ILLUMINATING THE PATHWAY TO SAN JOSÉ'S SMART CITY

RFP 15-16-01

INNOVATIVE LED STREETLIGHT REPLACEMENT PROPOSAL

City of San José

30 MARCH 2016

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30 March, 2016

Ms.Teri Killgore
Assistant to the City Manager, Downtown and Civic Innovation Manager
200 E. Santa Clara Street, 17th Floor
San José, CA 95113

RFP 15-16-01 Response- Innovative LED Streetlight Replacement program

Dear Ms. Kilgore and City of San José staff,

Black & Veatch is pleased to offer our proposal to the City of San José for your Innovative LED Streetlight Replacement program. We have assembled a team of Smart City partners to implement a successful program that pays for itself, generates ongoing revenue, and could provide substantial energy savings to the City while supporting the visionary ideas presented in the City's Greenhouse Gas (GHG) Reduction Strategy and Envision San José 2040 General Plan.

Through a partnership with Black & Veatch, the City will receive the following benefits:

Economic value + Intelligent System Integration = Value over Time to San José. The value of installing San José's smart streetlighting network comes from greater control, reduced maintenance costs and, above all, the possibility of integrating street lighting with multiple other intelligent systems. Black & Veatch is a leader in Smart City planning and design. Along with our partners, we offer San José the benefit of our cross-domain expertise that enables us to integrate the hardware and software building blocks of several City networks into one intelligent system.

Practical Implementation. Black & Veatch has an extensive background of experience, stability, and reliability working with Cities to align our solutions with their policies and to implement highly technical projects quickly. San José will receive the benefits of working with an established 100+ year company with a solid reputation worldwide and ample resources that is partnered with the most innovative Smart City companies in your area.

***Community Benefit and impact*.** San José will benefit from our foundational Smart City platform that will support future community innovation. Benefits of this solution would include public safety, environmental, smart transportation, smart outdoor kiosks, mobile apps, and more.

The City of San José is already breaking new ground as one of the first cities nationally to install smart, energy-efficient, streetlights. This next step is critical to make sure San José begins its Smart City journey solidly and leverages maximum possible benefit in the absence of public funds.

We greatly appreciate the opportunity to work with the City, and we are eager to meet with you to discuss moving forward on this project. I invite you to contact me at (619) 379-5258 or at azerre@bv.com.

Very truly yours,
BLACK & VEATCH

Richard E. Azer
Associate Vice President, Smart Integrated Infrastructure

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11.2.2. Executive Summary

San José has broken new ground with their initial phase of lighting upgrade, becoming one of the first cities nationally to install smart, energy-efficient, streetlights. Black & Veatch's progressive offering allows the City to complete the retrofit through an innovative funding mechanism. In addition to the lighting upgrade, our proposal includes improved cellular coverage, free public Wi-Fi, and smart informational kiosks that the City can use as a formative platform for Smart City development, leveraging the maximum possible benefit in the absence of public funds.

We assembled a unique team of **Smart City Service Partners** to implement a successful LED program that pays for itself and could provide energy savings and other possible revenue streams to the City. It also provides a path forward for San José to continue evolving into a Smart City of distinction in California. This solution will add key benefits to the citizens of San José by leveraging smart city technology.

As part of this collaboration, to meet financial objectives, our Smart City Service Partners assume that the identified City assets will be available for use at no cost for a minimum period of 20 years.

We believe our concept will result in a successful, game-changing project with considerable economic and civic community benefits including:

- Retrofit streetlights at no cost to the City;
- Considerable ongoing savings to the City in energy and Operations &Maintenance costs;
- Improved cellular coverage;
- Free public Wi-Fi hotspots;
- Regional economic development advantages by building the foundation of a Smart City.
- Potential use of the smart streetlights as a platform to support other Smart City initiatives such as smart transportation, environmental monitoring, public safety, etc.;
- Improved citizen engagement and promotion of civic innovation and collaboration.

Black & Veatch and our Partners encourage additional discussion with the City to ensure approach feasibility and gain buy-in from stakeholders and other involved parties.

Black & Veatch's ecosystem of technology partners extends thought leadership and expert guidance to help cities evolve their Smart status. Our Smart City Service Partners are leaders in their respective technologies with demonstrated experience to help cities across the globe transform into Smart Cities. The civic enhancements proposed will make everyday activities easier for the San José citizens by empowering them with technology to allow them to be smarter, safer and better connected.

Our Team

Black & Veatch Corporation is a leading global engineering, consulting and construction company with 100 years of distributed infrastructure, telecommunications, water, energy and Federal design experience. We consistently rank at the top for engineering design; in 2015 Engineering News Record ranked us the #1 Telecommunications firm in the nation for the sixth consecutive year. We embrace a plan of "Zero Incidents Today" that has resulted in industry-leading safety statistics.

Black & Veatch's Smart City Service Partners were carefully selected to maximize service and financial return to the City. Our team includes:

- **Schréder** (www.Schréder.com) for roadway luminaires, streetlighting controllers, and the Owlet streetlight control management system.
- **Acuity Brands (Holophane)** (www.acuitybrands.com) (www.holophane.com) for decorative luminaires.
- **5 Bars™** (www.5bars.com) is a California-based premier neutral host provider that delivers state-of-the-art Distributed Antenna System (DAS) and Wi-Fi systems.
- **Smart City Media (** http://smartmedia.city **)** with interactive Smart kiosks and mobile applications that deliver insightful location-based media in real-time.
- **Black & Veatch Construction, Inc. (BVCI**) (www.bv.com), our team's installation partner, will work with our proposed subcontractors.
- **Bostonia Group** (www.Bostonia.com) offers equity and fixed income products and services to institutional investors and provides investment banking services to its corporate, institutional, municipal, and federal clients.

Black & Veatch will consult with the City's stakeholders; we will seek to identify other essential Partners to reach ideal revenue streams and enhance service offerings to the City.

Black & Veatch will act as program integrator, manage and perform the LED retrofit and the implementation of the various partner solutions. We will provide a superior end-to-end turnkey experience. Our world-class Program Management and Engineering, Procurement & Construction (EPC) services will provide consistent and safe implementation across the multiple site types.

A Bright Vision for San José

Black & Veatch's solution will provide San José, the largest and most urban city in Silicon Valley, with transformational benefits for the City and its residents, boosting quality of life, delivery of cross-cultural public services, sustainability and economic growth. The City can leverage these benefits to manage and overcome challenges related to urbanization, meeting requirements within its Greenhouse Gas (GHG) Reduction Strategy and the recently adopted the Envision San José 2040 General Plan, increasing public expectations and growing financial pressures.

Our solution can transform San Jose, who will in turn, provide leadership to the entire region as they also seek to advance their technological innovation and economic activity. We look forward to working with the City of San José on this transformational program. We believe it will serve as a referential example of the progressive solutions that can emerge when cities and corporations work together on a common goal.

11.2.3. Proposal Checklist

ATTACHMENT A
Proposal Checklist (REQUIRED)

The Proposal Checklist is required for all proposers. It is intended to assist you in determining if you have included all items in your proposal response.

Required Items for All Proposals Unless Noted
☑ Attachment A, Proposal Checklist
☑ Cover Letter (See Section 11.1)
☑ Executive Summary (Section 11.2), maximum of two pages
Project Team (Section 11.4) ☑ Management Plan – 11.4.1 ☑ High Level Project Plan with timeline – 11.4.2 ☑ Key Personnel Assignments/Responsibilities - 11.4.3 ☑ Organizational Chart with reporting structure – 11.4.3.1 ☑ Key personnel with job titles and project manager – 11.4.3.2 ☑ One Page Resume for each Key Personnel – 11.4.4 ☑ Contractor or Installation Partner documents (if applicable) – 11.4.6 ☑ Contractor/Installation Partner's Key Personnel Assignments/Responsibilities ☑ Contractor/Installation Partner's Organizational Chart with reporting structure ☑ Contractor/Installation Partner's Key Personnel with job titles and project manager ☑ One Page Resume for each of Contractor/Installation Partner's Key Personnel ☑ Streetlight Design and Engineering documents (if applicable) – 11.4.5 ☑ Streetlight Design/Engineering Key Personnel Assignments/Responsibilities ☑ One Page Resume for Streetlight Design/Engineering Key Personnel
☑ Attachment B, Proposal Specifics Worksheet
☑ Attachment C, Proposal Valuation and Cost Form with Designated Responsible Parties
☑ Attachment D, Proposal Certification Form
☑ Attachment E, Project Team and Financial Background Information Worksheet
Attachment F, Previous Customer Reference Form ☑ Reference 1 Form ☑ Reference 2 Form ☑ Reference 3 Form Contractor/Installation Partner Customer References (if applicable, use Attachment F) ☑ Contractor/Installation Partner Reference 1 Form ☑ Contractor/Installation Partner Reference 2 Form ☑ Contractor/Installation Partner Reference 3 Form
☑ Attachment G, Environmentally Preferred Procurement Program (EP3) Information Sheet
☑ Response to Section 21, Exemplar Agreements (if applicable)

	Required for Telecomm and Other Proposals Requiring Backhaul, Power, etc.
☑	Attachment H, Backhaul Specifications (if applicable)
☑	Attachment I, Power Specifications (if applicable)
☑	Attachment J, Telecommunications Specifications (if applicable)
	Required for Streetlight Installation Proposals
☑	Attachment K, Streetlight Control & Management System Specification Response Form
☑	Attachment L, LED Luminaire Specifications
☑	Product Sample Submissions per Appendix 3, Scope of Services for Streetlight Installation Proposals, Section 4, Product Sample Submission
	Optional Attachments
☑	Attachment M, Local and Small Business Preference

11.2.4. Project Team

BLACK & VEATCH

Black & Veatch Corporation is a leading global engineering, consulting and construction company with the mission of *Building a World of Difference®.* Founded in 1915, Black & Veatch specializes in infrastructure development in telecommunications, energy, water, Federal, management consulting and environmental markets. Black & Veatch is an employee-owned company with more than 100 offices worldwide. Information Week recognizes us as one of the Nation's Top 500 Innovators.

Our Smart Integrated Infrastructure (SII) vision is encapsulated by the smart community concept, in which telecommunications, energy, water, transportation, public health, safety and other systems are unified through communications networks, devices and data analytics. SII's focus areas are:

Integrated Infrastructure (II): Planning, development, design and deployment services that enable multiple infrastructure systems that work together to produce value that could not be achieved independently.

Smart Analytics (SA): Data analysis of infrastructure systems and devices to improve operating performance, provide more timely management decisions, and enable intelligent adaptive planning.

Figure 1 - Black & Veatch is a noted Telecommunication Systems planner and integrator, which means we design and assemble secure Smart City networks from the sensor to the cloud.

Black & Veatch's Smart City solutions and applications are helping cities identify and plan their ideal path to city system intelligence. Our solutions amplify efficient operations, regional sustainability, and citizen quality of life in several cities nationwide, and we create new value streams for our clients across each business sector.

11.2.4.1 MANAGEMENT PLAN

Black & Veatch will manage and perform the LED retrofit and the implementation of the various technology partner solutions, ensuring a superior end-to-end turnkey experience. Our world-class Program Management and Engineering, Procurement & Construction (EPC) services will ensure consistent implementation across multiple sites.

Figure 2 - The Value of Black & Veatch's services and experience means winning solutions for our clients.

Our approach to program management is rooted in process management and control throughout the lifecycle of the program to bring visibility, efficiency and accountability to every stage of the program. It's critical to create a common set of governance policies and procedures in order to achieve consistent and predictable results. For San José, Black & Veatch will establish a governance model for executing the standard program management disciplines, such as:

- Program authorization and control
- Program Execution Plan and scope management
- Financial planning and management
- Schedule management
- Resource management / Vendor deployment coordination
- Quality management
- Risk management
- Safety management
- Change management

With a coordinated structure in place, all project stakeholders are engaged in an informed and effective manner.

SAFETY MANAGEMENT

Figure 3 - Zero Incidents Today means we take proactive action each day to ensure safety.

At Black & Veatch we take a structured, comprehensive approach that requires safe working methods and strong safety consciousness by all of our employees, supervisors, contractors, and suppliers. Our motto is "Think, Plan, Act: Zero Incidents Today", meaning we take proactive action each day to ensure the safety of ourselves and those around us.

Black & Veatch is recognized globally for its record-setting efforts in managing all aspects of safety and security for our professionals, clients, business partners and contractors at project sites and office locations. We continue to have among the lowest recordable incident rates of any peer in the industry.

We consistently deliver safety statistics that significantly surpass a benchmark in the U.S., known as the CII (Construction Industry Institute). These recognitions are earned due to our professionals, who instill safety in every design, project and procedure.

Black & Veatch will assign a Safety Manager with our Environmental, Safety, Health & Security (ESH&S) team to direct and monitor the safety program for the LED retrofit for San José. This person, who is independent of the project team, will not be influenced by the project's financial performance and schedule. Black & Veatch will customize a project-specific safety and loss management program that will incorporate appropriate segments of San José's safety program with our safety guidelines and procedures. The project Safety Manager will be responsible for ensuring that safety is considered in the planning of the work and that the work is executed safely.

Figure 4 - Black & Veatch safety training is multi-tiered to ensure all involved groups receive proper safety instruction.

Black & Veatch will ensure that a project's team is equipped with all safety-related training and materials required to maintain project compliance.

The Black & Veatch Safety Program will focus on developing a safety culture on the project site through orientation, training, tool box meetings, stretch and flex programs, personal protection equipment (PPE) requirements, all-hands safety meetings, daily safety walks, craft involvement in the program, planning the work for safe execution, access, housekeeping, and monitoring leading indicators. Subcontractors will be required to maintain a Safety Plan that is compliant with the overall project safety plan.

The Black & Veatch Construction, Inc. (BVCI) approach to safety management has proven successful as indicated by our excellent safety statistics. We focus on proactive planning and focus on behaviors as the leading indicators to improve safety of our professionals. As a result, the importance of safety and health is ingrained in each of us.

TANGIBLE RESULTS OF OUR SAFETY PROGRAM AND PRACTICES

EMR EFFECTIVE	B&V EXPERIENCE MODIFICATION FACTOR
2015	0.39
2014	0.41
2013	0.38
2012	0.45
2011	0.48

Figure 5- Black & Veatch's safety record stands at the top with EMR factors well below 1.0.

2015 RECORDABLE-INCIDENT RATE

U.S. Average: 3.70

Black & Veatch: 0.36

Construction Industry Institute research is built into our safety policies and procedures.

QUALITY MANAGEMENT

Black & Veatch has achieved **ISO 9001:2008** certification in the area of in the area of Telecommunications engineering and deployment services. ISO is a globally recognized standard for quality management systems that are maintained by the International Organization for Standardization (ISO).

Black & Veatch manages and delivers quality and control of our projects utilizing our ISO 9001 Certified Quality Management System**.** This formal system is a consolidation of those practices, policies, standards, and instructions which have been employed by our company based on years of experience in both the utility and telecommunications industries. Black & Veatch ensures that every part of the project is performed to consistent standards with the highest quality.

Black & Veatch professionals follow procedures and tools outlined in our Quality Management System Manual to ensure that risks are identified and controlled and projects are executed to high quality standards, resulting in enhanced value to our clients. For the San José project, Black & Veatch will establish and incorporate the following procedures to ensure consistent and continuous communication and quality improvement.

- Develop and maintain specific project databases and filing procedures
- Develop baseline measurement applications for schedule and cost and provide variance reporting on a consistent basis to project management and client
- Consistently analyze impacts to cost, schedule, and cash flow; and support the corrective action process where applicable.

Black & Veatch is audited biannually by Det Norske Veritas (DNV) - one of the world's leading certification bodies with over 70,000 certificates worldwide.

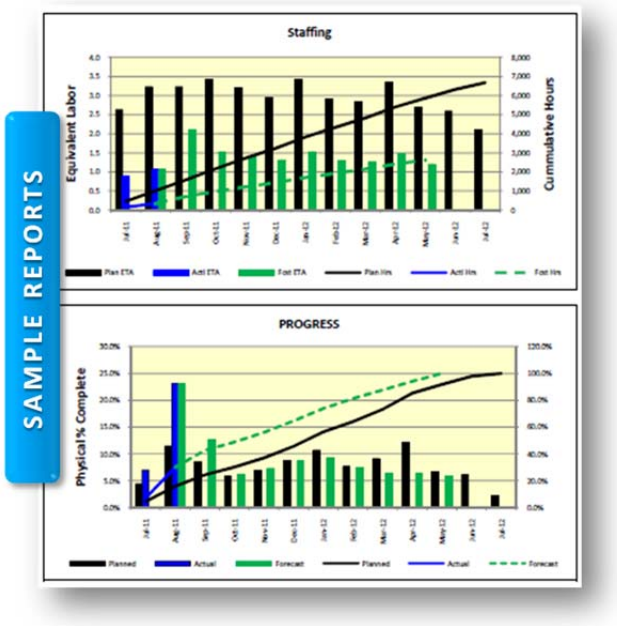
Quality Management Processes

All professionals have certain responsibilities, which are defined in the Quality Management System, to ensure professionals take quality assurance measures throughout the entire project life cycle. In addition to performing their work in accordance with the Quality Management System, qualified professionals assist with new professional training, recommend enhancements to the program, and participate in quality process audits. These activities all contribute to the successful implementation of the Quality Management System.

Quality Reviews

Black & Veatch's design review process is comprehensive. Early in the project we develop system design specifications and make a design template from which each site specific design is based. We have a series of internal reviews and joint reviews with Client representatives to ensure a well-developed design template. Each site-specific design begins with this master template. Site-specific work is reviewed and quality checked by senior engineers prior to release.

PROJECT MANAGEMENT TOOLS



Each program we deliver is different, with varying scope, size, locations and budget and schedule requirements. To be efficient, we have invested in the tools to ensure we remain consistent in our project delivery.

Distributed Infrastructure projects (including streetlight, wireless and kiosk deployment) encompass a large number of sub-projects across a broad geography with large numbers of tasks to plan and execute. Black & Veatch has developed specific tools, methods, and processes for planning and tracking wireless site development. Specific project tools that could be utilized are listed below.

Microsoft Sharepoint – used to support web portal development and sharing of project data across project participants.

PrimaVera(P6) and Microsoft Project –highly developed planning, management and scheduling tools used to plan and track schedules, tasks, budgets, and resources.

Quickbase – a database tool tailored by Black & Veatch to apply to many of our wireless projects to track and report on all the tasks and milestones of a site to completion.

Mentum Planet – an RF planning tool used by Black & Veatch for RF propagation engineering to predict and map coverage for sites and systems.

CTE PathLoss – an RF engineering tool used for microwave path engineering.

C2C –Black & Veatch recently implemented a sophisticated materials management system, C2C (Conception to Consumption), to provide 3PL level tracking for all materials procured to support various projects. C2C can facilitate all materials management activities, from the verification of material status upon receipt through inventory management and issuance.

Timberline – a nationally recognized cost estimating tool used by the wireless site development industry to create estimates with maximum accuracy and precision.

Managing expectations on time and within budget requires an experienced and proven partner. Black & Veatch's program and project management methodologies have been put to the test, managing large-scale, nationwide wireless programs. Black & Veatch offers certified project managers who understand how to minimize risk while controlling schedule, budget and safety.

11.2.4.2 HIGH LEVEL PROJECT PLAN WITH TIMELINE

Black & Veatch will retrofit approximately 40,000 LED fixtures and install Schréder monitoring, control, dimming and energy metering smart technology for LED luminaires at each individual light pole.

Black & Veatch will be responsible for procuring, managing, storing, handling and distributing lighting fixtures and associated materials to complete the installation. The material procured by Black & Veatch shall be protected against damage or loss until the materials have been installed, commissioned and accepted by the City of San José.

Black & Veatch shall also provide an inventory control plan clearly tracking all incoming shipments and distribution of these materials and provide it to the City of San José. Black & Veatch will also be responsible for collection and proper recycling all streetlight fixtures and will provide proof of recycling to the City of San José.

Upon selection by the City of San José, Black & Veatch will provide a Detailed Work Plan for submittal to the City of San José.

The Detailed Work Plan will include:

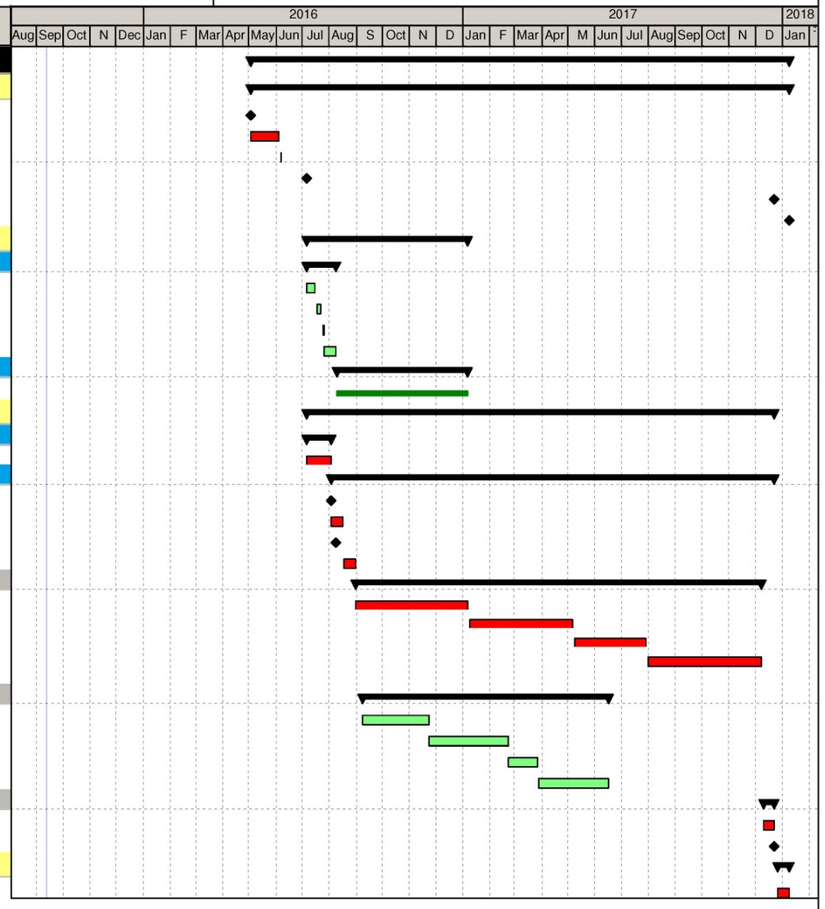
- Method Statement which outlines the area for which Black & Veatch would like to work, the number of lift trucks and equipment to be used, crew size, number of fixtures to be installed in that area.
- Identified safety issues and methods and procedures that Black & Veatch intends to use to address and manage the safety of its own workers as well as the citizens of the City of San José.
- Critical Path schedule outlining individual task details and durations for entire project
- Cost Control Plan
- Field Progress Measurement System to track installed quantities and earned man-hours and compute construction percent complete.
- Quality Assurance and Control Plan to ensure engineering, procurement and construction quality assurance activities are performed.

See the following page for a draft implementation schedule for the streetlight LED retrofit. An implementation schedule for all Smart City Partner solutions will be developed after Black & Veatch and the City hold discussions regarding the scope of these implementations.

