

PROFESSIONAL SERVICES AGREEMENT

This agreement ("Agreement") is made as of June 13, 2023 by and between the **City of Commerce**, a municipal corporation ("City") and Transportation & Energy Solutions, Inc. (TES) ("Consultant"). City and Consultant are sometimes hereinafter individually referred to as a "Party" and collectively referred to as the "Parties."

RECITALS

WHEREAS, City desires to utilize the services of Consultant as an independent contractor for the preparation of the Citywide Streetlighting Master Plan as set forth in the Scope of Services attached hereto as **Exhibit A**; and

WHEREAS, Consultant represents that it is fully qualified to perform such consulting services by virtue of its experience and the training, education and expertise of its principals and employees.

NOW, THEREFORE, in consideration of performance by the parties of the covenants and conditions herein contained, the parties hereto agree as follows:

1. Company's Scope of Services. The nature and scope of the specific services to be performed by Consultant are as described in **Exhibit A**.

2. Term of Agreement. This Agreement shall commence on June 13, 2023 (the "Commencement Date") and shall remain and continue in effect until tasks described in **Exhibit A** are completed, but in no event later than June 30, 2024, unless sooner terminated pursuant to the provisions of this Agreement.

3. Compensation.

A. City agrees to compensate Consultant for services under this Agreement in compliance with the schedule set forth in **Exhibit A**. Consultant shall submit proper monthly invoices in the form and manner specified by City. Each invoice shall include a monthly breakdown of all monthly services performed together with the hours spent on each service. Consultant shall maintain appropriate and necessary documentation supporting the monthly invoices detailing the type of service provided. It shall be available for review by the City at all reasonable times upon request.

B. Total payment to Consultant pursuant to this Agreement shall not exceed \$315,842.

C. If at the request of the City, Consultant is required to incur out of pocket expenses (including but not limited to, out-of-town travel and lodging) which are above and beyond the ordinary expenses associated with performance of this Agreement, Consultant shall be entitled to reimbursement of such expenses. Consultant shall only be reimbursed for those expenses which: (I) appear on Consultant's monthly invoices; (II) are accompanied by a copy of the City's written authorization for Consultant to incur

such expenses; and (III) receipts documenting such expenses.

4. General Terms and Conditions. The General Terms and Conditions set forth in **Exhibit B** are incorporated as part of this Agreement. In the event of any inconsistency between the General Terms and Conditions and any other exhibit to this Agreement, the General Terms and Conditions shall control unless it is clear from the context that both parties intend the provisions of the other exhibit(s) to control.

5. Addresses.

City of Commerce

City of Commerce
2535 Commerce Way
Commerce, CA 90040
Attn: Edgar P. Cisneros, City Manager

Transportation & Energy Solutions, Inc.

Transportation & Energy Solutions, Inc.
5475 Brentwood Place
Yorba Linda, CA 92887
Attn: Nathaniel S. Behura, M.S., M.B.A., President

6. Exhibits. All exhibits referred to in this Agreement are listed here and are incorporated and made part of this Agreement by this reference.

Exhibit A – Scope of Services and Compensation Schedule

Exhibit B – General Terms and Conditions

SIGNATURES ON FOLLOWING PAGE

IN WITNESS WHEREOF, the parties have executed this Agreement as of the dates written below.

CITY


CITY OF COMMERCE

By: _____
Hugo A. Argumedo, Mayor

Date

CONSULTANT

TRANSPORTATION & ENERGY SOLUTIONS, INC.

By:  _____
Nathaniel S. Behura, M.S., M.B.A.,
President

05/16/2023

Date

ATTEST:

By: _____
Lena Shumway, City Clerk

Date

APPROVED AS TO FORM:

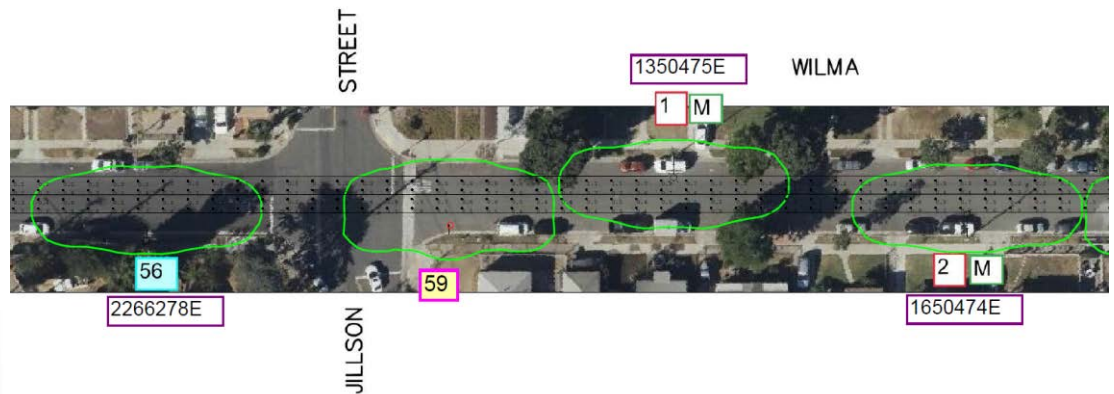
By: _____
Noel Tapia, City Attorney

Date

EXHIBIT A
SCOPE OF WORK

Proposal For:

Citywide Street-Lighting Master Plan



Calculation Summary					
Label	CalcType	Units	Avg	Max	Min
Wilma St bottom Illum	Illuminance	Fc	0.76	2.6	0.1
Wilma St bottom Luminance	Luminance	Cd/Sq.m	0.49	1.1	0.2
Wilma St bottom_Veil_Lum	Veiling Luminance	Cd/Sq.m	0.09	0.3	0.0

Submitted To:



The City of Commerce
March 6, 2023





TABLE OF CONTENTS

<u>CONTENT</u>	<u>PAGE</u>
COVER LETTER	2
ORGANIZATION CHART	4
FIRM BACKGROUND, RESUMES, PROJECT EXPERIENCE & REFERENCES	6
PROPOSED WORK PLAN AND SCOPE	33
PROJECT TASK SHEET	42
PROPOSED SCEHDULE	43
PROPOSED METHOD TO TRACK PROGRESS AND EXPENDITURE	44
PRPOSED FEES	45
ADDENDA ACKNOWLEDGEMENT	46



March 6, 2023

Ms. Gina Nila
Director of Public Works
2535 Commerce Way,
Commerce, CA 90040

Subject: Proposal for Professional Services for the Citywide Street-lighting Master Plan

Dear Ms. Nila:

The **Transportation & Energy Solutions, Inc. (TES)** team is pleased to provide this proposal for the above project in response to your request for proposal. As a firm, TES has successfully provided numerous lighting related services for the City of Commerce.

The development of the citywide Street-lighting Master Plan (SMP) is a fairly large and complex undertaking that includes 3130 streetlights and 77.7 miles of centerline roadway. It not only requires thorough technical knowledge and understanding of street-lighting design and standards, but also the nuances of what can be realistically achieved and implemented by a Public Works Department with often limited budgets or when working with Southern California Edison. We have divided this project into a number of parts or tasks, and have assembled a very strong team of firms, each of whom will provide the specific services for those tasks in which they are experts. These tasks are as follows:

Project Management and Overall Project Delivery: This will be undertaken by **TES**, with Nathaniel Behura as the overall project manager and Principal in Charge. Mr. Behura and TES has recently completed at least three lighting projects in Commerce, one of which – the Rosini Community Lighting Assessment – completed the very same tasks required under this project, but on a smaller scale. TES has also recently created new Lighting Standards for the City of Commerce’s street and safety lighting that will need to be adhered to for all new lighting. TES will be responsible for preparation and delivery of the Final Street-Lighting Master Plan.

Field Inventory and Creation of Lighting Data Base: This task is best conducted by those who are experts in the public infrastructure of the City of Commerce, and hence we have teamed with **Bear Electrical Solutions**, who serve as the current maintenance contractors for the City’s street lighting and traffic signal system.

Mapping of the City’s Lighting System and preparation of ACAD Base drawings: **CASC Engineering** is a reputable civil engineering and surveying firm that also provides planimetric and photogrammetric services. Their survey team has hundreds of years of total experience and will capture and convert the precise images of your roadway into AutoCAD files with face of curb and lighting pole data. These files will then be used for conducting photometric analysis.

Photometric Analysis: Since this project will require many hundred sheets of photometric analysis, we have acquired the services of an electrical engineering and lighting services firm, **Wright Engineering**, that specialize in AGi32 analysis of the lighting data. They will conduct the “before” and “after” lighting analysis using the ACAD files created by CASC, under the direction of TES, who will then analyze and provide the necessary lighting improvement recommendations to Wright.

Digital Maps, Data Base and GUI System: TES has teamed with **Andre Lockhart**, who has is an independent IT, software and database consultant, with 26 years of experience providing these services for both public agencies and private organizations. TES had previously worked with Mr. Lockhart for the City of Burbank Traffic Management Center software development project.



Fixture Technology and Technical Guidance: The TES team has also retained the services of Chris McLaughlin from **Coopers Lighting** (infrastructure team) as a technical advisor, since the City has standardized the Coopers fixtures for its lighting system. Mr. McLaughlin and his team has worked on numerous citywide street-lighting conversion projects through-out the country. He will provide as needed technical advice.

Proven Track Record: These firms have a proven and successful track record in their fields, and as a team, is perhaps the most qualified group of professionals that the City can expect on a project like this. TES has worked or is working currently with each of these firms successfully and have an excellent professional relationship with them.

Specific Expertise: Each of these firms are experts in their respective tasks for this project and together can deliver a highly successful project. Their knowledge will be highly important in each task as they can advise the City on any deviations from the existing scope, and alternate or better solutions and technological innovations as necessary.

Knowledge of the City: As a team with TES, Bear Electrical and Coopers, we have a thorough understanding and knowledge of the City's existing lighting infrastructure as well as its needs, perhaps better than any other team. We also have experience interfacing with SCE on various projects.

We look forward to working on this exciting project and developing a Street-Lighting Master Plan that is well planned and based on the latest IESNA recommendations and the most modern and efficient technology available, which will then set the City of Commerce ahead and apart from its peers and neighbors.

Sincerely,

Nathaniel S. Behura, M.S., M.B.A.
President



THE TES TEAM



KEY PERSONNEL:

Transportation & Energy Solutions: **Prime Consultant/Project Manager**

Project Manager/Principal:

Nathaniel S. Behura, MS, MBA

Project Engineer:

James Harris, TSOS



Bear Electric: *Field Inventory and Improvement Needs Assessment*

Task Manager/ V.P. of Operations	Robert Asuncion, T.E.
Local PM/Chief of Inventory	Art Torres
Field Electrician	Benito Hernandez

CASC Engineering: *Aerial Survey, Roadway Mapping and ACAD Files*

Task Manager/Director of Survey & Mapping:	Rick Furlong, PLS
Party Chief/Survey Analyst	Chris Reineman, L.S.
Engineering Advisor/Director of Engineering	Anthony Mistretta, P.E.

Wright Engineering: *Photometric Analysis for Before and After Layouts*

Task Manager/VP of Engineering	Aaron D. Kutchinsky, P.E.
Project Engineer	Adam Bowers, P.E.

IT Consultant: *Preparation of Digital Map, Data Base and GUI*

Task Manager	Andre Lockhart
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Cooper Lighting Solutions: *As needed Technical Advisor*

Technical Advisor	Chris McLaughlin
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**FIRM BACKGROUND, EXPERIENCE, & RESUMES****Firm Overview**

Transportation & Energy Solutions, Inc. (TES) has been providing transportation engineering and planning consulting services to public and private clients since forming in 2001, and construction management and inspection services since 2004. TES currently has three offices in Los Angeles, Orange, and San Bernardino Counties. The founding principals, Nathaniel Behura, M.S., M.B.A and Glen Pedersen P.E., have been active in the fields of transportation engineering and planning, intelligent transportation systems, and energy efficient transportation solutions for over 33 years each. As a small firm, TES offers exceptional quality by committing a high level of involvement by one or both principals on all projects. Low overhead enables TES to offer competitive prices and our repeat clientele has provided financial stability. TES is a Caltrans certified Disadvantaged Business Enterprise (DBE), Small Business Enterprise (SBE) and Metro certified SBE/micro-Business Enterprise. TES primary areas of service include:

Transportation and Traffic Engineering/Planning

- Traffic signal, roadway lighting, ADA ramps, curbs, and interconnect design.
- In-roadway-lighting design
- Signing and striping alignment and design.
- Design of work area traffic control, staging, and detour plans
- Traffic impact studies/analyses and forecast
- Bikeway planning and design
- Parking analysis and studies
- Project study and design reports
- Special provisions Project administration and oversight on multi-agency coordination projects
- Plan Checking and Consultation
- Technical advisory roles and consultation
- Assistance with grant funding applications and budgeting
- Plan checking, special provisions and project oversight
- Miscellaneous projects and studies

Intelligent Transportation Systems

- Intelligent Transportation System (ITS) planning, design, plans, special provisions, and estimates
- Closed Circuit Television (CCTV)
- Dynamic Message Signs (DMS) and trailblazer signs
- Vehicle detection – video, radar, passive acoustic, loops, etc.
- Procurement special provisions
- ITS design guidelines and technology evaluations
- Communication planning and design – fiber optics, twisted pair, leased, wireless,
- TMC and systems planning and design

Energy Efficient Solutions and Studies

- LED and uninterruptible power supply (UPS) for traffic signals and other devices
- Street, Parking Lot and Decorative Lighting design, planning and citywide implementation
- Advisory roles for all matters involving LED and energy saving components
- LED roadway markers, crosswalks, barrier lighting, lane control signals and other signage
- Energy survey of traffic and roadway systems



Construction Inspection and Observation

- Resident Engineering
- Construction Administration, Supervision, and Inspection on Public Works Projects
- Construction Process Compliance Management, especially Caltrans and Federal Funded Projects

Signal Timing and Coordination

- Traffic Signal Timing Plans
- Corridor and Network Coordination
- Time-Space –flow diagrams
- Timing, Speed and Delay Studies

Experience and References

Citywide Street LED Light Conversion Project, City of Industry, CA (2019-2022)

As part of its on-call services, TES assisted the City of Industry to acquire all its street lights from SCE and convert to LED luminaires. TES's scope included reviewing and analyzing the City's existing lighting types and luminaires, determining a Citywide Lighting Standard for the various type of roadway classification, writing a specification, determining the lighting requirements and fixture type required for each street/roadway throughout the City, reviewing and comparing the best lighting products in the industry, preparing a turn-key contract bid proposal that included inventory, product demonstration, purchase, installation and maintenance. TES also prepared the minimum qualifications of the vendors to ensure the warranties would be honored. Finally, TES was tasked with previewing and selecting a software that will remotely monitor street light outage. In the future, TES will provide the update or prepare missing (SCE) plans for lighting conduits and electrical circuits.

Reference: *Dev Birla, Sr. Engineer & Project Manager - (626) 945-0531*
Joshua Nelson, City Engineer – (626) 333-2211
Public Works Department, 15625 E. Stafford Street
City of Industry, CA 917445
Email: JNelson@cityofindustry.org

Key Project Staff: *Nathaniel Behura, Glen Pedersen, Thurein Shwe, Jim Harris*

Melrose Avenue Complete Street Project, City of West Hollywood, CA (2019- ongoing)

TES is a subconsultant for lighting design and traffic engineering for this major street improvement project for conversion from SCE to City-owned street lighting along Melrose Street. Tasks include existing field photometric measurements with a light-meter and analysis (before conditions), review of various LED lighting standards and products, determining applicable City lighting standards, working with manufacturer to custom design fixtures and poles, AGI32 simulation of lighting distribution along the corridor, coordination with City of LA Bureau of Street Lighting, coordination with SCE and application for new service pedestals, electrical calculations, preparation of street and pedestrian lighting layouts, and design of final electrical (construction) plans that include electrical service feeds/pedestals, pedestrian, street and decorative/architectural lighting, irrigation, and transit related totems and lighting.

