive agenda.
- Design Standards
 - Lighting design will utilize and reference WisDOT standard specifications and details.
 - Lighting infrastructure will be designed to meet NEC specifications.
 - Lighting design will be based on a 1-for-1 replacement with existing lighting units. Exact layout will be designed based on best practices, field conditions, and construction coordination.
 - Photometric modeling and illumination documentation are not included.
 - All lighting infrastructure will conform to the standardized materials as determined for use with these projects. Exceptions to standard conditions may require additional design effort to complete.
- Electrical Service and Controls Coordination
 - Using the City mapping created from GIS and manual GPS locates, proposed cabinet locations will be determined. Proposed cabinet locations shall be optimized by taking consideration of neighboring low voltage service capacities, as well as all future high voltage circuit conversion projects.
 - It is assumed that existing low voltage lighting services outside of the project limits may be considered as a potential power source.
 - It is assumed that proposed low voltage lighting services may be installed with the anticipation for future expansion beyond the project limits.
 - This task includes coordination with the electrical utility for up to one (1) new electrical service per high voltage series circuit being converted, completing the permit form and application, and conflict mitigation.
 - This task includes coordination with Verizon for potential of shared infrastructure with 5G wireless communication network installations. This task is based on a maximum of eight (8) hours and is not intended for ongoing coordination with Verizon.
- Street Lighting Design
 - All existing street lighting infrastructure that was located from manual inspection and GIS databases will be mapped in AutoCAD Civil 3D and required removals will be determined.
 - Final lighting layout, electrical conduit routing, pull box and control cabinet locations will be mapped in AutoCAD Civil 3D.
 - Using the proposed layouts, voltage drop calculations will be performed to determine optimized electrical circuiting and conductor sizing. All calculations will be documented with spreadsheets and will be available for review upon request.
 - Includes establishing requirements for temporary connections, temporary lighting, and other construction operations.

- Field Work
 - Upon completion of pre-final design, KL will stake all proposed lighting and cabinet locations with markers (flags, paint, or similar) to allow for City staff and other affected stakeholders to provide input.
 - KL will update and complete a final locate to identify any adjustments made to the proposed lighting units and cabinets with the GPS locator. These coordinates will be included in the plans, provided to the contractor, and will eventually be used for as-built mapping into the GIS database.

Bidding and Administration:

This task includes preparing and submitting deliverables for project advertisement and letting. This project assumes that templates for deliverables will be re-usable, therefore the initial investment will provide long-term use. The scope of bidding and administration work is similar for all project segments.

The bidding and administration sub-tasks include the following:

- Prepare Bidding Plans and Specifications – KL will develop and submit construction documents for each circuit conversion for two project intervals, pre-final and final, with one (1) opportunity for official review after the pre-final submittal. Deliverables will include the following:
 - Lighting Removal Plans
 - Lighting Plans
 - Construction Details (4 pages)
 - Technical Specifications
 - Bid Tabulations
- Project Delivery and Administration
 - This proposal assumes that construction estimates will be updated continuously and presented at each of the four (4) check-in meetings with the City of West Allis.
 - This proposal assumes the lighting designs associated with the concurrent roadway reconstruction projects will be included with the circuit conversion project lettings and will not be bid as part of the roadway projects. Preparing lighting deliverables for multiple letting may require additional services to complete.
 - This proposal is based on the City completing bidding documents and advertisement for one (1) letting per high voltage series circuit conversion. The required contractor sealed bid submittal package will include the following elements that then assure conformance with state bidding and construction laws as noted in Wisconsin Statutes 66.0901, and 62.15:
 - Bid bond
 - Signed bid form (binding price)
 - All proposed material submittals (correlate with the bid price)
 - Affidavit of organization
 - Project bidding manual
 - Project advertisement on Quest
 - Other front-end documents as required
- Meetings and Coordination:
 - Includes one (1) kick-off meeting as described previously.
 - Includes two (2) design review meetings as described previously.
 - Includes one (1) pre-bid meeting with contractors.
 - Includes one (1) meeting to evaluate bids and recommend award.
 - Includes up to eight (8) hours to compile bid results, comparisons, and other cost data for the project.
 - Includes up to eight (8) hours per high voltage series circuit conversion to provide administrative support, to provide file sharing avenues, answer questions, and for miscellaneous coordination.