Draft Implementation Timeline

City of San Jose- Streetlight Installation | Data Date: 13-Sep-15 | Printed on: 09-Mar-16 13:12

Activity ID	Activity Name	Original Duration	Start	Finish
City of San Jose- Streetlight Installation		427	02-May-16	09-Jan-18
Administration		427	02-May-16	09-Jan-18
A-100	Submit Proposal to City of San Jose	0		02-May-16*
A-110	Proposal Review /Approval	23	03-May-16	03-Jun-16
A-120	Consultant Selection	1	06-Jun-16	06-Jun-16
A-130	Award of Contract	0	06-Jul-16	
A-140	Construction Completion	0		22-Dec-17
A-160	Project Completion	0		09-Jan-18*
Procurement/ Inventory		128	06-Jul-16	06-Jan-17
LED Light Bulbs		24	06-Jul-16	08-Aug-16
P-110	Issue for Bids	8	06-Jul-16	15-Jul-16
P-120	Evaluate Vendor Bids	5	18-Jul-16	22-Jul-16
P-130	Issue PO/ Award Subcontract	1	25-Jul-16	25-Jul-16
P-140	Purchase/ Delivery of Luminaires	10	26-Jul-16	08-Aug-16
Inventory Control Plan		104	09-Aug-16	06-Jan-17
P-150	Provide/ Update Inventory Control Plan	104	09-Aug-16	06-Jan-17
Construction and Management		373	06-Jul-16	22-Dec-17
Management		20	06-Jul-16	02-Aug-16
M-110	Submit Method Statement/ Work Plan/ Traffic Control Plan/ Critical Path Schedule	20	06-Jul-16	02-Aug-16
Construction		353	03-Aug-16	22-Dec-17
C-100	Construction Start	0	03-Aug-16	
C-120	BVCI Mobilization to Facility	10	03-Aug-16	16-Aug-16
C-110	Receive and inventory Luminaires	0		08-Aug-16
C-130	Office/ Warehouse Set Up	10	17-Aug-16	30-Aug-16
LED Luminaires/ Lighting Controllers		323	31-Aug-16	08-Dec-17
C-210	Installation of LED Luminaires & Lighting Controllers- North San Jose (10,780 lights)	88	31-Aug-16	06-Jan-17
C-220	Installation of LED Luminaires & Lighting Controllers- South San Jose (10,280 lights)	85	09-Jan-17	05-May-17
C-230	Installation of LED Luminaires & Lighting Controllers- West San Jose (7,135 lights)	58	08-May-17	28-Jul-17
C-240	Installation of LED Luminaires & Lighting Controllers- Central San Jose (11,090 lights)	92	31-Jul-17	08-Dec-17
Segment Controllers		197	08-Sep-16	16-Jun-17
C-310	Installation of Segment Controllers- North San Jose (108 units)	54	08-Sep-16	22-Nov-16
C-320	Installation of Segment Controllers- South San Jose (122 units)	61	23-Nov-16	21-Feb-17
C-330	Installation of Segment Controllers- West San Jose (48 units)	24	22-Feb-17	27-Mar-17
C-340	Installation of Segment Controllers- Central San Jose (116 units)	58	28-Mar-17	16-Jun-17
Demobilization & Construction Completion		10	11-Dec-17	22-Dec-17
C-410	Demobilize from Site	10	11-Dec-17	22-Dec-17
C-420	Construction Completion	0		22-Dec-17
Closeout		10	26-Dec-17	09-Jan-18
L-130	As-builts	10	26-Dec-17	09-Jan-18



Remaining Level of Effort ◆ Milestone
Actual Level of Effort ▼ Summary
Actual Work
Remaining Work
Critical Remaining Work

CITY OF SAN JOSE STREETLIGHT INSTALLATION

PROPOSAL SCHEDULE

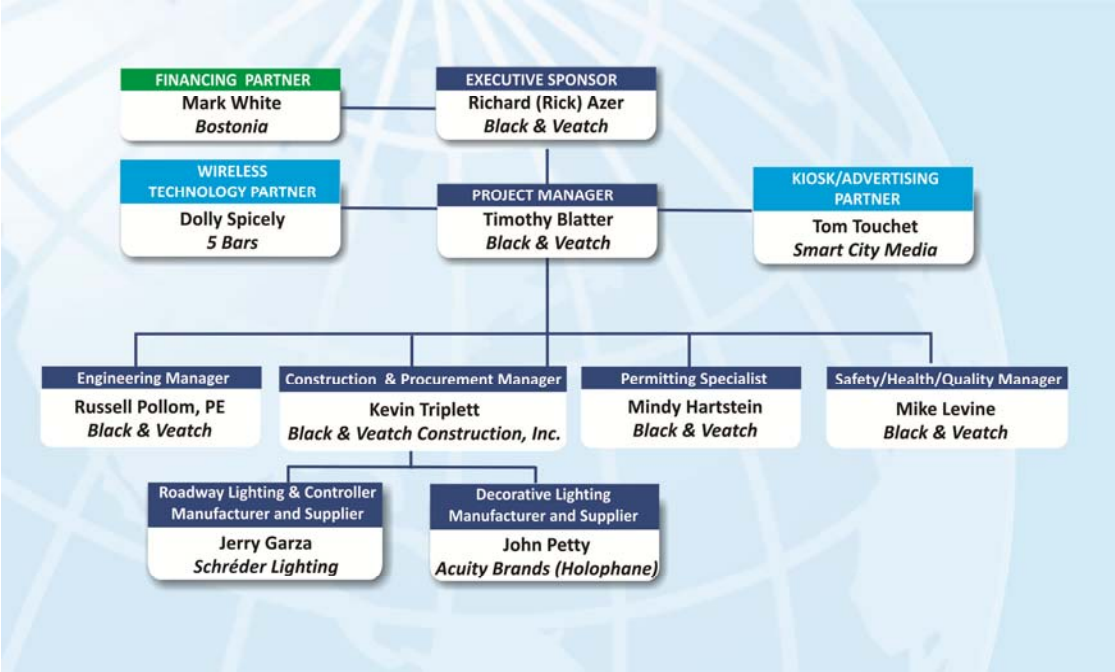
1 OF 1

BLACK & VEATCH Building a world of difference.

Date	Revision	Checked	A.
08-Mar-16	Proposal Schedule		

11.2.4.3. KEY PERSONNEL ASSIGNMENTS/RESPONSIBILITIES

Organizational Chart



Key List of Personnel and Job Titles: These Key Personnel are supported by a full team of professionals for each discipline listed. Resumes are listed for all parties with the exception of lighting suppliers.

Rick Azer –Executive Sponsor. As Associate Vice President for Black & Veatch's Smart Integrated Infrastructure business, Rick specializes in integrating new technology into the built environment. He has over 23 years of experience delivering solutions for emerging technologies, including new product offerings such as those required by this RFP.

Timothy Blatter –Project Manager. Timothy is currently a Project Manager in Black & Veatch's Walnut Creek, CA office. He has recent and relevant experience in construction, project controls, planning, fiscal management, estimating, and managing large teams. He manages both the Tesla Battery Energy Storage deployment and Tesla Battery Exchange Station projects.

Russell Pollom, PE –Engineering Manager. As Engineering Manager for Black & Veatch's Smart Integrated Infrastructure business, Russell brings vast experience in the deployment of distributed infrastructure and working with PG&E and other clients. His engineering leadership includes Black & Veatch's work for Tesla Supercharger deployment program.

Kevin Triplett –Construction and Procurement Manager. With a strong focus on estimating, detailing, material takeoffs, and preparation of project schedules and short-term look ahead schedules, Kevin has performed work for many municipalities and utilities in California. He was Western Operations manager for the Tesla Supercharger Installation project and is currently Manager on the PG&E Embarcadero Transmission Line.

Mindy Hartstein– Permitting Specialist. Mindy Hartstein is a Site Acquisition Manager, Project Manager, and Business Process Consultant at Black & Veatch. She is a legal, real estate and project management professional with 25 years of experience in land use planning, and 15 years of experience in real estate acquisitions and siting.

Michael Levine –Safety/Health/Quality Manager. Mike has over 11 years' experience working in many different areas on power plant, substations, SCADA, underground and overhead transmission projects. Mike also has experience with Quality Assurance/Quality Control as well as Construction Management. Mike is able to build a positive working relationship with union "craft" employees, as well as management teams. Working in Black & Veatch's Dublin CA office, Mike has completed many projects for clients across Northern California.

Jerry Garza– Schréder, Controls Manager. Jerry is the Controls/Service Application Manager who has worked closely with the City of San José on its current 18,000 + luminaires project. Jerry has a critical role on this project that will enable the City to reduce its energy costs and CO2 emissions by 47%.

John Petty– Acuity Brands (Holophane), Director of Infrastructure Central US. John has been with Acuity Brands for 19 years managing technical and sales support for clients. He manages a Design Support team with experts averaging 27 years of experience, and an experienced Field Service team who will work together for seamless installation.

Dolly Spicely – 5 Bars, Senior Program Manager. As the first point of contact for 5 Bars, Dolly's primary responsibility will include overall project coordination, communication, project planning and acting as the primary liaison with all partners, vendors, and the City. With over 15+ years of experience in the Telecommunications industry, she brings valuable Program Management and Vendor Management expertise while leading projects and initiatives effectively and in a timely manner.

Tom Touchet –Smart City Media, CEO and President. Tom is an acclaimed media and new market innovator using his expertise to help cities reshape the way they communicate with their citizens. His career includes success at the highest levels of media, including a Chief Executive position running NBC's Today Show when it was the most profitable show in network TV history. Tom currently runs Smart City Media, which is a lead partner in the largest Internet of Things (IoT) deployment in North America, in Kansas City, Missouri, where he is working with Black & Veatch among other partners.

***Mark White* – Bostonia, Managing Director.** Mark has over 30 years of experience in the energy industry. He is experienced in business development, energy efficiency, energy project finance, and accounting. He has previously served in the capacity of Executive Vice President and Chief Financial Officer for a large energy service company. In addition, his prior associations include working for a diversified utility services company managing federal and state income, property, sales, and use taxes in a multi-state environment; and as CFO for a technology company concerned with the reduction of utility expenses. He holds a Bachelor of Sciences from Bentley College and also is a Certified Public Accountant.

4.4 One page resume for each Key Personnel on following pages.

Richard (Rick) Azer
Executive Sponsor

Rick is an Associate Vice President within Black & Veatch's Smart Integrated Infrastructure team focused on emerging solutions, including Machine to Machine (M2M) communication networks for enterprise and utility networks, intelligent networks, EV Charging Station infrastructure, Microgrids, and Distributed Renewable Energy Systems. Rick is a business builder who is capable of combining strategic vision and leadership with tactical field operational expertise. He has over 23 years of experience delivering solutions for emerging technologies, including new product offerings for telecommunication, media, energy and petrochemical industries.

Specialization:
Project Support

Office Location
San Diego, CA

Technical Competencies
Communication Network Architecture, Solution and Business Development, System Integration, Project and Program Management, Construction Engineering, Field Network Operations

Education
- MBA, Washington University, St. Louis, MO
- MS, Architecture, Arizona State University, Tempe, AZ
- BS, Arizona State University

RECENT PROJECT EXPERIENCE

Black & Veatch, San Diego, CA | 2012 – Present

Director of Development/Associate VP. High Power EV Charging Stations project, Rick assembled a team to design, permit and construct the first nationwide network of high power fast EV Charging Stations. Rick also developed plans to expand site infrastructure into microgrids to include energy storage, distributed renewables, and communications for increased operational control and efficiency.

Computer Science Corporation, San Diego, CA | 2010 – 2012

Senior Network Expert

- Managed RF system planning, site selection, permitting and development for a subset of SDG&E's Smart Grid Communication Network projects
- Supported deployment of smart grid communication networks and integration of network elements into utility operations centers
- Responsible for engineering assessment and optimization of corporate LANs and private wireless networks
- Completed bids/proposals and other supporting materials to establish new business opportunities

Qualcomm Internet Services Division | 2008 – 2010

Senior Director

- Managed commercial implementation and integration services for mobile phone app stores for wireless carriers worldwide
- Responsible for system integration, end-to-end solution management, new deployments, issue management and resolution
- Implemented first commercial rollout of Qualcomm technology based push-to-talk service in China

Timothy Blatter
Project Manager

Timothy Blatter has experience in project management, construction, project controls, planning, fiscal management, estimating, and managing large teams. Mr. Blatter has developed project execution plans, schedules, estimate bids and proposals. He has knowledge in all aspects of preparation of project reports, coordinated with engineers; work in the field and in the corporate environment.

Specialization:
Project Management
Site Acquisition

Office Location
Walnut Creek, CA

Education
BS, Construction Management, Minor in Business, Brigham Young University

RECENT PROJECT EXPERIENCE

Black & Veatch, Walnut Creek, CA | 2012 – Present

Project Manager

- **Tesla Battery Energy Storage deployment** (400 kWH- 5.2 mWH installations). Responsible for design, engineering, permitting and construction services for 44 sites. The purpose is to store power during off-peak, late-night hours that is discharged during daytime peak demand, effectively shifting the peak demand. To date, 32 of the 44 sites are complete with the remainder in various stages of permitting and construction.
- **First Element Fuel.** This project is the country's largest implementation of hydrogen fuel stations. Responsible for design, engineering, permitting and construction services for 19 hydrogen fueling stations for the purpose of fueling zero emission cars. To date, 13 of the 19 sites are in construction with the remainder in various stages of permitting.
- **Tesla Battery Exchange Station**. Responsible for design, engineering, permitting and construction services to retrofit a battery exchange facility located within an existing car wash. Tesla car batteries are now able to be exchanged for fully charged batteries in less than two minutes. Timothy managed all work from concept to completion within an aggressive timeline of four (4) months.
- **Sprint 4G Network Vision**, 300 site modifications in California.

Clearwire, LLC, San Francisco, CA | 2010 – 2012

Network Deployment Project Manager

- Managed preconstruction on Clearwire's WiMax network deployment for 400 new telecom site builds.
- Managed 8 site acquisition vendors, 6 architectural/engineering firms, 10 full-time employees.
- Managed post launch construction, 80+ sites, 4 construction managers.

REA Land Consulting, Phoenix, AZ | 2009 – 2010

Site Acquisition and Permitting Manager

- Managed and self-performed all preconstruction activities for 50 new telecom site builds

Russell Pollom, P.E.
Engineering Manager

Specialization:
Engineering

Office Location
Overland Park, KS

Education

BS, Electrical Engineering Technology, Kansas State University

Professional Registration
PE - Oklahoma Lic#24927
PE- Colorado Lic#46762
NV- Nevada Lic#22266
PE – Arizona Lic#60710

Total Years' Experience
22

Russell Pollom has experience in project management, research and development, trouble-shooting and fiscal management. He has directed engineering projects, designed projects and serves as a Lead Electrical Engineer for Black & Veatch's Smart Integrated Infrastructure group.

PROJECT EXPERIENCE

Nationwide Supercharger Installation Project; Tesla Motors, Inc.; Walnut Creek, California | 2012 – Present

Lead Electrical Engineer

Coordinated with various utilities for new electrical service 800-1,200 amps | 480/277 VAC. Worked with utilities for final design for X-fmr and service conductors laterals to power new switch boards for final power distribution to Tesla Equipment**.** Ensured sites were designed with Tesla Battery Energy Storage for peak shaving performance**,** and Solar PV canopy for green energy power source. Provided design answer for a few select Tesla sites with utility over voltages issues. Answered electrical questions about NEC compliance questions via Super Charger equipment designs.

Tesla Battery Stationary Storage Grid projects | 2013 – Present

Lead Electrical Engineer

Provided "interconnect Diagram" one-lines to submit to Utilities for Rule 21 compliance and acceptance. Provided line side and load side Point of Interconnect designs on existing sites for Tesla designated sites with Tesla Gen I and GEN II battery energy storage equipment designs. Designed 'shadow meter' installation to parallel main Utility for controlling and monitoring power flow does not go onto the grid for Tesla battery energy storage installations. Integrated sites with existing solar or renewables on site and integrated them with battery energy storage to comply with Utility Interconnect diagram design. Sized switchboards, circuit breakers, wire and conduit for final electrical design. Fielded questions with AHJ's for final electrical design compliance with NEC codes.

First Element Hydrogen Refueling Stations | 2014 – Present

Lead Electrical Engineer

Designed one-lines to accommodate the final connection of FE electrical equipment. Sized switchboards, MCC's, circuit breakers, wire and conduit for final electrical design. Procured new Utility designed service to power FE equipment and coordinate final Utility design with Utility. Designed grounding details for complying with NEC grounding specifications. Fielded questions with AHJ's for final electrical design compliance with NEC codes. Title 24 compliance for new lighting.

Kevin M. Triplett

Construction and Procurement Manager

Specialization:
Infrastructure Improvements in urban environments

Education
Bachelor of Science, Pulp and Paper Sciences, Miami University

Mr. Triplett has over 25 years of experience in construction management of infrastructure work in urban environments, with attention to constructability, cost, equipment and labor requirements, and effective utilization. He managed orderly, timely transition of projects from groundbreaking to completion including project review meetings, review of contract requirements, general conditions, schedules, budgets, subcontracts, and purchase order agreements while establishing excellent client relationships.

RECENT PROJECT EXPERIENCE

PG&E ZA-1 Embarcadero-Potrero Transmission Line Project | California - 2014-Present
Construction Manager, Black & Veatch Construction, Inc.

- Monitoring subcontractor work for compliance with plans and specification, BVCI and client safety and quality standards, and the project schedule to maintain project within client's requirements.
- Monitor electric ductbank construction, tunneling, boring, traffic safety standards, and horizontal direction drilling in downtown San Francisco.
- Coordination with PG&E representatives, subcontractor representatives, City of San Francisco inspectors, parking and traffic control officers, cultural monitors, and environmental monitors.

Nationwide Supercharger Installation Project; Tesla Motors, Inc.; Walnut Creek, California | 2013 – 2014
Western Operations Manager, **Black & Veatch Construction, Inc.**
Project Scope—Fast-track design/build construction of car charging stations across the western United States with multiple sites under construction simultaneously. Each site required demolition, concrete construction, underground electrical construction and installation of switchgear, charging posts, and transformers.

- Led bidding and procurement process for 40 project sites across the western United States. Prepared scopes, identified bidders, evaluated/qualified bids, and wrote purchase orders.
- Performed constructability reviews at 30, 90, and 100 percent design stage for each site.
- Implemented/ directed site safety programs working in public right-of-ways.
- Managed Field Construction Manager's staff and jobsite construction for sites to be completed in three weeks. Focus included quality, speed, and job site safety. There were zero incidents.

Mindy E. Hartstein

Permitting Specialist

Mindy Hartstein serves as a Site Acquisition Manager, Project Manager, and Business Process Consultant at Black & Veatch. She is a legal, real estate and project management professional with:

- 25 years of experience in land use planning, law and contracts
- 15 years of experience in real estate acquisitions and telecommunications facilities siting, design, licensing, land use entitlements, permitting and municipal public relations
- 7 years of experience in policy and process analysis

Specialization:
Site Acquisition, Project Management, Process Consulting, Municipal Relations

Office Location
San Diego, CA

Education
- JD, Hofstra University School of Law, Hempstead, NY
- BS – Business Administration, State University of New York, Albany, NY

Professional Registration/ Associations
- Admitted to practice law in California (2000), Colorado* (1995), Florida* (1989), New York (1988) and Connecticut* (1987)
- Member of the Southern California Wireless Association*

** Currently Inactive*

Specialized Training
- Mediation
- Six Sigma Business Excellence (Green Belt Trained)
- Project Management Principles

PROJECT EXPERIENCE

Electric Vehicle Recharging Facility Deployment, San Diego, CA | June 2015 – Present

Site Acquisition Technical Expert. Responsible for land use entitlement, municipal negotiations, and construction permitting for Volta charging stations throughout California. Prepared and presents client messaging presentation materials to municipalities to obtain construction/electrical permits without a land use approval process. Provides site acquisition and land services technical expertise and advocacy.

Utility Telecommunication Deployment, Process Analysis & Real Estate Services, San Diego, CA | October 2013 – Present

Project Execution Manager and Site Acquisition Technical Expert. Responsible for financial, execution (licensing and permitting) and closeout management of site acquisition scope for San Diego Gas & Electric Smart Grid Communications System program and Real Estate Services project. Co-facilitator and technical expert for business excellence improvement workshops for process / licensing for inbound and outbound wireless telecommunication facilities on transmission and communication site towers. Provides site acquisition technical expertise in drafting Master License Agreement and Site License Agreement (Schedules) templates and site application form.

Global Wireless Carrier LTE Site Deployment, San Diego, CA | March 2013 – September 2013

Project Execution Manager. Responsible for financial, execution and closeout management of Site Acquisition, A&E, and Construction activities for the AT&T Turf project for more than 75 new site builds and relocations (including related UMTS scopes). Had P & L responsibility of 50 Million (8 FTEs).

Sprint LTE Site Deployment Project, Walnut Creek, CA | March 2012 - 2013

Market Manager. Responsible for financial, execution and closeout management of Site Acquisition, A&E, and Construction team for Sprint Network Vision project in San Francisco region for 3G and 4G work for more than 200 sites.

Mike Levine
Safety/Health/Quality Manager

Education:
Public Administration/Criminal Justice, California State University

Total Years' Experience
11

Training/Certificates
CHST (Construction Health & Safety Technician)
OSHA 10 Hr
OSHA 30 Hr
OSHA 510-(OSHA Standards for the Construction Industry)
OSHA 500-(Trainer Course in OSHA Standards for the Construction Industry)
RF Awareness Trained
Tower Rescue Trained
Class 3 Asbestos Trained
First Aid/CPR Trained

Mike Levine has over 11 years' experience working in many different areas on power plant, substations, SCADA, underground and overhead transmission projects. Currently he is a Regional Environmental, Safety, Health and Security Manager in the Power Delivery section within Black & Veatch (B&V) Energy. Mike also has experience with QA/QC as well as Construction Management.

RECENT PROJECT EXPERIENCE

Embarcadero – Potrero 230 kV Transmission Line Project
San Francisco, CA, 2014-Present
Environmental, Safety, Health & Security Manager (ESH&S)

- Responsible for site safety and health on ZA-1 project in San Francisco California. Duties also include site security and maintaining compliance with all project-specific environmental regulations.
- Construction activities include extensive trenching in city streets, reinforced duct bank construction, underwater cable installation, transition vault installation and substation interface.
- Duties included providing site safety & health training to new-hire and subcontractor employees, lead daily & weekly crew tailboard meetings, enforcement of project-specific safety & health program, assist in pre-planning daily work & identifying potential hazards related to that work

Electrical Substation SCADA Projects, California - 2011-Present
Environmental, Safety, Health & Security Manager (ESH&S)

- Provide site safety and health support on numerous electrical substation SCADA projects throughout Northern California. Duties also include site security and maintaining compliance with project environmental regulations.
- Construction activities include installation and testing of sensitive equipment in substation control buildings and substation yards.
- Duties included providing site safety & health training and support to small 2-3 men crews. tailboard meetings, enforcement of project-specific safety & health program, assist in pre-planning the daily work & identifying potential hazards related to that work (JHA/STA).

RCEC Interconnection Project: Pacific Gas & Electric: Hayward, CA, 2010-2011
Environmental, Safety, Health & Security Manager (ESH&S)

- Responsible for site safety and health on the RCEC Interconnection Project. Duties also include site security and maintaining compliance with all project-specific environmental regulations.
- **QA/QC Inspector**

Dolly Spicely

Senior Program Manager

5 Bars

Specialization:
Program Management, Strategic Planning, Change Management, Network Operations

Office Location
Irvine, CA

Education
University of Maryland University College
BS, Information Systems Management

Certification - Project Management - UMUC
Certification - E-Commerce for IT Professionals – UMUC

Dolly is a dedicated team professional with over 15 years of experience in Program and Project Management, Vendor Management, Proposal Management, and Business Analysis within the Satellite and Wireless Telecommunications industry. Expertise in process development, executing full life-cycle projects from ground up, and coordinating successful simultaneous development and management of several projects. Expertise in RFx process management from beginning to end and coordinating successful solution response criteria for concurrent bids.

As your first point of contact, Dolly's primary responsibility will include overall project coordination, communication, project planning and acting as the primary liaison with all partners, vendors, and customer and bringing expertise to lead projects and initiatives effectively and in a timely manner.

RECENT PROJECT EXPERIENCE

5 Bars, LLC –Irvine, CA

- Responsible for leading multiple projects simultaneously including large initiatives with 73 Toll Road Wi-Fi and DAS, NRG Stadium Wi-Fi, and Morongo Casino Wi-Fi. Working closely with Vendors and Wireless Carriers, along with the internal 5 Bars technical teams to successfully lead projects to completion.
- Daily duties include project coordination, acting as primary liaison with carriers, vendors and partners, planning meetings and adhering to a project timeline, and effectively communicating project status to all key personnel engaged.
- Responsible for leading the process for all RFx opportunities to submit a response in the timeline required. Daily activities include overall RFx management, maintaining standard content, developing response templates and solution criteria.