Reference: *Richard Garland, City Traffic Engineer - (323) 848-6457*
City of West Hollywood, 8300 Santa Monica Blvd
West Hollywood, CA 90069
Email: RGarland@weho.org

Key Project Staff: *Nathaniel Behura, Jim Harris, Glen Pedersen, Thurein Shwe*



Richmond Street Arterial Improvement, City of El Segundo, CA (2015-2017)

As part of the Richmond Street Arterial Improvements Project, TES conducted a pedestrian and street light study, and prepared associated pedestrian lighting plans, street light layout along with signing/stripping and traffic control plans. The initial lighting study included a photometric and field study to determine the location of pedestrian and street lights. Planning also included a review of available products and selection of decorative LED pedestrian light fixtures and poles in the style of the existing street lights, including research, negotiations with vendors, sample acquisition, product comparison including field testing, and attendance at various public meetings, including a demonstration for the City Council. The design included preparation of street light location plans/preliminary design, approval by the City, submittal to SCE for final design, and preparation of ped lighting plans.

Reference: *Floriza Rivera, Principal Civil Engineer – (310) 524-2361*
Public Works Department, 350 Main Street
El Segundo, CA 90245
Email: frivera@elsegundo.org

Key Project Staff: *Nathaniel Behura, Glen Pedersen, Jim Harris*

Various LED Street Lighting Projects, City of Commerce, CA (2019-ongoing)

TES has completed a total of four lighting projects for the City of Commerce.

1. The first project was planning and design for the conversion of existing HID lighting in the parking lot adjacent to City Hall to LEDs, adding some new lights, and installing new circuitry.
2. The second project was to upgrade existing street lighting on the median of Eastern Avenue from Stevens Place to Jillson Street. The project included converting existing series circuits to multiple circuits, conversion of existing lights to LEDs, relocation and replacement of a few poles, addition of a few safety lights and photometric analysis, and new SCE service cabinets.
3. The third project was the Rosini Community Street Lighting Evaluation (bounded by Atlantic Blvd., Eastern Ave and Washington Blvd.). The streetlights within this neighborhood were inventoried and put on a data base. Then they were included in a plan and a photometric evaluation was done using the AGI32 software. The lighting requirements were based on IESNA standards. From this evaluation, upgrades or replacement of LED lighting fixtures were recommended for the SCE light poles, and in some cases new mast arm and fixtures were recommended for existing SCE poles that did not have lights. Finally, where new poles and fixtures were needed (i.e. for lighting gaps), City owned poles and lights were recommended. A cost estimate for these improvements were also prepared. Our understanding is that the recommended SCE improvements have already been implemented at Rosini.
4. The fourth project is the development of a City of Commerce Lighting Standard. This includes standard poles, mast arms and other details. Also, lighting requirements for four classifications of roadways from the City of Commerce General Plan was developed, including spacing, pole heights, mast arms, lighting levels, and recommended fixtures. Finally, safety lighting standards were developed for the various intersections of the roadway classifications in the General Plan, including recommended fixture types. These standards were verified using photometric evaluations. These standards incorporate the latest IESNA (2021) RP-8 recommendations and are more modern and complete than the County of Los Angeles values being used by the City.

Reference: *Mohammad Mostahkami, PE, Consulting City Engineer – (949) 402-5903*
C/O Transtech Engineers
13367 Benson Ave.
Chino, CA 91710
Email: mohammad.mostahkami@transtech.org

Key Project Staff: *Nathaniel Behura, Glen Pedersen, Thurein Shwe, Jim Harris*



Resumes

NATHANIEL S. BEHURA, M.S., M.B.A. – PRINCIPAL ENGINEER

Qualifications:

- M.B.A., Anderson School of Management, University of California at Los Angeles, 1995
- M.S., Transportation Engineering (Civil), Vanderbilt University, 1989
- B.S., Civil Engineering, Indian Institute of Technology, 1986
- Chair, ITE (National) LED Traffic Signal Specification Committee
- Advisory Committee to California Energy Commission Grant Program - BBS Systems
- Traffic Commissioner, City of Yorba Linda
- General Plan Advisory Committee Member, City of Yorba Linda

Experience:

Mr. Behura is the President of Transportation & Energy Solutions (TES), Inc., and is responsible for overall management of the firm. He is a well-published author on various traffic and transportation areas, and his experience is very well rounded both in traffic/ITS planning and design areas. Mr. Behura was awarded ITE's Outstanding National Traffic Engineering Council Project Award for his work on LED traffic signals and lighting. Prior to founding TES, he was an Associate Engineer in the Traffic Engineering Division of the City of Anaheim for almost eight years, and responsible for transportation/traffic signal design, ITS projects, traffic engineering studies, pedestrian crossings, school crossings, signal warrants, signal prioritizations, accident studies, as well as managing the traffic engineering on-call consulting services.

Mr. Behura is now providing traffic and lighting consulting services to public agencies and private firms that include managing both traditional traffic engineering, ITS projects and lighting projects. In traffic engineering, he does traffic and parking studies, traffic impact studies, LOS analyses, traffic forecasts, delay and warrant studies, PSR studies, circulation analyses, speed studies, pedestrian crossings, bus/transit analyses, speed humps, funding issues, and multi-jurisdictional coordination. ITS projects include planning and analysis of trailblazer routes, DMS design/testing, ITS field device placement, device planning and research, detection and loop types and placement, technology research, traffic system analysis, ITS product research and specification writing.

For lighting projects Mr. Behura conducts lighting analysis, field photometric measurements, design, standard development, photometric evaluation, energy studies and LED conversion projects. He helped the City of Industry acquire and convert all its street lights to LED. In the past, he has consulted for Philips Lighting, HP's LED Division, Osram Lighting and for GE for traffic and public works applications. He is currently managing the Melrose Avenue street lighting conversion project, and responsible for field lighting measurements, lighting simulation, luminaire selection and lighting layout. He recently completed the Rosini Community Lighting Evaluation and Upgrade, and City Lighting Standards development for the City of Commerce. He served as a Traffic Commissioner, Planning Commissioner and member of the General Plan Advisory Committee for the City of Yorba Linda.

Other:

Mr. Behura is a member and contributing author of various professional organizations such as ITE and ASCE, as well as a regular participant in Transportation Research Board activities. He is a past member of "*Commission Internationale de l'Eclairage (CIE)*" or the International Commission on Illumination based in Vienna. He is an active member of high IQ organizations such as MENSA and Intertel.



JIM HARRIS, T.S.O.S. – SENIOR TRAFFIC OPERATIONS/LIGHTING SPECIALIST

Qualifications:

- Certified Traffic Signal Operations Specialist, License #35, expires 9/13/2023, ITE
- A.A., Physical Science, Engineering, Mathematics, Cerritos College, Norwalk, CA, 1970
- Traffic Signal Association, *Traffic Signal Technology*
- Institute in Transportation Studies: *Traffic Signal Maintenance Management, Traffic Signal Equipment & Operations: Fuel Efficient Traffic Signal Management (FETSIM), etc.*
- National Highway Institute (FHWA), *Intelligent Transportation Systems (ITS)*
- LACMA, *Bi-Tran 233, 200CA, LACO 1R and Caltrans C-8 Type 170 Programs*

Experience:

Mr. Harris has over 45 years of hands-on professional experience in all aspects of traffic and civil engineering including design, operations and maintenance of traffic signal and lighting systems and their implementation, lighting and electrical system design, traffic studies and reports, and reviews. As Associate Engineer for the City of Rancho Cucamonga for 20 years, he was responsible for the management, design, timing and operation of city traffic signals, systems and related projects, as well as review of studies and reports. He prepared and evaluated grant applications for and managed state and federally funded projects. He advised on maintenance and construction modification and timing issues and conducted all traffic signal turn-ons providing construction punch-lists and timing. He also has over 35 years of experience in street lighting design and maintenance.

Mr. Harris has also designed and/or plan checked over 1,000 traffic signals and safety lighting located in California from Ventura to the Mexican border using NEMA, 170 and 2070 types of control. Some involved coordination with the San Diego Light Rail (Tijuana Trolley), MetroRail and MetroLink Railroad Systems. Many involved installation of emergency vehicle preemption, video detection, fiber optic systems and protected/permissive left turn phasing. He also prepared, installed and fine-tuned the timing for over 180 traffic signals in the City of Rancho Cucamonga, and designed many street lighting systems. Recently as City Traffic Advisor for the Cities of Montebello and Bell Gardens, California, Mr. Harris advised on review of proposals, studies, development, site and traffic control plans and placement of new and revised traffic control devices. He kept the City's traffic signals and systems in proper working order by advising on construction and repairs and by making pertinent timing changes or adjustments. He provided On-Call Traffic Signal Inspection and Timing Services for Cities of Pico Rivera, Monrovia, Maywood, La Puente, Torrance and Montebello, California. He provided on-call checking of traffic signal and related plans for the City of Rancho Cucamonga, and replacement of street lighting systems.

He designed the circuits for the street lighting system for Melrose Avenue in West Hollywood, the City of Commerce City Hall Parking Lot and Eastern Avenue Median Lighting, including providing all electrical calculations. He can assist with all cost estimates related to street and safety lighting improvements.



GLEN R. PEDERSEN, P.E. – PRINCIPAL ENGINEER

Qualifications:

- Registered Civil Engineer, California
- B.S., Civil Engineering, California State Polytechnic University at Pomona, 1989
- Hands-on Fiber Optic Training, 3-day course by National Technology Transfer, Inc.
- Certified Radar Operator

Experience:

Mr. Pedersen is the Vice-President of Transportation & Energy Solutions (TES), Inc., and is responsible for design and oversight for various public works design projects undertaken by TES. These projects have included various local projects involving design and implementation of traditional traffic control and Intelligent Transportation Systems (ITS) devices, on-call design and traffic engineering services, and plan checking of transportation related plans, specifications and estimates. Mr. Pedersen has over 33 years of traffic/transportation/ITS experience.

In the area of transportation engineering, Mr. Pedersen has designed and managed many traffic projects that have included the design of new and modified traffic signals; signing/striping; roadway and interchange and street lighting; communications including twisted pair and fiber optics; and traffic control, staging and detours. Mr. Pedersen has provided designs for traffic signals, traffic calming and traffic operations for numerous projects, more recently for the Cities of Long Beach, Burbank, Pomona and Azusa through TES' on-call traffic engineering contracts. He was also the engineer-of-record for numerous traffic engineering studies (ped-crossings, intersection improvements, speed studies, etc.). In addition, Mr. Pedersen has worked on many local ITS projects that have included design of fiber optic, wireless, and twisted pair communications, CCTV, DMS, system detection (loops, Sensys, video) for the Cities of Burbank, Azusa, Long Beach, Pomona, Palmdale, Anaheim, Santa Ana, Buena Park, Glendale, OCTA, Caltrans, Nevada DOT, Arizona DOT, Florida and Virginia. His roles on these projects have included project management, advisory, quality control, design, special provisions, estimates, training, preparation of design guidelines, and technology assessments.

Mr. Pedersen is currently the Principal Design Engineer for the Olive & Meridian traffic signal design project in Colton. He recently completed 12 traffic signal modifications on the South Street TSSP Corridor for the County of Los Angeles; Melrose Avenue Complete Street Project for the City of West Hollywood, that included 3 traffic signals (including one City of Los Angeles or LADOT signal), 3 IRWL locations and 3200' feet of roadway with new street lights and decorative lighting; Moreno Valley ITS Phase IB Project, which included 3 DMS installations, approximately 13.5 miles of new fiber optic cable in refurbished interconnect infrastructure, 25 CCTV installations at traffic signals tied into the new fiber optic cable, wireless communications to 5 traffic signals, 42 signal cabinet replacements, and connection to Caltrans cable on SR-60 at Perris Boulevard. He also completed final PS&E for the intersection of Imperial Highway and Bellflower in the City of Downey and 21 traffic signal modifications for Los Angeles County. He recently was the responsible engineer for the Commerce City Hall Parking Lot Lighting and Eastern Avenue Median Lighting Project in Commerce. He can provide QA/QC on lighting design plans.

Other:

Mr. Pedersen is active in the Institute of Transportation Engineers (ITE) and the Orange County Traffic Engineering Council (OCTEC). Mr. Pedersen served as President of the ITE Southern California Section in the past. He also served several years on the La Habra Heights Public Works Committee.



FIRM BACKGROUND



About Bear Electrical Solutions, Inc.

Bear Electrical Solutions, Inc. (**BEAR**), a California Corporation, founded in January 2013, is the leading California provider of operations, maintenance, and construction services for mission-critical traffic signals, streetlights, ITS, and electrical public works facilities. **Privately owned** and managed by Michael Peters (Business Operation), Andrew Bader (Finance and Operations), and Robert Asuncion (Traffic Engineer), BEAR was founded specifically to lead the industry and Drive a Higher Standard in the industry.

BEAR – Key Highlights



3 offices with 155 statewide employees



Providing 24 x 7 x 365 electrical maintenance services to 84 public agencies, maintaining and servicing over 163,000 streetlights, 7,000 traffic signals, and over 250 miles of fiber optic.



Construction department ready to support maintenance team with full underground and construction capabilities.



BEAR owns and operates approximately 100 service vehicles and 30 pieces of heavy construction equipment



BEAR has the "Perfect Balance" of a large-scale operations with small-scale service. BEAR is built to be able to solve any problem with our customers while being able to shift at a moment's notice. No bloat, bureaucracy, or inflated prices of a massive corporation.

Our Mission:

We founded BEAR because, quite simply, we believe that nobody in our industry was delivering a high enough standard. We sought to change that with a company guided by five (5) powerful core values that each drive our culture, work ethic, strategy, and expectations.

1

Continuous Improvement:

We strive to make one-degree daily shifts to constantly improve our customer experience. What gets challenged gets improved. We appreciate open and honest feedback and operate with the idea that everyone's voice matters.

2

Lead with Facts, Not Assumptions:

As a service-based business, we are trained to listen to "all sides of the story" whether it is our customers, third-party officials, or the public. We remove all bias and don't act until we have all the facts.

3

Build Lasting Relationships:

We act with respect and professionalism. We place focus on trust and credibility over selfishness. Our relationships are based on putting people first.

4

Communicate Effectively and Clearly:

Building emotional intelligence is critical in a service business such as ours where our scope of work is communicating valuable information to others. We strive for clarity and alignment with our reporting. We do all of this with a focus of responsiveness

5

Be Impeccable with Your Words:

We act with integrity in our everyday actions. Be accountable and follow through. Offer encouragement and empowerment to all we work with daily.



FIRM BACKGROUND (CONT)



Industry Qualifications

Bear Electrical meets and exceeds that minimum qualifications of this RFP by having all the necessary license requirements.

- A** Class A – General Engineering
- C-10** Class C-10 – Electrical
- C-31** Class C-31 – Work Zone Traffic Control
- D-31** Class D-31 – Pole Installation and Maintenance



Negative History

In the (10) years BEAR has been in business; BEAR has no negative history to disclose.