Attachment B.1

Circuit C-3 Description

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

General Circuit Characteristics:

This section describes the infrastructure components and parameters of the high voltage series circuit used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit C-3 shall be described as follows, and be considered the basis of the scope of the design:

- Circuit Description
 - C-3: Between S 68th St, W Becher Pl, W McGeoch Ave, the Union Pacific Railroad, S 60th St and W Lincoln Ave
 - Circuit conversion project will only include lighting south of W Beloit Rd and east of 65th St
 - Assumes 4 lights along 66th Street from the C-3 circuit will be added to the Beloit Road C-2 circuit which already includes 67th St
- Extents of Streetlighting
 - 7,100 ft of roadway illuminated
- Street Lighting units
 - 57 total lighting units
 - (54) 35W LPS
 - (3) 70W HPS
- Existing Controls and Electrical Service
 - High voltage Transformer Located at W Becher Pl and W McGeoch Ave
 - Transformer to remain in service for circuits C-1, C-2 & C-3
 - CA low voltage control cabinet located at S 60th St & W Burnham St
 - DC low voltage control cabinet located at W Grant St & S 60th St

Roadway Reconstruction Project:

This section describes the extent of impacts from roadway reconstruction projects on the high voltage series circuit, used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit C-3 is expected to coincide with a City of West Allis street reconstruction project as follows:

- Project Description
 - Reconstruction on W Grant St between W Beloit Rd and S 60th St.
- High Voltage Series Circuit Impacts: C-3
 - 1,500 ft of roadway illuminated
 - 16 total lighting units
 - (16) 35W LPS
- Low Voltage Parallel Circuit Impacts: C-A
 - Minimal ft of roadway illuminated
 - 2 total lighting units
 - (2) 150W HPS

Miscellaneous Coordination:

This section describes other unique features, stakeholders, or restrictions that require additional coordination that will impact the efforts necessary to complete engineering and bid documents. Circuit C-3 is anticipated to require the following unique coordination requirements:

- Union Pacific Railroad
 - Railroad coordination will be required if conductors must be installed under or over the railroad
 - Includes permit documents and application process

Attachment B.2

Circuit D-1 Description

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

General Circuit Characteristics:

This section describes the infrastructure components and parameters of the high voltage series circuit used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit D-1 shall be described as follows, and be considered the basis of the scope of the design:

- Circuit Description
 - D-1: W Rogers St, S 60th St, W Lincoln Ave and S 54th St
 - Circuit conversion project will only include lighting on 58th and 59th streets, north of the Union Pacific Railroad
- Extents of Streetlighting
 - 1,200 ft of roadway illuminated
- Street Lighting units
 - 10 total lighting units
 - (7) 55W LPS
 - (3) 70W HPS
- Existing Controls and Electrical Service
 - High Voltage Transformer Located at S 60th St and W Grant St – Longfellow Elementary School
 - Transformer to remain in service for circuits D-4, D-5 & D-6
 - CA low voltage control cabinet located at W Burnham St & S 60th St
 - DB low voltage control cabinet located at S 56th St at Rogers Playground
 - DA low voltage control cabinet located at W Arthur Ave & S 60th St

Roadway Reconstruction Project:

This section describes the extent of impacts from roadway reconstruction projects on the high voltage series circuit, used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit D-1 is expected to coincide with a City of West Allis street reconstruction project as follows:

- Project Description
 - Reconstruction on S 58th St between W Mobile St and W Beloit Rd.
- High Voltage Series Circuit Impacts: D-1
 - 700 ft of roadway illuminated
 - 5 total lighting units
 - (4) 55W LPS
 - (1) 70W HPS
- High Voltage Series Circuit Impacts: C-1
 - Minimal ft of roadway illuminated
 - 2 total lighting units
 - (2) 150W HPS
- Low Voltage Parallel Circuit Impacts: D-B
 - 600 ft of roadway illuminated
 - 4 total lighting units
 - (4) 70W HPS

Miscellaneous Coordination:

This section describes other unique features, stakeholders, or restrictions that require additional coordination that will impact the efforts necessary to complete engineering and bid documents. Circuit D-1 is anticipated to require the following unique coordination requirements:

- Union Pacific Railroad
 - Railroad coordination will be required if conductors must be installed under or over the railroad
 - Includes permit documents and application process

Attachment B.3

Circuit N-5 Description

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

General Circuit Characteristics:

This section describes the infrastructure components and parameters of the high voltage series circuit used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit N-5 shall be described as follows, and be considered the basis of the scope of the design:

- Circuit Description
 - N-5: Between S 92nd St, W Greenfield Ave, 48th St and the Union Pacific Railroad
- Extents of Streetlighting
 - 12,700 ft of roadway illuminated
- Street Lighting units
 - 107 total lighting units
 - (96) 35W LPS
 - (10) 55W LPS
 - (1) 70W HPS
- Existing Controls and Electrical Service
 - High Voltage Transformer Located at 92nd St and W Lapham St
 - Transformer to remain in service for circuits N-1, N-3 & N-4
 - NA low voltage control cabinet located at W Lapham St & S 19th St
 - MA low voltage control cabinet located at W Washington St & S 86th St
 - NB low voltage control cabinet located at W Greenfield Ave & USH 41

Roadway Reconstruction Project:

This section describes the extent of impacts from roadway reconstruction projects on the high voltage series circuit, used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit N-5 is expected to coincide with a City of West Allis street reconstruction project as follows:

- Project Description
 - Reconstruction on S 90th St between W Lapham St and W Greenfield Ave.
- High Voltage Series Circuit Impacts: N-5
 - 1,300 ft of roadway illuminated
 - 11 total lighting units
 - (9) 35W LPS
 - (2) 55W LPS
- High Voltage Series Circuit Impacts: N-3
 - Minimal ft of roadway illuminated
 - 2 total lighting units
 - (2) 200W HPS
- Low Voltage Parallel Circuit Impacts: N-A
 - Minimal ft of roadway illuminated
 - 2 total lighting units
 - (2) 70W HPS

Miscellaneous Coordination:

This section describes other unique features, stakeholders, or restrictions that require additional coordination that will impact the efforts necessary to complete engineering and bid documents. Circuit N-5 is anticipated to require the following unique coordination requirements:

- Union Pacific Railroad
 - Railroad coordination will be required if conductors must be installed under or over the railroad
 - Includes permit documents and application process
- Wisconsin State Fair
 - Additional coordination with the contractor will be required that all lighting remains operable during the state fair

Attachment B.4

Circuit P-3 Description

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

General Circuit Characteristics:

This section describes the infrastructure components and parameters of the high voltage series circuit used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit P-3 shall be described as follows, and be considered the basis of the scope of the design:

- Circuit Description
 - P-3: Between 92nd St, Cleveland Ave and W Beloit Rd
- Extents of Streetlighting
 - 4,800 ft of roadway illuminated
- Street Lighting units
 - 33 total lighting units
 - (29) 35W LPS
 - (4) 55W LPS
- Existing Controls and Electrical Service
 - High Voltage Transformer Located at 92nd St and Cleveland (Wright Middle School)
 - Transformer to remain in service for circuits P-1, P-2 & P-4
 - PA low voltage control cabinet located at W Dakota St & S 92nd St
 - KB low voltage control cabinet located at W Beloit Rd & S Orleans Ave

Roadway Reconstruction Project:

This section describes the extent of impacts from roadway reconstruction projects on the high voltage series circuit, used to estimate the efforts that are necessary to complete the engineering and bid documents. Circuit P-3 is expected to coincide with a City of West Allis street reconstruction project as follows:

- Project Description
 - Reconstruction on W Dakota St/S 86th St between S Orleans Ave and W Cleveland Ave.
- High Voltage Series Circuit Impacts: P-3
 - 900 ft of roadway illuminated
 - 10 total lighting units
 - (10) 35W LPS
- Low Voltage Parallel Circuit Impacts: P-A
 - 500 ft of roadway illuminated
 - 4 total lighting units
 - (1) 70W HPS
 - (3) 40W LED

Attachment C

Construction Engineering Contingency

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

This document describes preliminary assumptions to provide construction engineering services for the 2020 circuit conversion projects. The scope of services described below is for information only and is not included with this request for authorization. A subsequent request for authorization will be required for construction services and is suggested to initiate after the bid is awarded, when construction scheduling and other oversight requirements will be better identified. We suggest using 3.5% of total construction costs for estimating potential construction engineering fees.