Tom Touchet
Smart City Media

Specialization:
Acclaimed media and new market innovator

Education
University of Virginia

Tom is an acclaimed media and new market innovator who is currently using his expertise to help cities reshape the way they communicate with their citizens. He currently runs Smart City Media, which is a lead partner in the largest Internet of Things (IoT) deployment in North America: Kansas City, Missouri. Smart City Media has already locked up multiple additional city contracts, and is considered one of the leaders in the IoT space. Tom sits on the Steering Committee for the IoT World Forum.

Tom personally led the creation of the fastest growing 'Smart City' segment: His $1M funded NYC payphone pilot grew to a $1B NYC payphone RFP that Google recently valued as more than a $100B potential market. His career includes success at the highest levels of media, including a Chief Executive position running NBC's Today Show when it was the most profitable show in network TV history.

RECENT PROJECT EXPERIENCE

Smart City Media, LLC | New York, NY- 2014-Present

CEO and President

Smart City Media is a partner in the largest IOT deployment in North America. Kansas City Missouri is using Smart City Media's branded "CityPost" digital communication network to broadcast real-time information and alerts to help make citizens smarter, safer and better connected. Other partner's in the deployment include Cisco, Sprint, Sensity, Black & Veatch and ThinkBig.

- Go-to-market partnership with Cisco
- Strategic partnerships with Verizon

City24/7 | New York, NY- 2008 – 2014

CEO and President, **Board of Directors**

City24/7 was the pioneering media channel in the emerging 'Internet of Things/Smart City' market. The company targets digital media to multiple platforms for pedestrian consumption. Smart, interactive signage broadcasts hyper-local messages on city infrastructure.

- Secured commercial agreement with NYC Government
- Go-to-market partnership with Cisco, Google development partnership, & LG Sponsorship
- Strategic partnerships with Qualcomm, Verizon and Sprint
- Raised multiple funding rounds for Pilot and Launch

Mark White
Bostonia

Specialization:
Managing Director

Education
Bachelor of Science,
Bentley College

Certifications
Certified Public Accountant

Mark has over 25 years of experience in the energy industry. He is experienced in business development, energy efficiency, energy project finance, and accounting. He has previously served in the capacity of Executive Vice President and Chief Financial Officer for a large energy service company. In addition, his prior associations include working for a diversified utility services company managing federal and state income, property, sales, and use taxes in a multi-state environment; and as CFO for a technology company concerned with the reduction of utility expenses.

RECENT PROJECT EXPERIENCE

Food & Drug Administration, White Oak Facility, Maryland ($207,425,000)

- Financial advisor and placement agent to an energy services company for the issuance of BFC Energy Savings Performance Contract Trust Certificates, Series 2010. The ESPC included efficiency measures, such as the expansion of the central utility plant, building energy performance enhancements, and energy efficient lighting.

Yokosura Naval Base, Yokosura, Japan ($101,794,000)

- Financial advisor and placement agent to an energy services company for the issuance of BFR-NOR ESPC Trust Series, 2006A and BFC-NOR Federal Receivables Trust, Series 2006A.

Architect of the Capitol, House Office Buildings, Washington DC, ($39,577,644)

- Financial advisor and placement agent to an energy services company for the issuance of BFC Energy Savings Performance Contract Trust Certificates, Series 2009. The ESPC included efficiency measures, such as energy efficient lighting systems, controls optimization for HVAC equipment, sanitary water conservation and irrigation, and steam trap replacement.

Energy Alliance Program, United States Virgin Islands ($50,000,000)

- Bostonia was engaged by the United States Virgin Islands to develop and implement a long term energy demand reduction program for Government, businesses, and residents of the Territory. Bostonia has been providing financial structuring, advisory, and investment banking services for the purpose of developing and arranging the necessary funding for the promotion, design, and implementation of this innovative, island-wide energy efficiency and clean energy initiative.

11.2.4.4. STREETLIGHT DESIGN AND ENGINEERING (INSTALLATION PROPOSALS)

Information about the following team members was provided under 11.2.4.3.

Timothy Blatter –**Black & Veatch, Project Manager**

Russell Pollom **– Black & Veatch, Engineering Manager**

Mindy Hartstein **– Black & Veatch, Permitting Specialist**

Kevin Triplett **– Black & Veatch, Construction and Procurement Manager**

Jerry Garza – **Schréder, Controls Manager**

John Petty–**Acuity Brands (Holophane), Director of Infrastructure Central US**

11.2.4.5. CONTRACTOR OR INSTALLATION PARTNER (INSTALLATION PROPOSALS)

Information about the following team members was provided under 11.2.4.3.

***Kevin Triplett*– Construction and Procurement Manager**

***Michael Levine* – Safety/Health/Quality Manager**

***Mindy Hartstein* – Black & Veatch, Permitting Specialist**

Local installation subcontractor to BVCI – TBD (See Attachment C)

11.2.4.6. ATTACHMENT E, PROJECT TEAM AND FINANCIAL BACKGROUND INFORMATION WORKSHEET

ATTACHMENT E
Project Team and Financial Background Information Worksheet

All information requested in the Worksheet shall be furnished by the Proposer, and shall be submitted with the Proposal. Statements shall be complete and accurate and in the form requested. Omission, inaccuracy, or misstatement may be cause for the rejection of a proposal.

Black & Veatch Corporation

☐ ***Proposer confirms that they meet the requirements stated above.***

Part 1 – Corporate Information Background Questions (Required)

1. If a corporation, answer the following:

A.	**When incorporated?**	**11/16/1998**
B.	**In what state?**	**Delaware**
C.	**Authorized to do business in California?**	**Yes**
	If so, what date?	**12/30/1998**

2. If NOT a corporation, answer the following:

A. Name of Organization: _____

B. Date of Organization: _____

C. General, Limited Partnership, or Joint Venture: _____
(if applicable)

D. Registered in California? _____ _____

3. Have you ever had a bond or surety denied, canceled, or forfeited?

YES [ ] **NO** [X] If yes, state name of bonding company, date, amount of bond and reason for such cancellation or forfeiture in an attached statement.

Have you ever declared bankruptcy or been declared bankrupt?

YES [ ] **NO** [X] If yes, state date, court jurisdiction, docket number, amount of liabilities and amount of assets.

4. Has your company ever had any agreements cancelled?

YES [ ] **NO** [X] If yes, give details.

Part 1 – Corporate Information Background Questions (continued)

5. Has your company ever been sued by any organization for issues pertaining to fee payment, performance, or other related issues?

   YES [X] **NO** [ ] If yes, give details.

   Black & Veatch Corporation, together with its affiliates ("Black & Veatch"), constitutes a large, international engineering and construction firm. Like similarly-sized firms, at any given point in time, we may be involved with claims and litigation. Black & Veatch maintains a program of insurance to protect against claims arising out of its work. In the opinion of Black & Veatch management, no pending claim or litigation will have a material impact on Black & Veatch's ability to execute this project.

6. Are you currently engaged in merger or acquisition negotiations, or do you anticipate entering into merger or acquisition negotiations within the time period of this Request for Proposal?

   YES [ ] **NO** [X] If yes, give details. Attach copy of such agreement(s).

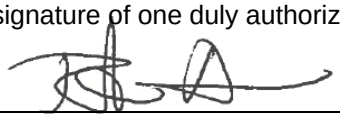
7. Are you now engaged in any litigation which does now or could in the future affect your ability to pay fees or perform under this Agreement?

   YES [ ] **NO** [X] If yes, give details.

8. Has your company or subcontractors for this project ever been disbarred, suspended, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, any California State agency, or any local governmental agency?

   YES [ ] **NO** [X] If yes, give details.

The undersigned hereby declares under penalty of perjury that all statements, answers and representations made in this questionnaire are true and accurate, including all supplementary statements hereto attached. In the case of a corporate Proposer, the signature of one duly authorized representative is sufficient.



Signature	**Date**	**Signature**	**Date**
	03/30/2016		
Please Print or Type Name)		**(Please Print or Type Name)**	
Rick Azer			
Title		**Title**	
Associate Vice President			

Part 2 – Installation Partner Background Questions (if applicable)

Black & Veatch Construction, Inc.

1. If a corporation, answer the following:

A.	**When incorporated?**	**06/21/1991**
B.	**In what state?**	**Missouri**
C.	**Authorized to do business in California?**	**Yes**
	If so, what date?	**12/30/1998**

2. If NOT a corporation, answer the following:

A.	**Name of Organization:**	
B.	**Date of Organization:**	
C.	**General, Limited Partnership, or Joint Venture:**	(if applicable)

D. **Registered in California?** Yes **If so, when?** **12/30/1998**

3. Have you ever had a bond or surety denied, canceled, or forfeited?

YES [ ] **NO** [x] If yes, state name of bonding company, date, amount of bond and reason for such cancellation or forfeiture in an attached statement.

4. Have you ever declared bankruptcy or been declared bankrupt?

YES [ ] **NO** [x] If yes, state date, court jurisdiction, docket number, amount of liabilities and amount of assets.

5. Has your company ever had any agreements cancelled?

YES [ ] **NO** [x] If yes, give details.

6. Has your company ever been sued by any organization for issues pertaining to fee payment, performance, or other related issues?

YES [ ] **NO** [x] If yes, give details.

7. Are you currently engaged in merger or acquisition negotiations, or do you anticipate entering into merger or acquisition negotiations within the time period of this Request for Proposal?

   YES [ ] **NO** [x] If yes, give details. Attach copy of such agreement(s).

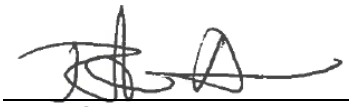
8. Are you now engaged in any litigation which does now or could in the future affect your ability to pay fees or perform under this Agreement?

   YES [ ] **NO** [x] If yes, give details.

9. **Has your company or subcontractors for this project ever been disbarred, suspended, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, any California State agency, or any local governmental agency?**

   YES [ ] **NO** [x] If yes, give details.

The undersigned hereby declares under penalty of perjury that all statements, answers and representations made in this questionnaire are true and accurate, including all supplementary statements hereto attached. In the case of a corporate Proposer, the signature of one duly authorized representative is sufficient.



Signature	**Date**	**Signature**	**Date**
	03/30/2016		
Rick Azer			
Please Print or Type Name)		**(Please Print or Type Name)**	
Associate Vice President			
Title		**Title**	

11.2.4.7. ATTACHMENT F, PREVIOUS CUSTOMER REFERENCE FORM

Please find below multiple customer reference forms:

Black & Veatch Corporation:
- Tesla Motors
- Sprint Network Vision (Samsung Telecommunications America LLC)
- KentuckyWired Broadband Network

Schréder:
- City of San José
- State of Nevada / Dept. of Transportation
- City of Bogotá Colombia

Acuity Brands (Holophane):
- City of Chula Vista, CA
- City of Elk Grove, CA
- City of El Paso, TX

5 Bars:
- Transportation Corridor Agency
- City of Anaheim – Angels Stadium
- Irvine Company – PIMCO Headquarters Building

Smart City Media:
- CISCO
- City of Kansas City, MO
- Time Warner Cable

Black & Veatch Construction (BVCI):
- ZA-1 230kV Underground Transmission Line Project
- Kearney Substation Expansion Project
- 230/69kV Bay Boulevard Substation – Chula Vista

Bostonia:
- Multiple references
- Further company information can be found in Appendix A at the end of this proposal.

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Corporation - Reference #1

Name of Customer:	Tesla Motors	
Customer Address:	3500 Deer Creek Road	
	Palo Alto, CA 94304	
Customer Contact Name	Carrington Bradley	
Customer Contact Telephone	650.681.5073	
Customer E-mail	cbradley@teslamotors.com	
Date of Agreement/Contract	2013	
Period of Performance	From: 2013	To: Present
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$63,629,363
If contract was terminated or cancelled for convenience, please indicate circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		

Nationwide Supercharger Installation Project

Client: Tesla Motors has the goal of accelerating the world's transition to electric mobility with a full range of increasingly affordable electric cars. Tesla currently manufactures the Model S and Model X SUV, lauded as the safest, fastest, and most capable sport utility vehicle in history.

Business Issue: To facilitate the EV transition, Tesla needed to aggressively deploy high-power, fast-charging stations – "Superchargers" – along major travel corridors throughout the United States. The Tesla Supercharger sites require large electrical switch gear designed to supply between 500 to 1,000 kilovolt Amp (kVA). With a majority of electric utilities imposing a different set of standards, compliance was a major issue hindering this nationwide build-out.

Solution: Tesla selected Black & Veatch to perform overall program management as well as nationwide EPC services. The EPC approach ensures consistency in sites and more control over project variables such as cost, schedule and quality. Instilling program management methodologies was important to getting this project launched off the ground. Black & Veatch collaborated with Tesla to develop an online project management that allows team members to monitor progress through real-time status reports and a map view of project sites across the United States.

Black & Veatch continues to provide the full scope of EPC services through 2016 and beyond as the Supercharger network expands.

Results: The Tesla/Black & Veatch team succeeded in expediting the timelines for Supercharger site deployments. Tesla's Supercharger network now covers most of the United States, and the team is working on sites in the United Kingdom, parts of Europe, and China. As of January 2016, we have constructed more than 2,080 Supercharger posts at over 250 locations.

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Corporation - Reference #2

Name of Customer:	Sprint Network Vision (Samsung Telecommunications America LLC)	
Customer Address:	6200 Sprint Parkway, Overland Park, KS 66251	
Customer Contact Name	Tom Jasny, Vice President, WorldLink	
Customer Contact Telephone	214.207.9495	
Customer E-mail	tom.j@worldlink-us.com	
Date of Agreement/Contract	2010	
Period of Performance	From: 2010	To: Present
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		Due to confidentiality agreements we are not able to provide contract specifics.
If contract was terminated or cancelled for convenience, please indicate circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		

Client: Black & Veatch is providing a full suite of wireless site development services to support Samsung in its vital multiyear program implementing Network Vision, the next evolution of the Sprint network.

Business Issue: This Network Vision program will provide an enhanced network experience for Sprint customers by improving voice quality and providing faster data speeds, while creating network flexibility, reducing operating costs and improving environmental sustainability. The end result will be network flexibility that will enable Sprint to adjust its network in the future to stay ahead of the latest communication data technologies, coverage and capacity needs.

Goal: Samsung has a complex issue in that deploying new technology on a competitive first-to-market basis is always a challenge, but in this case another challenge is that the existing network needs to remain in service while the Samsung equipment is deployed.

Black & Veatch Solution: Black & Veatch is helping solve Samsung's complex challenge with the ability to scale turnkey expertise on a national basis. The scope of work includes:

- Planning & Engineering
- Site Development
- Installation
- De-Installation & Disposal
- Optimization
- Provisioning & Fulfillment
- Service Assurance - Field
- Training
- Lab Support Services

Also critical to Sprint's goal, Black & Veatch is helping to minimize the number of sites where additional leased space is required in order to keep costs to a minimum.

Therefore, Black & Veatch has to be effective in negotiating with landlords to develop engineered solutions that are within the boundaries and guidelines of the existing lease rights and compound space limitations. In many cases, Black & Veatch has developed creative design approaches for use when first observations indicate that existing site footprints and structural integrity would likely not work.

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Corporation - Reference #3

Name of Customer:	KentuckyWired Broadband Network – Commonwealth of Kentucky	
Customer Address:	200 Mero Street, Frankfort, KY 40622	
Customer Contact Name	Mike Hayden	
Customer Contact Telephone	(502) 782-2535	
Customer E-mail	mike.hayden@ky.gov	
Date of Agreement/Contract	September 2015	
Period of Performance	From: 2015	To: Present (estimated completion 2018)
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$275M
If contract was terminated or cancelled for convenience, please indicate circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes

Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)

Client Description: KentuckyWired is the Commonwealth of Kentucky's public infrastructure project to provide high-speed, high-capacity Internet service to every county in the state. Broadband, widely considered an essential utility service, will improve quality of life for Kentucky residents through economic growth and improved services, like education and health care.

Objective: The KentuckyWired network will be a state-wide, middle-mile fiber network connecting key users, such as government and academic institutions. New or existing Internet Service Providers (ISPs) will be able to connect to the middle-mile, open-access network and build out the last-mile to individual homeowners and business. Objectives of the project include:

- Provide a transparent and open access network that effectively reduces barriers of entry for service providers and promotes competition within the Commonwealth;

- Promote economic activity by sharing the network with the private sector and promoting the network in the recruitment of companies to establish a presence in Kentucky and the retention of existing companies through growth opportunities;
- Make dark fiber available to public and private sector technology service providers in un-served or underserved rural areas;
- Support collaborative opportunities across and among the public and private sectors and enhance research, education and public service initiatives; and
- Increase economies of scale to allow for combined buying power and elimination of duplicate networking infrastructure projects and associated costs across the public sector.

Solution: To fund the KentuckyWired network, the Commonwealth formed a first-of-its-kind Public Private Partnership with Macquarie Capital. Macquarie Capital, and its partners, Black & Veatch, Ledcor, First Solutions and Fujitsu will design, construct, finance and operate the network. Black & Veatch and Ledcor have joined forces to form a LLC to execute all of the design-build services. This is a turnkey project involving the construction of more than 3400 miles of fiber optic design and installation. Black & Veatch will perform the following services:

Engineering

- Permitting
- ROW acquisition
- Procurement
- Construction
- Electronics installation at more than 1,100 sites
- System turn up
- Existing traffic migration

The goal of the KentuckyWired initiative is to improve the Commonwealth's access to essential broadband services. Currently ranked in the bottom five states for average broadband speeds, Kentucky is investing in delivering reliable, high-speed Internet connectivity to stimulate its economy.

ATTACHMENT F
Previous Customer Reference Form

Schréder Reference #1

Name of Customer:	City of San José	
Customer Address:	200 East Santa Clara Street, 8th Floor	
	San José, CA 95113	
Customer Contact Name	Amy Olay	
Customer Contact Telephone	408-975-3283	
Customer E-mail	Amy.Olay@sanJoséca.gov	
Date of Agreement/Contract	November 2011 to Present (Agreement still open)	
Period of Performance	From: 2011	To: 2014
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$5,000,000
If contract was terminated or cancelled for convenience, please indicate circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes

Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)

Initially installed as a pilot program, the City of San José continuously expanded its initial LED retrofit program resulting in the installation of over 23,000 Wireless Lumen Controller (LuCo) supported by 195 Wireless Outdoor Segment Controller (SeCo). The system has provided a reduction of energy consumption, an accurate accreditation of the number of poles in their territory and is the premier platform installation for wire-theft detection. All controllers are installed in an alternate manufacturer's luminaire system.

Product	Quantity
OWLET TELEMANAGEMENT SYSTEM – LUCO UNITS	23,000+
OWLET TELEMANAGEMENT SYSTEM – SECO UNITS	195
OWLET TELEMANAGEMENT SOFTWARE SYSTEM	1

ATTACHMENT F
Previous Customer Reference Form

Schréder Reference #2

Name of Customer:	State of Nevada (Dept of Transportation)	
Customer Address:	1263 S. Stewart Street	
	Carson City Nevada 89712	
Customer Contact Name	Eric MacGill Jon Dickinson	
Customer Contact Telephone	775-888-7080	
Customer E-mail	jdickinson@dot.state.nv.us	
Date of Agreement/Contract	2013	
Period of Performance	From: 2011	To: 2014
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$1.75 million of total project value $31 M
If contract was terminated or cancelled for convenience, please indicate circumstances:		
Is this a reference for work Proposer has performed? (Yes or No)		Yes

Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)

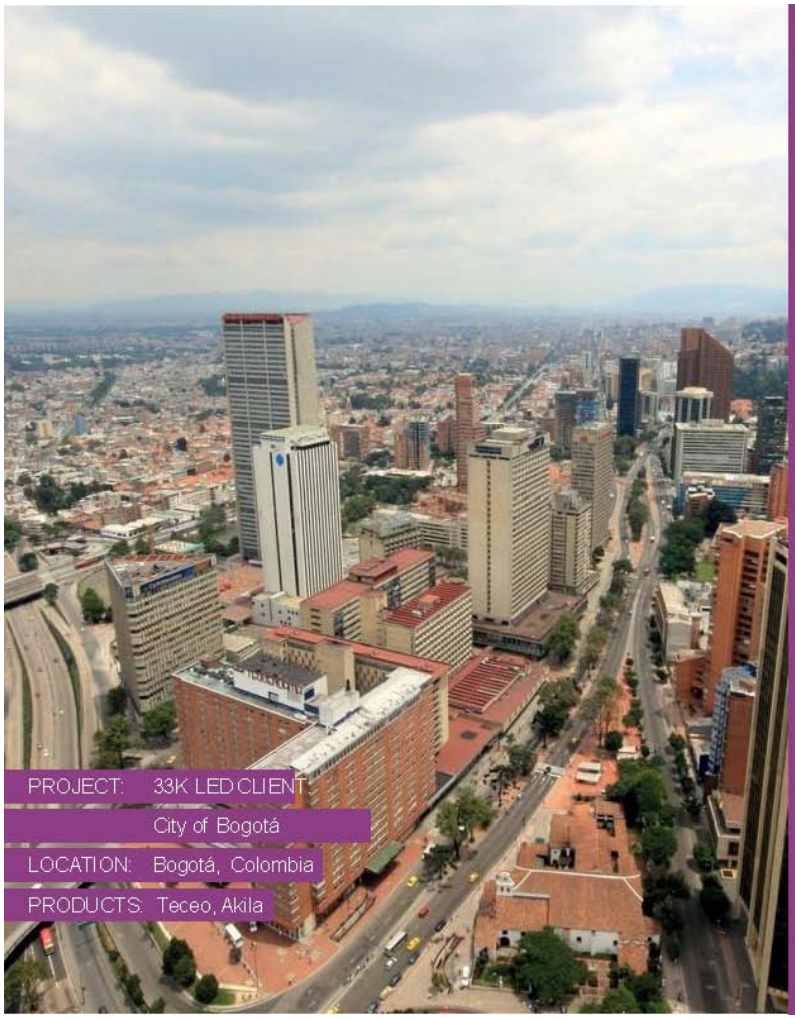
This project is part of a larger project by the Nevada Department of Transportation in cooperation with the Federal Highway Administration, to improve Interstate 80, through the Carlin Tunnel´s area in northeastern Nevada, constructed in 1974 and in continuous use. The approximately $31million project includes enhanced roadway drainage, new concrete near tunnel entrances and the new lighting solution from Schréder.

The new solution provided by Schréder contained the FV32 LED tunnel fixture consuming 266W per fixture, and resulted in a significant decrease both in luminaire quantities from 1,253 luminaires to 800 luminaires and in energy consumption of around 61%.

ATTACHMENT F
Previous Customer Reference Form

Schréder Reference #3

Name of Customer:	City of Bogotá Colombia	
Customer Address:	CR 106a 154a 46 Bogotá Colombia	
Customer Contact Name	Sergio Rivera	
Customer Contact Telephone	+573 124 397825	
Customer E-mail		
Date of Agreement/Contract	2014	
Period of Performance	From: 2014	To: 2015
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		Approx. 6 Million dollars
If contract was terminated or cancelled for convenience, please indicate circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
Bogotá is the largest city in Colombia, and one of the biggest in Latin America, and among one of the 25 largest cities in the world. Part of the plan of government of the current mayor of Bogotá (Gustavo Petro) is the modernization of street lighting in the city, which provides for the installation of 33,000 LED lights. Towards this goal, Schréder was contracted to install 11,806 luminaires over a 5 month period.		



33K LED
BOGOTÁ

In terms of land area, Bogotá is the largest city in Colombia, and one of the biggest in Latin America. It figures among the 25 largest cities of the world and is the second-highest capital city in South America at 2,640 meters (8,660 ft) above sea level, after Quito. With its many universities and libraries, Bogotá has been called "The Athens of South America".Bogotá owns the largest moorland of the world, which is located in the Sumapaz Locality.The city is listed as a Beta global city by the GaWC.

Part of the plan of government of the current mayor of Bogotá (Gustavo Petro) is the modernization of street lighting in the city, which provides for the installation of 33,000 LED lights, with the clear objective of improving the sense of security in the city. They also seek that Bogota becomes a reference by taking the lead in this technology in Latin America.

The project seeks to improve and increase safety in the city with an important impact on energy savings.