Other pertinent certifications and affiliations that our company has are:

- Signatory to the International Brotherhood of Electrical Workers (IBEW), Laborers, Low Voltage, and Operators Union(s)
- Department of Industrial Relations (DIR) Certified & Registered (#1000002158)
- Southern California Edison approved electrical contractor
- United Contractors Association Member (UCON)
- Maintenance Superintendant Association (MSA) Sponsor
- Orange County Traffic Engineers Council (OCTEC) Member / Sponsor
- Institute of Traffic Engineer (ITE) Member / Sponsor
- International Municipal Signal Association – various certifications (employee certifications)





OUR EXPERIENCE - SUMMARY



7,000 signalized intersections, **163,000** streetlights, **375** miles of fiber optic cable across **84** Californian public agencies

1,340 signalized intersections, across **14** agencies in the greater Orange County area, ranging from 8-150 locations

+70k completed DigAlerts/USA field tickets

Core Services

- Traffic Signal & Streetlight Preventative and Emergency Maintenance and Response
- ITS & Fiber Communication
- Ad-Hoc Electrical & Facilities Maintenance



3 Professional Sports Stadium

215,000 maintenance and response work orders in the past ten years



Experience and References



Bear Electrical maintains and inventories infrastructure items, especially street lighting, communication and traffic signal facilities, for many dozens of cities across the state, including that of the City of Commerce.

Two projects Bear Electric completed recently related to street lighting include the following:

1. **City of Livermore – East Avenue Lighting Study.**
Performed field/audit existing conditions. Performed light lumen study. Provided recommendations.
 - a. Principal-in-charge / Project Manager for BEAR – Robert Asuncion
 - b. BEAR was a subconsultant to TJKM.
 - i. TJKM Contact – Rutvij Patel, rpatel@tjkm.com 925-264-5009
 - ii. City Contact – Joanna X.J. Liu, PE Xliu@cityoflivermore.net 925-960-4556
2. **City of Palo – Arastradero Road Lighting Study.**
Performed field/audit existing conditions. Performed light lumen study. Provided recommendations.
 - i. TJKM Contact – Rutvij Patel, rpatel@tjkm.com 925-264-5009
 - ii. City Contact – Rafael Rius, PTOE, Rafael.rius@cityofpaloalto.org 650-329-2305

Resumes

LOCAL BEAR PROJECT MANAGER – ART TORRES

17+ years of experience in electrical maintenance, IMSA Level 3 Field, NEC#E 115259G

As Account Project Manager, Art will be accountable for the overall performance of the contract by ensuring contract deliverables are met and that all tasks & communications flow smoothly.

Art is proficient with emails, MS Word, MS Excel, and other computer programs to help in this role.

BEAR FIELD ELECTRICIAN – BENITO HERNANDEZ

13+ years' experience as a licensed (high-voltage) electrician. IMSA Work Zone, NEC#E170462-G

Benito graduated from Local 441 Apprenticeship in 2009 and immediately started working for International Line Builders (ILB) as a journeyman focused exclusively on street lighting. Benito joined BEAR nearly five years ago and is our company streetlight expert. Benito's experience includes series circuits up to 6k volts, overhead and underground feed troubleshooting, and various streetlight-type repairs, retrofits, and updates.



PRINCIPAL-IN-CHARGE (Ensuring successful completion of project)

ROBERT ASUNCION



COMPANY PRINCIPAL / TRAFFIC ENGINEER

After graduating from San Jose State with a degree in Civil Engineering, Robert started his professional career for various municipalities in the Bay Area, ultimately working for the City of Fremont as an Associate Transportation Engineer. Realizing his love for the subject of traffic signal operations, he left the public sector to get more exposure and experience in the industry. Since 2004, Robert has been in the traffic signal/streetlighting maintenance and construction industry, holding positions as a traffic engineering consultant for design-build projects, bid estimator, to business operations manager. In 2013, Robert decided to take his experiences to another level by co-founding his business, Bear Electrical Solutions, Inc.

Co-Owner/ Co-Founder / VP
Bear Electrical Solutions, Inc. – California (2013-present)

- Premiere traffic signal and streetlight maintenance and construction firm servicing all of California.

Vice President
Amland Corporation (2012-2013) – San Jose, CA

- Managed operations and led business development

Regional Manager (reported to President)
Siemens/Republic ITS (2004-2012) – Fremont, CA

- Responsible for P&L activities for the largest regional office in the company

Associate Transportation Engineer –City of Fremont - (1999-2004) – Fremont, CA

- Traffic Signal Operations, Red Light Camera manager

Certifications

IMSA - Work Zone Safety
IMSA - Traffic Signals Field Electrician I/II/III
IMSA – Traffic Signals Bench I/II
Bachelor in civil engineering

Licenses

State of California Professional Engineer in
Traffic Engineering – No. 2156
State of California Contractor License in
General Engineering (Class A) – No. 982079
State of Nevada Contractor License in General
Engineering (Class A) – No. 0090133

Specific Experiences for this RFP

- Project Manager for multiple LED/Induction EE street lighting projects amounting to over 300,000 units statewide.
- Provide design-build for various SMART Streetlighting projects.
 - Largest private streetlight maintenance provider in Northern California managing over 163,000 streetlights.
- Licensed traffic engineer with operational and maintenance experience
 - On-Call Traffic Engineering
- Experienced expert witness testimony





ORGANIZATION / COMPANY OVERVIEW

CASC Engineering and Consulting (CASC), a California S corporation, established in **1993**, has been providing professional consulting services for the past **30 years** to a variety of industry sectors. CASC is a mid-sized consulting firm that combines the personal touch of a small firm, with the stability of the large publicly-traded companies. We currently operate from five offices serving Southern California, in the cities of **Colton, Irvine, Glendora, Temecula and Palm Desert. We currently employ over 50 professionals.**

CASC has provided services to numerous governmental agencies, public utility companies, local utility districts, school districts, private enterprises and industry groups. Our entrepreneurial spirit and commitment to innovation have allowed us to survive this recession, maintain a competitive cost structure, and offer superior services managed by our talented local labor force. While the Great Recession resulted in painful impacts to many consulting firms, we have been able to sustain a strong base of work in the public infrastructure, environmental, and energy business sectors. This diversity offers strength and stability through these tough economic times, ensuring our clients that we have the dependency and resilience necessary to complete each and every project.

DESCRIPTION OF SERVICES PROVIDED BY CASC

Our entrepreneurial spirit and commitment to innovation are unique in the Civil Engineering industry, allowing us to keep costs competitive while offering quality services. CASC's Civil/Environmental Engineering Division provides a variety of services to our Public Agency Partners.

Field and Office Surveying: The CASC Survey & Mapping Division provides a wide range of field and office surveying services to facilitate projects through all phases. From right-of-way mapping to initial monument surveys; from topographic mapping to legal descriptions and map checking; from construction staking to as-built surveys. CASC is dedicated to providing highly skilled field crews with strong project management and state-of-the-art equipment, including the latest survey drones, to deliver efficient and successful projects.

Planning Services: From vision through implementation, CASC's Planning division provides comprehensive community planning, design and entitlement services to cities, counties, developers, private organizations and land owners.

Transportation: CASC understands that agencies are challenged with the development and maintenance of a transportation network that provides safe travel routes, aesthetically pleasing community corridors, and efficient access to its businesses. CASC understands these challenges and brings exceptional design and management services to our public agency partners for Neighborhood Beautification, Traffic Safety, Pavement Rehabilitation, Street Improvements, and Highway Design projects.

Water and Wastewater: CASC has prepared plans for hundreds of miles of sewer and water improvements. We take pride in combining engineering expertise, with a creative spirit, to provide our clients with innovative, cost-effective, and time-sensitive solutions. We work closely with our clients early in the project to reduce delays during final design and construction stages.

Water and Air Quality: CASC unites theory with practice in guiding government agencies, private developers, and contractors through the regulatory requirements of the National Pollutant Discharge Elimination System (NPDES) permits. Services include: Document Preparation and Plan Checking Services, Storm Water Program Management, Program Development Assistance, Annual Reports, Expert Witness/Litigation Support, Best Management Practices Design, and Storm Water Sampling.

Municipal Plan Checking Services: CASC works closely with our public agency clients providing seamless plan checking support services. Our experienced reviewers understand the need to provide thorough reviews as well as efficient turn-around time.



Experience & References

ON-CALL SURVEY SERVICES - INLAND EMPIRE UTILITY AGENCY

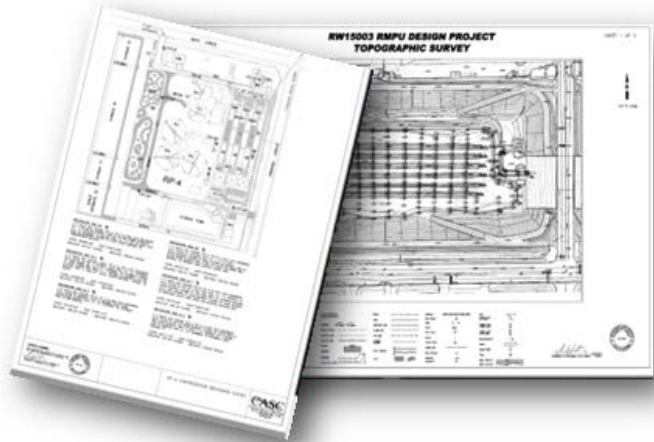
CHINO, CA 2013-PRESENT

On-Call Surveying Services: Having been awarded an on-call survey contract in 2013 and several extensions and re-compete awards, CASC has provided nearly eight years of survey services to IEUA for various projects throughout the Chino and Ontario areas.

The survey work requires GPS technology with conventional total stations and digital levels as needed. Design topographic, boundary, and utility surveys are performed, compiled, and delivered to IEUA in AutoCAD Civil 3D format. IEUA has numerous facilities throughout the Inland Empire, and CASC remains on-call to perform topographic and/or construction surveying at any of their facility improvement projects.

Recent projects include:

- ◆ CCRWF Secondary Clarifier Rehabilitation;
- ◆ Turner Basin Turnout Capacity Improvements;
- ◆ RP-1 Primary Clarifier Rehabilitation Project;
- ◆ 930 Zone Recycled Water Reservoir;
- ◆ 930 Zone Recycled Water Pipeline;
- ◆ 1630 Recycled Water Pipeline Segment B;
- ◆ RP-4, RP-5 Drainage Improvements;
- ◆ Carbon Canyon Recycled Water Recycling Facility Pump Station Expansion.



CASC also perform high definition 3D Laser Scans of IEUA's ten primary clarifiers.

ON-CALL SURVEYING SERVICES - SOUTHERN CALIFORNIA

EDISON 2013 – PRESENT

Various Locations throughout Southern California

CASC has been a long - standing partner of SCE providing over \$10 Million in consulting services for the past ten years. As a part of our civil engineering contract with SCE, we have provided mapping and surveying tasks on a variety of projects including substations, transmission lines and battery storage sites.

Our specific SCE survey and mapping project experience includes the following:

Coolwater-Lugo 220kV Transmission Project (CWLTL), San Bernardino County: CASC's survey team developed the project's base map and the integration of the ortho photos. CASC provided sectional breakdowns, record property line establishment and USGS quad map alignment along each side of the transmission line corridors.

CLIENT REFERENCE:

Ruben Mazzei, PE
Civil Engineering Professional
(909) 274-7765
ruben.mazzei@sce.com



San Joaquin Cross Valley Loop Transmission Upgrade (SJXVL), Tulare: CASC coordinated the development of the project base map, integration of the USGS quad maps, and import of the topo files. We provided sectional breakdowns, record property line establishment and USGS quad map alignment along the corridors.

Tenaja Substation Wildomar CA Grand Ave Widening – CASC provided research, Control Survey and Curb Construction Staking for offsite improvements.

Lighthipe Substation Long Beach CA – CASC provided conventional topographic survey using existing SCE survey control for engineering design site improvements.

Triton Substation Temecula CA – CASC provided aerial and conventional topographic mapping, research, static GPS, RTK control survey that discovered and allowed for the correction of an incorrect benchmark elevation on an original topographic survey prepared by others.

Horoscope Battery Energy Storage System (BESS), Irvine – CASC provided agency research, title report review, base mapping preparation (record project boundary, centerline, right of ways, property lines and record easements), overhead and underground facility research and mapping. Field activities included conventional topographic mapping, property survey, static GPS, RTK control survey. Final deliverable, survey plat conforming to SCE standard requirements.

Salvation Army BESS, Santa Ana – CASC provided agency research, title report review, base mapping, overhead and underground facility mapping. We prepared Legal Descriptions and plats for Access Easement and SCE Easement. Field activities included Conventional topographic mapping, property survey, static GPS, RTK control survey. Final deliverable, survey plat conforming to SCE standard requirements.

Titanium BESS Santa Ana CA – CASC provided agency field and office surveying and mapping support including agency research, title report review, base mapping, identification of overhead and underground facilities, conventional topographic mapping, ground penetrating radar utility location, property survey, static GPS, RTK control survey. Final deliverable, survey plat conforming to SCE standard requirements.



CASC has provided over \$10M in surveying, engineering, and environmental support to SCE since 2008

Pronghorn BESS Lancaster CA – Agency research, title report review, prepare base mapping (record project boundary, centerline, right of ways, property lines and record easements) overhead and underground facilities. Final deliverable, survey plat conforming to SCE standard requirements.

Demo E BESS Bridgeport CA – Conventional Topographic Mapping, research, property survey, base mapping of overhead and underground facilities, Static GPS, RTK control survey. Final deliverable, survey plat conforming to SCE standard requirements.



Resumes



RICK FURLONG, P.L.S.
DIRECTOR OF SURVEY AND MAPPING

Richard Furlong is the Director of Survey and Mapping for CASC. He is an accomplished professional surveyor with over 35 years of surveying experience in Southern California and is currently in his 19th year as Director of

**PROFESSIONAL REGISTRATIONS/
AFFILIATIONS:**

- CA Licensed Land Surveyor # 8422
- California Land Surveyors Association (CLSA)
- National Society of Professional Surveyors (NSPS)

Survey and Mapping for CASC. Mr. Furlong has a broad survey background including construction staking, hydrographic, topographic mapping, boundary surveys, design surveys, parcel mapping and records of survey. Mr. Furlong has a strong understanding of writing a legal description in conjunction with land survey boundary control principals. He has served as project manager for various construction projects and on-call surveying services for public and private sectors, and is currently a contract surveyor for the City of Redlands, checking, signing and sealing final maps, parcel maps and lot line adjustments for technical correctness. He is very knowledgeable with the surveying and mapping standards of the various municipal agencies and Caltrans. Mr. Furlong's extensive work for a variety of public agencies and private owners gives him insight into conditions that may affect scheduling, costs, and contractual procedures. A partial list of his project experience includes the following:

- Los Angeles Community College District (LACCD) - On Call Survey Civil Engineering Services
- Caltrans District 6, 7, 8, 11: Surveying Services
- Caltrans District 11: Facility Topographic Mapping and Soil Sample Collections
- Southern California Edison Sites: Tenaja Substation Wildomar CA Grand Ave Widening / Horoscope Battery Energy Storage System (BESS), Irvine, Salvation Army BESS, Santa Ana, CA / Titanium BESS Santa Ana, CA/ Connolly BESS Lancaster, CA / Demo E BESS Bridgeport CA

I-10, between I-5 and Highway 101 Ventura County: Construction Surveying of the proposed freeway improvements consisting of drainage facilities, retaining walls, and sound walls.
- San Bernardino City Unified School District, City of San Bernardino, CA—Arroyo Valley High School, Cajon High School, Pacific High School, San Bernardino High School, 8 Elementary schools —On-Call Contract Survey Services (Modernization)
- SBCCD - San Bernardino Valley College - Topographic Surveying and Construction Surveying
- ESRI Campus, Redlands - Topographic Surveying and Construction Surveying
- SBCCD - Crafton Hills College, Yucaipa - Aerial Surveying, Topographic Surveying and Construction Surveying
- SOCCCD Saddleback College Site Improvement Project - Survey Services
- City of Redlands - On-Call Map Checking Services



ANTHONY MISTRETTA, PE, QSD/P
PROJECT MANAGER

EDUCATION:

· B.S./Civil Engineering/California State Polytechnic University/Pomona, CA

PROFESSIONAL REGISTRATIONS, TRAINING, CERTIFICATES, LICENSES & AFFILIATIONS:

P.E. California/ #82755

• American Society of Civil Engineers, Member

Mr. Mistretta has been responsible for the civil design of a variety of developments including but not limited to residential tracts, parking facilities, street and highway improvements, substation sites,

solar facilities, and various other commercial sites. Additional experience includes the development of multiple detailed hydrology studies and drainage reports, as well as the water quality design and development of Storm Water Pollution Prevention Plans (SWPPPs) and Water Quality Management Plans (WQMPs) for a variety of traditional and linear developments. In addition to his current work in the private sector, Mr. Mistretta has also worked for the San Bernardino County Flood Control District in the Flood Control Engineering Department. His work consisted of the civil design of various flood control facilities including but not limited to open channels, drainage pipes, flood basins, and access roads. Other public sector work included the creation of hydraulic models/analyses; the development of final plan sets, specifications and cost estimates; plan checking; and the organization of field investigations.