Project Management and Administration:

This task involves administrative efforts necessary to establish the project oversight and ensure adequate construction progress. The sub-tasks include the following:

- Meetings
 - KL will facilitate a one (1) pre-construction meeting for each high voltage series circuit conversion project awarded.
 - KL will facilitate construction progress and scheduling meetings, assumed to be held every other week for each high voltage series circuit conversion project awarded.
- Material Reviews
 - This proposal includes administrative and technical support to review equipment submittals for contractor approval.
- Technical Support
 - This proposal includes technical support during construction to address inquiries regarding design intent, reviewing construction change requests, and teleconferences.

Construction Oversight and Inspection:

This task involves efforts necessary to provide direct construction oversight of the lighting conversion projects, and to ensure the work completed meets high quality standards and conforms to the plan and specification requirements. The sub-tasks include the following:

- Construction Oversight
 - KL provide a construction staff member to oversee electrical construction. The level of effort is estimated to be one (1) day per week for each high voltage series circuit conversion project.
 - Oversight tasks include meetings, site visits, and other administrative tasks.
- Construction Inspection
 - Routine Inspection - KL will provide an inspector to monitor electrical installations on a periodic basis, not full-time inspection. The level of effort is estimated to be one (1) day per week for each high voltage series circuit conversion project.
 - Punch List Inspection - KL will provide an inspector to complete a full day punch list inspection for each high voltage series circuit conversion project. This task includes a follow-up visit to ensure conformance on all punch list items.

Deliverables and Other Items:

This task involves efforts necessary for miscellaneous coordination and to prepare accurate and complete record drawings for each lighting conversion project. The sub-tasks include the following:

- Administrative Support:
 - Tracking and approving pay requests
 - Reviewing and approving change orders
 - Managing schedule and budget reports (monthly)
- Project Management:
 - Coordination with utilities
 - Coordination with property owners
 - Coordination with other projects (City and WisDOT)
- As-Built Mapping:
 - As-built mapping will be compiled from field locations.
 - Mapping will be developed, converted and formatted for inclusion with the City's GIS database.

Attachment D

Design Fee Estimates

Lighting and Electrical Design Services 2020 Circuit Conversions West Allis, Wisconsin

Engineering Fees for Additional Planning Efforts:

Below is a summary of our hours by task, as well as total hours, total cost, and average hourly rate. These costs will be invoiced on a lump sum basis.

Additional Planning Efforts		
Budget Forecasts		
Hours		26
Cost		\$2,662
Lighting Analyzer Program Updates		
Hours		34
Cost		\$2,776
Develop Lighting Infrastructure Standardization		
Hours		137
Cost		\$14,777
Public Outreach		
Hours		32
Cost		\$3,370
Contracting Methodology		
Hours		36
Cost		\$4,430
TOTAL HOURS		265
TOTAL COST		\$28,015
AVERAGE HOURLY RATE		\$106

Engineering Fees for Circuits:

Below is a summary of our estimated hours by task for each project, as well as total hours, total cost, and average hourly rate. These costs shall be considered a not-to-exceed estimate based on the scope of services described in this proposal. We have been diligent in preparing our cost estimate and will strive to be as efficient as possible. If we complete the project in fewer hours than anticipated, we will bill correspondingly less. We intend to bill to each project individually, and our invoices will include subtotals for each project.