ATTACHMENT F
Previous Customer Reference Form

Acuity Brands Reference #1

Name of Customer:	City of Chula Vista, CA	
Customer Address:	Public Works Department Operations Division 1800 Maxwell Rd. Chula Vista, CA 91911	
Customer Contact Name	Gordon Day	
Customer Contact Telephone	(619) 476-5368 (619) 397-6065	
Customer E-mail	gday@ci.chula-vista.ca.us	
Date of Agreement/Contract	2014, One Time Buy and Install	
Period of Performance	From:	To:
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$2.0 Million
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
City reduces energy consumption by 45% while minimizing maintenance costs. Chula Vista installed 3,987 70-watt ATBO Series lighting fixture with 30 LEDs to replace the 150-watt HPS units and 140-watt ATB2 Series lighting fixture with 40 LEDs to replace the 250-watt fixtures. Fixtures were mounted on existing steel, concrete or wooden poles set in the curb along the roadway or mounted on the median, as appropriate. The fixtures provide some back light to support the sidewalks.		

ATTACHMENT F
Previous Customer Reference Form

Acuity Brands Reference #2

Name of Customer:	City of Elk Grove, CA	
Customer Address:	8401 Laguna Palms Way, Elk Grove, CA 95758	
Customer Contact Name	Jeff Werner	
Customer Contact Telephone	(916) 478-3602	
Customer E-mail	jwerner@elkgrovecity.org	
Date of Agreement/Contract	2014, one time buy and install.	
Period of Performance	From:	To:
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$3.5 Million
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
City of Elk Grove installed 10,000 LED street lights in 2014, including 2,300+ AEL Autobahn LED Fixtures and 7,500 + post top 245 LED luminaires. The City of Elk Grove will experience a 60 to 70% savings in energy, yet maintaining desired foot-candle levels.		

ATTACHMENT F
Previous Customer Reference Form

Acuity Brands Reference #3

Name of Customer:	City of El Paso, TX	
Customer Address:	801 Texas Avenue, City Building 3, El Paso, TX 79901	
Customer Contact Name	Manny Pedregon, III	
Customer Contact Telephone	(915) 212-7052	
Customer E-mail	pedregonm3@elpasotexas.gov	
Date of Agreement/Contract	2014	
Period of Performance	From: 2014	To: 2024
Type of Contract	☐ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):Simple Payback with savings funding the projects.	
What is the dollar value of the contract?		$4.4 Million
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
10,600 HPS Cobrahead fixtures were replaced with LED Equivalents, along with 1,000 100 Watt HPS Washington Postlite Fixtures, converted to LED. Also deployed were 11,600 ROAM Adaptive Lighting Controls to monitor the new fixtures.		

ATTACHMENT F
Previous Customer Reference Form

5 Bars Reference #1

Name of Customer:	Transportation Corridor Agency	
Customer Address:	125 Pacifica, Suite 100. Irvine, CA 92618	
Customer Contact Name	David W. Lowe, Director of Design and Construction	
Customer Contact Telephone	(949) 754 3488	
Customer E-mail	dlowe@thetollroads.com	
Date of Agreement/Contract	August 14, 2014	
Period of Performance	From: Phase I completed	To: Phase II in progress
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify): Consulting Agreement	
What is the dollar value of the contract?		$2M
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes

Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)

PHASE I: The scope of the project included data collection and analysis, entitlement plan, technical survey of the current wireless systems and existing infrastructure, performance metrics, projections, Right of Way, Master Plan and Site Plans and contracts. The Master Plan was developed based on projected 2020 wireless usage.

PHASE II: Includes design, entitlement, and installation of oDAS and Small Cell nodes to ensure continuity of wireless connectivity throughout the 17-mile toll road intended to improve cellular coverage for residents, commuters and local residents, who rely on their cell phones and wireless devices for business, recreation or emergencies.

ATTACHMENT F
Previous Customer Reference Form

5 Bars Reference #2

Name of Customer:	City of Anaheim – Angels Stadium	
Customer Address:	Angels Stadium of Anaheim. 2000 E. Gene Autry Way. Anaheim, CA 92806	
Customer Contact Name	Molly Taylor Jolly, Vice President of Finance and Administration	
Customer Contact Telephone	(714) 940 2000	
Customer E-mail	Molly.jolly@angels.com	
Date of Agreement/Contract	September 5, 2013	
Period of Performance	From: 2013	To: Present
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify): Master License Agreement	
What is the dollar value of the contract?		$10M
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
5 Bars completed the installation of a Carrier grade Distributed Antenna System (DAS) and Carrier grade Wi-Fi system for the Los Angeles of Anaheim Stadium, including on-going management of the High Density Carriers. **The scope included**: engineering, design, permitting, installation, testing, operation, maintenance, life cycle support and reporting for both systems. **Description:** Carrier grade, Neutral Host DAS system with 388 antennas, multiple frequencies. All four Carriers on air: AT&T, Verizon, T-Mobile and Sprint. Carrier grade Wi-Fi in all public areas to off-load Data traffic of the four major wireless Carriers. Total of 400 APs with smart cell analytic software. State-of-the-art Head End room. Exceeded MLBAM standards.		

ATTACHMENT F
Previous Customer Reference Form

5 Bars Reference #3

Name of Customer:	Irvine Company – PIMCO Headquarters Building	
Customer Address:	Irvine Company- 550 Newport Center Drive. Newport Beach, CA 92660	
	PIMCO – 650 Newport Center Dr. Newport Beach, CA 92660	
Customer Contact Name	Michael Driscoll, Information Technology and Services, Irvine Co.	
Customer Contact Telephone	(949) 370 0543	
Customer E-mail	mdriscoll@irvinecompany.com	
Date of Agreement/Contract	February 25, 2014	
Period of Performance	From: 2014	To: 2015
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify): Master License Agreement	
What is the dollar value of the contract?		$800,000
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed?		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
PIMCO manages the $222 billion Total Return fund, one of the world's largest mutual funds in the world. PIMCO headquarters is located in Newport Beach, CA. Its headquarters building is the tallest and most lavish state-of-the-art office tower in Orange County. Financial professionals jet in from all points of the globe to work there, which greatly benefits the communities' economy. 5 Bars designed and installed a Carrier DAS (Distributed Antenna System) for the 800,000 sq. ft. 20-story office tower and garage. In addition, 5 Bars designed and installed a public safety communications for the Orange County Police and Fire departments.		

ATTACHMENT F
Previous Customer Reference Form

Smart City Media – Reference #1

Name of Customer:	CISCO	
Customer Address:	Managing Director, Office of the Executive Chairman CISCO, Eisenhower Fellow '12	
Customer Contact Name	Jeff C. Frazier	
Customer Contact Telephone	919-637-5097	
Customer E-mail	jefrazier@cisco.com	
Date of Agreement/Contract	November 2013	
Period of Performance	From June 2013	To: Jan 2015
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?	Initially expected value $3M	
If contract was terminated or cancelled for convenience, please indicate the circumstances:	Yes – for convenience as City issued RFP undermined Smart City Media funded deployment as business risk was too high.	
Is this a reference for work Proposer has performed? (Yes or No)	Yes	
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
As a strategic partner of CISCO, Smart City Media planned to deploy up to 55 inch one and two-sided 250 informational kiosks utilizing legacy payphone locations in the City of New York. Twenty-five units were deployed when the City of New York decided to issue an RFP for future deployment of smart kiosks and associated services. As Smart City Media was self-funding the deployment, it decided to stop involvement in this project when the RFP was issued.		

The statement below from Jeff C. Frazier references Smart City Media's relationship with CISCO for this project:

"Smart City Media is one of the most innovative Internet of Things (IOT) and Smart technologies in the public markets. As a strategic partner with CISCO, I have participated and closely monitored Smart City Media's rapid success in Kansas City, New York, and international development areas in the Middle East and Asia.

Smart City Media's vision of providing a safe, smart, and sacred communities has struck a chord among governments and envy from new business model developers. For the first time, Smart City Media's award-winning technology provides a community-wide landscape where small business can compete globally, citizens have more understanding and confidence, and cities are actual participants and beneficiaries of the markets they create.

As a global business executive for CISCO and Microsoft, Board of Director/Advisor for five technology firms, former public servant with the Federal Bureau of Investigation, and two-time gubernatorial appointee, I have come to recognize and appreciate the business innovation and impact Smart City Media brings to communities: Ethical leadership, transformative business model specifically designed for cities, and focus on exceptional customer outcomes.

Please accept my letter of support on behalf of Smart City Media. I cannot give a higher recommendation to a more deserving and credible leadership team at Smart City Media. Smart City Media has my unqualified endorsement and I enthusiastically support their commitment to the City of San José."

ATTACHMENT F
Previous Customer Reference Form

Smart City Media – Reference #2

Name of Customer:	City of Kansas City, MO	
Customer Address:	City Hall, 414 E. 12th St.	
	Kansas City, MO 64106	
Customer Contact Name	Kate Garman, Innovation Analyst, City of KCMO	
Customer Contact Telephone	913 645-0713	
Customer E-mail	kategarman.kcmo@gmail.com	
Date of Agreement/Contract	9/24/15	
Period of Performance	From: 9/24/15	To: 9/24/20 + automatic renewal to 9/24/25 + yearly renewals until 9/24/40
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	
What is the dollar value of the contract?		$900,000
If contract was terminated or cancelled for convenience, please indicate the circumstances:		N/A
Is this a reference for work Proposer has performed? (Yes or No)		Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)		
Kansas City, Missouri engaged Smart City Media to provide kiosks on and around the new 2.2 mile Streetcar corridor in the heart of downtown. Phase 1 consisted of the deployment of 25 one and two-sided kiosks, and in later phases it is expected 75 to 100 kiosks will be deployed. In addition to informational kiosks, Smart City Media will deploy the KCityPost mobile app.		

The statement below from Kate Garman references Smart City Media's relationship with the City of Kansas, MO:

These kiosks are an important piece to our smart city project, a project that makes Kansas City one of the biggest smart cities in North America. Indeed because of citizen engagement with our kiosks, and the data collection, we have received awards and attention on a global scale, recently becoming the fifth core smart city for the Institute of Electrical and Electronics Engineers (IEEE), the only core city in the U.S.

Even in such a short time in working with this company of just about a year, Smart City Media has become an extremely valuable partner for Kansas City. We have enjoyed working with them, as all parties have been collaborative in making for a robust and innovative way to use media and data.

It is without hesitation I recommend Smart City Media and kiosk applications to fellow cities.

Kate Garman
Innovation Analyst, City of Kansas City, MO

ATTACHMENT F
Previous Customer Reference Form

Smart City Media – Reference #3

Name of Customer:	Time Warner Cable	
Customer Address:	4344 Westover Place NW	
	Washington, DC 20016	
Customer Contact Name	Sanford Jewett	
Customer Contact Telephone	(202) 677-9728	
Customer E-mail	sanfordjewett@aol.com	
Date of Agreement/Contract	June 2013	
Period of Performance	From: June 2013	To: January 2015
Type of Contract	☑ Firm Fixed Price	☐ Not to Exceed
	☐ Time & Material	☐ Cost + Fixed Fee
	☐ Other (Specify):	

What is the dollar value of the contract?	Initially expected to be $2.5M
If contract was terminated or cancelled for convenience, please indicate the circumstances:	Yes – for convenience as City issued RFP undermined Smart City Media funded deployment as business risk was too high.
Is this a reference for work Proposer has performed? (Yes or No)	Yes
Provide a detailed description of work that you performed for this customer, including the size of the project, specifications for the project, technology deployed, or other details. If the customer is no longer using the Proposer's technology, provide a brief description explaining the reason(s). (Attach additional sheets if necessary.)	

Time Warner Cable approached Smart City Media to undertake backhaul provision and WiFi for the Smart City Media solution, along with utilizing the Smart City Media kiosks for advertising for the City of New York market. As with Reference 1, when the City of New York decided to issue an RFP for future deployment of smart kiosks and associated services, as Smart City Media was self-funding the deployment it decided to stop involvement in this project when the RFP was issued.

The letter below from T. Sanford Jewett references Smart City Media's relationship with Time Warner Cable for this project.

March 22, 2016

I am happy to provide a reference for Smart City Media, with whom I have been associated for the past few years, dating back to their initial start-up days in 2011 when I was working for Time Warner Cable (TWC.) TWC is the number two cable operator in the United States, and has the franchise for the New York City market area. TWC had plans to build municipal WiFi hotspots in its markets, and so engaged in discussions with Smart City Media about a partnership. I was leading strategy for TWC's wireless group at that time, and so led our partnership discussions with Smart City Media.

Smart City Media has a great team, both in terms of creativity, technical competence and responsiveness. On the creative side, they have developed a user experience that is intuitive and compelling. Along the way, they have evolved their business model to accommodate various business needs. They also have found ways to localize their service to reflect the particular needs of each market area where they are deploying. They have learned how to work with multiple backhaul technologies. Perhaps most important, they have done a great job engaging the various stakeholders – city government, retail and hospitality, public safety , etc. – to weave together a really useful set of services.

Smart City Media clearly understands this new market opportunity, and knows how to pull together all the pieces to make this kind of smart city service work. I would be happy to answer any questions.

Regards,

T. Sanford Jewett
Consultant, Widelity, Inc.
Email: SanfordJewett@aol.com

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Construction – Reference #1

Kearney Substation Expansion Project

California

Following a phased bid process, Black & Veatch was selected to provide engineering, procurement and construction (EPC) services for the Kearney Expansion Project. The project will expand the electric capacity of the Kearney Substation with the addition of a new transformer, conversion of the ring bus and the addition of three new circuit breakers. Subsequent to the direct award of services to prepare a budget estimate, PG&E awarded Black & Veatch the contract to perform detailed engineering for the project. After final design reviews, Black & Veatch prepared an EPC estimate to procure material and construct this project, which PG&E accepted as it was consistent with the values presented in the project estimate.

Furthermore, the competitiveness of the proposal price aided in the win of this project in addition to the high quality of work Black & Veatch has performed for PG&E for many years.

Black & Veatch provided the following services:

- Expansion of the electric capacity of the Kearney Substation from 90 MVA to 200 MVA with the addition of a new 230/70 kV, 200 MVA three phase transformer to serve increased electrical loads in the southwest Fresno area. The existing three – single phase 230/70kV, 30 MVA transformers and a regulator – will be retained on hot standby.
- Conversion of the 230 kV bus to a four element ring bus with four new 230 kV circuit breakers. The ring bus is designed such that an ultimate arrangement of the station will consist of a four bay, breaker-and-a-half arrangement (12 circuit breakers) to support four 230 kV lines and four transformers.
- Connection to Transformer 4 will be a new four bay 70 kV bus with three new circuit breakers.
- Realignment and simplification of the 70 kV transmission lines between New Kearney and Old Kearney substations and the reconnection of the two existing distribution transformers.
- Installation of a new modular protection and control building at New Kearney substation.

Black & Veatch Role
- Engineering
- Procurement
- Construction

Significant Aspects
- Complex Project
- Multiple Clearances
- T-Line & Substation

Key Team Members
Chris Snyder, PM
Rayn Wu, PE
Russ Howell, CM

Schedule
2010 to 2015

Client Reference
Chris Howard
559-288-9825
C1Hs@pge.com

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Construction – Reference #2

ZA-1 230kV Underground Transmission Line Project

California

Black & Veatch was selected to provide engineering, procurement and construction (EPC) services for the Embarcadero-Potrero 230kV Underground Transmission Line Project. The Project includes a new 230 kV XLPE cable transmission line circuit entirely within the City and County of San Francisco from the new Embarcadero GIS Substation to the new Potrero GIS Substation.

The new 230 kV transmission line will be approximately 3.5 miles in length, including approximately 2.5 miles installed offshore in the seafloor of San Francisco Bay, 0.4 mile installed in horizontal directional drills (HDD) from two onshore transition points to the Bay, and approximately 0.6 miles installation of duct bank via underground trenching. Black & Veatch Construction, Inc. will provide engineering, procurement and construction services for the duct bank system, including Horizontal Directional Drills, seismically reinforced concrete duct bank, telecommunications splice vaults and cable splice and pulling vaults. .

There are many challenges associated with the project such as congested urban areas, unknown existing and unmarked utilities, very poor soils, high volume traffic areas, land to below water HDD and large precast vaults. Black & Veatch has performed high quality of work for PG&E for many years. The client's confidence in our proficiency and capabilities to design and construct by mitigating these complexities led to the award of this project.

Black & Veatch services are phased as follows:

- **Phase 1:** Detailed Engineering which consists of design of the underground duct bank, vaults and horizontal directional drills.
- **Phase 2:** HDD Installation consists of installing the six (6) horizontal directional drills.
- **Phase 3:** Duct Bank Construction consists of the procurement and installation of the underground duct bank and vault systems.
- Black & Veatch will also provide Cable System Owner's Engineer services for the submarine and land cable systems.

Black & Veatch Role
- Engineering
- Procurement
- Construction

Significant Aspects
- Congested Urban Area
- Very Poor Soils
- High Volume Traffic
- Land to Below Water HDD
- Large Precast Vaults

Key Team Members
Eric Cosgrove, PM
Derrick Draper, PE
Dave Turkington, PFM

Schedule
2014 to 2015

Client Reference
Alain Billot
650-291-5642
AJB1@pge.com

ATTACHMENT F
Previous Customer Reference Form

Black & Veatch Construction – Reference #3

230/69kV Bay Boulevard Substation

San Diego (Chula Vista), California

Substation rendering developed to support SDG&E's pursuit of CPUC approval of the project.

Black & Veatch Construction, Inc. (BVCI) was selected to provide engineering, procurement, and construction (EPC) services for the SDG&E South Bay Substation Relocation Project. The project improves SDG&E's transmission capacity in the region required by the decommissioning of the South Bay power plant. The project consists of constructing the new 230/69kV Bay Boulevard substation on a Brownfield site (previously a LNG facility) and demolishing the existing 138/69kV South Bay substation.

The Bay Boulevard substation consists of two bays of 230kV positions in a breaker and a half configuration (expandable to five bays), two 230/69kV transformers, two 69kV grounding transformers, two 69kV shunt capacitor banks, and fourteen bays of 69kV positions in radial and double breaker double bus configurations (expandable up to seventeen bays). The 230kV portion of the station will terminate one UG transmission line and one OH transmission line and the 69kV portion of the station will terminate six UG transmission lines. BVCI is responsible for the HV UG duct banks within the station as well as the 69kV capacitor bank UG connection to the 69kV rack.

The 32' x 70' concrete masonry unit (CMU) control shelter will initially house 34 relay/control panels, 7 telecommunications racks, 18 termination cabinets/junction boxes, and two separate battery rooms. BVCI will perform full field acceptance testing to ensure proper functional operation of the substation prior to handing over to SDG&E for energizing.

Added Value

Black & Veatch was involved at the early stages of the project providing SDG&E with pre-engineering options and substation renderings to support the pursuit of a CPUC permit to construct the Bay Boulevard substation. As the project evolved Black & Veatch continued to support with engineering services and ultimately as the EPC contractor.

Black & Veatch Role
- Engineering
- Procurement
- Construction

Project Elements
- Pre-engineering
- Permitting
- Environmental Monitoring/Reporting
- HV UG Duct Banks
- 69kV XLPE Cable
- Seismic Qualifications
- Diverse Business Enterprise Utilization

Key Team Members
Eric Cosgrove, Project Manager
Brian Curkendall, Project Engineering Manager
Ted Aggeler, Project Field Manager

Schedule
2013 to 2016

Client Reference
Laurence Abcede, Project Manager
619-318-9585
LAbcede@SempraUtilities.com

The substation location is urban/industrial on the San Diego Bay waterfront requiring significant environmental reporting to agencies through SDG&E, such as the US Army Corps of Engineers, Regional Water Quality Control Board, California Coastal Commission, and the CPUC. Additionally, BVCI coordinated with the local jurisdictions to ensure the project impact was positive to the community.

As a brownfield site BVCI remediated the soils to the Bay Point Formation ensuring adequate soil stabilization for pier construction. The substation equipment was designed in a high seismic zone per the IEEE 693-2005 standard. Additionally, the complete site was raised approximately eight to ten feet above the existing grade (200,000+ cubic yards of fill). Even with the additional grade elevations deep piers required special considerations for wet hole construction.

SDG&E has set business standards of reaching approximately 40% Diverse Business Enterprise (DBE) spend on their projects. At project completion BVCI estimates the DBE spend to be greater than 60%, well above SDG&E's corporate goal.

ATTACHMENT F
Previous Customer Reference Form

Bostonia

Bostonia has successfully closed over $2.5 billion in energy generation and energy efficiency projects for Federal, municipal and commercial clients. Such projects have included a broad spectrum of energy technologies including: traditional energy conservation measures, biomass, solar, wind, and cogeneration. Bostonia has the capability to execute on transactions of various sizes; from $1million to over $500M, and our energy efficiency financing experience includes two of the largest federal energy projects ever privately financed: U.S. Navy, Yokosuka Naval Base, Japan ($101,794,000) and Food and Drug Administration, White Oak, Silver Spring, MD ($207,425,000). Representative transactions are detailed below:

REPRESENTATIVE ENERGY EFFICIENCY TRANSACTIONS

FOOD & DRUG ADMINISTRATION, WHITE OAK FACILITY, MARYLAND, ($207,425,000)

- **Bostonia's role:** Financial advisor and placement agent to an energy services company for the issuance of BFC Energy Savings Performance Contract Trust Certificates, Series 2010.
- **Financing structure:** The majority of the project was financed utilizing a securitization of the cash flow structure from energy cost savings derived from energy conservation measures implemented at the FDA White Oak campus in Silver Spring, MD. The remainder of the project cost was paid as contributed capital by the General Services Administration and savings during construction.
- **Description:** The ESPC included efficiency measures, such as the expansion of the central utility plant, building energy performance enhancements, and energy efficient lighting.

YOKOSUKA NAVAL BASE, YOKOSUKA, JAPAN, ($101,794,000)

- **Bostonia's role:** Financial advisor and placement agent to an energy services company for the issuance of BFR-NOR ESPC Trust Series, 2006A and BFC-NOR Federal Receivables Trust, Series 2006A.
- **Financing structure:** Securitization of the cash flow from energy cost savings derived from various energy conservation measures. Funding consisted of two construction accounts, one funded in U.S. dollars and the other in Japanese Yen.
- **Description:** The ESPC included the design and implementation of a 39 MW cogeneration system, major upgrades to the steam generation and distribution systems, installation of gas services to the Base, and increasing frequency converter capacity.

ARCHITECT OF THE CAPITOL, HOUSE OFFICE BUILDINGS, WASHINGTON, DC, ($39,577,644)

- **Bostonia's role:** Financial advisor and placement agent to an energy services company for the issuance of BFC Energy Savings Performance Contract Trust Certificates, Series 2009.

- **Financing structure:** Securitization of the cash flow structure from energy cost savings derived from various energy conservation measures implemented for the Architect of the Capitol for House office buildings located in Washington, DC.
- **Description:** The ESPC included efficiency measures, such as energy efficient lighting systems, controls optimization for HVAC equipment, sanitary water conservation and irrigation, and steam trap replacement.

WORKING CAPITAL AND CAPITAL PROJECTS, VIRGIN ISLANDS PUBLIC FINANCE AUTHORITY, ($400,000,000+)

- **Bostonia's role:** Co-Placement Agent
- **Financing structure:** Issuance of Revenue Bonds (Matching Fund Loan Notes and Gross Receipts Taxes Loan Notes)
- **Description:** Co-Placement of over $400 million for the Virgin Islands Public Finance Authority ("PFA"). The PFA is a public corporation and instrumentality of the Government of the Unites States Virgin Islands. The transactions funded new working capital and capital projects (including the second installment of the Alliance projects) and refinanced short term working capital and capital project bank lines.

ENERGY ALLIANCE PROGRAM, UNITED STATES VIRGIN ISLANDS, ($50,000,000)

- **Bostonia's role:** Bostonia Partners was engaged by the United States Virgin Islands to develop and implement a long term energy demand reduction program for Government, businesses, and residents of the Territory. Bostonia has been providing financial structuring, advisory, and investment banking services for the purpose of developing and arranging the necessary funding for the promotion, design, and implementation of this innovative, island-wide energy efficiency and clean energy initiative.
- **Financing structure:** Master Energy Services Agreement between ESCO and participating government entities.
- **Description:** The Program will employ a comprehensive aggregation model to target all available rate classes. The first two installments of the program involve lighting and water conservation measures covering 2.5 million square feet for the Department of Education. The third installment of the program will include a $24 million dollar funding to implement energy efficiency and renewable energy projects for the Territories hospitals.

