Request for Proposal
Congress Street Bridge Lighting

Hartranft Lighting Design

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Request for Proposal

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EXECUTIVE SUMMARY

November 30, 2016
Congress Street Bridge Lighting

Dear Selection Panel,

Hartranft Lighting Design is thrilled to submit a response to the Boston Redevelopment Authority's Request for Proposal for the Congress Street Bridge Lighting Project. The bridge presents a literal and symbolic connection between Boston's revolutionary and industrial past and its vibrant future. It's clear from the brief that the lighting project is not simply to provide structural enhancement to a landmark structure perceptible from across the water, but rather a community-building element for the adjacent neighborhoods.

We have assembled an interdisciplinary team that we are confident is uniquely qualified to tackle this project. Constructed of experts in structural and electrical engineering (Jacob's Engineering) and design/team leader (Hartranft Lighting Design), our team is also capable of successfully completing the project by attaining the support of the surrounding communities and approval from the authorities having jurisdiction. We have worked on challenging projects from major institutions including: The Charlotte Douglas International Airport, The City of Boston, The City of Dallas, TX and the District of Columbia. Hartranft Lighting Design is an award winning design firm widely recognized for our elegant & unfussy but engaging lighting work which incorporates current lighting and controls technologies in user friendly and sustainable manners.

We also feel personally and professionally connected to the Boston community. Paula Ziegenbein is a Massachusetts native, having grown up with a deep love for Boston's historical and cultural vibrancy. In addition to her design work, Paula volunteers as a Board Member of Light Boston and the Designer's Lighting Forum of New England. Jacobs Engineering's is Boston office is located right in the neighborhood at 343 Congress Street. As a team, we are confident we have the creativity and experience to design and deliver an exceptional and successful project for the City of Boston and he community.

The Fort Point Channel Historic District provides a unique opportunity to elevate the purpose of its public spaces and monuments as a means to consolidate collective values and ambitions into a singular form. And we believe in the power of art and design to facilitate and develop this sense of community, to bring people together and to make people proud of their neighborhoods. Lighting of this landmark must speak to the respective communities on many levels to create the condition where the community identifies with the structures.

Our proposal for the Congress Street Bridge is to reflect the critical period of social, economic, and physical development in the City and the region that took place as industry expanded to the waterfront district in the 19th and early 20th century in a manner visually coherent with the well preserved collection of architecture in the area. Understanding that the area has also known to be one of the largest artist communities in New England, we hope to also activate the water sheet with night lighting that supports the permanent and temporary art installations in the basin and at the same time we seek to offer a dynamic night time gathering place for visitors and the community.

We believe our lighting design has the capacity to create a unifying icon and we are confident that with our experienced team, we can develop the support from the stakeholders that is necessary to implement a successful result.

We thank you for the opportunity to submit a proposal for this very significant and inspiring project and look forward to discussing these ideas with you.