	Circuit C-3	Circuit D-1	Circuit N-5	Circuit P-3	Total for All Circuits
Luminaires	57	10	107	33	207
Preliminary Engineering					
Hours	50	4	91	26	171
Cost	\$5,337	\$420	\$8,715	\$3,118	\$17,590
Design Engineering					
Hours	94	33	167	48	342
Cost	\$10,446	\$3,258	\$17,804	\$5,744	\$37,252
Bidding and Administration					
Hours	87	45	154	55	341
Cost	\$8,777	\$4,203	\$15,024	\$5,654	\$33,658
Totals by Circuit					
Hours	231	82	412	129	854
Cost	\$24,560	\$7,881	\$41,543	\$14,516	\$88,500
Average Hourly Rate	\$106	\$96	\$101	\$113	\$104
TOTAL HOURS			854		
TOTAL COST			\$88,500		
AVERAGE HOURLY RATE			\$104		



STANDARD BILLING RATE SCHEDULE
EFFECTIVE JANUARY 1, 2020

Standard Billing Rates

Administration	\$65.00
Limited Term Employee	\$45.00
Engineering Technician I	\$69.00
Engineering Technician II	\$80.00
Senior Engineering Technician	\$90.00
Surveyor	\$70.00
Registered Land Surveyor	\$105.00
Environmental Specialist	\$110.00
Electrical Designer/Inspector	\$110.00
Transportation Planner	\$110.00
GIS Specialist	\$110.00
Professional Landscape Architect	\$130.00
Engineer I	\$85.00
Engineer II	\$95.00
Project Engineer	\$105.00
Senior Project Engineer	\$125.00
Project Manager	\$130.00
Senior Project Manager	\$140.00
Principal	\$155.00

Expenses

Out-of-pocket direct job expenses (reproductions, sub-consultants, equipment rental, etc)	at cost
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Travel Expenses

Company or Personal Car Mileage	IRS rate
Lodging and Subsistence	at cost

Billing and Payment

Travel time is charged for work required to be performed out-of-office.

Invoicing is on a monthly basis for work performed. Payment for services is due within 30 days from the date of the invoice. An interest charge of 1.5% per month is made on the unpaid balance starting 30 days after the date of the invoice.

This schedule of billing rates is effective January 1, 2019 and will remain in effect until December 31, 2019 unless unforeseen increases in operational costs are encountered. We reserve the right to change rates to reflect such increases.