PENNSYLVANIA KEYSTONE HOME ENERGY LOAN PROGRAM ($28,600.00)

- **Bostonia's role:** Financial advisor and placement agent to the Pennsylvania Treasury, as well as the Borrower of convenience in order to purchase the loan pool and execute the transaction.
- **Financing structure:** The transaction involved the sale by the Treasury of a pool of more than 4,600 consumer loans with anticipated cash flows through their maturity aggregating more than $35,500,000 to a limited liability company, Bostonia-Keystone HELP I LLC, a special purpose corporation owned and managed by Bostonia Partners. The loan pool held by Bostonia-Keystone HELP I LLC supports a $20,000,000 senior secured seven-year term loan from Fox Chase Bank as agent for itself and two other community bank lenders, with Treasury retaining a residual interest in the loan pool in addition to its cash sale proceeds received at closing. AFC First will act as servicer for Bostonia-Keystone HELP I LLC.

ADDITIONAL ENERGY EFFICIENCY & POWER TRANSACTIONS

FEDERAL

US ARMY, US AIR FORCE, SUPPLEMENTAL POOL FINANCING, NASA JOHNSON SPACE CENTER, ($53,803,000)

US AIR FORCE, ELMENDORF AIR FORCE BASE, ($48,268,000)

US ARMY, POOL FINANCING, ($12,733,000 & €6,607,000)

FEDERAL BUREAU OF PRISONS: FCI ALLENWOOD, PA ($11,062,311); FCI ESTILL, GA, ($7,668,217); FCI JESUP, GA ($10,365,921); FCI TEXARKANA, TX, ($12,164,363)

US ARMY, US AIR FORCE, AND NASA JOHNSON SPACE CENTER, SUPPLEMENTAL POOL FINANCING, ($38,633,000)

FORT HUACHUCA, FORT SAM HOUSTON, PORTSMOUTH NAVAL SHIPYARD, POOL FINANCING, ($30,411,000)

TOBYHANNA ARMY DEPOT, TOBYHANNA, PA, ($26,477,000)

US ARMY, FORT MONMOTH, ($24,249,000)

FEDERAL BUREAU OF PRISONS, FCC, FLORENCE, CO, ($15,315,544)

VETERANS ADMINISTRATION, ($13,800,000)

FORT LEONARD WOOD, MO, ($13,796,642)

US NAVY, MARINE CORPS BASE, KANEOHE BAY, HI, ($12,754,548)

NORTHHAMPTON VMAC, WESTHAVEN/NEWINGTON VMAC, FORT EUSTIS AND FORT STORY, POOL FINANCING, ($12,100,000)

FEDERAL BUREAU OF PRISONS, FCC LOMPOC, CA, ($11,486,387)

VETERANS INTEGRATED SERVICES NETWORK 12, ($10,481,656)

US ARMY, FORT DETRICK, FREDERICK, MD, ($9,550,000)

PORTSMOUTH NAVAL SHIPYARD, ME, ($9,515,000)

US ARMY, ROCK ISLAND ARSENAL, ($9,500,000)

US NAVY, US NAVAL AIR STATION, KEY WEST, FL, ($7,836,431)

US AIR FORCE, HILL AIR FORCE BASE, ($5,552,000 & $2,139,000)

FEDERAL BUREAU OF PRISONS, FCI VICTORVILLE, CA, ($6,692,593)

US ARMY MEDICAL COMMAND, ($5,830,000)

US BUREAU OF PRISONS, BIG SPRINGS, TX, ($4,829,672)

US AIR FORCE, GOODFELLOW AIR FORCE BASE, TX ($2,667,000)

US ARMY, FORT BRAGG, NC ($2,340,000)

US ARMY, FORT GREELEY, AK ($16,490,941)

US ARMY, DETROIT ARSENAL, MI ($8,101,120)

NATIONAL PARK SERVICE, ISLE ROYALE NATIONAL PARK, MI ($3,100,000)

COMMERCIAL

COMMERCIAL PORTFOLIO POOL FINANCING: BOEING COMPANY, IBM CORPORATION, CARRAMERICA REALTY CORPORATION, EASTMAN CHEMICAL COMPANY, ($45,000,000)

GENERAL MOTORS CORPORATION, ($19,300,000)

BOEING COMPANY, HUNTINGTON BEACH, CA, ($6,563,678)

MUNICIPAL, UNIVERSITY, SCHOOL, HOSPITAL

SCHOOL BOARD OF CITY OF NEWPORT NEWS, VA, ($12,480,000)

THOMAS JEFFERSON UNIVERSITY HEALTH SYSTEM, ($2,635,000)

PENNSYLVANIA KEYSTONE HOME ENERGY LOAN PROGRAM ($28,575,953)

CONNECTICUT COMMERCIAL AND INDUSTRIAL PROPERTY-ASSESSED CLEAN ENERGY (C-PACE) program (*Bostonia is approved Capital Provider*)

11.2.5. Proposal Specifics

ATTACHMENT B, PROPOSAL SPECIFICS WORKSHEET

ATTACHMENT B
Proposal Specifics Worksheet (Required)

1. **Please describe how you intend to achieve the outcomes and goals outlined in this RFP, particularly those specified in Sections 1 (Introduction) and 2 (Goals and Objectives).**

This proposal provides for the complete LED conversion of the remaining 40,000 low-pressure and high-pressure sodium, as well as some metal halide streetlights in the City of San José at no cost to the City. Our proposal is a first-of-its-kind innovative partnership of multiple private companies that not only will convert the remaining streetlights at no cost to the City but could also allow the City to benefit from the majority of the projected $2.3M per year of energy savings, while also providing its citizens with access to a number of exciting smart city initiatives.

Our proposal requires non-exclusive free access to a number of City assets including the streetlights themselves, areas within the City right-of-way, areas within City owned property and prominent floor space within City owned buildings for a period of 20 years. Our proposal can be extended to offer an even broader array of service offerings than currently discussed but would need to be investigated with the City in the next phase of this bid process.

The LED luminaires themselves are being sourced from Schréder and Acuity Brands (Holophane). These luminaires meet all the specifications requested in the RFP. The proposed streetlight control system is the same as that already employed on the initial 20,000 converted streetlights – that is controller equipment made by Schréder. This allows for seamless integration with the existing control and monitoring equipment including the Owlet O&M platform.

Our proposal allows for the complete installation of all LED streetlights with wireless control and management by January 2018 across all four designated zones. However, if the City wishes to award different zones to different proposers we can discuss with the City the implications for the financing plan as well as the rollout schedule.

This proposal minimizes the number of new cabinets, vaults, and other equipment placed in the city right-of-way and where the existing streetlight is used equipment placed on a single luminaire will be limited by both practical constraints (i.e. weight-load and wind factors) and aesthetic considerations. Where the current streetlight cannot support the proposed load, we propose to replace the streetlight with an appropriately stronger lighting structure. Our offering is California Environmental Quality Act (CEQA)-compliant, and we understand final proposal acceptance shall follow standard City process including City Council approval.

2. Describe the Community Benefit of your proposal, including aesthetics, reduction of clutter in the right-of-way, etc.

The primary community benefits of our proposal are:

- Improved cellular coverage through 5 Bars solution;
- Free public Wi-Fi hotspots through 5 Bars and Smart City Media solutions;
- Significant operational savings for the City, allowing saved operational expenditure to be directed towards other City services;
- Promotion of regional economic development by building the foundation of a Smart City;
- Building a foundational Smart City platform to support future community innovation;
- Potential use of the smart streetlights as a platform to support other Smart City initiatives such as the collection of sensor data for environmental, smart transportation, public safety and way-finding;
- Improved citizen engagement and the promotion of civic collaboration through the Smart City Media solution.

3. Describe the City assets that will be required to implement your proposal.

Primarily the City assets that will be used are the streetlights themselves and inside/outside ground space for the location of Smart City Media kiosks. All proposed equipment requires connection to power and some form of backhaul. Backhaul will be provided by fiber or wireless 4G technology and has been budgeted into our proposal.

4. Has your proposal been implemented elsewhere?

YES [ ] **NO** [X] **If yes, provide locations and dates of previous projects, as well as contact information for the jurisdiction or project.**

Due to the nature of this RFP this is a first-of-a-kind and highly innovative offering. Individual elements of this proposal have been implemented before and the Smart City Partners have significant experience in the technology areas utilized. We would refer the City to the Attachment F References and various call-outs throughout this response.

---

5. Have you (or your installation partner) completed installations of LED streetlights in other locations?

YES [X] **NO** [ ] If yes, provide locations, number of lights installed, project completion dates, and contact information for the jurisdiction or project.

Please see Attachment F for examples of completed installations.

---

6. Will you be in any way attaching or placing equipment or otherwise utilizing City right-of-way, facilities, or property?

YES [X] **NO** [ ] If yes, please complete Attachments H through J as applicable.

5 Bars will be attaching equipment to approximately 1500 existing streetlights, or replacing the streetlight with a stronger streetlight structure and mounting equipment to this. Smart City Media will need inside/outside ground space for the location of their information kiosks. Thus, Smart City Media would require space within City buildings and outside within the City right-of-way.

---

7. Will you be placing telecommunications or other equipment on City lightpoles?

YES [X] **NO** [ ] If yes, please complete Attachments H through J as applicable.

5 Bars will be placing telecommunications equipment on City streetlights, or stronger replacement streetlight structures if appropriate.

---

8. Will your project limit or prevent access to City lightpoles or facilities by other providers or vendors due to technological or space factors or for other reasons?

YES [X] **NO** [ ] If yes, please describe limitations to access in your proposal.

The 5 Bars telecommunications equipment will take up space on existing light poles that could potentially be used by other providers or vendors. Where the streetlight needs to be replaced due to loading issues, it is possible that the new pole may offer previously unavailable mounting opportunities for other providers or vendors. As the 5 Bars solution is a neutral host environment they will be allowing traditional wireless carriers (e.g. Verizon, AT&T, etc.) to provide enhanced wireless 4G coverage and beyond to customers, whether residential or business.

---

9. Does your proposal require a power source for any use other than powering the individual streetlights?

YES [X] **NO** [ ] If yes, please complete Attachment I, Power Specifications.

The 5 Bars and Smart City Media solution will require a power source.

---

10. For proposers answering "Yes" to Question 9:

a. Do you understand that PG&E has limitations on the size and types of uses that may use streetlight circuits for power?

YES [X] **NO** [ ] If you are unable to use these circuits, you must outline your power solution in Attachment I.

Black & Veatch has spoken to PG&E and is aware of PG&E limitations on the size and types of uses that may use streetlight circuits for power. The presented proposal accounts for these limitations.

---

b. Are you willing to provide a sample piece of equipment for PG&E testing, as well as any and all technical information they require?

YES [X] **NO** [ ]

Black & Veatch is willing to provide samples of equipment as required.

---

11. Does your proposal require backhaul?

Please note: Available City of San José backhaul is limited. Proposer should not assume availability of City-supplied backhaul.

YES [X] **NO** [ ] If yes, please delineate the source of backhaul to be used in Attachment H.

Our proposal does require backhaul for the 5 Bars and Smart City Media Solutions. For the 5 Bars and Smart City Media solution no use of City backhaul assets has been assumed.

---

12. Does your proposal require the placement of utility cabinets, vaults, or other equipment in the City right-of-way?

YES [X] **NO** [ ] If yes, please indicate the type and quantity.

Our proposal requires placement of approximately 100 Smart City Media kiosks in the City right-of-way. Regarding 5 Bars telecommunication equipment, until Black & Veatch and 5 Bars have had further discussions with the City and cellular operators, the exact type and quantity of this equipment in the City right-of-way cannot be determined precisely.

---

13. Does your proposal reduce the number of utility cabinets, vaults, etc. in the City right-of-way?

YES [ ] **NO** [X] If yes, how many of each type will be eliminated?

Our proposal does not decrease the number of utility cabinets, vaults, etc. in the City right-of-way.

ATTACHMENT D, PROPOSAL CERTIFICATION FORM

ATTACHMENT D

Proposal Certification Form (REQUIRED)

NO PROPOSAL SHALL BE ACCEPTED WHICH HAS NOT BEEN SIGNED IN INK IN THE APPROPRIATE SPACE BELOW

Proposing Firm Name:	Black & Veatch Corporation, Inc.	
Address:	11401 Lamar Ave.	
	Overland Park, Kansas 66211	
Telephone:	913-458-2000	
Facsimile:	913-458-4046	
E-mail:	AzerRE@bv.com	
Contact person name and title:		Rick Azer
		Associate Vice President

PROPOSER REPRESENTATIONS

1. Proposer did not, in any way, collude, conspire or agree, directly or indirectly, with any person, firm, corporation or other Proposer in regard to the amount, terms, or conditions of this proposal.

2. Proposer additionally certifies that neither Proposer nor its principals are presently disbarred, suspended, proposed for disbarment, declared ineligible or voluntarily excluded from participation in this transaction by any federal department or agency, any California State agency, or any local governmental agency.

3. Proposer acknowledges that all requests for deviations, exceptions, and approved equals are enclosed herein and that only those deviations, exceptions, and approved equals included in the RFP document or permitted by formal addenda are accepted by the City.

4. Proposer did not receive unauthorized information from any City staff member or City Consultant during the Proposal period except as provided for in the Request for Proposals package, formal addenda issued by the City, or the pre-proposal conference.

5. Proposer certifies that this submission includes full consideration of the information and/or requirements identified in Addenda 1 through 12.

6. Proposer hereby certifies that the information contained in the proposal and all accompanying documents is true and correct.

7. Please check the appropriate box below:

☐ If the proposal is submitted by an individual, it shall be signed by him or her, and if he or she is doing business under a fictitious name, the proposal shall so state.

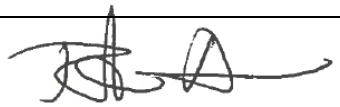
☐ If the proposal is submitted by a partnership, the full names and addresses of all members and the address of the partnership, the full names and addresses of all members and the addresses of the partnership, the full names and addresses of all members and the address of the partnership shall be stated and the proposal shall be signed for all members by one or more members thereof.

☒ If the proposal is submitted by a corporation, it shall be signed in the corporate name by an authorized officer or officers.

☐ If the proposal is submitted by a limited liability company, it shall be signed in the corporate name by an authorized officer or officers.

☐ If the proposal is submitted by a joint venture, the full names and addresses of all members of the joint venture shall be stated and it shall be signed by each individual.

By signing below, the submission of a proposal with all accompanying documents shall be deemed a representation and certification by the Proposer that they have investigated all aspects of the RFP, that they are aware of the applicable facts pertaining to the RFP process, its procedures and requirements, and that they have read and understand the RFP.

Authorized Representative Name (sign name):	
Authorized Representative Signature (print name):	Rick Azer
Authorized Representative Title (print title):+	Associate Vice President

ATTACHMENT G, EP3 INFORMATION SHEET

SCHRÉDER

ATTACHMENT G
Environmentally Preferred Procurement Program (EP3) Information Sheet (REQUIRED)

Please review the contents of this document then provide the information requested at the end of this document regarding the product and/or service offered. This document is to be submitted with your Bid or Proposal. The document will not be utilized in the determination of the overall low bidder. The complete Council Policy (4-6) can be viewed at: www.municode.com/Resources/gateway.asp?pid=14440&sid=5

Background

The City of San José has adopted an Environmentally Preferable Procurement ("EPP") Policy (Council Policy 4-6). The goal is to encourage the procurement of products and services that help to minimize the environmental impact resulting from product consumption during the completion of services, as well as the use and disposal of products purchased. These products include, but are not limited to, those that contain recycled content, conserve energy or water, minimize waste or reduce the amount of toxic material used and disposed.

The City encourages the use of products that minimize adverse environmental and health effects and take into consideration both the costs associated with the full product life cycles.

What Is Environmentally Preferable Procurement (EPP)?

Environmentally Preferable Procurement (EPP) is a process for selecting products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. In the simplest terms, EPP means adding environmental considerations to purchasing decisions along with such traditional factors as performance, price, health, and safety. EPP considerations include:

- Durability
- Energy and water efficiency
- Remanufactured parts and recycled content
- Ability to reuse or recycle
- Existence of harmful or dangerous chemicals.

The EPP process builds on these single attributes and encourages purchasers to examine multiple attributes such as energy efficiency ***and*** recycled content ***and*** toxicity ***and*** the use of renewable resources ***and*** other environmental attributes. The mix of attributes will depend on the specific product or service being evaluated.

The City is interested in understanding positive environmental attributes as outlined below. You may attach additional sheets as may be required.

Product or Service Environmental Profile:	**Yes**	**No**
1. Are the Products offered or utilized in providing this service certified by independent certification programs such as Energy Star, Green Seal, EcoLogo, or EPEAT?	☐	☑
2. Do the Products offered or utilized in providing this service contain recycled material content?	☐	☑
3. Do the Products offered or utilized in providing this service reduce energy consumption?	☑	☐
4. Do the Products offered or utilized in providing this service reduce toxicity, including emissions?	☑	☐
5. Do the Products offered or utilized in providing this service reduce water consumption?	☐	☑
6. Do the Products offered or utilized in providing this service reduce waste?	☑	☐

1. SEE ATTACHED SPEC SHEETS FOR ALL ENVIRONMENTAL/SAFETY CERTIFICATIONS.

2. N/A

3. REFER TO PAGES 16, 17 IN OWLET NIGHTSHIFT USER MANUAL

4. SEE ATTACHED SPEC SHEETS AND OWLET NIGHTSHIFT USER MANUAL

5. N/A

6. SEE OWLET NIGHTSHIFT USER MANUAL

HOLOPHANE

ATTACHMENT G
Environmentally Preferred Procurement Program (EP3) Information Sheet (REQUIRED)

Please review the contents of this document then provide the information requested at the end of this document regarding the product and/or service offered. This document is to be submitted with your Bid or Proposal. The document will not be utilized in the determination of the overall low bidder. The complete Council Policy (4-6) can be viewed at: www.municode.com/Resources/gateway.asp?pid=14440&sid=5

Background

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The City encourages the use of products that minimize adverse environmental and health effects and take into consideration both the costs associated with the full product life cycles.

What Is Environmentally Preferable Procurement (EPP)?

Environmentally Preferable Procurement (EPP) is a process for selecting products or services that have a lesser or reduced effect on human health and the environment when compared with competing products or services that serve the same purpose. In the simplest terms, EPP means adding environmental considerations to purchasing decisions along with such traditional factors as performance, price, health, and safety. EPP considerations include:

- Durability
- Energy and water efficiency
- Remanufactured parts and recycled content
- Ability to reuse or recycle
- Existence of harmful or dangerous chemicals.

The EPP process builds on these single attributes and encourages purchasers to examine multiple attributes such as energy efficiency ***and*** recycled content ***and*** toxicity ***and*** the use of renewable resources ***and*** other environmental attributes. The mix of attributes will depend on the specific product or service being evaluated.

The City is interested in understanding positive environmental attributes as outlined below. You may attach additional sheets as may be required.

Product or Service Environmental Profile:	**Yes**	**No**
1. Are the Products offered or utilized in providing this service certified by independent certification programs such as Energy Star, Green Seal, EcoLogo, or EPEAT?	☐	☑
2. Do the Products offered or utilized in providing this service contain recycled material content?	☐	☑
3. Do the Products offered or utilized in providing this service reduce energy consumption?	☑	☐
4. Do the Products offered or utilized in providing this service reduce toxicity, including emissions?	☑	☐
5. Do the Products offered or utilized in providing this service reduce water consumption?	☐	☑
6. Do the Products offered or utilized in providing this service reduce waste?	☑	☐

1. DLC, IDA
2. YES
3. REDUCED INPUT WATTAGE VERSUS HID SOURCES, PROVIDING THE REQUIRED LIGHTING LEVELS
4. LESS POWER CONSUMPTION, SMALLER CARBON FOOTPRINT,
5. N/A
6. REDUCES LAMP AND BALLAST CHANGES AND FIXTURE IS RECYCLABLE

11.2.6. Cost Proposal

ATTACHMENT C, PROPOSAL VALUATION AND COST FORM

ATTACHMENT C – UPDATED 1/26/16
Proposal Valuation and Cost Form
With Designated Responsible Parties (REQUIRED)

☒ LED Streetlight Installation
Which zones will you be selecting for installation of LED streetlights and wireless controllers? *See Appendix 2 for more information. Proposer may select more than one zone. Quantity of lights in chart below should match the total number of lights in zone(s) selected.* ☑ Central San José 11,090 lights ☑ North-East San José 10,780 lights ☑ South San José 10,280 lights ☑ West San José 7,135 lights If the City decides to award zones to multiple parties, or identifies synergies associated with prospective bidders working together, Black & Veatch would be happy to discuss the feasibility of such an approach(es).
Total Stated Value of Proposal: $53-100M, pending further discussions with the City (Please reference Table C1 and accompanying explanation below)
Term of Proposal (up to 25 years): 20 years

☐ In Lieu Payment
A. Total Stated Value of Proposal: _____N/A_____ (*Note: Minimum value must be more than $2 million for in lieu payments.)*
B. City of San José Project Management Cost ____N/A_____ 20% of Line A *(All in-lieu projects will be assessed PMC for City Staff to manager installation of streetlights with in-lieu funds.)*
C. Final Value for Proposal _____N/A_____ Line A – Line B = Line C
Term of Proposal (up to 25 years): ____N/A_____

PROPOSAL DESCRIPTION

We understand that San José's population is predicted to increase by 40% over the next 30 years and the City's investment in the Internet of Things (IoT) could bring 25,000 new 'clean tech' jobs to the City. With our proposed solution, San José has the ability to utilize the current and new LED street light poles to decrease pollution, implement smart traffic systems, increase citizen participation in government and deliver new services to those citizens with sensors and big data coordination.

The Black & Veatch solution for this RFP is underpinned on an ecosystem of **Smart City Service Partners** who are leaders in their technologies and help cities across the globe transform into Smart Cities – this means making everyday activities easier for the San José citizens by empowering them with technology to allow them to be smarter, safer and better connected.

This collaboration will generate revenue streams sufficient to pay for the LED retrofit program and the City could realize a substantial part of the LED retrofit energy cost savings. In addition, we believe the City will see additional cost savings associated with reduced operational and maintenance costs, reduced truck roles associated with longer bulb life expectancy, as well as improved real time identification of streetlight faults.

The City of San José would also receive transformational benefits for the City and its residents, boosting quality of life, delivery of cross-cultural public services, sustainability and economic growth. This proposal will also help the City address some of its goals addressed within its Greenhouse Gas (GHG) Reduction Strategy and recently adopted Envision San José 2040 General Plan.

Black & Veatch is proud to introduce our Smart City Service Partners:

- **Schréder** (www.Schréder.com) will provide roadway luminaires and the streetlighting controllers. In the largest conversion project ever launched in the U.S.A, Schréder is currently working with the City of San José to retrofit more than 18,000 fixtures equipped with low- and high-pressure sodium lamps to energy efficient LED luminaires equipped with the Owlet Nightshift control system. The inclusion of Schréder on our team means there will be total compatibility with the Schréder equipment already installed.
- **Acuity Brands (Holophane).** Acuity Brands will provide the Holophane decorative LED luminaires. Acuity Brands is one of the world's leading providers of outdoor lighting and energy management solutions. With fiscal year 2015 net sales of $2.7 billion, Acuity Brands employs approximately 8,000 associates. Acuity is focused on delivering the best, most intelligent and integrated lighting solutions from a single U.S. manufacturer.

- **5 Bars™** (www.5bars.com) is a California-based premier neutral host provider that delivers state-of-the-art DAS and Wi-Fi systems, representing the highest standard of wireless telecommunications connectivity. The 5 Bars™ wireless technology would be mounted on the streetlights themselves and their solution will provide revenues that will allow the energy savings to the City to be maximized.
- **Smart City Media** (http://smartmedia.city) Smart City Media's mission is to make cities smarter, safer and better connected by using its proprietary smart media platform to deliver helpful location-based information through a public-facing network powered by interactive Smart Signs, mobile beacons and an easy to use mobile application. This platform is a union between the strategic resources of San José and the citizens, who act both as inputs and real users and drivers of the platform.
- **Black & Veatch Construction, Inc. (BVCI)** will be our team's installation partner. BVCI is a fully-owned subsidiary of Black & Veatch Corporation.
- **Bostonia Group** (www.Bostonia.com) offers equity and fixed income products and services to institutional investors and provides investment banking services to its corporate, institutional, municipal, and federal clients.