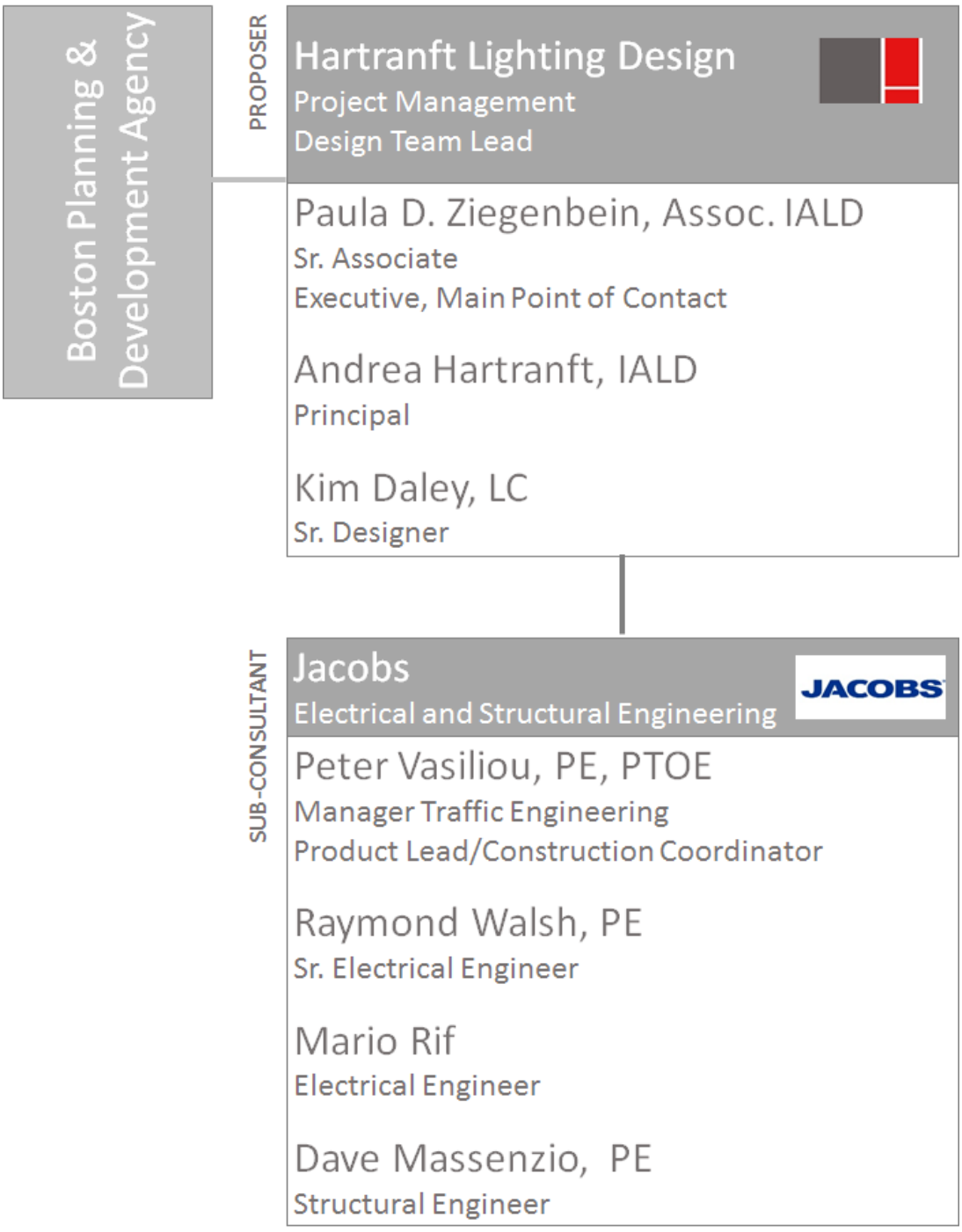
Sincerely,

Paula D. Ziegenbein
Sr. Consultant, Hartranft Lighting Design

SECTION 02

TEAM QUALIFICATIONS

TEAM STRUCTURE



Hartranft Lighting Design

Leadership

Paula Ziegenbein, Assoc. IALD, LEED AP
Senior Consultant

Design and Project Management of residential, commercial and industrial projects, including retail national accounts. Extensive product design and development experience. Expert in solid state lighting and controls. Special interests include sustainability and emerging technologies.

Awards from the International Engineering Society (IES), Lighting Certified by the National Council on Qualifications of Lighting Professions. LEED Accredited Professional Associate Member of the IALD LightBoston & DLF New England Board of Directors.

- Past Chair, IESNA Progress Report Committee
- Past Co-Chairman & Board Member of Emerge Alliance
- Judge, International Illumination Design Awards at the local, regional and international levels
- Internationally recognized speaker and lighting educator

Washington, DC

Charlotte, NC

Boston, MA

www.hartranftlighting.com

NCQLP LC Lighting Certified NCQLP

Merge® ALLIANCE

IES Illuminating Engineering Society

LEED AP BD+C

INTERNATIONAL ASSOCIATION OF LIGHTING DESIGNERS IALD

PAULA D. ZIEGENBEIN, Assoc. IALD, LEED AP

12 Fulton Road
Andover, MA 01810
978.289.2446
paula@adhlighting.com

SENIOR DESIGN, STRATEGY & BUSINESS DEVELOPMENT PROFESSIONAL

Lighting Design / Product Strategy & Marketing / Training & Leadership / Key Account Relationships

Experienced and highly efficient design professional with proven success managing projects, developing strategies, leading teams in penetrating new markets**.** Combines expert strategic and business planning skills with consistent success in delivering strong financial results and profitable growth within competitive markets. Mentor and leader of new and experienced sales & marketing personnel; able to handle multiple roles and management responsibilities while personally driving new business. Excellent presentation, negotiation, and closing competencies. Expertise includes:

Lighting Design	Marketing	Strategic Planning
Project Management	Product Portfolio Development	Market Analysis
Client Relations	Team Leadership	Training & Development

PROFESSIONAL EXPERIENCE

Hartranft Lighting Design, LLC — **Andover, MA**

Architectural Lighting Design firm with over 30 years of expertise and 1000+ project portfolio with locations in Washington, DC, Charlotte, NC and the Boston area.