Rev. 12/5/19

General Terms and Conditions of the Engineering Services

1. KL Engineering, Inc. will begin engineering services upon written authorization to proceed. Receipt of a signed contract will be considered written authorization. For projects requiring phased services a written authorization of approval of the prior phase and notice to proceed on the subsequent phase must be received prior to commencement of services. Phases, when applicable, shall be divided into study and report phase, preliminary design phase, final design phase and construction phase.
2. KL Engineering, Inc. will bill the Owner monthly with net payment due in thirty (30) days. Past due balances shall be subject to an interest charge at a rate of 1½% per month. In addition, KL Engineering, Inc., may after, giving seven (7) days' written notice, suspend service under any agreement until the Owner has paid in full all amounts due for services rendered and expenses incurred, including the interest charge on past due invoices.
3. The quoted fees and scope of engineering services constitute the estimate of the fees and tasks required to perform the services as defined. This agreement, upon execution by both parties hereto, can be amended only by written instrument signed by both parties. For those projects involving conceptual or process development service, activities often cannot be fully defined during initial planning. As the project progresses, facts uncovered may reveal a change in direction which may alter the scope. KL Engineering, Inc., will promptly inform the Owner in writing of such situations so that changes in this agreement can be made as required.
4. Costs and schedule commitments shall be subject to change for delays caused by the Owner's failure to provide specified facilities or information or for delays caused by unpredictable occurrences including, without limitation, fires, floods, riots, strikes, unavailability of labor or materials, delays or defaults by suppliers of materials or services, process shutdowns, acts of God or the public enemy, or acts or regulations of any governmental agency. Temporary delays of services caused by any of the above which result in additional costs beyond those outlined may require renegotiation of this agreement.
5. KL Engineering, Inc., will maintain insurance coverage for: Worker's Compensation, General Liability, Auto Liability, and Professional Liability. KL Engineering, Inc., will provide information as to specific limits upon written request. If the Owner requires coverages or limits in addition to those in effect as of the date of the agreement, premiums for additional insurance shall be paid by the Owner. The liability of KL Engineering, Inc., to the Owner for any indemnity commitments, or for any damages arising in any way out of performance of this contract is limited to such insurance coverages and amounts which KL Engineering, Inc., has in effect.
6. Owner shall indemnify and hold harmless KL Engineering, Inc. from and against all judgments, losses, damages, and expenses (including attorney fees and defense costs) to the extent such judgments, losses, damages, or expenses are caused by any negligent act, error, or omission of Owner or any person or organization for which Owner is legally liable. Upon completion of all Services, obligations, and duties provided for in this Agreement, or in the event of termination of this Agreement for any reason, the terms and conditions of this Article shall survive.
7. In the event of a dispute between KL Engineering, Inc. and Owner arising out of or related to this Agreement, the aggrieved party shall notify the other party of the dispute within a reasonable time after such dispute arises. If the parties cannot thereafter resolve the dispute, each party shall nominate a senior officer of its management to meet to resolve the dispute by direct negotiation or mediation. Should such negotiation fail to resolve the dispute, KL Engineering, Inc. and Owner agree that all disputes between them arising out of or relating to this Agreement shall be submitted to non-binding mediation unless the parties mutually agree otherwise. During the pendency of any dispute, the parties shall continue diligently to fulfill their respective obligations hereunder.
8. Termination of this agreement by the Owner or KL Engineering, Inc., shall be effective upon seven (7) days' written notice to the other party. The written notice shall include the reasons and details for termination. KL Engineering, Inc., will prepare a final invoice showing all charges incurred through the date of termination; payment is due as stated in paragraph 2. If the Owner violates the agreements entered into between KL Engineering, Inc., and the Owner or if the Owner fails to carry out any of the duties contained in these terms and conditions, KL Engineering, Inc., may upon seven (7) days' written notice, suspend services without further obligation or liability to the Owner unless, within such seven (7) day period, the Owner remedies such violation to the reasonable satisfaction of KL Engineering, Inc.
9. Reuse of any documents and/or engineering services pertaining to this project by the Owner or extensions of this project or on any other project shall be at the Owner's sole risk. The Owner agrees to defend, indemnify, and hold harmless KL Engineering, Inc., from all claims, damages, and expenses including attorneys' fees and costs arising out of such reuse of the documents and/or engineering services by the Owner or by others acting through the Owner.
10. KL Engineering, Inc., will provide engineering services in accordance with generally accepted professional practices. KL Engineering, Inc., does not make any warranty or guarantee, expressed or implied, nor have any agreement or contract for services subject to the provisions of any uniform commercial code. Similarly, KL Engineering, Inc., will not accept those terms and conditions offered by the Owner in its purchase order, requisition, or notice of authorization to proceed, except as set forth herein or expressly agreed to in writing. Written acknowledgement of receipt, or the actual performance of services subsequent to receipt of such purchase order, requisition, or notice of authorization to proceed is specifically deemed not to constitute acceptance of any terms or conditions contrary to those set forth herein.
11. KL Engineering, Inc., intends to serve as the Owner's professional representative for those services as defined in this agreement, and to provide advice and consultation to the Owner as a professional. Any opinions of probable project costs, reviews and observations, and other decisions made by KL Engineering, Inc., for the Owner are rendered on the basis of experience and qualifications and represents the professional judgment of KL Engineering, Inc. However, KL Engineering, Inc., cannot and does not guarantee that proposals, bids or actual project or construction costs will not vary from the opinion of probable cost prepared by it. Owner agrees to hold KL Engineering, Inc., harmless for any claim arising out of or related in anyway to project or construction costs.
12. This agreement shall not be construed as giving KL Engineering, Inc., the responsibility or authority to direct or supervise construction means, methods, techniques, sequence, or procedures of construction selected by the contractors or subcontractors or the safety precautions and programs incident to the work of the contractors or subcontractors.
13. This agreement shall be construed and interpreted in accordance with the laws of the State of Wisconsin.
14. This agreement cannot be changed or terminated orally. No waiver of compliance with any provision or condition hereof should be effective unless agreed in writing duly executed by the parties hereto.
15. This agreement contains the entire understanding between the parties on the subject matter hereof and no representations, inducements, promises or agreements not embodied herein (unless agreed in writing duly executed) shall be of any force or effect, and this agreement supersedes any other prior understanding entered into between the parties on the subject matter hereof.