After this phase of the RFP and in consultation with the City, we may identify other Partners to reach ideal revenue streams and enhance service offerings to the City. Some of the potential areas of investigation with the City could include but are not necessarily limited to:

- Electric Vehicle Charging Stations;
- Smart Parking;
- Gunshot Detection;
- Weather Monitoring;
- Air Quality Monitoring;
- Emergency Communications;
- Pedestrian/Vehicle Tracking Data
- Video Surveillance.

In particular, Black & Veatch has already had discussions with the following companies (both mentioned in our Phase 1 Concept Proposal):

- **Volta Industries** (www.voltacharging.com) has developed a uniquely innovative approach to Electric Vehicle charging. Partnering with brands that underwrite the free community services and benefit from off-the-chart engagement around causes that matter, Volta deploys and maintains networked EV chargers at prominent and convenient venues like civic entertainment districts, and provides free charging to drivers. The strategic location choices of Volta community charging amenities drive both high utilization and high visibility, and are an incredibly effective catalyst for EV adoption.
- **Petra Systems** (www.petrasystems.com) delivers an alternative lighting control system and the capability of supporting both streetlight mounted solar and public/private Wi-Fi. With over 200,000 installed light pole nodes across the globe and nearly 20 electric utility customers, Petra Systems combines technology innovation with competitive financial packages to further transform streetlights into valuable Smart City assets.

Black & Veatch would like to sit down with the City of San José to discuss other Smart City solutions that will enhance potential City revenue streams and citizen service offerings. For example, Figure 6 shows potential use of a streetlight pole to host additional City services.

LED Public Art - The City may be interested in extending its LED public art initiative to engage and educate San José's citizens about smart streetlights and sustainability. Ideas for the San José Streetlights include a local art sculpture competition using LED in its medium, and using the art project site as a meeting point or communication center.

INTELLIGENT ILLUMINATION

Efficiently lit streetside spaces provide services that keep citizens safe, in-the-know and on-the-go. With multiple capabilities, Smart Streetlights also yield revenue streams, create energy savings and establish a platform for future Smart City applications.

ENERGY
Photovoltaic power
On-demand lighting
0-100% dimming
LEDs offer 50-60% energy savings
Additional 10-15% energy savings from on-demand lighting and dimming control

CITIZEN ENGAGEMENT
Speakers for music/alerts
Wi-Fi hotspot and video
Artful design for visual interest
Digital signage and directions
Real-time city information
EV and E-bike charging

PUBLIC SAFETY
Color alerting system
Pust-to-talk emergency call station
Image sensing for strike proximity

ENVIRONMENTAL
Air quality sensors
Noise level sensors
Weather sensor adjusts lighting in low-light conditions

Figure 6 - Streetlight poles can host multiple services to establish a platform for future Smart City applications.

PARTNER INFORMATION AND REQUIREMENTS

The following sections provide additional information on the committed Smart City Service Partners discussed above.

Schréder

Founded in Brussels in 1927, Schréder is a leader and pioneer in the design, development and manufacturing of lighting solutions. Based on many years of experience worldwide, Schréder can provide its customers with the advanced lighting solutions of tomorrow. Schréder is currently working with the City of San José to retrofit more than 18,000 fixtures equipped with low- and high-pressure sodium lamps to energy efficient LED luminaires equipped with the Owlet Nightshift control system. The inclusion of Schréder on our team means there will be total compatibility with the Schréder equipment already installed.

- Previous customer reference form can be found in Attachment F.
- EP3 information can be found in Attachment G.
- LED luminaire specifications can be found in Attachment L.

Acuity Brands (Holophane)

Acuity Brands (Holophane). Acuity Brands is the distributor of the Holpohane decorative luminaires. Acuity is a pure play lighting and controls manufacturer. Acuity's Holophane field sales organization is among the best trained, most educated lighting sales force in the world. In conjunction with City of San José installing contractor personnel, Acuity Brands will provide product training once being awarded the contract, and will provide annual training (or as needed) to ensure that City of San José staff or maintaining contractor is well-versed in Holophane products.

- Previous customer reference form can be found in Attachment F.
- EP3 information can be found in Attachment G.

5 Bars™

5 Bars™ (www.5bars.com) is a California-based premier neutral host provider that delivers state-of-the-art DAS and Wi-Fi systems, representing the highest standard of wireless telecommunications connectivity. The 5 Bars™ wireless technology would be mounted on the streetlights themselves and their solution will provide revenues that allow the energy savings to the City to be maximized.

5 Bars brings US and global communications leadership, expertise and experience at the forefront of emerging wireless technologies, with an extensive background in:

- Implementing and managing complex technical solutions;
- Providing leadership of business partnerships and alliances to drive growth;
- Specializing in large wireless infrastructure;
- Strong relationships with all major wireless service providers at the executive level;
- Comprehensive knowledge of wireless market trends, carrier requirements, SLAs and market rates;

- Experience deploying large scale DAS;
- Experience deploying and managing carrier grade high density Wi-Fi systems;
- Experience in small cell technology;
- Executive team with over 100 years of combined wireless experience;
- In house regulatory and legal expertise.

The 5 Bars telecommunications equipment will take up space on approximately 1,500 of the City's streetlight poles. As the 5 Bars solution is a neutral host environment they will be allowing traditional wireless carriers (e.g. Verizon, AT&T, etc.) to provide enhanced wireless 4G coverage to customers, whether residential or business.

The 5 Bars team will provide a comprehensive project plan with key milestones and reporting to track the project and guarantee timely deliverables. 5 Bars uses 6 Sigma methodology with team members that have PMP certification. 5 Bars will provide SLAs around reporting and deliverables to guarantee performance and timeliness.

- Previous customer reference form can be found in Attachment F.
- Power Specifications Form can be found in Attachment I.
- Backhaul Specifications Form can be found in Attachment H.
- Telecommunications Specifications can be found in Attachment J.

Smart City Media

Smart City Media's mission is to make cities smarter, safer and better connected by using its proprietary smart media platform to deliver helpful location-based information through a public-facing network powered by interactive Smart Signs, mobile beacons and an easy to use mobile application. This platform is a union between the strategic resources of San José and the citizens, who act both as inputs and real users and drivers of the platform.

The Smart City Media solution is an end-to-end software system that enables users to define, create and disseminate city related content across a city-wide deployment. It intends to offer the user created content to be consumed on either, smart kiosks, or integrated with 3rd party kiosks/signages, mobile applications and web solutions. In addition, the Smart City Media ecosystem provides targeted relevant content and media to consumers based on many factors including geo-relevance and social appropriateness.

Smart City Media will provide, through its CityPost brand, a digital smart media channel that broadcasts San José focused community content to:

- "Smart" indoor/outdoor interactive kiosks;
- CityPost's mobile app;
- Smart City Media Wi-Fi Hotspots.

Smart City Media will also develop partnerships and build ecosystems to provide all the systems required to launch, manage and monetize a successful smart media channel. Smart City Media will also augment citizen engagement by deploying mobile beacons throughout key strategic San José locations (with tenant approvals, where necessary) and will analyze data and provide San José with periodic reports of relevant information.

Further, Smart City Media will provide urgent notification services during emergencies, as well as advanced, video-enabled, 911 services to assist first responders.

To implement the Smart City Media solution, we would request that the City's responsibilities would be as follows:

- To commit to a minimum 10-year term, with a 10-year option term for renewal;
- Secure all kiosk placement locations with San José tenants;
- To provide assistance in accessing high-density public locations;
- To provide assistance accessing efficient power supplies where possible;
- To provide access to Police and First responders for emergency communications and safety/security services;
- To provide input and support in acquiring network corporate sponsorships;
- To provide access to any "open data";
- To provide any needed access to additional digital information of value that may not initially be considered "open data";
- To provide public communication support for the on-going network;
- To appoint a San José contact person for the CityPost kiosk program;
- To help in coordinating efforts with other San José related groups (to be defined by San José).

Smart City Media will require access to a number of outdoor and indoor locations for the location of approximately 100 information kiosks. In addition, Smart City Media will deploy approximately 1,000 mobile beacons. All informational kiosks will be connected to the Cloud via 4G LTE.

- Previous customer reference form can be found in Attachment F.
- Power Specifications Form can be found in Attachment I.

Black & Veatch Construction, Inc. (BVCI)

Black & Veatch Construction, Inc. (BVCI**)** will be our construction partner. BVCI self-performs construction with a focus on safety, quality, cost, schedule, and client satisfaction. Black & Veatch has an extensive process to vet and prequalify subcontractors with the specific project scope capabilities. For the City of San José project, Black & Veatch has prequalified and approved a number of local street lighting subcontractors for the installation of the new streetlights including Columbia Electric, Bear Solutions and St. Francis Electric. These subcontractors are available and ready to provide installation services for this project. These firms have a long history of successful street lighting projects and we believe are more than qualified and capable to support this project, however due to the competitive climate during the proposal process, we are not able to name a specific subcontractor at proposal time. Information will be provided upon award.

- Financial company information can be found in Attachment E.
- Previous customer reference form can be found in Attachment F.

Bostonia

Upon selection to progress beyond this phase of the RFP, Black & Veatch and Bostonia would establish a Special Purpose Entity (SPE) to serve as the primary contracting, asset management, and financial entity to provide the offerings described herein. Through collaborative partnerships and various legal arrangements, Black & Veatch feels this structure (Figure 7) would provide the most streamlined interface for the City and minimize any administrative burden associated with managing multiple contractual relationships.

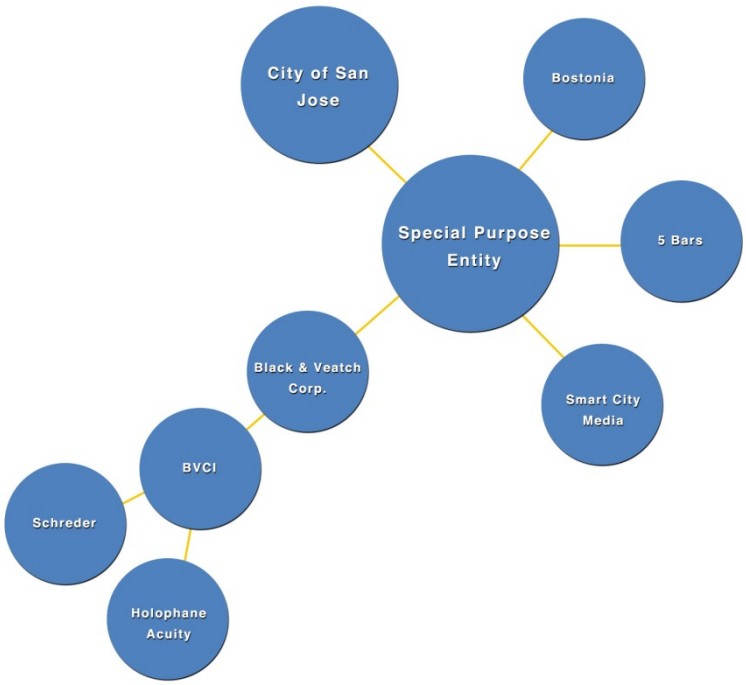


Figure 7 - Proposed organizational structure.

Bostonia understands that the City of San José is not interested in pursuing a street lighting retrofit project financed through a direct obligation of the City and its taxpayers. Bostonia and Black &Veatch propose to implement and finance the capital for the Project through a “service agreement” structure securitized by the guaranteed energy savings derived from the Project. Bostonia is highly experienced in utilizing ESA “service agreement” type structures for energy efficiency measures and other technologies, as well as in providing both taxable and tax-exempt financing, and will therefore work with Black and Veatch and the City to develop the optimal financing solution that allows it to modernize its existing lighting and lighting grid infrastructure while meeting all of the following requirements and objectives:

- Design a financing strategy that will be self-funding; i.e. all of the costs to be repaid through the available savings, grants and rebates, and/or potentially supplemented by new sources of revenue derived from the implementation of other non-related “Smart Lighting” projects and applications
- No upfront capital contribution required by the City of San José
- Effective utilization of a Public/Private Partnership, ensuring appropriate risks are allocated to the parties best suited to manage them (i.e. Construction and completion risks and oversight of Operations and ongoing Maintenance of the systems to be performed by the City)
- Project performance risk to the City can be 100% eliminated through use of Savings Guarantees for the payments made from project savings
- Designed to be “off-balance” sheet and “off-credit” service agreement structure, subject to the City’s professional accounting and auditor review and concurrence, to preserve the City’s borrowing capacity
- Explore other technologies and services in effort to enhance the delivery of public services, create new revenue opportunities, and/or offer additional cost savings

Bostonia believes that the most efficient financing approach would be to use an ESA structure for the financing of the City's Smart Lighting Program. An ESA structure will serve to fulfill the City's political and long-term financial goals as a mechanism for facilitating private capital for the City's infrastructure needs while deleveraging the City's balance sheet. Through the use of an Energy Savings Guarantee, available through the combination of Black & Veatch's balance sheet and potentially through an insurance product offered by a 3rd party, Bostonia anticipates that the projects can be fully-leveraged through the securitization of service agreement contract payments payable out of the available guaranteed savings from the project.

Our recommended financing approach would include the following steps:

1. Determine if Projects qualify for ESA financing. Explore recommended structures and provide alternative structures for consideration.
2. Determine ESA capital requirements and operating costs for the Projects and run financial models.
3. Structure Bond Proceed Disbursement Agreements for ESA and Non-ESA (if applicable).
4. Issue Private Placement for ESA Projects.

Through the 20 year lifetime of the contractual arrangement, the expectation would be that a portion of the energy savings would be paid by the City to the SPE each year, not to exceed guaranteed amounts the City will realize.

Further enhancing our proposal, we anticipate valuable revenue streams from use of City assets as described in this response which would serve as an offset to the expected portion of Energy savings the City would need to contribute to the SPE each year. Once a fixed return on investment and any ongoing management costs have been recaptured through Partner revenue streams and energy savings payments made by the City, the SPE would then provide revenue sharing payments back to the City in addition to the realizing 100% of the benefit associated with the LED retrofit savings. More detailed estimates of the value of these additional revenue streams can be developed through collaborative discussions between the City, Black & Veatch, and our partners regarding the use of City assets, quantity of elements deployed and modelling assumptions.

Summarizing, we feel this structure results in the most attractive solution to the City as it results in no additional capital outlay, serves as a mechanism for off balance sheet financing, and provides the potential to realize 100% or more of the LED retrofit energy savings based on the agreed upon feasibility of the proposed partner solutions which we look forward to formalizing with the City.

- Previous customer reference form can be found in Attachment F.
- Further information about Bostonia can be found in Appendix A.

Project Value
Table C1 – All Proposers

Projected Revenues: Please detail any revenues the City is projected to receive over the course of the proposal timeline, the source of said revenues, how they will be calculated, and any other relevant information.

#	Source	Qty	Unit of Measure	Unit Revenue	Projected Revenue
1	20 year lifetime energy savings	1	Dollars	Up to $46M[6]	Up to $46M[6]
2	Partner revenue share (5 Bars)	1	Dollars	TBD[2]	TBD[2]
3	Partner revenue share (Smart City Media)	1	Dollars	TBD[2]	TBD[2]
	Total Projected Revenues				**TBD**

Value of other items: Please delineate any quantifiable benefits to the City that are not direct revenues.

#	Source	Qty	Unit of Measure	Unit Revenue	Projected Value
1	39,285 new luminaires with control system	1	Dollars	$33M[1]	$33M[1]
2	Streetlight operations & maintenance savings	1	Dollars	$20-25M[3]	$20-25M[3]
3	Improved cellular coverage boosting economic development	1	Dollars	TBD[4]	TBD[4]
4	Free public Wi-Fi hotspots boosting economic development	1	Dollars	TBD[4]	TBD[4]
5	Reduced City spending on citizen engagement by leveraging Smart City Media platform	1	Dollars	TBD[5]	TBD[5]
	Total Projected Value				**Minimum $53M lifetime**

1. The core value to the City of this proposal centers on the LED retrofit program that the City receives at no cost;
2. The City may see revenue share from the smart city partners (5 Bars and Smart City Media) Black & Veatch has assembled for this project;
3. City is likely to see significant Operations & Maintenance savings associated with the fact the LED lifetime expectancy is at least double that of its existing sodium lighting;
4. The City will also receive significant value from the economic development that results from improved Wi-Fi and cellular coverage;
5. The City may see some reduction in operational costs associated with the use of the Smart City Media platform relating to citizen engagement;
6. And finally, the City may realize a significant portion of the LED energy savings if partner revenue streams can be maximized.

Based on these facts, Black & Veatch believes the total minimum value of this project to the City would be $53M (see 1 and 3 above). This value could be significantly higher pending discussions with the City relating to the proposed partner solutions[2], value of economic development[4], reduction in citizen engagement costs[5] and LED energy savings[6]. This could potentially manifest in a total project value approaching $100M.

LED Streetlight/Controller Unit Installation Provisioning
Table C2: Installation Proposals ONLY

The matrix below delineates steps and items required to provision LED streetlights and controller units. Using the matrix, delineate which items will be Proposer Responsibilities and which will be City Responsibilities, and the cash value.

Table C2: Installation Proposals ONLY						
#	**Description**	**Qty**	**Unit of Measure**	**Unit Cost**	**Extended Cost**	**Responsible Party**
Luminaires and Equipment						
1	Lightheads/luminaires *(Actual cost from luminaire suppliers)*	**39,285**	**each**	**varies**	**$9,369,125**	☑ **Proposer** ~~City~~
2	Luminaire controller **(Schréder Owlet Wireless Lumen Controller – LuCo)** *(Actual cost from luminaire suppliers)*	**39,285**	**each**	**$118**	**$4,661,165**	☑ **Proposer** ~~City~~
2A	Luminaire controller (alternate system).	N/A	N/A	N/A	N/A	
3	Wireless Luminaire Device (if separate from luminaire controller)	N/A	N/A	N/A	N/A	
4	Wireless Gateway (quantity = # of gateways) **(Schréder Owlet Wireless Outdoor SeCo Segment Controller)** *(Actual cost from luminaire suppliers)*	**375**	**each**	**$1,890**	**$708,750**	☑ **Proposer** ~~City~~
5	Temporary Communication from Gateway to Central Software (quantity = # of gateways multiplied by 6 months)	N/A	N/A	N/A	N/A	
6	Software License (one-time purchase)	No additional software license is required for expansion of existing Owlet control system				
7	Annual Software Maintenance Fee (Three Year Minimum)	No additional software license is required for expansion of existing Owlet control system				
8	Annual Software Maintenance Fee (Contract Extension)	No additional software license is required for expansion of existing Owlet control system				
9	Power (if required for any use other than the luminaire itself)	Separate power will be required to each of the 375 Schréder Segment Controllers – this cost is included under Line Item 17 below				☑ **Proposer** ~~City~~
10	Backhaul (if applicable)					☑ **Proposer** City
11	Other					

#	Description	Qty	Unit of Measure	Unit Cost	Extended Cost	Responsible Party
Professional Services						
12	Engineering	Any Engineering required is included within this estimate and will be performed by Black & Veatch.				☑ **Proposer** ~~City~~
13	Permitting *(Line item accounts for $80/lighthead permit fee only. Labor to prepare, submit and obtain permits is included under Line Item 17 below.)*	**39,285**	**each**	**$80**	**$3,142,800**	☑ **Proposer** ~~City~~
14	CEQA Clearance	-	-	-	-	
15	Project Management	**1**	**lump sum**	**$243,350**	**$243,350**	☑ **Proposer** ~~City~~
16	Other					
Construction						
17	Installation of luminaires, lighting controllers, segment controllers and associated wiring for segment controllers (Line item includes all miscellaneous materials, equipment, installation labor, permitting support labor, safety, quality management, project controls, insurance, overhead costs, etc)	**39,285**	**each**	**varies**	**$14,478,320**	☑ **Proposer** ~~City~~
18	Disposal/recycling of old lightheads.	**39,285**	**each**	**$5**	**$196,425**	☑ **Proposer** ~~City~~

CLARIFICATIONS AND EXCEPTIONS

1. Our construction management and safety for the project is based on performing one zone of work at a time and not concurrently

2. We assume that the Schréder Segment Controller units (SeCo) will be installed on the streetlight nearest existing Traffic Control Cabinets

3. We assume that the required power to support the SeCo unit will be within 100’ of the traffic control cabinets

4. We assume that the pathway/conduit from the existing traffic control cabinet to the streetlight will be free and have adequate room to install new power and communication cables. In the event the conduit is not available or full, Black & Veatch will provide a unit rate per foot to trench and install new conduit.

5. BVCI assumes that after the power is installed and terminated and documented to have been completed, any removal of that power or communication cables by theft will be replaced by the City and/or can be reinstalled by Black & Veatch at a unit cost to be provided.

11.2.7. Telecommunications and Other Proposals requiring Backhaul and/or Power

ATTACHMENT H, BACKHAUL SPECIFICATIONS

ATTACHMENT H
Backhaul Specifications (IF APPLICABLE)

If proposal requires backhaul and proposer is not supplying their own private backhaul, the proposer shall provide the following information:

1. Name and address of private or public backhaul provider
2. Map or description of backhaul access points
3. Letter of intent (or equivalent) documenting agreement to provide backhaul as the responsibility of the proposer should backhaul proposal be accepted by the City

Please note: Availability of City of San José backhaul is limited. Proposer shall not assume availability of City-supplied backhaul.

Information for this Attachment is from 5 Bars:

The final providers of backhaul have not been identified yet. There likely will be more than one backhaul provider depending upon the final solution to be worked out after discussions with the City and determining the extent of existing wireless carrier coverage.

ATTACHMENT I, POWER SPECS

ATTACHMENT I
POWER SPECIFICATIONS (IF APPLICABLE)

Proposals requiring the use of electrical power must address how power will be provided and must comply with all PG&E restrictions and regulations.

If proposal requires electrical power, the following information is required:

1. Name and address of private or public power source
2. Map or description of power access points
3. Letter of intent (or equivalent) documenting agreement to provide power should Proposal be accepted by the City

PLEASE NOTE: THERE ARE SEVERE RESTRICTIONS ON THE USE OF UNMETERED CITY STREETLIGHTS AS A POWER SOURCE. ANY CIRCUIT OR OTHER ELECTRICAL UPGRADES TO CITY INFRASTRUCTURE (INCLUDING SETTING METERS, ETC.) ARE THE RESPONSIBILITY OF THE PROPOSER. THE PROPOSER MUST RESOLVE ANY POWER ISSUES BEFORE AN AWARD OR CONTRACT WILL BE GRANTED.

The information below and the attached letter represent all partners on our team.

Information relevant to entire project and partner solutions:

1. PG&E, 201-245 Market Street, San Francisco, CA 94105
2. The final power connection locations have yet to be determined.
3. Letter of Intent is included for Black & Veatch covering all aspect of project implementation.

BLACK & VEATCH
Building a world of difference.

March 25, 2016

Teri Killgore
Assistant to the City Manager
200 E. Santa Clara Street, 17th Floor
San José, CA 95113

Subject: Letter of Intent for Attachment I - Power Specifications for Black & Veatch and Partners (Schréder, Holophane, 5 Bars, Smart City Media, Black & Veatch Construction, Inc. (BVCI))

Dear Teri and City of San Jose staff,

Black & Veatch Corp. (Black & Veatch) is pleased to provide our Letter of Intent for requesting electrical power from PG&E for the LED Streetlighting Replacement project.

Black & Veatch and our proposing Partners hereby confirm that we will comply with all PG&E restrictions and regulations. We understand the restrictions on the use of unmetered city streetlights as a power source, and that any circuit or other electrical upgrades to City infrastructure are the responsibility of the proposer.

Sincerely,

BLACK & VEATCH

Richard E. Azer
Associate Vice President
Smart Integrated Infrastructure
Black & Veatch

ATTACHMENT J, TELECOM SPECS

ATTACHMENT J
Telecommunications Specifications (IF APPLICABLE)

Proposers submitting telecommunications proposals must submit Attachment J.