Senior Consultant — 10/2014 to present

- **Provide architectural lighting and control design services**
- **Expand potential client base**
- **Diversify consulting services**

Responsible for providing architectural lighting and control design services to include lighting layouts, specifications, calculations, project budgets and energy services. Identify local market and grow base design business in Boston market. Leverage 25+ years' experience in lighting industry to expand client demographic and scope of services to addresses evolving lighting marketplace needs. Recent design projects include hospitality, airport, museum, retail, office and retail lighting and controls.

OSRAM SYLVANIA — **Danvers, MA**

North American Subsidiary of OSRAM GMBH a Global Lighting Company with €5.3bn + in global sales

Head of Application Business Development & Strategy – LED Luminaires — 2/2012 to 9/2014

- **Instrumental in achieving FY 12/13 revenue targets of $35M in LED luminaire sales**
- **Directly contributed to CAGR of 163% (indoor products) 295% (outdoor products)**
- **Successfully launched 19 professional LED luminaire families**
- **Managed business development and applications engineering teams**

Responsible for new business development and sales growth for start-up LED luminaires business, through distribution sales, independent sales representative agencies, national accounts and all OSI direct sales channels. Analyze market trends, develop strategies and business plans for new products and routinely present state of business activities and roadmaps to OSRAMs Executive Management staff. Direct marketing and sales activities, Web site design, trade shows as well as actively increasing awareness of OSIs luminaire business at national conferences, customer presentations, & contributing articles to trade publications.

Strategic Marketing Manager – Traditional Lighting Systems — 2010-2012

- **Responsible for strategy & programs achieving $763M sales of fluorescent, high intensity discharge and electronic ballast systems**
- **Directed B2B & B2C marketing efforts, promotions and programs with Trade, SYLVANIA Lighting Services and OEM sales channels**

Engage with senior management to present strategies & collaborate with product marketing director & portfolio managers so as to position products in a manner which seeks to remove price as a primary sales lever. Required to analyze market trends, develop strategies and business plans for new products and routinely present state of business activities and roadmaps to OSRAMs Executive Management staff. Represent company in industry and press as subject matter expert.

Application Marketing Manager 2007- 2010

- **Breakthrough marketing group responsible for developing 10 key vertical segment focused marketing initiatives**
- **Drive the integration of lighting application expertise into the sales process**
- **Transition the company from a product centric focus to a provider of customer focused solutions**

Lead cross functional teams consisting of product marketing and sales to infuse vertical market segmentation across product portfolios upon product launch. Required to understand vertical market drivers and interests and integrate into comprehensive programs and collateral approaches to market and formulate the go to market message for such verticals. Engage with product management, R&D and field sales groups to drive product innovation by bringing the voice of the customer input, industry and application expertise to the product development & marketing processes.

Commercial Engineer – Special Projects 1999 - 2007

- **Develop marketing strategies and tools to empower sales force to maximize profitability**
- **Represent company in various media campaigns and through industry engagement**
- **Manage content for a monthly e-news letter distributed to over 5000 recipients**

Marketing review/approval of new product launch sales collateral (electronic and printed); including competitive benchmarks, sales comparisons & ROI tools. Required comprehensive product knowledge and application economics, so as to underline competitive advantages and positioning in a manner which seeks to remove price as a primary sales driver. Led cross functional teams in the new product launch process through review of all business units' product launch materials and mentored new product marketing managers.

PREVIOUS PROFESSIONAL EXPERIENCE

Commercial Engineer – New England 1995- 1998

- **Consistently achieved/exceeded annual specification sales objective of up to $6.0M**
- **Consistently attained "new socket budget" with luminaire OEMs to increase development of new product specifications through new luminaires (10 new fixtures/year)**

Field position responsible for growing product specification business in New England Sales district. Requires a high degree of self-motivation to autonomously grow territory and expand customer base as well as the ability to relate to a broad customer demographic ranging from architects, lighting specifiers, electrical engineers, interior designers, lighting manufacturers' representatives, electric utilities, energy services companies, electrical contractors & electrical distributors. Also must be able to influence key lighting specifiers and stakeholders, while following project specifications through to close over long sales cycles. Actively participate as OSIs spokesperson for trade organizations such as the IESNA, through section officer positions as well as national committees.