PROJECT EXPERIENCE

Garfield High School Baseball Field, Los Angeles Unified School District (East Los Angeles, CA): Mr. Mistretta is the Project Manager for the new baseball field and site work improvements at the Garfield High School campus in East Los Angeles. On-site civil work includes: demolition of existing hardscape, retaining walls, and bleachers; construction of new sports fields and ADA-compliant pedestrian facilities, including relocation of the existing on-site path of travel; and underground sewer, water, and storm drain improvements. Engineering construction documents will be reviewed by DSA for approval.

Wilson Avenue Extension, Rancho Cucamonga, CA: Responsible for approximately one mile of proposed street improvements along Wilson Avenue between East Avenue and Wardman Bullock Road in the City of Rancho Cucamonga, CA. Services included storm drain design, on-site and off-site hydrology, and the grading of multiple existing adjacent access roads, proposed drainage conveyances, and proposed basins.

Environmental Systems Research Institute (ESRI), Building E (Redlands, CA): Project Manager for the civil design of ESRI's new building and parking lot improvements. The engineering scope of work included precise grading, erosion control, sewer and water improvements, hydrology and hydraulics studies, fire flow and sewer analyses, SWPPP, and WQMP. Grading design and earthwork analyses were uniquely detailed, based on the variety of proposed on-site improvements (i.e. sidewalks, ADA ramps, driveways, retaining walls, curb and gutter, asphalt and pervious concrete pavement, detention basin, bio-retention treatment BMP, building basement, atrium, etc.) Mr. Mistretta worked closely with the Architect and Structural and MEP Engineers for the coordination of retaining walls, foundation drainage and underground utilities.

Inland Empire Utility Agency RP-1 Civil Restoration and Upgrades Project (Ontario, CA)

Project Manager for the design of driveway, parking, and storm drain facilities at the IEUA RP-1 and TP-1 water treatment plants. Services included an Initial Design Assessment, which outlined the proposed approach to each key design objective. Design recommendations were made based on as-built drawings and field observations of existing pavement and drainage facilities. The engineering scope of work included hydrology and hydraulics studies, grading and drainage plans, wet and dry utility improvement plans, signing and striping plan for parking and ADA facilities, specifications, cost estimates, and Bid and Construction Support.

Plan Review Services, Southern California Edison, CA: Responsible for the review of precise grading and drainage plans and report along with coordinating the design of the structural, and electrical plans during the review process for several projects in California.



CHRIS REINEMAN, L.S.
PARTY CHIEF/SURVEY ANALYST

Mr. Reineman has worked professionally as the Survey Party Chief / Survey Analyst for over four years at CASC. Mr. Reineman has gained a variety of surveying experience, which

EDUCATION:

- B.S. Civil Engineering / Santiago Canyon College

**PROFESSIONAL REGISTRATIONS/
AFFILIATIONS:**

- PLS #9698

includes: construction staking, topographic mapping, hydrographic, control surveys, boundary surveys, design surveys, right-of-way, ALTA, corner records, record of survey, tract maps, and parcel maps. A partial list of his project experience includes:

Los Angeles County Department of Public Works—On-Call Mapping and Survey Services

Inland Empire Utilities Agency; Topographic mapping and Construction surveying for numerous water and wastewater projects

Caltrans District 6, 7, 8, 11: Surveying Services

City of Palmdale Utility Route Surveys, Palmdale, CA: Mr. Reineman served as a Party Chief on an 8-mile-long Route Survey which implemented Aerial Topography, GPS technology, and Total Stations. Mr. Reineman also assisted as a Survey Analyst by processing this survey to prepare the deliverable for the client.

Sierra Avenue Median Improvements, City of Fontana, CA (2014): Mr. Reineman was the chainman for this survey project from Valley Boulevard to San Bernardino Avenue. Mr. Reineman performed rough grade stakes for line and grade at 50-foot intervals, site control through street centerline monumentation, storm drain staking, curb and gutter staking, street light staking, and monument preservation.

West Valley Water District, Persimmon Street Pipeline Replacement Project, Rialto, CA

Inland Empire Utilities Agency, Inland Empire, CA: Topographic mapping and Construction surveying for numerous water and wastewater projects

ESRI, On-Call Surveying, Redlands, CA: Mr. Reineman serves as a Party Chief conducting topographic surveys for design, boundary surveys, and construction surveys involving staking of utilities, buildings, rough grade, and fine grade.

San Bernardino Community College District (SBCCD), San Bernardino Valley College and Crafton Hills Community College, CA (2015): Mr. Reineman was a chainman for three SBCCD projects on two community colleges within San Bernardino County. He assisted with an ADA compliance check for 5 areas in the vicinity of the Art and Health/Science Buildings, re-established vertical control on survey control points, and performed a topographic survey of the Occupational Education building and Physical Education building. He also performed office support on this project.

San Bernardino City Unified School District, San Bernardino, CA: Mr. Reineman was the party chief for this modernization survey project for 4 high schools and 3 elementary schools within the SBCUSD. San Bernardino HS (topographic and utility survey), Pacific HS (topographic survey), Arroyo Valley HS (topographic survey), Cajon HS (topographic survey) and Barton ES, Hunt ES, and Rio Vista ES (utility and irrigation survey).

Colton Joint Unified School District, CA (2018): Mr. Reineman was the party chief for the design survey and as-built survey for Colton HS, Bloomington HS, Terrace View ES, Alice Birney ES, and Abraham Lincoln ES.

Street Improvement Program (SIP) for Private Streets, City of Moreno Valley, CA (2014): Mr. Reineman was the chainman for a topographic survey for this street improvement project on Kimberly Avenue to Carrillo Court to Partida Drive.

Eastern Municipal Water District (EMWD), On-Call Survey, Lake Elsinore, CA: Provided on-call topographic survey, boundary survey, lot line adjustments/ lot consolidations, and project research.

Orange County Water District (OCWD), Orange County, CA: Survey Services for Property Line Staking

**Firm Overview**

Wright Engineering Corporation is a professional electrical engineering firm engaged in providing quality and innovative designs in lighting and electrical projects to their clients. Wright Engineering believes in empowering their clients with the ability to build their projects with success, on time and on budget. Their qualifications have positioned them to take on complex electrical engineering endeavors with confidence and precision.

The firm specializes in all types of outdoor lighting including sports complexes, parking lots, streetscapes, street lighting, traffic signal design and decorative enhancements. The founder's passion for quality outdoor lighting design is still evident today through the principals and professional registrants on the Wright team. The firm has 7 Professional Engineers and 2 EIT with a combined total of over 140 years of lighting and electrical design experience. This is in addition to the 24 electrical designers on the team. The firm has prepared street light masterplans, standards, design guidelines, details, and LED specifications for numerous municipalities including Avondale, Surprise, Phoenix, Mesa, Queen Creek, Gilbert, Peoria, Sandy, UT, Chandler and Tempe.

Wright Engineering has a strong focus on continuing education and learning. Team members regularly attend lighting training seminars, conferences, and industry training staying up to date on emerging technologies. They are involved in local and national professional organizations including the Illuminating Engineering Society (IES) which is recognized as the authority on lighting. The president of Wright Engineering currently serves on the IES International Street and Area Lighting Conference Planning Committee and has been a past IES Arizona Section President and Vice President. This interaction with the IES provides numerous networking contacts around the country including manufacturers, utilities, and municipalities.

Project Experience & References

- A. City of Mesa Street Light Master Plan – The street light master plan prepared for the City of Mesa was a comprehensive study that included a wide range of tasks. The study included the following:
- Investigated similar municipalities' street light illumination standards
 - Performed a pilot test utilizing dimming fixtures in 3 areas
 - Coordinated public feedback including a community meeting
 - Performed nighttime measurements at various dimmed levels
 - Prepared overall City map of lighting zones for dimming
 - Designed custom light shield and coordinated IES lab test
 - Evaluated smart street light controls & coordinated test with local utility
 - Coordinated Citywide retrofit valuation for 35,000 replacements
 - Prepared final report of recommendations



- B. Town of Gilbert Street Light Master Plan – The street light master plan prepared for the Town of Gilbert included updating the Town standards for all street classifications and districts throughout the Town and preparing LED specifications. Wright Engineering prepared photometric calculations for typical street sections including special districts to determine spacing guidelines for multiple approved manufacturers. Wright Engineering prepared an overall comprehensive report that detailed the findings and included research on industry comparisons.

- C. Town of Queen Creek Street Light Master Plan – The street light master plan prepared for the Town of Queen Creek included creating Town standards for all street classifications and districts throughout the Town and preparing LED specifications and street light design guidelines. Wright Engineering prepared photometric calculations for typical street sections including special districts to determine spacing guidelines for multiple approved manufacturers. Wright Engineering prepared the Town’s design guidelines and spacing criteria.

Below are some references of past municipal street light masterplan, studies, and standards development projects that Adam Bowers, P.E. and Aaron Kutchinsky, P.E. were both involved with:

Town of Gilbert – Tom Condit: Tom.Condit@gilbertaz.gov , 480-503-6815

City of Phoenix – Jason Fernandez: jason.fernandez@phoenix.gov , 602-256-4168

City of Mesa – Nathan Curtis: nathan.curtis@mesaaz.gov , 480-644-3783

City of Surprise – Suneel Garg: Suneel.garg@surpriseaz.gov , 623-222-6130



Resumes



AARON D. KUTCHINSKY, P.E.
Vice President / Electrical Engineer

Education:

*Bachelor of Science
Electrical Engineering, 1999
Arizona State University
Tempe, Arizona*

*Master of Business Administration,
2002
University of Phoenix
Phoenix, Arizona*

Registration:

Professional Engineer - Electrical
*Arizona #40256
California #18879
Colorado #42060
New Mexico #19615
Utah #8465741-2202*

Memberships:

*Illuminating Engineering Society
(IES),
International Municipal Signal
Association (IMSA),
Institute of Transportation
Engineers (ITE),
Intelligent Transportation Society of
Arizona (ITS)*

Aaron D. Kutchinsky, P.E., is a Vice President with Wright Engineering Corporation and has twenty eight years of engineering experience. He holds a Bachelor of Science in Electrical Engineering, Arizona State University, 1999 and Master of Business Administration, University of Phoenix, 2002. His expertise includes lighting and electrical design of streetscapes, park and rides, municipal street lighting enhancements, regional parks, sports complexes, decorative landscape, and pedestrian oriented development. Mr. Kutchinsky also has extensive experience designing roadway lighting systems, intelligent transportation systems, and traffic signals.

REPRESENTATIVE PROJECTS:

City of Mesa Street Light Master Plan, Mesa, AZ – Prepared City of Mesa street light master plan. Scope included a comprehensive report of the overall 35,000 street lights and a dimming pilot test in 3 areas.

Germann Road CIP, Chandler, AZ – Street light design and ITS design for 1.25 miles of Germann Road.

Gilbert Rd Extension Light Rail – Horne to Gilbert Rd, Mesa, AZ – Design-Build project for 1.75 mile extension of the Valley Metro Light Rail from Horne to Gilbert Road including street light design, park and ride, two stations, signals for crossovers and two traction power substations.

Sky Crossing, Phoenix, AZ – Street light design for residential, arterial, and collector roadways (public and private) for master planned community. Project included five traffic signal designs and onsite lighting and electrical.

Lindsay Road Various Projects, Chandler, AZ – Street light and signal design for projects in Lindsay corridor including Chandler Pathways, Berge 80, Pecan Trace, La Valencia and Cantabria.

Baseline Road 51st Ave - 59th Ave, Phoenix, AZ – Street light design for Capital Improvement Project for 1.1 miles of roadway.

Bullard Ave & Lower Buckeye Intersection CIP, Goodyear, AZ – Street light design for arterial roadways and traffic signal design.



ADAM M. BOWERS, P.E.

Associate Engineer

Education:

*Bachelor of Science
Electrical Engineering, 2003
Arizona State University
Tempe, Arizona*

Registration:

Professional Engineer - Electrical
Arizona #46691

Memberships:

*Illuminating Engineering Society
(IES),*

Adam Bowers has twenty three years of experience with the firm and is a registered electrical engineer in the State of Arizona. He has extensive experience in roadway lighting, parking lot lighting, and traffic signal design and has been the project engineer or project manager on over 300 traffic signal designs and over 800 street light designs including traffic interchanges, major arterials, collectors and a variety of other types of roadways. He has been the project manager for the following projects:

REPRESENTATIVE PROJECTS:

City of Surprise Street Light Standards, Surprise, AZ – Prepared City of Surprise street light standards and design guidelines. Prepared photometric calculations for all City standard roadway sections to develop spacing standards to meet IES RP-8 recommendations.

Tortolita Traffic Interchange, Marana, AZ – ADOT Traffic interchange at I-10 and Tortolita Blvd including ramp lighting, bridge lighting, traffic signal design, and underdeck lighting designs.

Southern Ave Streetscape Phase 1 & 2 – Dobson Road to Sycamore Rd, Mesa, AZ – Capital Improvement Project including traffic signal design for four intersections and street light design for 3/4 mile of arterial roadway in the Fiesta District in Mesa. Design also includes monument lighting and holiday lighting electrical.

Sky Crossing, Phoenix, AZ – Street light design for residential, arterial, and collector roadways (public and private) for master planned community. Project included five traffic signal designs and onsite lighting and electrical.

Elliot Road Technology Corridor Enhancements, Mesa, AZ – Street light design for 2 miles arterial roadway on Elliot Road. Design includes entry identity monuments, pedestrian nodes, irrigation control power, and street name marker signs.

Buckeye Road Central - 16th St, Phoenix, AZ – Street light design for Capital Improvement Project for 2 miles of roadway.