Attachment J is required for all telecommunications proposals, whether project is an installation project or payment in lieu of installation, and whether equipment will be installed on streetlights or other City property.

For telecommunications projects, the following information is required:

1. Map or description of installation locations
2. Make and model of telecommunications equipment to be installed at each location
3. Detailed specifications for the telecommunications equipment listed in #2, including power requirements, capacity, etc.
4. If equipment will be placed on streetlights, provide specifications for weight load and wind factors.
5. If backhaul is required, proposer must submit Attachment H, Backhaul Specifications.
6. If electrical power is required, proposer must submit Attachment I, Power Specifications.

Information for this Attachment is from 5 Bars

Solution Summary

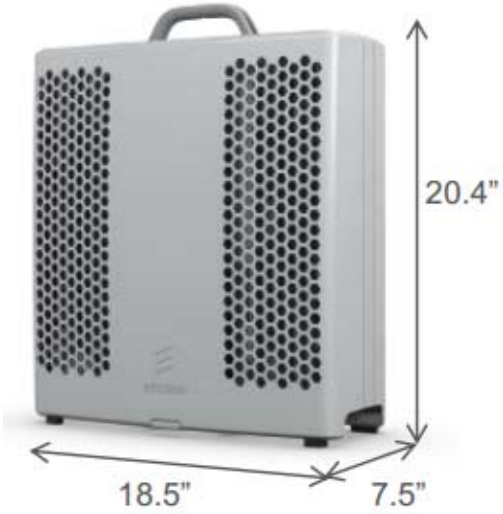
The wireless solutions 5 Bars are proposing are Small Cell or an outdoor DAS (Distributed Antenna System) on the light poles. At this time, 5 Bars are not able to provide exact locations of these sites as these will be determined with each carrier once the award is made. 5 Bars goal is to work with the carriers and, where possible, have the carriers "share" a pole or location. With the large number of locations available, this could take up to a year to make location selections depending upon the solutions agreed to by all parties and the capital outlays required for the solutions.

5 Bars anticipate that there will be a mix of Small Cell and oDAS locations. oDAS will more than likely be used where there is concentration of needed sites in a small geographic area and Small Cells will be used to fill in gaps in coverage or where additional capacity is needed.

Small Cell: is an individual cell site generally on light pole that is generally a complete cell site at that pole. It will have an antenna, radios, power, and backhaul at the light pole.

Each small cell's equipment will be determined by the carrier. The photo to the right shows what a typical small cell looks like on a standard light pole.

Below are the specifications of a radio that could be used by most carriers and mounted from a pole as in the picture below.

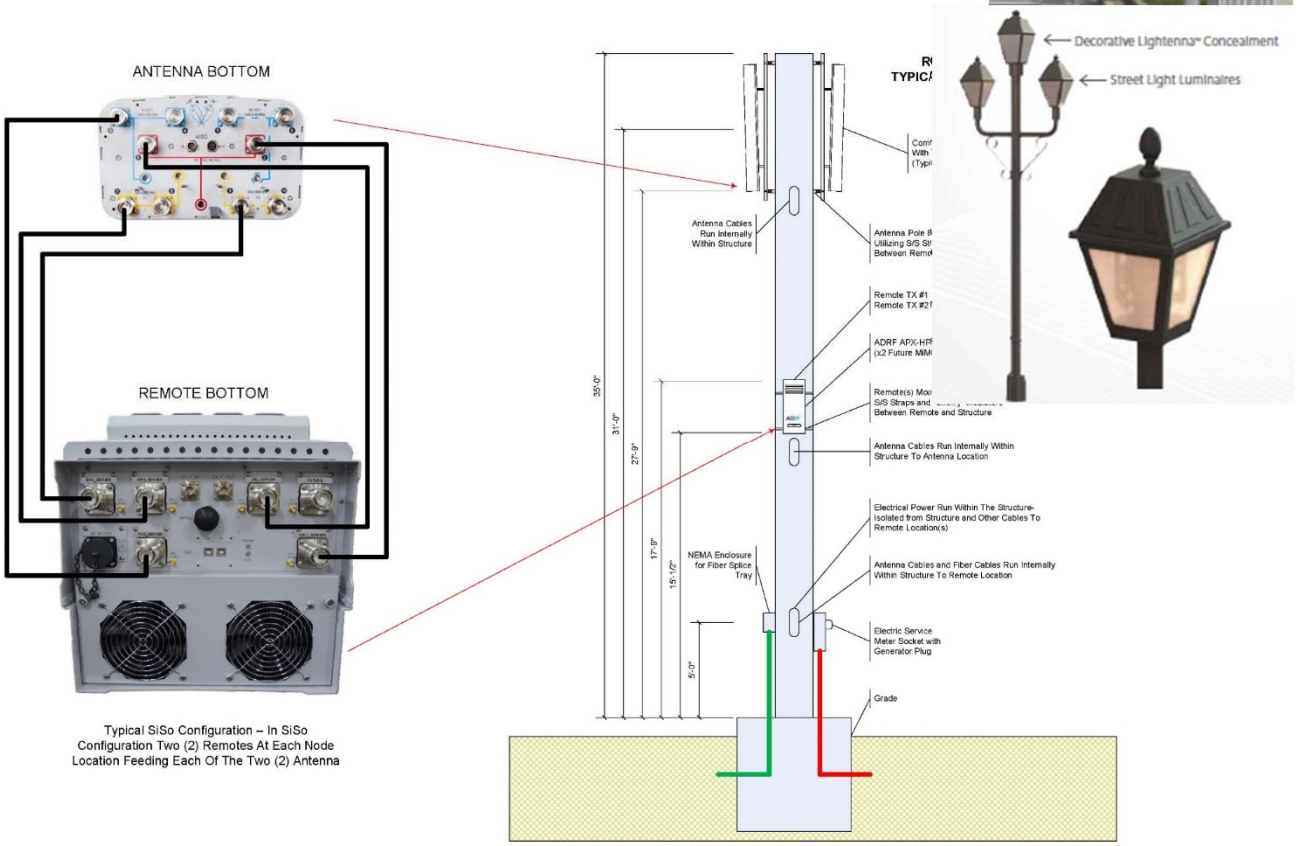


MECHANICAL SPECIFICATIONS:	WxDxH: 470 mm x 190 mm x 518 mm with solar shield, handle and feet WxDxH: 458 mm x 159 mm x 418 mm without solar shield, handle and feet Weight: 22-23 kg band dependent Volume: 23-38 liter band dependent Mounting: Wall, Pole mount, using standard RRU brackets
POWER SPECIFICATIONS:	Nominal voltage: -48 VDC Voltage variation: -38.1VDC to -58.5 VDC
ENVIRONMENTAL SPECIFICATIONS	Environment: Outdoor class with IP55 Normal operating temp.: -40 - +55 °C cold start at -40 °C

oDAS: Looks virtually similar to the Small Cell, however, the equipment will either be housed internally in the pole or there will be a small equipment cabinet next to the pole. The signal is transmitted to a central location where the carrier equipment is housed referred to a "head end". The backhaul is provided from the head end location. The power can come from a central location to power several sites via DC or AC or each pole can be powered individually.

The benefit of the oDAS is that while it is more expensive, all carriers could share a single location with equal coverage. oDAS can eliminate the issue of carriers competing for the same site, reduce the number of "sites", and ascetically providing a uniform look and feel for the neighborhood. Sites are built to house all carriers so they can be added a later date if desired.

Below is a detailed drawing of an oDAS solution on a light pole. Most poles are anticipated to be an omni-directional antenna shown in picture to the right with a cabinet (non-decorative light poles).



5 Bars are anticipating two types of installation depending on the light pole:

- **Traditional light poles** – the poles will be replaced and the equipment will be attached to the poles as shown previously.
- **Decorative light poles** – these type of poles will require that the pole be replaced or modified to support the equipment and ensure that it remains very similar to the pole it replaces. The equipment can be housed in the pole itself or a stylish cabinet next to it disguised as a bench, trash can, menu board, etc. 5 Bars are able to build these in a variety of colors, finishes, styles, etc. to ensure the pole has a similar look and feel as the existing lights.

Any light poles telecommunications equipment is placed on, will be modified or replaced with a similar looking light pole which will have engineering drawings that will indicate the pole supports the weight loads and wind factors for the equipment that will be placed upon or in the pole in San José.

After a determination is made with the carriers for the exact locations where the "sites" will be needed, drawings, photo simulations, etc. will be provided for City approval for each type / style of pole being replaced. These replacements will be similar to the poles that are being replaced. Once approval is obtained, 5 Bars will use these as standards for each type of pole being replaced.

Power:

5 Bars have visited with PG&E and have identified two ways in which to bring power to each location:

- PG&E has indicated that throughout the City, typically there is a PG&E power point approximately every 400' in which 5 Bars can obtain our own metered power for our uses. We will pull power from those locations working with PG&E, as necessary.
- 5 Bars can provide DC power via a composite fiber up to 4000' in an oDAS solution from a central point. In those locations needing an oDAS network, 5 Bars will either power from a PG&E power point or use the composite fiber cable and DC power.

The specifications of the oDAS equipment is listed in the chart below and on the following pages for the oDAS solution. If small cell is used, those power requirements should be similar, however, they will be dictated by the specific solution the carrier requires.

Item	Part Number	Description	Quantity	Unit Power	Total Power	Total BTU/hr	Rack Units	Total Rack Units	Dimensions (in)	Unit Weight (lb)	Total Weight (lb)
ADX DAS Head-end											
Head End	ADX-H-NMS-PKG	Head End Chassis, NMS, PSU, CHC	4	4.4W	17.6W	60.1	7.0U	28.0U	19 x 12.2 x 14.6	40.8	163.2
Head End	ADX-H-MSU	Multi Supervisory Unit to Monitor Multiple Sectors	1	8.5W	8.5W	29.0	1.0U	1.0U	19 x 1.7 x 9.9	4.4	4.4
Head End	ADX-H-ODU-4-X	5dBo Optic Module (4 Ports) (Head End) (supports WCS, BRS)	10	7.4W	74.0W	252.5	n/a	n/a	8 x 7.2 x 1.6	3.3	33.0
Head End	ADX-H-ODU-1-X	10dBo Optic Module (1 Port) (Head End) (supports WCS, BRS)	20	7.4W	148.0W	505.0	n/a	n/a	8 x 7.2 x 1.6	3.3	66.0
Head End	ADX-RACK-ODU	Rack for Optic Module (2 Bays) (Head End)	22	2.0W	44.0W	150.1	1.0U	22.0U	19 x 1.7 x 12.9	4.2	92.4
Head End	ADX-H-BCUH-7F	700MHz Head End Band Combiner Unit (Lower A/B/C, Upper C) (High Power)	4	9.0W	36.0W	122.8	2.0U	8.0U	19 x 12.8 x 3.5	33.0	132.0
Head End	ADX-H-BCUH-C	Cellular Head End Band Combiner Unit (High Power)	4	9.0W	36.0W	122.8	2.0U	8.0U	19 x 12.8 x 3.5	33.0	132.0
Head End	ADX-H-BCUH-P	PCS Head End Band Combiner Unit (High Power)	4	9.0W	36.0W	122.8	2.0U	8.0U	19 x 12.8 x 3.5	33.0	132.0
Head End	ADX-H-BCUH-A	AWS Head End Band Combiner Unit (High Power)	4	9.0W	36.0W	122.8	2.0U	8.0U	19 x 12.8 x 3.5	33.0	132.0
Head End	ADX-H-RFU-7F	700MHz Single Band RF Unit (Lower A/B/C, Upper C)	4	6.6W	26.4W	90.1	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Head End	ADX-H-RFU-S89	SMR 800MHz/900MHz Dual Band RF Unit	4	8.2W	32.8W	111.9	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Head End	ADX-H-RFU-C	Cellular Single Band RF Unit	4	6.6W	26.4W	90.1	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Head End	ADX-H-RFU-P	PCS Single Band RF Unit	4	6.6W	26.4W	90.1	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Head End	ADX-H-RFU-A	AWS Single Band RF Unit	4	6.6W	26.4W	90.1	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Head End	ADX-H-RFU-BT	BRS Single Band RF Unit (TD-LTE)	4	9.0W	36.0W	122.8	n/a	n/a	2.8 x 6.2 x 12.8	5.7	22.8
Total Head-end					**610.5W**	**2083.1**		**83.0U**			**1023.8**

ADX DAS Head-end											
Remote Module	ADX-R-OEU-8-X	Optic Expansion Unit (8 Ports) (supports WCS, BRS)	1	28.0W	28.0W	95.5	2.0U	2.0U	19 x 12 x 3.5	14.1	14.1
Total Remote Module					**28.0W**	**95.5**		**2.0U**			**14.1**

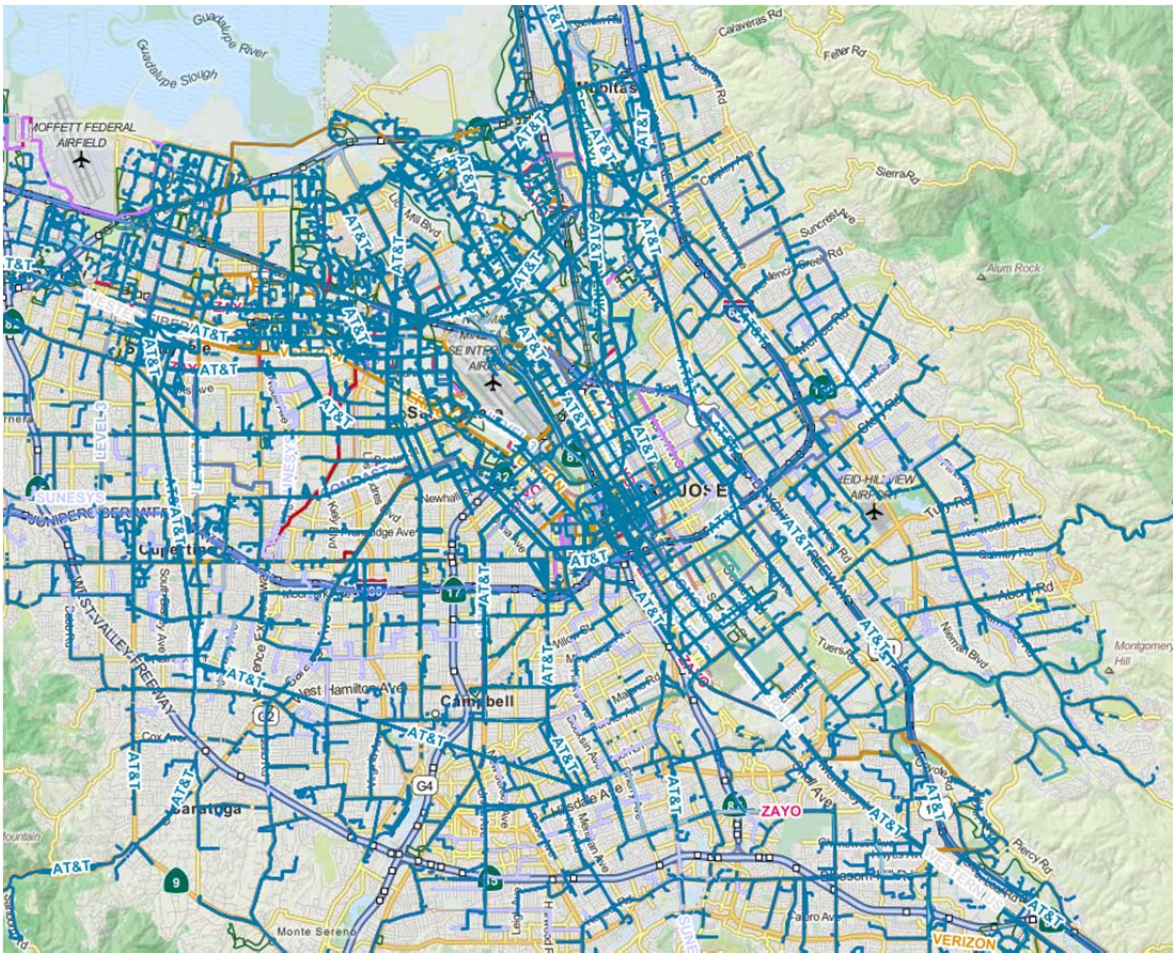
ADX DAS High Power Remote											
Remote Module	ADX-HPR-CHA	High Power Remote Unit Chassis + AC Power Supply	1	56.7W	56.7W	193.5	n/a	n/a	14.6 x 33.5 x 14.9	99.6	99.6
Remote Module	ADX-HPR-ORU-X	High Power Remote Unit Optic Module (supports WCS, BRS)	1	5.3W	5.3W	18.1	n/a	n/a	2.1 x 5.52 x 14.9	0.9	0.9
Remote Module	ADX-HPR-7F43	20W 700MHz Remote Module (Lower A/B/C, Upper C)	1	127.4W	127.4W	434.7	n/a	n/a	4.3 x 6.3 x 6.5	6.6	6.6
Remote Module	ADX-HPR-S8C43	20W SMR/Cellular Remote Module	1	144.1W	144.1W	491.7	n/a	n/a	4.3 x 6.3 x 6.9	12.4	12.4
Remote Module	ADX-HPR-P46	40W PCS Remote Module	1	266.4W	266.4W	909.0	n/a	n/a	5.5 x 5.7 x 6.8	6.6	6.6
Remote Module	ADX-HPR-A46	40W AWS Remote Module	1	261.0W	261.0W	890.6	n/a	n/a	5.5 x 5.7 x 6.8	5.3	5.3
Remote Module	ADX-HPR-BT46	40W BRS Remote Module (TD-LTE)	1	264.8W	264.8W	903.5	n/a	n/a	6.5 x 6.5 x 6.3	4.9	4.9
Remote Module	ADRF-CHC-U-LP-D	Universal Low PIM Channel Combiner Unit, DIN (F)	1	n/a	n/a	n/a	n/a	n/a	8.9 x 10 x 3.5	18.9	18.9
Total Remote Module					**1125.7W**	**3841.0**					**155.2**

ADX DAS High Power Remote											
Remote Module	ADX-HPR-CHA	High Power Remote Unit Chassis + AC Power Supply	1	56.7W	56.7W	193.5	n/a	n/a	14.6 x 33.5 x 14.9	99.6	99.6
Remote Module	ADX-HPR-ORU-X	High Power Remote Unit Optic Module (supports WCS, BRS)	1	5.3W	5.3W	18.1	n/a	n/a	2.1 x 5.52 x 14.9	0.9	0.9
Remote Module	ADX-HPR-P46	40W PCS Remote Module	1	266.4W	266.4W	909.0	n/a	n/a	5.5 x 5.7 x 6.8	6.6	6.6
Remote Module	ADX-HPR-A46	40W AWS Remote Module	1	261.0W	261.0W	890.6	n/a	n/a	5.5 x 5.7 x 6.8	5.3	5.3
Remote Module	ADX-HPR-BT46	40W BRS Remote Module (TD-LTE)	1	264.8W	264.8W	903.5	n/a	n/a	6.5 x 6.5 x 6.3	4.9	4.9
Remote Module	ADRF-CHC-U-LP-D	Universal Low PIM Channel Combiner Unit, DIN (F)	1	n/a	n/a	n/a	n/a	n/a	8.9 x 10 x 3.5	18.9	18.9
Total Remote Module					**854.2W**	**2914.7**					**136.2**

Backhaul

Different types of backhaul could be used depending upon the location of the sites that are negotiated with the carriers, the City, and what is currently available at or near the locations.

There are approximately 20 companies which have existing fiber in the area. 5 Bars anticipate using multiple fiber providers depending upon the locations of the sites that will be built after negotiation with the carriers and the City. Below is a map of the existing fiber in San José for AT&T, Verizon, Level 3, Zayo, CenturyLink, Comcast, and, XO Communication.



Where existing fiber is not available, one of the following options will be used to provide backhaul:

- New Fiber (underground or aerial depending upon which is permitted)
- Microwave
- Wi-Fi (licensed)

11.2.8. Streetlight Installation Proposals

ATTACHMENT K, STREETLIGHT CONTROL & MANAGEMENT SYSTEM SPECIFICATION RESPONSE FORM

Our offering includes the Schréder controllers; therefore, Attachment K is not applicable.

ATTACHMENT L, LED LUMINAIRE SPECIFICATIONS

ATTACHMENT L
LED Luminaire Specifications

Schréder Roadway Luminaires

REQUIREMENTS		YES	NO	REFERENCE
GENERAL:				
DLC Qualified Product	Product on Design Lights Consortium Qualified Products List by the sample submission date. For product listing details, see DesignLights Consortium websites. If the luminaire is not on the current Design Lights Consortium Qualified Product List by the sample submission date, then the City, in its sole discretion, may reject the proposal.	X (see note)		Request for DLC listing has been submitted for the entire *SmartLume Family*. Approval and listed is expected in April 2016. Listing will be on DLC Website.
Environmental Stewardship	Constructed with materials that minimize hazardous waste and indicate if hazardous waste disposal is provided in accordance with the European Union's "RoHS" compliance for hazardous materials, and "Waste, Electrical & Electronic (W.E.E.) initiative or similar U.S. programs.	X		Yes
LED LUMINAIRE PERFORMANCE:				
Mesopic Luminance	• Lighting performance evaluations shall be done using the luminance metric with mesopic adjustments applied.	X		All IES Files provided upon request
	• Luminaire replacement shall be done in accordance with the City's "Public Streetlight Design Guide – Replacement Guide".	X		Yes compliant
Correlated Color Temperature (CCT)	4000° K +/- 300° K.	X		Per Lm 79 Reports and specification reports
Wavelength Distribution Range	Percentage of emissions below 550 nm should be equal to or less than 45% to minimize adverse affects to astronomy research at the Lick Observatory verified by independent laboratory report.	X		Yes
Uplight Rating/ Cut Off	• Full cutoff: UL & UH = 0	X		Per LM 79 reports
L70 Lifetime	Minimum 70,000 hours	X		Per LM 79 reports
Lumen Efficacy	Minimum 90 lumens/Watt	X		Per LM 79 reports

IESNA LM-79 Photometric Test and Report	• Shall be IESNA LM 79 tested from a CALiPER or NVLAP certified lab and provide testing documentation and photometric report that includes: o Total light output o Luminous intensity distribution o Color characteristics o Electrical data	X		Compliant
IESNA LM-80 Test and Report	• Shall be IESNA LM 80 tested from a CALiPER or NVLAP certified lab and include testing documentation.	X		Per LM 80 report
	• The results shall show relative (%) light output over time at 55° C, 85° C, and a third temperature of the manufacturer's choice.	X		Compliant
	• In-situ temperature test report in conformance with ANSI/UL 1598-04 (hardwired) with measurements showing that the temperature of the hottest LED junction temperature is within the recommended temperature specified by the chip manufacturer in order to conform to the L70 test data. Measurement at the nearest accessible locations are acceptable with thermal model of heat dissipation and airflow throughout the luminaire calculating the LED junction temperature. Model and test shall have at least 4 matching points for measuring and calculating temperature respectively.	X		Per in-situ test
POWER SUPPLY/DRIVER:				
Dimming Capability	0-10 volts dimming input driver	X		Yes compliant
Power Factor	Minimum power factor of 0.90	X		Yes compliant
Operating Temperature	Power supply shall operate between -20° C and 50° C.	X		Yes compliant
Frequency	• Output operating frequency shall be $\geq$ 120 Hz (to avoid visible flicker).	X		Yes compliant
	• Input operating frequency shall be 60 Hz.	X		Yes compliant
Interference	Power supply shall meet FCC 47 CFR Part 15/18 (Consumer Emission Limits).	X		Yes compliant
Noise	Power supply shall have a Class A sound rating per ANSI standard C63.4.	X		Yes compliant
Off-state Power Consumption	Power draw of the luminaire shall not consume more than 0.5 watts when in the off-state (not including control systems).	X		Yes compliant
LUMINAIRE HOUSING:				
Accessibility	• Luminaire housing shall allow tool-less entry to access: o Terminal strip for landing feeder wiring	X		Yes tool-less and easy connect/disconnect along with dimmable driver

	in the luminaire o Dimming driver o Over current protection			
Construction	• Shall be constructed of aluminum.	X		Yes compliant
	• Shall be powder-coated gray with rust resistant finish.	X		
	• All screws shall be stainless steel.	X		
	• Shall have captive screws on any component that requires maintenance after installation.	X		
	• No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty).	X		Compliant luminaire Is constructed with UV Stabilized Silicone Lens's
	• Luminaire circuitry shall include quick connect/disconnects to allow easy separation and removal of: o Dimming driver	X		Yes compliant
	• Shall have no wire exposure	X		Yes compliant
	• Gaskets are permissible o Silicone sealants are not allowed	X		Yes compliant
	• Shall have a minimum rating of IP66 as specified in IEC 60529, with the ability to shed water from inside the housing (i.e. weep holes).	X		Yes Led Light Board is IP66
Cooling System	• Shall consist of a passive heat sink with no fans, pumps, or liquids.	X		Yes compliant
	• Shall be resistant to debris buildup and any build up shall not degrade the heat dissipation performance.	X		Yes per testing
Mounting	• Must fit on a 2-inch nominal pipe size tenon and be compatible with the City's existing streetlight mast arms per Appendix 5, Exhibit 5.A, "City Standard Detail Drawings," Drawings No. E-09 and E-10.	X		Yes compliant
	• Provide information on mounting of proposed street lights.	X		Yes upon request
Control Receptacle	ANSI C136.41 7-pin twist-lock receptacle.	X		Included
Weight of Luminaire	Complete assembly shall not exceed 31.5 pounds (not including control system).	X		Yes compliant
Wind Load	Maximum wind load of 2.25 square feet effective projected area.	X		Yes compliant
UL Standards	The entire luminaire assembly shall be UL listed and approved.	X		Yes compliant
IEEE C62.41. 2-2002	IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits.	X		Compliant