EARLY CAREER

Manager – Energy Programs (ESCOs/Utilities) – OSRAM SYLVANIA, Danvers, MA 1994 to 1995
Senior Applications Engineer – OSRAM SYLVANIA, Danvers, MA 1991 to 1994
Engineering Trainee – GTE Electrical Products Corporation, Danvers, MA 1989 to 1990

EDUCATION/PROFESSIONAL MEMBERSHIPS

Cornell University, Ithaca, NY - 2012
Johnson School of Management
One of 30 OSRAM SYLVANIA high potential managers selected to attend Business Management Institute

University of New Hampshire - 1989
Bachelor of Science Electrical Engineering
Concentration: Illumination Engineering

Associate International Association of Lighting Designers – 2014
National Council on Qualifications for Lighting Professions NCQLP Lighting Certified (LC) – 2006
United States Green Buildings Council LEED Accredited Professional – 2009
Designers Lighting Forum of New England Board of Directors (2015-present)
Light Boston Board of Directors (2015-present)
EMerge Alliance, Board of Directors (2009-2014); Vice Chair (2009 -2010)
IES Taylor Technical Talent Committee (2007-present)
IES Progress Committee (1993-present); Chair (2001-2003), Vice Chair (1999-2001), (Secretary 1997-1999)
IES Conference Committee (2000-2003, 2014)
IES New England Section President (1997-1999); VP (1996-1997); Secretary (1994-1996), BoD (1991 -1999)

RELATED PROFESSIONAL EXPERIENCE

RECENT LIGHTING DESIGN

- North Carolina Transportation Museum – Charlotte, NC
- O'Leary Recycling – Charlotte, NC
- Hubbell Lighting Solutions Center – Greenville, SC
- 1244 S. Capitol Street – Washington, DC
- 1st Church of Christ Scientist – Washington, DC
- RKO Theatre – Flushing, NY
- Dolce and Gabbana – Boston, MA
- Starr Residence – Boston, MA
- Stage Neck Inn – York, ME

SPEAKING

- ABX – BSA Annual Conference (2015) "From Sledgehammer to Scalpel – Tools that Transform Lighting"
- IESNA Annual Conference (1999-2015) – "Progress Report"
- Lightfair International (2014-2015) – "Light Source & Power Supply Update."
- Electric League of Ohio (2012) - "LED's Magical Mystery Tour and the Map to Get There."
- International Association of Lighting Designers Enlighten America's Conference (2009) – "LEDs a Magical Mystery Tour; And the Map to Get You Out."
- International Facilities Management Association World Workplace (2009) – "A Hybrid Approach to Building Power: Add Flexibility and Sustainability to a Building Interior"

ARTICLES PUBLISHED

- "The Annual Report of Lighting Progress."; Lighting Design & Application (January 2001 - 2015)
- "Opportunities Abound For T5 Lighting."; The Electrical Distributor (January 2011)
- "The Latest In Lighting Efficiency Might Surprise You.";Today's Facility Manager (December 2010)
- "Energy Efficient Lighting Performance Maturing."; Home Improvement Retailing (September 2009)
- "DC Powered Lighting - Flexible, Efficient and Sustainable." Lighting Design & Application (June 2009)
- **"**DC Power Distribution Favors LED Lighting." LEDs Magazine (Jan/Feb 2009)

MEDIA COVERAGE

- "OSRAM Expert Videos: Highlights in Lightfair ® International"; Smart Lighting (July 2014)
- LIGHTFAIR International Videos; tED TV (June 2014)
- "The EMerge Alliance: Using DC Power Distribution in Commercial Interior Applications" live webinar via LightNow (June 2010)
- TECHNO 2100: Designing Smarter Schools – Produced by Information Television Network (iTV); CNBC (June 2001)

LIGHTING AND DESIGN AWARDS

- Lightfair Booth Design Award (May 2007)
- IES Progress Report (1991-2014) – Over 200 new products acknowledged
- IES New England Section Edwin F. Guth Memorial Award OSRAM SYLVANIA Headquarters – 2008
- IES New England Section Edwin F. Guth Memorial Award OSRAM SYLVANIA LightPoint Training Facility – 2002

EXPERT TESTIMONY

- Expert Witness (2005-6) - Babbs v. National Freight, Inc., et al.
  NJ Docket No. ESX-L-10830-02.