Overview

SOFTWARE DESIGNER, DATA BASE AND IT CONSULTANT

Mr. Andre Lockhart is an independent software designer, database and IT consultant with over 25 years of experience. He works on contracts with agencies and large corporations on various software, database and IT projects on spec, and provides highly efficient, well designed and effective deliverables on time and within budget. He is often able to advise his clients on better, more efficient or technologically advanced solutions than anticipate, delivering beyond expectations.

Resume and Project Experience

ROBERT ANDRÉ LOCKHART

SOFTWARE DESIGNER, DATA BASE AND IT CONSULTANT

- 25+ years of software engineering experience as an individual contributor and hands-on manager
- 15+ years with web-based software products, using multiple front-end, back-end, and database technologies
- 12+ years' experience in recruiting and managing technical teams, including performance management

Summary of Skills

- Building cross-functional relationships
- React, React Native, Typescript, Node, Java
- Relational/noSQL databases & database design
- Data visualization design and technologies
- Simplifying technical concepts for non-technologists
- Design Thinking and UX design
- Scrum, kanban, and other agile methods

Experience

FlexGen

August 2022 - Present

Scope

Energy Management Organizational Transformation

Role

Director of Engineering

Responsibilities

- Managing and growing 10 direct reports: Delivered on all commitments
 - Team of mostly new college grads, elevated delivery to senior level
 - Simplified codebase to React PWA, NestJS, Backend For Frontend (BFF), Sequelize
 - Shipped rewrite of FlexGen's software product, HybridOS
 - Designed, built, and shipped new stealth mode product
- Created UX practice within FlexGen: Delivered vastly improved user experiences
 - UX research
 - Figma design system
 - Storybook React component library embodying design system
- Created agile framework for FlexGen: Delivered faster and more predictably
 - Small stories with testable Definition of Done
 - Clear link to delivery of business value for each story
 - Implemented Jira and coached teams on how to use it



Lab49

June 2021 - May 2022

Scope	FiTech Consulting
Role	Principal
Responsibilities	<ul style="list-style-type: none">Managing and growing 5 direct reports while leading 9 others at client engagementsLed an offshore team to deliver µFE and BFF Java 11, Spring Boot, JPA, MySQL on AWSArchitected and led an enterprise React and Java 11 enterprise application while writing key parts of the system with React, Java, Springboot, DynamoDb on AWS

Capital One

September 2019 – June 2021

Scope	Card Web Architecture
Role	Senior Web Architect
Responsibilities	<ul style="list-style-type: none">Mentored engineers and advised on architecture for front end, back end, and databasesµFE, BFF, React, React Native, React Hooks, Redux, GraphQL, web components, web workers, Sequelize/Sqlite and Java, Postgres on AWS

Ellie Mae

March 2018 – August 2019

Scope	Design System, UI Platform, Visualization and Analytics
Role	UI Architect, Senior Director
Accomplishments	<ul style="list-style-type: none">Led enterprise-wide transformation from AngularJS to React, React Native, StorybookDelivered BFF API layer and metaprogramming engine with NodeJS/MongoDbCoached and supported multiple front end and back end engineering teamsLed delivery of a WCAG 2+ compliant web and mobile UI Design System and PlatformRefactored Ellie Mae's analytics platform with a self-service feature enabling non-BI users to get BI-expert results. Used visualization technologies such as Vega, D3, PlotlyWorked with the Machine Learning and UX teams to deliver a ML training application

Vungle

October 2017 – March 2018

Project	Mobile App Advertising Campaign Manager
Role	Hands on UI Architect and developer
Accomplishments	<ul style="list-style-type: none">Delivered components and features using React, Redux, ES6/7, Sass, StorybookWrote and performance-tuned NodeJS applications with Mongoose/MongoDb

MapD (HEAVY.AI)

May 2017 – September 2017

Project	GPU Database Visualization software
Role	UI Architect
Accomplishments	<ul style="list-style-type: none">Simplified the UX and architecture of a Tableau-like application while adding featuresCoached front end engineers



Kenandy

Feb 2016 – December 2016

Project	SaaS ERP for Manufacturing
Role	Director of UI/UX
Accomplishments	<ul style="list-style-type: none">● Set the technology transformation direction and roadmap● Coached and led the team to deliver an efficient, engaging user experience while eliminating over 500,000 lines of code by generating the ERP UI from metadata● Used D3, Plotly, React/Redux/ES6/Sass, and BFF● Utilized Lean UX and Agile, leading and coaching design and UI engineering

TriNet

July 2014 – Feb 2016

Project	HR Self Service Applications
Role	UI Architect, Technical Team Lead
Accomplishments	<ul style="list-style-type: none">● Led the evaluation of Ember, Angular 2, and React. React was chosen● Built a ES6 application using React, Node, Express, NoSQL, Webpack● Coached front end engineers

Financial Force

October 2012 – July 2014

Project	Professional Services Automation Suite – Project Planner, Resource Planner, Gantt
Role	UX Architect, R & D
Accomplishments	<ul style="list-style-type: none">● Led the technology transformation from Adobe Flex to the ExtJS javascript framework● Designed, developed, and delivered Project Gantt, Project Planner, and Resource Planner, including visualization features● Introduced Lean UX processes

CoValuate

Founder and President

August 2006 – September 2012

Web 2.0 Intelligent Transportation Systems Software and Consulting Services

As the sole founder, bootstrapped a software startup to shipped products and \$1M+ in revenue

- Recruited and managed a team of 3-5 employees who delivered on all commitments
- Led partnerships with customer and vendors to design, build, and deliver the ITS industry's first Web 2.0 and SaaS-architecture software product, SMART Corridors
- Led a team of 12 researchers and staff to deliver traffic algorithms for the Mobile Millennium project, an R&D joint venture between UC Berkeley, Nokia, and Caltrans
- Designed UX for geospatial analytics
- Personally closed \$1M+ in business

Education

- BA, Political Science, Concentration in Nuclear Engineering, **Excelsior College**
- Qualified Reactor Operator, Naval Nuclear Propulsion Program, **MIT**
- Pragmatic Marketing Certified Practical Product Management, Living in an Agile World
- Payments Certification, The Payments Institute



References

FlexGen

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Direct Report

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FinancialForce

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Overview and Resume

FIXTURE TECHNICAL CONSULTANT



Chris S. McLaughlin

3900 Peach Drive, Loomis, CA 95650

Cell: 916.262.5812 - McLaughlinChrisCaryn@gmail.com

"Chris's personal connection with customers, along with his relentless pursuit of customer satisfaction are among the many reasons Chris consistently achieves a high level of customer retention."

-- Chris Larocca, National Sales Director, GE Lighting

PROFESSIONAL OBJECTIVE

Highly motivated regional sales manager contributing to the success of Cooper Lighting.

● PROFESSIONAL EXPERIENCE

Cooper Lighting Solutions (CLS) – Peachtree City, GA January 2012 - Present

WEST Region Sales Manager for Infrastructure Business

- Municipal, DOT, & Utility sales of LED lighting (roadway, intersections, & area).
- Continued 20yr relationship with Caltrans Engineering department & Lab for CLS approvals.
- Responsible for LED Lighting Sales in WEST (13 states & limited W. Canada).
- Exceeded and grew sales double digit percentages in 9 of 10 years.
- Successfully recruited, managed, and trained lighting agents.

General Electric Corporation (GELcore) – Valleyview, OH January 2003 - December 2011

WEST Region Sales Manager for Infrastructure Business

- Municipal & DOT sales of LED traffic signal modules.
- Worked with Caltrans on specifications, testing, and approvals of GE products.
- Responsible for LED Traffic Signal Sales in WEST (13 states & W. Canada).
- Exceeded and grew sales double digit percentages in 9 of 10 years.
- Successfully recruited, managed, and trained traffic distributors & OEMs.

Graybar Electric – Sacramento, CA August 1993 – December 2002

Outside Sales for Government and Industrial Markets

- Sold electrical products to Municipal, DOT & Industrial customers.
- Started in the warehouse, moved up to counter sales, then inside sales position and finally outside sales.

● EDUCATION

Chico State University

Bachelor of Science in Industrial Technology with a Minor in Math

Sonoma State University

Majored in Physics with concentration in Math

Six Sigma Green Belt Certification -General Electric Corporation

Proficient with Salesforce, Siebel, Dynamics (CRM), Outlook, Excel, Word, Powerpoint, & MS Teams.



Project Experience

LED Roadway Lighting Retrofit Projects

1. Salt River Project (SRP), AZ 2016
 - a. Cooper Lighting, Streetworks Brand, Archeon Family Lexington & UFLD Flood light
 - b. Secured multiyear contract to retrofit all 30,000 units on the SRP lighting system
2. City of Rancho Cucamonga, CA 2017
 - a. Cooper Lighting, Streetworks Brand, Verdeon Family Cobrahead and Navion Family Safety Light products
 - b. ~15,000 units replaced in less than 6 months
3. Northwestern Energy (IOU), MT 2020
 - a. Cooper Lighting, Streetworks Brand, Caretaker Family Yard Light product
 - b. ~20,000 units replaced in less than 12 months
4. City of Norwalk, CA 2018
 - a. Cooper Lighting, Streetworks Brand, Archeon Family Cobrahead product
 - b. ~5,000 units replaced in less than 2 months
5. Nevada Energy, NV 2016
 - a. Cooper Lighting, Streetworks Brand, Verdeon Family
 - b. Secured multiyear contract to retrofit all 25,000 units on the NV Energy lighting system
6. City of Fountain Valley, CA 2015
 - a. Cooper Lighting, Streetworks Brand, Navion Family Archeon Family Cobrahead and Navion Family Safety Light product
 - b. ~5,000 units replaced in less than 3 months
7. State of Washington DOT, WA 2021
 - a. Cooper Lighting, Streetworks Brand, Navion Family
 - b. Secured ESCO contract to retrofit the first 6,000 units of 310w phase changeout.
 - c. Started working with WSDOT in 2016 for previous changeouts of thousands of fixtures
8. City of Inglewood, CA 2016
 - a. Cooper Lighting, Streetworks Brand, Navion Family Cobrahead product
 - b. ~3,000 units replaced in less than 6 weeks



PROPOSED WORK PLAN AND FLOW

Project Understanding

The City of Commerce has issued a Request for Proposals (RFP) for a consultant to assess the City's roadway lighting system covering streets, alleys and signalized intersections and to prepare a street lighting Master Plan. The City has approximately 3130 streetlights/safety lights within its public right-of-way, of which approximately 476 are City owned and maintained, and 2,654 are owned and maintained by Southern California Edison (SCE). The primary goal of the project is to create an inventory data base and mapping system for its lights, and provide the City with specific long-term and short-term recommendations associated with upgrade of the City's lighting system for streets, alleys and traffic signals, along with some order of magnitude costs and budget. It is understood that the City is not planning to acquire any new lights/poles from SCE and will retain its current inventory.

Approach

Based on the RFP, our team has divided the project along the Tasks suggested in the RFP.

Task 1: Lighting Inventory

Roadway Mapping: Under this task, our team primarily plans to complete the aerial survey of the project site first. The estimated area of mapping is all of the existing streets within the City of Commerce. The file(s) will include details that can be captured via aerial survey such as curb faces and light poles that are necessary for photometric analysis, and in addition pull boxes and service cabinets, but not circuit types or conduits. The CAD file(s) provided will include planimetric data only (no vertical data or topography). As such, the data provided will be relatively more manageable and also provide the City with a current planimetric base for the 77.7 miles of City streets. Also, in case any particular infrastructure is not properly picked by the survey (behind a tree or other obstruction), those can be picked up or verified during the field inventory portion of the work. Though the City has mentioned that it has some ACAD files of some streets, we understand they are limited and it is not known at this time what percentage is missing and what is available. For a project this size, it is far more cost effective and labor saving to capture the whole roadway system at once, than sift through the City's records to see what is available and actually usable and try to get the rest. This effort will also create the data base under the same coordinate system and there will not be any discrepancies between files. This will also provide the City with an ACAD base for all its roadway system, which it can extract and use for any engineering project. This step is also essential in creating and running the photometric files, which use the ACAD files as a base.

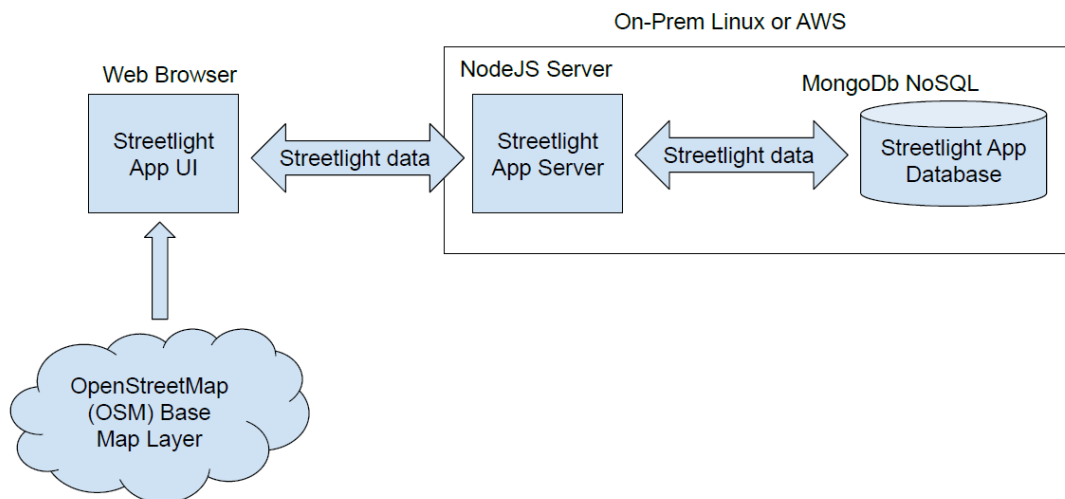
Field Inventory: After the survey, as the database is being generated and ACAD files created, the field inventory task will begin. Our field technicians will identify each light by location, take a photo of each light, and record lighting fixture type (LED, HPSV, etc.), mast arm length, wattage, height, type, condition of the pole, ADA deficiencies. For City owned lights, whether it is a series or multiple circuit will also be recorded. It is our experience that taking lighting level measurements in the field is not particularly useful because of several reasons. First, to get detailed and distributed measurements, multiple readings will have to be taken at precise distances for each light, which are extremely labor intensive. Second, the readings are highly prone to error. There are external reflected lights from other sources, car headlights, obstructions, etc. which make the readings unreliable. Lastly, these can only be done at night. Hence, this task can be very expensive yet yield inaccurate results. It is preferable to get this same information by recording each fixture on a base plan correctly and conducting a photometric model for existing



lighting at its end of life (using a depreciation factor) which will provide the City with a much more reliable and useful (before condition) information for comparison. Please note that the improved (after condition) is also modeled for end of life of fixtures.

Digital Maps and Data Base: To make the data capture by the field inventory technicians easier, a smartphone application will be created by our IT consultant and provided to our field technicians. This will give them an easy, efficient way to enter information for street lights while at each physical location. This information will be uploaded by the Field Techs directly and stored on a server hosted by the City. The application will be compliant with the City's network.

The information gathered by field technicians will be made available in a web-browser based application. This application will provide editable information in both a spreadsheet/list and map-based format. The web map will look and feel similar to Google Maps with zoom, drag/pan, etc. Both modes of information display will also allow simple editing of data. The map will be color coded by circuit, and type of light and ownership. The map will give users the ability to adjust locations by selecting a marker and drag/dropping it to the correct position. To ensure a consistent and intuitive user experience, both the spreadsheet and the map will use the same iconography and color coding to display the data. Users can also use either the browser-based spreadsheet or the map to add or remove street lights from the system. The following graphics illustrates this:



The street light data can be exported in both Excel and ArcGIS shapefile formats. Separately, there will also be a feature to upload, store, and download the AutoCAD maps developed by the Road Mapping task.