ATTACHMENT L
LED Luminaire Specifications

Acuity Brands (Holophane) Decorative Luminaires

REQUIREMENTS		YES	NO	REFERENCE
GENERAL:				
DLC Qualified Product	Product on Design Lights Consortium Qualified Products List by the sample submission date. For product listing details, see DesignLights Consortium websites. If the luminaire is not on the current Design Lights Consortium Qualified Product List by the sample submission date, then the City, in its sole discretion, may reject the proposal.	X		
Environmental Stewardship	Constructed with materials that minimize hazardous waste and indicate if hazardous waste disposal is provided in accordance with the European Union's "RoHS" compliance for hazardous materials, and "Waste, Electrical & Electronic (W.E.E.) initiative or similar U.S. programs.	X		
LED LUMINAIRE PERFORMANCE:				
Mesopic Luminance	• Lighting performance evaluations shall be done using the luminance metric with mesopic adjustments applied.	X		All IES Files provided upon request
	• Luminaire replacement shall be done in accordance with the City's "Public Streetlight Design Guide – Replacement Guide".	X		
Correlated Color Temperature (CCT)	4000° K +/- 300° K.	X		
Wavelength Distribution Range	Percentage of emissions below 550 nm should be equal to or less than 45% to minimize adverse affects to astronomy research at the Lick Observatory verified by independent laboratory report.	X		
Uplight Rating/ Cut Off	• Full cutoff: UL & UH = 0	X		
L70 Lifetime	Minimum 70,000 hours	X		
Lumen Efficacy	Minimum 90 lumens/Watt	X		

IESNA LM-79 Photometric Test and Report	• Shall be IESNA LM 79 tested from a CALiPER or NVLAP certified lab and provide testing documentation and photometric report that includes: o Total light output o Luminous intensity distribution o Color characteristics o Electrical data	X		
IESNA LM-80 Test and Report	• Shall be IESNA LM 80 tested from a CALiPER or NVLAP certified lab and include testing documentation.	X		
	• The results shall show relative (%) light output over time at 55° C, 85° C, and a third temperature of the manufacturer's choice.	X		
	• In-situ temperature test report in conformance with ANSI/UL 1598-04 (hardwired) with measurements showing that the temperature of the hottest LED junction temperature is within the recommended temperature specified by the chip manufacturer in order to conform to the L70 test data. Measurement at the nearest accessible locations are acceptable with thermal model of heat dissipation and airflow throughout the luminaire calculating the LED junction temperature. Model and test shall have at least 4 matching points for measuring and calculating temperature respectively.	X		
POWER SUPPLY/DRIVER:				
Dimming Capability	0-10 volts dimming input driver	X		
Power Factor	Minimum power factor of 0.90	X		
Operating Temperature	Power supply shall operate between -20° C and 50° C.	X		
Frequency	• Output operating frequency shall be $\geq$ 120 Hz (to avoid visible flicker).	X		
	• Input operating frequency shall be 60 Hz.	X		
Interference	Power supply shall meet FCC 47 CFR Part 15/18 (Consumer Emission Limits).	X		
Noise	Power supply shall have a Class A sound rating per ANSI standard C63.4.	X		
Off-state Power Consumption	Power draw of the luminaire shall not consume more than 0.5 watts when in the off-state (not including control systems).	X		
LUMINAIRE HOUSING:				
Accessibility	• Luminaire housing shall allow tool-less entry to access: o Terminal strip for landing feeder wiring	X		

	in the luminaire o Dimming driver o Over current protection			
Construction	• Shall be constructed of aluminum.	X		
	• Shall be powder-coated gray with rust resistant finish.	X		
	• All screws shall be stainless steel.		X	Internal screws are steel or aluminum and are organically coated to resist corrosion. Stainless steel screws do not have the structural integrity as steel or aluminum.
	• Shall have captive screws on any component that requires maintenance after installation.		X	
	• No parts shall be constructed of polycarbonate unless it is UV stabilized (lens discoloration shall be considered a failure under warranty).	X		
	• Luminaire circuitry shall include quick connect/disconnects to allow easy separation and removal of: o Dimming driver	X		
	• Shall have no wire exposure	X		
	• Gaskets are permissible o Silicone sealants are not allowed	X		
	• Shall have a minimum rating of IP66 as specified in IEC 60529, with the ability to shed water from inside the housing (i.e. weep holes).	X		Fixture is CSA listed for wet location. Optics are IP-66.
Cooling System	• Shall consist of a passive heat sink with no fans, pumps, or liquids.	X		
	• Shall be resistant to debris buildup and any build up shall not degrade the heat dissipation performance.	X		
Mounting	• Must fit on a 2-inch nominal pipe size tenon and be compatible with the City's existing streetlight mast arms per Appendix 5, Exhibit 5.A, "City Standard Detail Drawings," Drawings No. E-09 and E-10.	X		Yes compliant
	• Provide information on mounting of proposed street lights.	X		Shall fit on 3" x 3" Tenon on existing pole
Control Receptacle	ANSI C136.41 7-pin twist-lock receptacle.	X		
Weight of Luminaire	Complete assembly shall not exceed 31.5 pounds (not including control system).	X		
Wind Load	Maximum wind load of 2.25 square feet effective	X		

	projected area.			
UL Standards	The entire luminaire assembly shall be UL listed and approved.	X		
IEEE C62.41. 2-2002	IEEE Recommended Practice on Characterization of Surges in Low-Voltage (1000 V and less) AC Power Circuits.	X		CSA Certified to U.S. and Canadian standards.

SAMPLE SUBMISSIONS AS REQUIRED IN APPENDIX 3, SCOPE OF SERVICES FOR STREETLIGHT

Sample submissions of the Schréder Roadway Luminaire have been mailed under separate cover to the address identified in the RFP.

Sample submissions of the Schréder Owlet controllers have been mailed under separate cover to the address identified in the RFP.

Sample submissions of the Holophane Decorative Luminaires will be mailed under separate cover to the address identified in the RFP and will arrive mid-April 2016. (Please see letter below from Holophane)

3825 Columbus Rd
Granville, OH 43023
866-759-1577
www.holophane.com
www.americanelectriclighting.com

March 26, 2016

To:

Teri Killgore
Assistant to the City Manager, Downtown and Civic Innovation Manager
200 E. Santa Clara Street, 17th Floor
San José, CA 95113

Re: Acuity Brands Lighting Holophane Washington WFLC2035HO40KASBKL3S Sample / San José RFP

Ms. Killgore,

Per our recent conversation with Black & Veatch, Holophane Lighting is happy to provide Black and Veatch and the City of San José a working table top sample of the WFLC2035HO40KASBKL3S Full Cut-off, DLC Listed Post Top Fixture.

This sample will be delivered to the City of San José in mid-April 2015.

Please note that we provided a similar sample to another consortium bidding the RFP 15-16-01. The product being reviewed by the City from the other consortium is the same unit we will provide in the middle of April.

Any questions, please let me know.

Best regards,

John Petty, LC, IESNA
Director of Sales, Infrastructure and Roadway

Holophane Sales Channel

Acuity Brands Lighting, Inc.
8883 Verdon Circle | Plattsmouth, NE 68048

o 402-235-2484 **m** 402-253-7320

www.acuitybrands.com

11.2.9. Optional and Post Award Submittals

ATTACHMENT M, LOCAL AND SMALL BUSINESS ENTERPRISE PREFERENCE

One of our team members, Smart City Media, is a Small Business. That form is attached below.

ATTACHMENT M
Local and Small Business Preference (IF APPLICABLE)

City of San José
Request for Contracting Preference for Local and Small Businesses

Chapter 4.12 of the San José Municipal Code provides for a preference for Local and Small Businesses in the procurement of contracts for supplies, materials and equipment and for general and professional consulting services. The amount of the preference depends on whether the vendor qualifies as a Local Business Enterprise* or Small Business Enterprise** and whether price has been chosen as the determinative factor in the selection of the vendor.

In order to be a Local Business Enterprise (LBE) you must have a current San José Business Tax Certificate Number and have an office in Santa Clara County with at least one employee. If you qualify as an LBE you can also qualify as a Small Business Enterprise (SBE) if the total number of employees (*regardless of where they are located*) of your firm is 35 or fewer.

There are two ways in which the preference can be applied. In procurements where price is the determinative factor (*i.e. there are not a variety of other factors being considered in the selection process*) the preference is in the form of a credit applied to the dollar value of the bid or quote. For example, a non-local vendor submits a quote of $200 per item and a LBE submits a quote of $204 per item. The LBE receives a 2.5% credit on the quote, which equals approximately $5 and thus the LBE will win the award because the quote is evaluated as if it had been submitted as $199.

In procurements where price is not the determinative factor such, as an RFP, typically a variety of factors are evaluated to determine which proposal best meets the City's needs. In procurements such as these, a qualified LBE will be given 5% and a qualified SBE will be given an additional 5% of the total **points** in the **scoring.**

The following determinations have been made with respect to this procurement: (for official use only)

Type of Procurement	☐ Bid	☐ Request for Quote	☑ Request for Proposal
Type of Preference	☐ Price is Determinative	☑ Price is Not Determinative	
Amount of Preference	LBE preference = 2.5% of Cost SBE preference = 2.5% of Cost	LBE preference = 5% of Points SBE preference = 5% of Points	

In order to be considered for any preference you must fill out the following statement(s) under penalty of perjury.

Business Name	Smart City Media		
Business Address	54 W. 40th Street, New York, NY 10018		
Telephone No.	914-960-3695		
Type of Business	☐ Corporation	☑ LLC	☐ LLP
	☐ General Partnership	☐ Sole proprietorship	☐ Other (explain)

*LOCAL BUSINESS ENTERPRISE (LBE) PREFERENCE
In order to qualify as an LBE you must provide the following information:

Current San José Business Tax Certificate Number	
Address of Principal Business Office or Regional, Branch or Satellite Office with at least one employee located in Santa Clara County:	

**SMALL BUSINESS ENTERPRISE (SBE) PREFERENCE
In order to qualify as an SBE you must qualify as an LBE and have 35 or fewer employees. This number is for your entire business --NOT just local employees, or employees working in the office address given above.

Please state the number of employees that your Business has: Less than 15

Based upon the forgoing information I am requesting that the Business named above be given the following preferences (*please check*): ☐ Local Business Enterprise ☑ Small Business Enterprise

I declare under penalty of perjury that the information supplied by me in this form is true and correct.

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AUGUST 3, 2015

Executed at:	New York, NY
Date:	3/9/16
Signature	
Print name	Thomas E. Touchet, Jr

Appendix A

Bostonia Firm Background

Bostonia Group ("Bostonia" or the "Firm") is highly qualified to structure and provide financings for "Smart Lighting" Projects ("the Projects"). The Bostonia Group, headquartered in Boston, Massachusetts, consists of: Bostonia Partners LLC, providing investment banking and financial services; Bostonia Global Securities LLC, the in-house broker-dealer; and Bostonia Clean Energy Finance LLC, a financing sponsor of energy efficiency and renewable energy programs.

Since 1998, Bostonia Partners ("BP") has provided innovative financing solutions and financial advisory services to both the public and private sectors. As a structuring and securitization specialist, BP creates value for its clients by efficiently sourcing capital through its affiliate broker/dealer, Bostonia Global Securities ("BGS"), which has longstanding relationships with institutional investors. BGS acts as a primary and secondary trading specialist of highly structured and complex transactions.

Bostonia has a presence in several sectors of the capital markets and can access various sources of capital, which allows the Firm to execute on a wide array of transactions even in unfavorable and challenging market conditions. Bostonia specializes in structuring and placing financings for energy efficiency projects, including developing and successfully closing on the first energy savings performance contract for the federal sector, and renewable energy and other generation projects, credit tenant leases, and public/private partnerships.

The Firm has extensive knowledge of how to effectively structure energy efficiency transactions to provide not only the most efficient and least costly execution, but also to achieve favorable accounting treatment for our clients. Our seasoned professionals have decades of experience in deal structuring and capital market execution, both as taxable or tax-exempt transactions, with particular expertise in federal government lease and energy performance contract transactions for federal, municipal, and commercial customers. Since inception, Bostonia has originated and placed over $10.5 billion of financings in the energy, real estate, and contract finance sectors. Bostonia consistently ranks among the top ten banks in the *Private Placement Monitor's* league tables for domestic U.S Private Placements.

Bostonia's Energy Efficiency and Renewable Energy Financing Products and Structures

Bostonia has extensive experience in providing advisory, asset ownership, and capital raising services in the energy sector, transactional experience that includes working with renewable energy installations, such as wind and solar, central utility plants, combined heat and power plants, micro grids, smart grids and other complex energy efficiency and distributed generation technologies and measures. In certain circumstances, often to help clients overcome revenue recognition and other accounting barriers, Bostonia may act as principal to develop, own, and operate both traditional energy efficiency and renewable energy assets. To date, we have successfully financed over $2.5 billion in energy related financings. These types of financings are structured through various vehicles designed to maximize the low cost of leverage, fully-funding projects when possible, based on energy and operational savings or energy generation payments, and include, among others: Energy Savings Performance Contract ("ESPC"), Utility

Energy Services Contract ("UESC"), Energy Services Agreement ("ESA"), or Power Purchase Agreement ("PPA"). In addition, Bostonia has structured and placed over $8 billion in commercial, retail, and mixed-use real estate financings, and has unique experience in providing financings for buildings leased to departments and agencies of the U.S. Government and commercial tenants.

The financing of renewable energy and energy efficiency projects can involve up to four principal components of capital: (i) senior debt financing; (ii) project equity; (iii) equity provided through the monetization of tax credits and accelerated depreciation benefits associated with the qualified eligible tax basis of the Project ("tax equity"); and (iv) construction financing.

For energy efficiency and other infrastructure transactions, Bostonia looks to maximize debt capital (up to 100% of required capital costs) through the use of a securitization structure that leverages the strength of fixed contractual payments under an energy savings agreement, leasing, or offtake agreement (the "Offering"). Typically, such structures require strong, binding contracts for all phases of the project, including any operating costs and for the sale of energy or guaranteed savings in the case of performance contracts for energy efficiency projects. By eliminating or greatly mitigating the performance risk related to each of these functions, individually and collectively, Offerings are structured to more closely resemble a securitization of cash flows, rather than a project finance transaction. Transactions with these attributes typically are viewed as an investment grade offering and provide our clients with the most cost-efficient source of funds.

Furthermore, the credit-worthiness of all counterparties is critical to assess the strength of the contracts. To mitigate risks, certain balance sheet and other contractual support mechanisms can be employed, such as interest and principal cash reserves, which may be established at funding or potentially over an extended period out of available cashflow from operations or insurance products, or a combination of the two. Such reserves may also take the form of maintaining a certain amount of operating cash on hand to alleviate any operational issues throughout the term of the financing. The reserve requirement can often be replaced by a strong debt service coverage ratio or by aforementioned guarantees.

Bostonia's Far-Reaching Energy Expertise

In addition to proven experience financing ESPCs/UESCs, ESAs, and PPAs, Bostonia has a longstanding history of providing critical advisory services to various government agencies and bodies. Such assignments have included assisting in the development of the U.S. Government's Enhanced Use Lease program, developing energy savings strategies and program structures for the General Services Administration ("GSA"), and structuring and financing a secondary market transaction for low-income energy efficiency consumer loan program for the Pennsylvania State Treasury ("Keystone HELP portfolio"). In addition, Bostonia continues to implement the US Virgin Islands Energy Alliance ("VIEA"), an energy conservation and renewable energy program developed by Bostonia to serve all rate classes of the Virgin Islands Water and Power Authority. The first installment of energy conservation measures for the USVI Department of Education ("DOE") was funded through a $7 million ARRA pilot of water and lighting improvements covering one million square feet of schools that is producing utility bill savings of $1.5 million in the first year of operation. The second installment consisted of a $12 million dollar project funded through a government bond issuance to install energy and water

conservation projects for the remaining 1.6 million square feet of facilities for the DOE. The third phase of the program will total approximately $24 million for the territories' hospitals and is expected to fund in the third quarter of 2016.

Bostonia has received several awards, having been recognized for outstanding work by numerous prestigious organizations. In 2011, the Virgin Islands Energy Alliance program received an award for innovation by the National Council of Public-Private Partnerships. In July 2013, the Council of Development Finance Agencies ("CDFA") named Bostonia Partners as the winner of the CDFA Excellence in Energy Finance Award for their work on a secondary market sale of the Keystone HELP portfolio. In May of 2013, State and Local Energy Report magazine recognized Keystone HELP as the winner of its fifth annual Single Family Residential Energy Efficiency Award. The following month, Keystone HELP won the Alliance to Save Energy's 2013 Andromeda Star of Energy Efficiency award.

Bostonia Staffing and Personnel:

Bostonia's client focus and entrepreneurial structure attracts a talented and diverse group of professionals with expertise and experience encompassing management, investment and commercial banking, private equity, technology, public finance, energy, law, accounting, real estate, and project finance. Collectively, Bostonia professionals have, throughout their careers, been involved with over $50 billion in financings.

Bostonia Partners - Investment Banking		***Bostonia Global Securities - Sales and Trading***	
Anita Molino, President amolino@bostonia.com	Peter Flynn, Executive VP pflynn@bostonia.com	Tom Sargent, President tsargent@bostonia.com	Rick Petracca, Executive VP rpetracca@bostonia.com
Tom Dooney, Managing Director tdooney@bostonia.com	Mark White, Managing Director mwhite@bostonia.com	John Powell, Managing Director jpowell@bostonia.com	Nick Walker, Director nwalker@bostonia.com
Larry Stone, Managing Director lstone@bostonia.com	Jonathan Smith, Managing Director jsmith@bostonia.com	Thomas Silberstein, Managing Director tsilberstein@bostonia.com	Jim Cunningham, Director jcunningham@bostonia.com
Scott Foster, Managing Director sfoster@bostonia.com	Robert Penn, Managing Director bpenn@bostonia.com	Lawrence Petri, Managing Director lpetri@bostonia.com	Tracy McCurdy, Director TMcCurdy@bostonia.com
Josh Evans, Senior Director jevans@bostonia.com	Sean Robertson, Director srobertson@bostonia.com	Ethan Nessen, Managing Director enessen@bostonia.com	Margie Palace, Managing Director mpalace@bostonia.com
Jesse Kula, Associate Director jkula@bostonia.com	Brian Gault, Associate Director bgault@bostonia.com	Stephanie Johnson, Sale Assistant sjohnson@bostonia.com	

Bostonia's Smart Lighting Program Team

In addition to utilizing the full Sales & Trading team, Bostonia Partners will dedicate the following key personnel to transactions under the CIT Smart Lighting program:

Anita Molino, President

Ms. Molino has over 30 years of experience as an investment banker and finance professional and is a co-founder and Managing Partner. Ms. Molino focuses on serving the real estate, energy, domestic project finance, and securitization markets building on her extensive and unique background with securitizations and asset-backed financings working with government, corporations, real estate and energy clients, to bring their transactions into the capital

markets. Ms. Molino has extensive capital markets experience and has pioneered the introduction of a variety of credits into the capital market. Ms. Molino has also served in the capacity of Financial Advisor to several States, Municipal, and US Government agencies on a variety of privatizations and public/private partnerships involving securitizations. She has been involved with over $2.5 billion of highly structured project financings.

Peter Flynn, Executive Vice President

Peter Y. Flynn has approximately 20 years of experience in law and finance and is a co-founder of the firm. Mr. Flynn is experienced in the financing of energy efficiency and renewable energy projects, as well as project finance, real estate finance, securitization and public private partnerships. At Bostonia, Mr. Flynn has structured and placed almost $1 billion in federal, municipal and commercial energy efficiency and renewable energy projects. Mr. Flynn was lead banker on two of the largest Federal energy savings performance projects, a $102 million project for the US Navy in Japan (partially denominated in Yen) and a $207 million project for the Food and Drug Administration. Mr. Flynn is a frequent speaker on topics including financing of energy and real estate projects. He is the co-author of the article “Unique Issues Associated with Financing Federal Government Receivables” that appeared in The Journal of Structured Finance. Mr. Flynn is a graduate of Boston University School of Law and Syracuse University where he graduated Magna Cum Laude and *Phi Beta Kappa.*

Mark White, Managing Director

Mark S.White has over 30 years of experience in the energy industry. He is experienced in business development, energy efficiency, energy project finance, and accounting. He has previously served in the capacity of Executive Vice President and Chief Financial Officer for a large energy service company. In addition, his prior associations include working for a diversified utility services company managing federal and state income, property, sales, and use taxes in a multi-state environment; and as CFO for a technology company concerned with the reduction of utility expenses. Mr. White holds a Bachelor of Sciences from Bentley College and also is a Certified Public Accountant.

Thomas Dooney, Managing Director

Thomas F. Dooney has over 30 years of experience as an investment banker and professional manager in the financial services industry. Mr. Dooney has served in numerous executive management roles including Managing Director and Co-Head of the Municipal Group of First Union Securities, Inc., President and Chief Executive Officer of CoreStates Securities Corp, Managing Director of Bear, Stearns & Co. Inc., and a Product Manager of Market Axess, an internet based trading platform created by eight global dealers. He is a graduate of The Wharton School of the University of Pennsylvania.

Scott J. Foster, Managing Director

Scott Foster has over 20 years of experience in federal energy and infrastructure project finance. Over the course of his career, Mr. Foster has completed over $4 billion of financings covering all asset classes essential to the U.S. Government. Marquee projects spearheaded by Mr. Foster include: commercial scale biomass cogeneration for DOE’s Savannah River Site,

biomass gasification for Oak Ridge National Laboratory (ORNL), renewable Energy Savings Agreement (ESA) to lower the cost of power for the United States Coast Guard in Puerto Rico, renewable ESA to reduce energy costs for the United States Army in Texas, financing for submarine Fiber Optic System for US Army Kwajalein Atoll (USAKA), and financing for DOE's ORNL Titan Cray supercomputer project, the most powerful computer in the U.S. and second most powerful in the world.

Mr. Foster has an in-depth understanding of government financing and complex financial transactions, and is a frequent speaker on financing government infrastructure projects. Mr. Foster is the author of "Financing Large Infrastructure Projects" published in Submarine Telecoms Forum Magazine, and is the co-author of two papers presented at ASME Small Modular Reactors Symposiums: "The Business Case for Small Modular Reactors (SMRs)" and "The U.S. Federal Market as an Early Adopter of SMRs."

Mr. Foster holds a Bachelor of Arts degree and a Masters of Business Administration from Marymount University, and is a Certified Public Accountant. Mr. Foster also served in the U.S. Navy/Naval Security Group, Minnesota Army Reserve National Guard, and the Virginia Army Reserve National Guard.

Contact Information

Bostonia Group

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