Prepared and provided expert witness report/deposition for lighting related slip/fall case on behalf of defendant Anheuser-Busch Company, Newark NJ

Hartranft

Lighting Design

Leadership

Andrea Hartranft, IALD
Principal

Design and Project Management of more than 1,000 commercial, institutional and industrial projects, including high-end public spaces, energy-efficient workplaces, and cost-driven renovations

Internationally recognized projects, with awards from the International Association of Lighting Designers (IALD) and the Illuminating Engineering Society (IES), as well as AIA awards at the regional and national level

- Director, IALD Education Trust
- Past Chair, International Association of Lighting Designers (IALD) Awards Committee
- Past Chair, IESNA Progress Report Committee
- Judge, International Illumination Design Awards at the local, regional and international levels

Washington, DC

Charlotte, NC

Boston, MA

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Illuminating ENGINEERING SOCIETY

INTERNATIONAL ASSOCIATION OF LIGHTING DESIGNERS IALD

Hartranft Lighting Design

Design Support

Kimberly Daley, Jr. Assoc. IALD
NCQLP Lighting Certified
Sr. Designer

Design of commercial, residential and industrial projects. Skilled with AutoCAD Calculation expertise in AGI32, Visual Extensive specification sales and product background. Expertise with solid state lighting.

Kim attended Rensselaer Polytechnic Institute to pursue her dream of becoming an architect. Kim developed her passion for lighting while being among the first students to enroll in lighting courses at the then-newly founded Lighting Research Center at RPI. She received both her BS in Building Science and her MS in Lighting from Rensselaer. She also received her MBA from Ohio University.

Her professional life has primarily focused in both outside sales and marketing for lighting manufacturers including Cooper Lighting, Holophane and Kim Lighting. Kim served in a key position applying an online specification tool for lighting designers as a sales representative for eLumit.

- Illuminating Engineering Society (IES)
- Progress Committee
- Jr. Associate Member of the IALD

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Illuminating ENGINEERING SOCIETY

INTERNATIONAL ASSOCIATION OF LIGHTING DESIGNERS IALD

Municipal Experience

Hartranft Lighting Design has significant experience navigating municipal requirements for interior and exterior lighting, energy consumption and light pollution restrictions, as well as meeting LEED criteria at all levels. Our firm works with Architects, Developers and Landscape Architects to address all criteria regarding light aesthetics, in addition to light infringement, employing responsible design and creativity to create lighting design that meets the Client's vision in a sustainable manner.

Our commission experience also extends beyond project work. Andrea Hartranft has testified before the Maryland Assembly on behalf of the International Association of Lighting Designers regarding best practice in exterior lighting, specific to light pollution.

Ms. Hartranft also served on the City of Rockville Historic District Commission from 1996 to 2003, chaired from 2000 to 2001, and gained great experience working collaboratively with the Historic Preservation Councils as well as citizens groups.

Paula Ziegenbein currently serves on the Board of Directors of Light Boston, Inc. and the Designer's Lighting Forum of New England. Light Boston is a not-for-profit, citizens' advocacy group, whose goal is to enhance Boston's urban environment by advocating for appropriate exterior lighting. The Designer's Lighting Forum of New England is a non-profit organization dedicated to lighting education in an informal setting.

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Hartranft Lighting Design

Recent Projects

Charlotte Douglas International Airport
Rental Car Facility Deck
Charlotte, NC

Architects:
The Wilson Group and LS3P

Lighting Designer:
Hartranft Lighting Design

Charlotte Douglas International Airport is the eighth largest airport in the US for passengers, and seventh busiest airport in the world for overall operations.

In 2003, the airport made a pivotal decision, the millions of square feet of garage space planned to be designed over the next 12 years would be architecturally innovative, providing an iconic design statement at the entry points to the airport.

In 2006, the first “blue” garages with blue LEDs chasing around helixes, made their debut, providing Charlotte Airport with what became an easily recognizable feature.

Fast forward to 2011 and three new garages later. Same architectural approach, but with new technologies available, a location directly across from the airport, and a rental car facility included in the scope.

Custom blue LED surface mounted spots backlight the curved, perforated metal skin. Blue LED dots of light are mounted in the castellations of the helix, and are programmed to continually chase.

The challenge: differentiation with continuity.

Hartranft Lighting Design was hired to take its initial design concepts a step farther, using the most up-to-date technologies, and adding architectural features, including stairs with glowing acrylic panels underneath, large custom ribbons of color at stair and elevators for wayfinding, and large support columns with crisp, continuous inset lines of light. The rental car facility softly illuminated with blue LED lighting on surfaces and white light at circulation and counters becomes a relaxing oasis for weary, stressed travelers.

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Hartranft Lighting Design

Recent Projects

Charlotte Douglas International Airport
Auto Rental Facility
Charlotte, NC

Architects:
The Wilson Group Architects

Lighting Designer:
Hartranft Lighting Design

Since opening in 1935, Charlotte Douglas International Airport has grown to become the country's 24th busiest airport in the United States, handling over 44 million passengers per year, serving as the largest US hub for American Airlines.

To support its goal of providing a positive traveler experience, the airport opened a new central rental facility and over 2 million square feet of parking in early 2015.