The technologies used by this application will be:

- [OpenStreetMap](#) for the map layer
- [LeafletJS](#) for the Map UI
- [ReactJS](#) for the web application
- ReactJS for the mobile application Progressive Web App ([PWA](#))
- [NodeJS/Express](#) for the web server
- [MongoDb](#) for the database

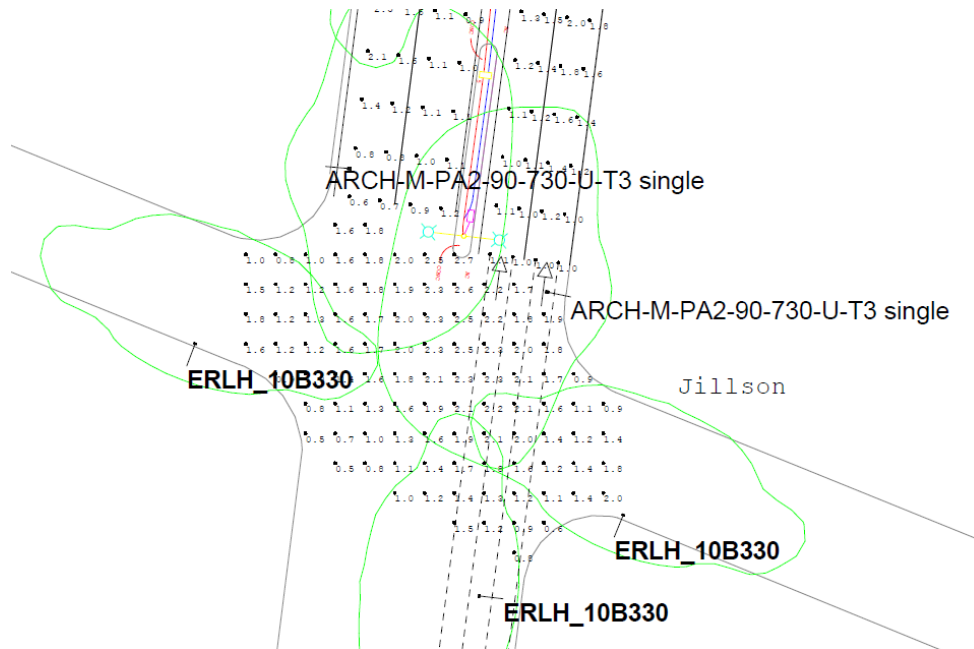
All of these libraries and tools are free and open source so there will be no initial or ongoing license fees. The application will have access to the internet, and will be secured using TLS 1.2. It will be installed on



the City's hardware running Linux. The City's server must be remotely, securely accessible during development.

Task 2: System Assessment and Determination of Deficiencies

Existing System Evaluation: Our approach is to keep the photometric calculations as simple and concise as possible. From the ACAD line-work created from Roadway Mapping and all pertinent luminaire/pole data collected from the field inventory, AGI32 program files will be created that will identify each light pole and fixture by all variables. This will allow quick and cost effective photometric calculations for all the public roadways. The appropriate IES (photometric) files will be used for each fixture to prepare a lighting analysis of all the existing lights in the City. Our deliverable will be AutoCAD files containing the point by point photometric results for each roadway grid sections with each corresponding summary indicating foot-candle averages and uniformity ratios using the illuminance method.



Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	LVRatio
EA North Jillson to Harbor Illum	Illuminance	Fc	1.72	2.8	0.6	2.87	4.67	N.A.
EA North Jillson to Harbor_Lum	Luminance	Cd/Sq.m	1.39	3.5	0.6	2.32	5.83	N.A.
EA North Jillson to Harbor_Veill_Lum	Veiling Luminance	Cd/Sq.m	0.26	0.5	0.1	2.60	5.00	N.A.
EA North Jillson to Harbor_Vis_Level	Visibility Level	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
EA North Jillson to Harbor_Vis_Level_Bkgd Lum	Background Luminance	Cd/Sq.m	1.43	3.6	0.6	2.38	6.00	N.A.
EA North Jillson to Harbor_Vis_Level Target Lum	Target Luminance	Cd/Sq.m	1.88	3.9	0.3	6.27	13.00	N.A.

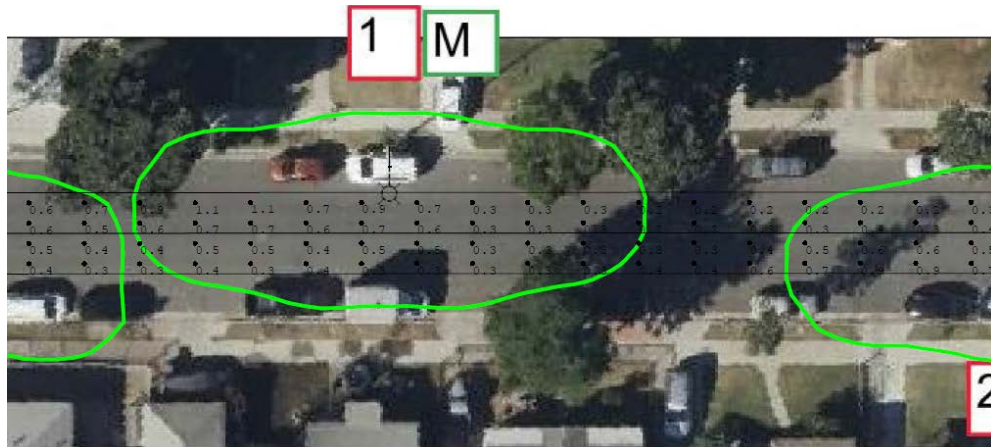
SAMPLE PHOTOMETRIC ANALYSIS FROM EASTERN AVENUE & JILLSON CONDUCTED BY TES

Rosini Community Survey: TES was the consultant that conducted the Rosini community lighting evaluation. There were some important aspects to this evaluation that must be understood that is relevant to the current citywide evaluation. First, the ACAD base maps were not available for this neighborhood. To overcome this, a GoogleEarth™ base was created from available data. The downside of this method is they are not accurate for GIS or XY coordinate based application as is required on this



citywide project. When using images, each section of a roadway may not match the next section perfectly (because of some curvature and other issues of the image) and sometimes there are adjustments that needed to be made to each image. Secondly, photo images for background make the ACAD file generated from it bigger and memory intensive and difficult to manage or store. Hence, this method (i.e. using photo images to generate the base files) is not feasible for the citywide project. This makes the first task of Road Mapping to create the ACAD files absolutely necessary, if photometric analysis using a software is to be accomplished. This cannot be an optional task, if this project is to be completed. However, each roadway sheet at a scale of 1"= 40' is not necessary for photometrics, and this service can be provided as an optional task.

Another important aspect of the Rosini evaluation was its practicality and usefulness. The key is that the City does not own the majority of the lights in the community, which are owned and maintained by SCE. It was understood that SCE was not going to install new poles for the City where there were lighting gap, and the recommendations for SCE lights were limited to change of fixtures or addition of mast arm and lights on existing poles that did not have lights. However, based on the City's objectives and upon review of this scenario, it was evident that there were not enough existing SCE poles to provide the minimum level of lighting through the corridors and additional poles and fixtures would be required. Hence, proposed new poles and fixtures (using the City's typical LED fixtures) were added to the layout to obtain the best possible lighting coverage. The intent of this step was to provide the City an option of adding new poles and fixtures at these locations in the future should funding become available. It should be noted that because of budget constraints, under this analysis, uniformity ratios were not given priority, but maximum coverage attainable based on the lighting contours predicted by the model was sought.



What the City understood and accepted was that there were small gaps between lighting contours that will not strictly meet RP-8 standards (as shown in the image above – gap between green contours). Putting a new pole and light in that gap will meet RP-8, but the lighting gap is small and the cost may not be worthwhile to cover such a small gap. This is the difference between meeting RP-8 standards citywide (which can be prohibitively expensive) or making realistic changes to lighting, to attain maximum coverage using public funding. Thoughtful recommendations were made to the City from this project and an order of magnitude of \$500,000 was estimated for these reasonable improvements (i.e. City installed poles, fixtures, conduits/circuitry, pull boxes, service cabinets, etc.). Hence, whether to reevaluate Rosini again or not, depends on the City's objectives.



Analysis of Future Conditions: TES will analyze the results of the system evaluation (before condition) and also consider the recommendation of the field inventory team, and determine grid by grid where improvements are needed. New lights will be inserted where there are gaps (based on City's overall directive of whether to try for best possible coverage or strictly meet RP-8 standards). Existing City standard fixtures will be used. Since SCE is in the process of approving Cooper Lighting fixtures for their own lights, Cooper fixtures will be recommended for SCE poles as well. These improvements will be inserted into the photometric files, which will include items like new/replacement fixtures, new mast arms, new poles, relocations (for ADA clearance), etc. These modifications will be shared with the City before running the photometric calculations again. Once the City concurs, these proposed modifications will be photometrically analyzed again to achieve IES RP-8-21 levels (or as close as possible). All photometric calculations will be sealed by an electrical engineer registered in the state of California.

Cost, Savings and Upgrade Plans: Based on the analysis of future or recommended upgrades, our team will make short-term and long-term recommendations. Short term recommendations would include items like:

- Fixture upgrades with City's standard items/replacement of HPSV
- New mast arms on existing poles
- New fixtures on existing poles
- New or upgraded safety lighting at intersections

Long term improvements may include the following:

- New poles and lights
- Upgrade of existing City owned series circuits
- New lighting systems (lights, poles, conduits, service cabinet, etc.)

TES will provide upper level/order of magnitude costs and cost savings for the short term and long term improvements. Based on the City's inputs these recommendations will be divided into zones and indicated on the digital map being created by the team by color coding.

Task 3: Implementation, Project Management and Deliverables

This task will run concurrently with Tasks 1 and 2, and has been separated to emphasize the project management tasks and project deliverables. TES will prepare a final report which will include a brief description of the project, analysis and findings, and final recommendations. The TES team will do the following, as requested:

- Attend a preliminary scoping meeting with City staff to discuss the details of the project, analysis parameters, work scope, schedule, and other project development concerns. It is assumed some of the team members will attend via video conferencing.
- Reflect comments and input from affected neighboring agencies (Bell, Montebello, Bell Gardens, Vernon, LA County, Caltrans) in its lighting evaluation and recommendations. TES assumes that the City will share the plans with them, receive input and forward the comments to TES.
- Meet with the City twice a month to update them on project status and progress, and present preliminary findings when applicable. These meetings will be held via video conferencing.
- Prepare and make a presentation of the draft "Citywide Street-lighting Master Plan" to the Public Works Director.



- Present the final "Citywide Street-lighting Master Plan" document to the City Council at up to two presentations.

Scope of Work

Task 1: Lighting Inventory

1.1 Roadway Mapping:

1.1.1 Provide a field survey and office calculations as needed to establish horizontal and vertical control and set aerial targets for aerial mapping of the project. Basis of bearing and elevations will be referenced to CCS NAD 83 and NAVD 88 datum.

1.1.2 Provide a manuscript produced from an aerial survey in ACAD format (Model Space only) shown at 1' = 40' scale identifying existing street lights and safety light, spacing, edge of pavement, and existing curbs on each of the existing streets, and even pull boxes and service cabinets within the City limits. The estimated area of mapping is all of the existing streets within the City of Commerce. The file(s) will not include details like circuit types or conduits. The CAD file(s) provided will include planimetric data only (no vertical data or topography).

1.1.3 Review collected data and coordinate with Field Inventory team to collect or confirm missing information

Deliverable: One ACAD Base File for the City's roadway system showing features discussed in Task 1.1.

Optional Services Task A – Street Maps in ACAD

Provide individual CAD sheets (Paper Space) based on the data provided in task 1.1.2 for each street captured in Item 1.1.1. This item assumes two (2) 1" = 40' scale viewports per sheet (approx. 2,000 lineal feet of street per sheet) for a total of 205 plan view sheets. The plan set will also include a sheet index (in CAD format) specifying each street's location within the sheet set.

1.2 Field Inventory:

1.2.1 Identify and incorporate data on existing series and multiple circuits, including service cabinets and pull boxes for City owned systems only.

Assumption: City will identify/provide information on which lights are City owned and which are SCE owned.

1.2.2 Identify and inventory wattage, height, fixture type, model no., mast arm, pole height, pole type, ADA clearance, material of the various systems elements for all lights in public streets and alleys via smart phone app (created under Task 1.3).

1.2.3 Take photos of each pole via smart phone

1.2.4 Generate a data matrix and provide to IT Consultant, which will be the basis of the inventory database

Deliverable: A data base of all street lights with identifying data described in section 1.2



1.3 Digital Maps and Data Base System:

1.3.1 Create/Configure Web App. This will be a Browser-based ReactJS Application

1.3.2 Create/Configure Server: This will be where the data will be housed. It will be a NodeJS/Express Server with endpoints.

Assumption: City will provide both server and remote access.

1.3.3 Create Streetlight Database: MongoDB NoSQL Database.

1.3.4 Create Map Interface: Leaflet Web Mapping Library, will use OpenStreetMaps Base Layer.

Assumption: Base Layer will be fetched from the internet, so it requires an internet connection

1.3.5 Initial Streetlight Data Load: Smart phone interface (PWA) will enable field technicians to enter data and take pictures while on site. This will be uploaded to the data base by the Field Techs directly.

1.3.6 Upload/store/retrieve ACAD files from Task 1.1. There is a single file of ~50MB. The UI will have an affordance for uploading/downloading the file

Assumption: No metadata is needed, just file name

1.3.7 Streetlight Data Viewer: Place streetlight icons, color-coded by circuit, type of light, and ownership.

1.3.8 Streetlight Data Editor: Editor will allow for add/delete of existing streetlights and include easy ability to adjust X, Y coordinates (Long/Lat) for correct placement on map

1.3.9 Export to ArcGIS shapefiles for consumption by City GIS system

1.3.10 Installation at City: System will be remotely installed on server and tested.

1.3.11 User Acceptance Testing: Be present at City to demonstrate, test and work with users to ensure the application is easy to use

1.3.12 Final Signoff: Make minor modifications/adjustments and demonstrate to City. Get final signoff.

Assumption: To be conducted via videoconferencing/remotely.

Deliverable: One web app/digital map system for street lights that include inventory data base of street light system of all of City's streets as described under task 1.3.

Task 2: System Assessment and Determination of Deficiencies

2.1 Existing System Evaluation:

2.1.1 Acquire ACAD files from Task 1.1 and review it for completeness, general accuracy and usability.



2.1.2 Acquire Field Inventory database including luminaire mounting height, mast arm length, fixture type and model no. Based on this info, the photometric IES files will be obtained/accessed for modeling.

2.1.3 Prepare sealed 24" X 36" photometric calculations for approx. 77.7 miles of public roadways and all intersections in pdf format at 1"=80' scale. The estimated area of mapping is all of the existing streets within the City of Commerce. Photometric grid sections will average approximately 1,800 lf based on roadway geometrics. It is anticipated that approximately 335 roadway grid sections will be needed.

2.1.4 Show photometric calculations with existing levels including foot-candle average and uniformity ratio using the illuminance method for all roadways and separate calculations for each intersection. All values that do not meet IESNA RP-8-21 values will be color coded in red (so that areas of non-compliance are easily identified) and will be flagged for upgrades.