Hartranft Lighting Design worked closely with the project architect and airport personnel to develop color themed wayfinding strategies and an interior lighting approach which complements the exterior theme.

Custom designed, colorful backlit boxes facilitate orientation and navigation to garages and the auto rental counter locations. The massive volume of the rental counter area becomes more human scale through tiered ceilings and by bathing the large upper cavity of the arcade in blue light that accentuates roof truss structure while providing a calming effect for travelers.

Washington, DC

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Hartranft Lighting Design

Current Projects

Anacostia Aqua Tower
Washington, DC

Architect:
Höweler + Yoon

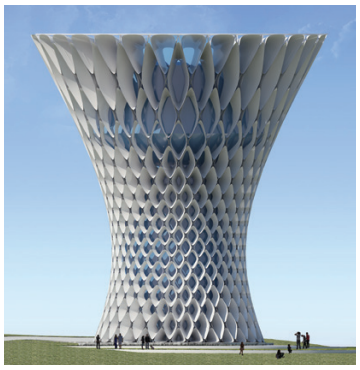
Lighting Designer:
Hartranft Lighting Design
(To be completed by Spring 2019)

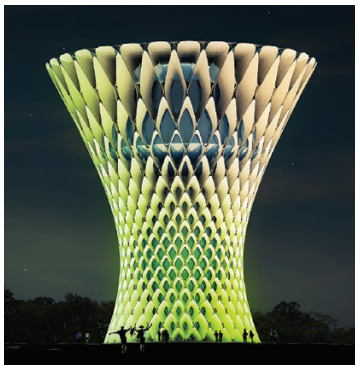
The District of Columbia was looking for creative, aesthetic solutions to mitigate the visual impact of the 2-million gallon water tower needed for the community of Anacostia. The design would have to meet the criteria and approval of all stakeholders, including the Cultural Arts Commission, Historic Preservation Board, DC Office of Planning and the local community.

Our diverse and interdisciplinary design team, developed a concept that reclaims the community function of a water resource by creating a living machine to support a park and ecological landscape around the tower.

The Aqua Tower design wraps the functional tower in a new, independent structure that can be experienced from great distances as well as up close.

The proposed illumination from within the cells of the structure will create a variety of lighting effects and serve as a subtle signal spire for the District. This design is about communication, with the lighting effects allowing the tower to broadcast patterns of light and color that call attention to expected rainfall, water quality in local waterways, and water capacity in the tank.





Washington, DC

Charlotte, NC

Boston, MA

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Hartranft Lighting Design

REFERENCES

Brian Bresg AIA, LEED AP

Vice President | Principal

LS3P

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Charlotte, NC 28202

(ph.) 704.371.7842

brianbresg@ls3p.com

Richard Petersheim, RLA, LEED GA

Partner | LandDesign

223 N Graham St,

Charlotte, NC 28202

(ph.) 704.333.0325

RPETERSHEIM@landdesign.com

Richard Cataffa

Director of Design | Federal Realty Investment Trust

1626 East Jefferson Street

Rockville, MD 20852

(ph.) 301.998.8225

rcataffa@federalrealty.com

Peter Vasiliou, PE, PTOE, IMSA III, LEED AP

TRAFFIC ENGINEERING MANAGER / ROADWAY LIGHTING ENGINEER

Mr. Vasiliou plays a key role in project design, management and construction administration while providing technical direction to junior staff. He is experienced in traffic data collection and analysis, sign and pavement marking design, traffic signal design, coordinated/closed loop traffic signal system design, traffic management design, traffic signal inventory/ inspection, areaway inspection, roadway lighting design, highway design, environmental permitting and construction administration. He is proficient in photometric analysis, lighting design, wiring and circuiting design, plan preparation, special provisions and construction administration for roadway lighting projects.

Mr. Vasiliou is among the first 24 registered Professional Traffic Operations Engineers (PTOE) to be certified by ITE in Massachusetts. He is also a Work Zone Safety Specialist, Traffic Signal Electrician and a Traffic Signal Inspector certified by the International Municipal Signal Association (IMSA). Mr. Vasiliou has experience using computer applications for transportation engineering capacity analysis using HCS, traffic simulation using CORSIM and SIM Traffic, traffic signal progression using Synchro Professional, and round about analysis using aaSIDRA. He has also prepared functional design reports, traffic impact studies, construction documents, plans, specifications, construction cost estimates, traffic signal permits and environmental permits.