2.1.5 The photometric calculations will be examined, grid by grid, along with the comments from the Field Inventory task about needed upgrades, and list of improvements will be created. These improvements will listed and conveyed to photometric team for further modeling.

Deliverables: None to City

2.2 Analysis of Future Conditions:

Conduct photometric analysis of future condition, as in Tasks 2.1.3 and 2.1.4 with all the necessary upgrades. Adjust modify/upgrades as needed to meet (or get as close as possible to) IESNA requirements, using City's standard hardware and equipment. Provide the City with specific long-term and short-term recommendations to upgrade the entire lighting system for streets and alleys including traffic safety lights. For SCE owned facilities the improvements would be limited to fixtures, mast-arms, and new lights on existing poles (no new poles, conductors/circuitry, or service.) After input from the City some small adjustments may be made to the runs.

Deliverables: Photometric Analysis showing upgrade.

2.3 Costs, Savings and Upgrade Plans:

Once the improvements have been confirmed, the upgrades will be listed/recorded and an order of magnitude estimate of costs and savings will be made. These will be separated into short term and long term improvements. Based on the City's inputs these recommendations will be divided into zones and indicated by color coding on the digital map being created by the team as part of Task 1.3.7.

Deliverables: Brief report and estimates on costs/budget, savings, and upgrade plans.

Optional Services Task B – Rosini Community Re-evaluation

The Rosini community, which was previously analyzed by TES and not in the current scope, can be reanalyzed as an additional task.



Task 3: Implementation, Project Management and Deliverables

3.1 Scoping Meeting:

After receiving notice to proceed, TES team will attend a preliminary scoping meeting with City staff to discuss the details of the project, analysis parameters, work scope, schedule, and other project development concerns. It is assumed some of the team members will attend via video conferencing.

3.2 Other Agency Input:

TES team will incorporate comments and input from affected neighboring agencies (Bell, Montebello, Bell Gardens, Vernon, LA County, Caltrans) in its lighting evaluation and recommendations. TES assumes that the plans that the City will share the plans/reports with these agencies, receive input from the agencies, and forward the comments to TES.

3.3 Biweekly Status Meetings:

Meet with the City twice a month to update them on project status and progress, submit invoices, and present preliminary findings when applicable. These meetings will be held via video conferencing.

3.4 Draft Citywide Street-Lighting Master Plan:

Prepare and make a presentation of the draft "Citywide Street-lighting Master Plan" to the Public Works Director. The report will include an Executive Summary, a summary of the data gathered during the field survey, recommendations for each City-owned circuit, the short-term and long-term plan with related budgets, and all pertinent maps at a reduced scale. The final report shall include a database of all streets sections in alphabetical order, with the number of existing lights along the street sections, proposed LED lights, and a column for all lighting changes for that section. The report will not be printed but delivered electronically (PDF format).

3.5 Final Citywide Street-Lighting Master Plan:

Upon receiving any comments on the Draft Plan, they will be incorporated and the final "Citywide Street-lighting Master Plan" electronic document submitted to the City. Up to two Power Point presentations will be made to the City Council on the Final Plan (by Nathaniel Behura, who is a current Planning Commissioner and an expert at City Council presentations).

Deliverables: Bi-weekly progress meetings, Draft and Final Street-Lighting Master Plan, up to two presentations to City Council.

CITY OF COMMERCE
CITYWIDE STREET-LIGHTING MASTER PLAN
PROJECT TASK SHEET

TASKS	KEY PERSONNEL														TOTAL HOURS		
	TES				CASC				Bear Electric				Wright Engineering			Lockhart	Cooper Lighting
	Project Manager NSB	Sr. Project Engineer JH	QA/QC GRP	Project Engineer TS	PMP/PLS RF	Sr. Eng. Advisor AM	Eng/ Designer	2 Man Survey Crew	PM/VP RA	Local PM AT	Field Elec. BH	Princ. Eng/VP AK	Assoc. Eng. AB	Elec. Designer		IT Consultant AL	Technical Consultant CM
TASK 1 - LIGHTING INVENTORY																	
1.1 Roadway Mapping	10.0	10.0			10.0	12.0		40.0									82.0
1.2 Field Inventory	20.0								3.0	289.0	73.0						385.0
1.3 Digital Maps & Data Base System	30.0														257.0		287.0
Subtotal	60	10	0	0	10	12	0	40	3	289	73	0	0	0	257	0	754.0
TASK 2 - SYSTEM ASSESSMENT & DEFICIENCIES																	
2.1 Existing System Evaluation	45.0	10.0										26.0	56.0	360.0			497.0
2.2 Analysis of Future Conditions	70.0	20.0							2.0			20.0	46.0	305.0			463.0
2.3 Costs, Savings & Upgrade Plans	50.0	14.0							8.0								72.0
Subtotal	165	44	0	0	0	0	0	0	10	0	0	46	102	665	0	0	1032.0
TASK 3 - IMPLEMENTATION, PM, & DELIVERABLES																	
3.1 Scoping Meeting	4.0																
3.2 Other Agency Input	10.0		2.0		2.0				2.0			2.0			2.0		12.0
3.3 Biweekly Status Meeting	30.0																30.0
3.4 Draft Master Plan	60.0																124.0
3.5 Final Master Plan	20.0																20.0
Subtotal	124	40	16	10	2	0	0	0	2	0	0	2	0	0	2	0	198.0
SUBTOTAL	349.00	94.00	16.00	10.00	12.00	12.00	0.00	40.00	15.00	289.00	73.00	48.00	102.00	665.00	259.00	0.00	1994.00

* Technical consultant will be used only as needed.

NOTE: 1 scoping meeting and 12 Progress meetings are included in this scope. There is also a presentation of the Draft Plan to the Public Works Director and up to two in person presentations to City Council in scope. Progress meeting will be mainly attended by TES. Subs will only attend if there are specific items or deliverables to discuss from their scope.

**PROPOSED PRELIMINARY SCHEDULE**

The following is a tentative suggested schedule based on the target dates mentioned in the RFP and the major tasks. This schedule will be modified based on award date any scope modifications.

Project Schedule		CITYWIDE STREETLIGHTING MASTER PLAN																													
Tasks	Weeks Starting -	May					June					July					August				September					October					
		1	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	4	11	18	25	2	9	16	23	30			
Project Management /Biweekly Meetings																															
Scoping Meeting/Approval/NTP																															
Aerial Survey																															
Roadway Mapping																															
Field Inventory																															
Review of ACAD Files/Inventory Data																															
Existing Conditions Photometrics																															
Determination of Upgrades																															
Final Condition Photometrics																															
Database & Digital Maps																															
Analysis of Costs, Savings, & Estimates																															
Bucket Truck Surveys																															
Preparation of Draft Master Plan																															
Final Plan/City Council Presentation																															

TASK**START DATE****COMPLETION DATE**

Project award	End of April 2023	N/A
Begin Project/Scoping Meeting	May 8, 2023	May 15, 2023
Final Scope/Approval by City	May 22, 2023	N/A
Aerial Survey	May 29, 2023	June 12, 2023
Roadway Mapping/ACAD Files	June 14, 2023	July 12, 2023
Field Inventory	June 5, 2023	July 12, 2023
Review ACAD Files/ Field Inventory	June 21, 2023	July 17, 2023
Existing Condition Photometrics	June 27, 2023	August 22, 2023
Determination of Upgrades	July 5, 2023	August 29, 2023
Final Condition Photometrics	July 11, 2023	September 5, 2023
Database and Digital Maps	May 29, 2023	September 15, 2023
Cost, Savings & Estimates	August 15, 2023	September 15, 2023
Draft Master Plan (Present to PW)	July 11, 2023	September 27, 2023
Final Plan/ Present to City Council	Based on Agency and Utility review	

NOTE: Many of these tasks are complex and time consuming. The ability to complete the project on schedule will depend on the ability to start these tasks as data and information become available, and being able to conduct them concurrently with other tasks. This will require constant and continued cooperation and input from the City.



PROPOSED METHOD TO TRACK PROGRESS AND EXPENDITURE

The RFP requires a proposed method of tracking progress and expenditure on the project. This is best done by the following method:

- A progress tracking spreadsheet will be created for the overall project and each task
- The tentative start, completion and major milestone dates will be included for each major task
- Each task will be tracked based on effort spent, effort invoiced, invoice paid, budget remaining, time remaining and percentage completion
- Any issues, barriers, delays or adjustments needed on the project on any of these parameters will be discussed at the progress meetings
- An invoice for the bi-weekly effort will be presented to the City at each bi-weekly meeting, which will allow the City to track progress and expenditure like a construction project
- The progress meetings will allow the City to review these progress documents and make comments before approval for payment

PROPOSED FEES FOR CITYWIDE STREET-LIGHTING MASTER PLAN

Revised 05-11-23

TASKS	KEY PERSONNEL																TOTAL HOURS	TOTAL LABOR FEE						
	TES				CASC				Bear Electric				Wright Engineering						Lockhart	Cooper Lighting				
	Project Manager NSB	Sr. Project Engineer JH	QA/QC GRP	Project Engineer TS	PM/PLS RF	Sr. Eng. Advisor AM	Eng/ Designer	2 Man Survey Crew	PMVP RA	Local PM AT	Field Elec. BH	Princ. Eng/VP AK	Assoc. Eng. AB	Elec. Designer										
	\$170.00	\$160.00	\$170.00	\$135.00	\$230.00	\$220.00	\$150.00	\$235.00	\$185.00	\$165.00	\$45.00	\$180.00	\$160.00	\$115.00	\$115.00	\$150.00								
TASK 1 - LIGHTING INVENTORY																								
1.1 Roadway Mapping	10.0	10.0			10.0	12.0		40.0									82.0	\$ 17,640.00						
1.2 Field Inventory	20.0								3.0	289.0	73.0						385.0	\$ 54,925.00						
1.3 Digital Maps & Data Base System	30.0														257.0		287.0	\$ 34,655.00						
Subtotal	60	10	0	0	10	12	0	40	3	289	73	0	0	0	257	0	754.0	\$ 107,220.00						
TASK 2 - SYSTEM ASSESSMENT & DEFICIENCIES																								
2.1 Existing System Evaluation	45.0	10.0										26.0	56.0	360.0			497.0	\$ 64,290.00						
2.2 Analysis of Future Conditions	70.0	20.0							2.0			20.0	46.0	305.0			463.0	\$ 61,505.00						
2.3 Costs, Savings & Upgrade Plans	50.0	14.0							8.0								72.0	\$ 12,220.00						
Subtotal	165	44	0	0	0	0	0	0	10	0	0	46	102	665	0	0	1032.0	\$ 138,015.00						
TASK 3 - IMPLEMENTATION, PM, & DELIVERABLES																								
3.1 Scoping Meeting	4.0				2.0				2.0			2.0			2.0		12.0	\$ 2,100.00						
3.2 Other Agency Input	10.0		2.0														12.0	\$ 2,040.00						
3.3 Biweekly Status Meeting	30.0																30.0	\$ 5,100.00						
3.4 Draft Master Plan	60.0	40.0	14.0	10.0													124.0	\$ 20,330.00						
3.5 Final Master Plan	20.0																20.0	\$ 3,400.00						
Subtotal	124	40	16	10	2	0	0	0	2	0	0	2	0	0	2	0	198.0	\$ 32,970.00						
SUBTOTAL	349.00	94.00	16.00	10.00	12.00	12.00	0.00	40.00	15.00	289.00	73.00	48.00	102.00	665.00	259.00	0.00	1984.00	\$ 278,205.00						
TOTAL LABOR	\$59,330	\$15,040	\$2,720	\$1,350	\$2,760	\$2,640	\$0	\$9,400	\$2,775	\$47,685	\$3,285	\$8,640	\$16,320	\$76,475	\$29,785	\$0								
TOTAL LABOR (BY FIRM)	\$78,440.00												\$53,745.00			\$101,435.00					Check		\$278,205.00	

* Technical consultant will be used only as needed.

NOTE: 1 scoping meeting and 12 progress (remote) meetings are included in this scope. There is also a presentation of the Draft Plan to the Public Works Director and up to two in-person presentations to City Council in scope. Progress meeting will be mainly attended by TES. Subs will attend if there are specific items or deliverables to discuss from their scope.



ADDENDA ACKNOWLEDGEMENT

TES team has received and reviewed Addendum 1 and 2 issued by the City, as well as 3 sets of questions and answers, which is hereby acknowledged.

TES carries the necessary insurance required by the City.

EXHIBIT B
GENERAL TERMS AND CONDITIONS

1. Status as Independent Contractor.

A. Consultant is, and shall at all times remain as to City, a wholly independent contractor. Consultant shall have no power to incur any debt, obligation, or liability on behalf of the City of Commerce or otherwise act on behalf of Commerce as an agent. Neither the City of Commerce nor any of its agents shall have control over the conduct of Consultant or any of Consultant's employees, except as set forth in this Agreement. Consultant shall not, at any time, or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the City of Commerce.

B. Consultant agrees to pay all required taxes on amounts paid to Consultant under this Agreement, and to indemnify and hold City harmless from any and all taxes, assessments, penalties, and interests asserted against City by reason of the independent Consultant relationship created by this Agreement. In the event that City is audited by any Federal or State agency regarding the independent status of Consultant and the audit in any way fails to sustain the validity of a wholly independent Consultant relationship between City and Consultant, then Consultant agrees to reimburse City for all costs, including accounting and attorney's fees, arising out of such audit and any appeals relating thereto.

C. Consultant shall fully comply with the workers' compensation law regarding Consultant and Consultant's employees. Consultant further agrees to indemnify and hold City harmless from any failure of Consultant to comply with applicable worker's compensation laws. City shall have the right to offset against the amount of any fees due to Consultant under this Agreement any amount due to City from Consultant as a result of Consultant's failure to promptly pay to City any reimbursement or indemnification arising under this Section 1.

D. Consultant represents to the City, and City relies on Consultant's representations, that Consultant shall serve solely in the capacity of an independent contractor to the City. Neither the City nor any of its agents will have control over the conduct of Consultant or any of Consultant's employees, except as otherwise set forth in the Agreement. Consultant may not, at any time or in any manner, represent that it or any of its agents or employees are in any manner agents or employees of the City. The City has no duty, obligation, or responsibility to the Consultant's agents or employees, including the Affordable Care Act coverage requirements. Consultant is solely responsible for any tax penalties associated with the failure to offer affordable coverage to its agents and employees under the Affordable Care Act with respect to Consultant's agents and employees. Consultant warrants and represents that the City will not be responsible and will not be held liable for issues related to Consultant's status as an independent contractor, including Consultant's failure to comply with Consultant's duties, obligations, and responsibilities under the Affordable Care Act. Consultant further agrees to defend, indemnify, and hold the City harmless

for any and all taxes, claims, and penalties against the City related to Consultant's obligations under the Affordable Care Act.

2. Standard of Performance

Consultant shall perform all work to the highest professional standards and in a manner reasonably satisfactory to the City Manager or his/her designee. No additional or different tasks or services shall be performed by Consultant other than those specified in **Exhibit A**.

3. Indemnification.

A. Consultant is skilled in the professional calling necessary to perform the services and duties agreed to be performed under this Agreement, and City is relying upon the skill and knowledge of Consultant to perform said services and duties.