Relevant Project Experience

Massachusetts Department of Transportation, Highway Division, Tobin Bridge Lighting & Electrical, MA
Traffic and Lighting Engineer. Designed Temporary Traffic Control Plans and assisted with the design of the proposed Tobin Bridge lighting system to utilize new LED Light Fixtures. The project includes a new electrical duct bank system and CCTV.

Massachusetts Department of Transportation, Highway Division, Rehabilitation and Restoration of the Longfellow Bridge over the Charles River, Boston and Cambridge, MA
Project Engineer involved with many aspects of design and owner's representative responsiblities which include Traffic, Highway, Lighting and Traffic Management.

City of Boston, Transportation Department, Fenway-Longwood-Kenmore Transportation Improvements, Boston, MA
Traffic Engineer responsible for traffic signal improvements for 6 locations in the Charlesgate area, 3 locations in the Fenway area and 2 locations on the Riverway. The designs include new traffic signal controllers, traffic signal equipment, new wheelchair ramps, battery back up systems and video monitoring cameras. A fiberoptic cable system was designed from Huntington Avenue to Massachusetts avenue as well as various copper interconnect cable systems throughout the project area. Field inventory of and plan update for 75 locations in the Huntington Ave, Commonwealth

EDUCATION/QUALIFICATIONS

M.S., Civil Engineering, University of Massachusetts Lowell, 2004

B.S., Civil Engineering, Syracuse University, 1995

REGISTRATIONS/ CERTIFICATIONS

Professional Civil Engineer: MA (#41591), 2000

Professional Traffic Operations Engineer (#964), 2002

LEED Accredited Professional, 2006

Construction Supervisor, MA

IMSA Work Zone Safety Specialist (#22-60423), 2000

IMSA Traffic Signal Inspector - Level III (CE-60423), 2002

MEMBERSHIPS AND AFFILIATIONS

Institute of Transportation Engineers

SPECIALIZED TRAINING

OSHA 10-hr. Construction Safety

First Aid/CPR/AED

LENGTH OF SERVICE

Jacobs: 1996-Present

Industry: 1995-Present

Peter Vasiliou, PE, PTOE, IMSA III, LEED AP
TRAFFIC ENGINEERING MANAGER / ROADWAY LIGHTING ENGINEER

Ave, Fenway and Kenmore areas was conducted. Responsible for managing the retiming of 28 traffic signals in the Fenway area and 14 on Huntington Avenue.

Phillips Academy Infrastructure Improvements, Andover, MA
Design of lighting improvements for pedestrian safety along Route 28 and campus walkways, and MassDOT, I-90 Harrison Avenue to Prudential Tunnel – Design consists of 40-foot high, median mounted, twin cobra head lighting and pre-cast and cast-in-place barrier design in the median and along both north and south walls to accommodate several (including ITS communications) conduits inside the barrier.

Rizzo Associates, Quincy Concourse, McGrath Parkway, Quincy, MA
Project Engineer who analyzed and designed roadway lighting to replace existing cobra heads with historic pendant style lighting. Lighting design included load center design, voltage drop calculations, wire sizing and circuiting. Prepared plans and specifications for manhole and duct systems to bury above ground electric, telephone and cable lines. The project required input and coordination from three utility companies.

Rizzo Associates, Bridge Street, Salem, MA
Project Engineer responsible for preparing roadway lighting photometrics and lighting design for historic Bridge Street in Salem. The project included wiring, load center and circuit design for a proposed ornamental lighting system.

City of Boston, Boston Public Works Department, Edward Everett Square, Boston, MA
Project Engineer responsible for the design of a traffic control system at one of Boston's heavily congested intersections. The project involved working in a collaborative effort with the community as part of a design team with a local artist to develop a distinctive streetscape design. The project included complete design and construction administration services to improve the roadway network, pedestrian crossings, implementing small park areas and improving traffic operations.

Millennium Partners, Boston Common Improvements, Boston, MA
Project Engineer responsible for park improvements to the design of lighting, drainage, irrigation, and sidewalks for a high profile historic park situated in the city downtown area. Additional responsibilities include final inspection and construction administration services.

Massachusetts Department of Transportation, Highway Division, Statewide Highway Lighting Systems, Various Locations, MA
Project Manager/Principal Traffic Engineer responsible for designing and managing assignments under an ongoing on-call Highway Lighting contract, as well as additional roadway lighting tasks under a separate contract for traffic and roadway improvements.