B. City and its respective elected and appointed boards, officials, officers, agents, employees and volunteers (individually and collectively, "Indemnities") shall have no liability to Consultant or any other person for, and Consultant shall indemnify, defend, protect and hold harmless Indemnities from and against, any and all liabilities, claims, actions, causes of action, proceedings, suits, damages, judgments, liens, levies, costs and expenses of whatever nature, including reasonable attorneys' fees and disbursements (collectively "Claims"), which Indemnities may suffer or incur or to which Indemnities may become subject by reason of or arising out of any injury to or death of any person(s), damage to property, loss of use of property, economic loss or other loss occurring to the extent as a result of or caused by Consultant's performance of or failure to perform any services under this Agreement or by the negligent or willful acts or omissions of Consultant, its authorized agents, officers, directors, subcontractor, sub consultant or employees, committed in performing any of the services under this Agreement. Notwithstanding the foregoing, the provisions of this subsection shall not apply to Claims occurring as a result of the City's sole negligence or willful acts or omissions.

C. Consultant agrees to obtain executed indemnity agreements with provisions identical to those set forth in this Section from each and every subcontractor, sub consultant or any other person or entity involved by, for, with or on behalf of Consultant in the performance of this Agreement. In the event Consultant fails to obtain such indemnity obligations from others as required in this Section, Consultant agrees to be fully responsible according to the terms of this Section. Failure of the City to monitor compliance with these requirements imposes no additional obligations on City and will in no way serve as a waiver of any rights hereunder. This obligation to indemnify and defend Indemnities as set forth herein shall survive the termination of this Agreement and is in addition to any rights which City may have under the law. This indemnity is effective without reference to the existence or applicability of any insurance coverage which may have been required under this Agreement or any additional insured endorsements which may extend to

City.

4. Insurance.

A. Without limiting Consultant's indemnification of Indemnities pursuant to Section 3 of this Agreement, Consultant shall obtain and provide and maintain at its own expense during the term of this Agreement the types and amounts of insurance as described below:

(I) Consultant shall maintain Commercial General Liability Insurance with coverage at least as broad as Insurance Services Office Commercial General Liability Form CG 00 01 in an amount not less than \$1,000,000 per occurrence, \$2,000,000 general aggregate, for bodily injury, personal injury, and property damage. Defense costs must be paid in addition to limits. There shall be no cross liability exclusion for claims or suits by one insured against another. The policy must include contractual liability that has not been amended. Any endorsement restricting standard ISO "insured contract" language will not be accepted.

(II) Consultant shall maintain Business Auto Coverage on ISO Business Auto Coverage Form CA 00 01 covering bodily injury and property damage for all activities of the Consultant arising out of or in connection with Work to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than \$1,000,000 combined single limit for each accident.

(III) Consultant shall maintain Workers' Compensation Insurance (Statutory Limits) and Employer's Liability Insurance with on a state approved policy form providing statutory benefits as required by law with employer's liability limits no less than \$1,000,000 per accident for all covered losses;

(IV) Consultant shall maintain Professional Liability or Errors and Omissions Insurance that covers the services to be performed in connection with this Agreement, in the minimum amount of \$1,000,000 per claim and in the aggregate. Any policy inception date, continuity date, or retroactive date must be before the effective date of this Agreement and Consultant agrees to maintain continuous coverage through a period no less than three (3) years after completion of the services required by this Agreement.

B. City and its respective elected and appointed boards, officials, officers, agents, employees and volunteers shall be named as additional insureds on the policy(ies) as to commercial general liability and automotive liability.

C. All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance or is on the List of Approved Surplus Line Insurers in the State of California, with an assigned policyholders' Rating of A- (or higher) and Financial Size Category Class VI (or larger)

in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the City's Risk Manager.

D. All insurance policies shall provide that the insurance coverage shall not be non-renewed, canceled, reduced, or otherwise modified (except through the addition of additional insureds to the policy) by the insurance carrier without the insurance carrier giving City thirty (30) days' prior written notice thereof (10 days in case of non-payment). Any such notice shall be submitted to CITY via certified mail, return receipt requested, addressed to "Director of Human Resources & Risk Management," City of Commerce, 2535 Commerce Way, Commerce, California, 90040. Consultant agrees that it will not cancel, reduce or otherwise modify said insurance coverage.

E. Consultant shall submit to City (I) insurance certificates indicating compliance with the minimum worker's compensation insurance requirements above, and (II) insurance policy endorsements indicating compliance with all other minimum insurance requirements above, not less than one (1) day prior to beginning of performance under this Agreement. Endorsements shall be executed on City's appropriate standard forms entitled "Additional Insured Endorsement".

F. Consultant's insurance shall be primary as respects the City and its respective elected and appointed boards, officials, officers, agents, employees and volunteers. Any insurance or self-insurance maintained by the City, its officers, officials, employees and volunteers shall be excess of Consultant's insurance and shall not contribute with it.

G. Consultant agrees that if it does not keep the aforesaid insurance in full force and effect, and such insurance is available at a reasonable cost. City may take out the necessary insurance and pay the premium thereon, and the repayment thereof shall be deemed an obligation of Consultant's and the cost of such insurance may be deducted, at the option of City, from payments due Consultant.

5. Release of Information/Confidentiality.

A. Consultant in the course of its duties may have access to confidential data of City, private individuals, or employees of the City. Consultant covenants that all data, documents, discussion, or other information developed or received by Consultant or provided for performance of this Agreement are deemed confidential and shall not be disclosed by Consultant without written authorization by City. City shall grant such authorization if disclosure is required by law. All City data shall be returned to City upon the termination of this Agreement. Consultant, its officers, employees, agents, or subconsultants, shall not without written authorization from the City Manager, voluntarily provide declarations, letters of support, testimony at depositions, response to interrogatories, or other information concerning the work performed under this Agreement or relating to any project or property located within the City. Response to a subpoena or court order shall not be considered "voluntary" provided Consultant gives City notice of such court order or subpoena. Consultant's covenant under this section

shall survive the termination of this Agreement.

B. Consultant shall promptly notify City should Consultant, its officers, employees, agents, or subconsultants be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions, or other discovery request, court order, or subpoena from any person or party regarding this Agreement and the work performed thereunder. City retains the right, but has no obligation, to represent Consultant and/or be present at any deposition, hearing, or similar proceeding. Consultant agrees to cooperate fully with City and to provide the opportunity to review any response to discovery requests provided by Consultant. However, City's right to review any such response does not imply or mean the right by City to control, direct, or rewrite said response

6. Ownership of Work Product.

A. Consultant shall maintain complete and accurate records with respect to sales, costs, expenses, receipts, and other such information required by the City that relate to the performance of services under this Agreement. Consultant shall maintain adequate records of services provided in sufficient detail to permit an evaluation of services. All such records shall be maintained in accordance with generally accepted accounting principles and shall be clearly identified and readily accessible. Consultant shall provide free access to the representatives of the City or its designees at reasonable times to such books and records; shall give the City the right to examine and audit said books and records; shall permit the City to make transcripts therefrom as necessary; and shall allow inspection of all work, data, documents, proceedings, and activities related to this Agreement. Such records, together with supporting documents, shall be maintained for a period of three (3) years after receipt of final payment.

B. Upon completion of, or in the event of termination or suspension of this Agreement, all original documents, designs, drawings, maps, models, computer files, surveys, notes, and other documents prepared in the course of providing the services to be performed pursuant to this Agreement shall become the sole property of the City and may be used, reused, or otherwise disposed of by the City without the permission of the Consultant. With respect to computer files, Consultant shall make available to the City, at the Consultant's office and upon reasonable written request by the City, the necessary computer software and hardware for purposes of accessing, compiling, transferring, and printing computer files.

7. Conflict of Interest.

A. Consultant covenants that it presently has no interest and shall not acquire any interest, direct or indirect, which may be affected by the services to be performed by Consultant under this Agreement, or which would conflict in any manner with the performance of its services hereunder. Consultant further covenants that, in performance of this Agreement, no person having any such interest shall be employed by it. Furthermore, Consultant shall avoid the appearance of having any interest which

would conflict in any manner with the performance of its services pursuant to this Agreement.

B. Consultant covenants not to give or receive any compensation, monetary or otherwise, to or from the ultimate vendor(s) of services to City as a result of the performance of this Agreement, or the services that may be procured by the City as a result of the recommendations made by Consultant's covenants under this section shall survive the termination of this Agreement.

8. Termination. Notwithstanding any other provision, this Agreement may be duly terminated at any time by the City at its sole discretion with or without cause by serving upon the consultant at least ten (10) days prior written notice ("Notice of Termination"). Upon receipt of said notice, the Consultant shall immediately cease all work under this Agreement, unless the notice provides otherwise. Unless expressly agreed upon in writing by the City, the City shall not be obligated to pay for any services rendered nor any costs or expenses paid or incurred after the date of termination. The effective date of termination shall be upon the date specified in the written Notice of Termination. Consultant agrees that in the event of such termination, Consultant must refund the City its prorated share, except for services satisfactorily rendered prior to the effective date of termination. Immediately upon receiving written Notice of Termination, Consultant shall discontinue performing services, preserve the product of the services and upon payment for services, turn over to City the product of the services in accordance with written instructions of City.

In the event this Agreement is terminated pursuant to this Section, the City shall pay to Consultant the actual value of the work performed up to the time of termination, provided that the work performed is of value to the City. Upon termination of the Agreement pursuant to this Section, the Consultant will submit an invoice to the City.

9. Personnel. Consultant represents that it has, or will secure at its own expense, all personnel required to perform the services under this Agreement. All of the services required under this Agreement will be performed by Consultant or under its supervision, and all personnel engaged in the work shall be qualified to perform such services. Consultant reserves the right to determine the assignment of its own employees to the performance of Consultant's services under this Agreement, but City reserves the right, for good cause, to require Consultant to exclude any employee from performing services on City's premises.

10. Non-Discrimination and Equal Employment Opportunity.

A. Consultant shall not discriminate as to race, color, creed, religion, sex, marital status, national origin, ancestry, age, physical or mental handicap, medical condition, or sexual orientation, in the performance of its services and duties pursuant to this Agreement, and will comply with all rules and regulations of City relating thereto. Such nondiscrimination shall include but not be limited to the following: employment, upgrading, demotion, transfers, recruitment or recruitment advertising; layoff or

termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.

B. Consultant will, in all solicitations or advertisements for employees placed by or on behalf of Consultant state either that it is an equal opportunity employer or that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, sex, marital status, national origin, ancestry, age, physical or mental handicap, medical condition, or sexual orientation.

C. Consultant will cause the foregoing provisions to be inserted in all subcontracts for any work covered by this Agreement except contracts or subcontracts for standard commercial supplies or raw materials.

11. Assignment. Consultant shall not assign or transfer any interest in this Agreement nor the performance of any of Consultant obligations hereunder, without the prior written consent of City, and any attempt by Consultant to assign this Agreement or any rights, duties, or obligations arising hereunder shall be void and of no effect.

12. Performance Evaluation. For any Agreement in effect for twelve months or longer, the City Manager may require a written annual administrative performance evaluation within ninety (90) days of the first anniversary of the effective date of this Agreement, and each year thereafter throughout the term of this Agreement. The work product required by this Agreement shall be utilized as the basis for review, and any comments or complaints received by City during the review period, either orally or in writing, shall be considered. City shall meet with Consultant prior to preparing the written report. If any noncompliance with the Agreement is found, City may direct Consultant to correct the inadequacies, or, in the alternative, may terminate this Agreement as provided herein.

13. Compliance with Laws. Consultant shall keep itself informed of State, Federal and Local laws, ordinances, codes and regulations which in any manner affect those employed by it or in any way affect the performance of its service pursuant to this Agreement. Consultant shall at all times comply with such laws, ordinances, codes and regulations. The City, its officers and employees shall not be liable at law or in equity occasioned by failure of Consultant to comply with this Section.

14. Licenses. At all times during the term of this Agreement, Consultant shall have in full force and effect all licenses (including a City business license) required of it by law for performance of the services hereunder.

15. Non-Waiver of Terms, Rights and Remedies. Waiver by either party of any one or more of the conditions of performance under this Agreement shall not be a waiver of any other condition of performance under this Agreement. In no event shall the making by City of any payment to Consultant constitute or be construed as a waiver by City of any breach of covenant, or any default which may then exist on the part of Consultant, and the making of any such payment by City shall in no way impair or

prejudice any right or remedy available to City with regard to such breach or default.

16. Attorney's Fees. In the event that either party to this Agreement shall commence any legal or equitable action or proceeding to enforce or interpret the provisions of this Agreement, the prevailing party in such action or proceeding shall be entitled to recover its costs of suit, including reasonable attorney's fees and costs, including costs of expert witnesses and Consultant.

17. Notices. Any notices, bills, invoices, or reports required by this Agreement shall be deemed received on (a) the day of delivery if delivered by hand during Consultant regular business hours or by facsimile before or during Consultant regular business hours; or (b) on the third business day following deposit in the United States mail, postage prepaid, to the addresses heretofore set forth in the Agreement, or to such other addresses as the parties may, from time to time, designate in writing pursuant to the provisions of this section.

18. Governing Law. This Agreement shall be construed and interpreted both as to validity and to performance of the Parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in relation to this Agreement shall be instituted in the Superior Court of the County of Los Angeles, State of California. However, the Parties may agree to submit any dispute to non-binding arbitration.

19. Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed to be the original, and all of which together shall constitute one and the same instrument.

20. Severability. If any provision or any part of any provision of this Agreement is found to be invalid or unenforceable, the balance of this Agreement shall remain in full force and effect.

21. Entire Agreement. This Agreement, and any other documents incorporated herein by specific reference, represents the entire and integrated agreement between Consultant and City. This Agreement supersedes all prior oral or written negotiations, representations or agreements. This Agreement may not be amended, nor any provision or breach hereof waived, except in a writing signed by the Parties which expressly refers to this Agreement. Amendments on behalf of the City will only be valid if signed by the Mayor and attested by the City Clerk.

22. Authority. The person or persons executing this Agreement on behalf of Consultant warrants and represents that he/she has the authority to execute this Agreement on behalf of Consultant and has the authority to bind Consultant to the performance of its obligations hereunder.

23. Force Majeure. A Party's performance of any obligation under this Agreement shall be suspended if, and to the extent that, the Party is unable to perform because of

any event of Force Majeure. In any such event, the Party unable to perform shall be required to resume performance of its obligations under this Agreement upon the termination of the event or cause that excused performance hereunder. "Force Majeure" herein means an event which is beyond the reasonable control of a Party, including without limitation, (a) acts of God including flood, fire, earthquake, hurricane or explosion, pandemic; (b) war, invasion, hostilities (whether war is declared or not), terrorist threats or acts, riot or other civil unrest; (c) government order or law that prevents either Party from performing its obligations as set forth in this Agreement; (d) actions, embargoes or blockades in effect on or after the date of this Agreement; (e) action by any governmental authority that prevents either Party from performing its obligations as set forth in this Agreement; (f) national or regional emergency; (g) strikes, labor stoppages or slowdowns or other industrial disturbances, other than those involving the affected parties employees; (h) shortage of adequate power or transportation facilities.

Neither Party shall be liable for any delay or default in, or failure of, performance resulting from or arising out of any Force Majeure event, and no such delay, default in, or failure of performance shall constitute a breach by either Party hereunder. Where a Force Majeure event gives rise to a failure or delay in either Party performing its obligations under this Agreement (other than obligations to make payment), those obligations will be suspended for the duration of the Force Majeure event. A Party who becomes aware of a Force Majeure event which gives rise to, or which is likely to give rise to, any failure or delay in performing its obligations under this Agreement, will forthwith notify the other and inform the other of the period for which it is estimated that such failure or delay will continue. The affected Party shall take reasonable steps to mitigate the effects of the Force Majeure event.