Raymond J. Walsh, Jr., PE

SENIOR ELECTRICAL ENGINEER

Mr. Walsh has nearly 25 years of experience in medium and low voltage electrical distribution, lighting, teledata, and fire alarm design for transportation infrastructure, specializing in rail/transit (MBTA, SEPTA, MTA MNR, BART, WMATA), and airport facilities. His experience also includes schools and universities, hospitals, offices, and municipal buildings. He is well-versed in Short Circuit Coordination/Arc Flash Calculations and computer applications for electrical system design.

Mr. Walsh has extensive experience in airport lighting systems including, Runway and Taxiway lighting, Airfield Lighting Vault design, Approach lighting, NAVAIDS and Terminal Area apron lighting. His project experience includes Massport's Boston Logan High Mast Lighting and Boston Logan Fuel Farm, where tasks not only included electrical distribution design, but also involved job inspections throughout construction.

Relevant Project Experience

Massachusetts Port Authority, Authority Wide Short Circuit and Arc Flash Hazard Analysis, Boston, Worcester and Bedford MA
Project Lead Engineer for Short Circuit and Arc flash Hazard Analysis work at various Massport 15 KV substations, Airfield Terminal Buildings and facilities. Work scope includes but is not limited to Electrical data gathering, Power system reports, Utility Company coordination, Development of SKM Electrical Distribution System Models, Short Circuit calculations, Time Current Curve Plots Overcurrent device Coordination, Medium Voltage protection relay settings Arc Flash analysis and Arc Flash Labeling for electrical equipment.

Alliance Airport, Runway 16R, Runway 16L and Taxiway A Modifications, Fort Worth, TX
Lead Electrical Design Engineer for new High Intensity lighting system for Runway 16L-34R, new threshold lighting and TDZ lighting for runways 16L and 16R and new taxiway lighting for Taxiway A. Tasks include but not limited to Existing lighting vault full renovation with new regulator systems and power distribution modifications. All work carried out per FAA guidelines.

Legal Seafoods Restaurant, Northern Avenue, Boston, MA
Electrical design engineer for lighting power and communication systems for this three story restaurant located in Boston Seaport district. Design also included electrical design for kitchen areas on both the first and second floors.

Massachusetts Bay Transportation Authority, Winchester Center Station Emergency Repair, Winchester, MA
Electrical design engineer for temporary lighting system. Tasks included lighting layout for ramp and train platform areas, lighting photometric calculations and lighting system main power service distribution.

Massachusetts Bay Transportation Authority, Mattapan Station Renovation Project, Boston, MA
Electrical Engineer responsible for the lighting, power, and fire alarm design of this trolley station. Tasks also included 600 VDC emergency lighting connection via overhead catenary system.

EDUCATION/QUALIFICATIONS

B.S., Electrical Engineering, Northeastern University, 1990

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Massachusetts, Electrical (#45241), 2002

NCEES Record Holder (#26240), 2005

SPECIALIZED TRAINING

Electrical Short Circuit and Protective Device Coordination. Arc Flash Analysis

Siemens Company Certified, Airfield Lighting Maintenance, August 2006

SKM Power Systems Analysis Certificate, October 2004

Square D Company Arc Flash Course, October 2004

OSHA 10-hr. Construction Safety

Commuter Rail RWP

First Aid/CPR/AED

LENGTH OF SERVICE

Jacobs: 1995-Present

Industry: 1991-Present

Raymond J. Walsh, Jr., PE

SENIOR ELECTRICAL ENGINEER

Massachusetts Port Authority, Logan International Airport, High Mast and Apron Lighting System Replacement, Boston, MA
Chief Electrical Design Engineer who executed field electrical survey work and calculations required for replacement of major airside apron lighting system. Work also included full construction documents, field apron system wide lighting layouts and lighting system control plans. Completed resident engineer duties, power cutover scheduling and participated in system start-up.

Massachusetts Bay Transportation Authority, Fairmount Corridor Improvements, Boston, MA
Electrical Engineer responsible for the lighting and power design of four commuter rail stations - , Morton Street Station, Four Corners, Newmarket and Talbot Stations.

Massachusetts Bay Transportation Authority, Worcester Commuter Rail Line Extension, MA
Electrical Engineer responsible for the lighting and power design for the Grafton, Ashland, Northborough, and Southborough commuter rail stations.

Triborough Bridge and Tunnel Authority, Electrical Panel Replacement, Randall's Island Facility, New York, NY
Electrical Design Engineer responsible for electrical power design of new unitized power system for lighting power and HVAC needs of the Randall's Island processing facility. Tasks included short circuit, fuse and circuit breaker coordination and arc flash study. All arc flash study calculations per IEEE standard 1584 and NFPA 70E guidelines.

Massachusetts Port Authority, Logan International Airport Runway 33L Safety Area Improvements, Boston, MA
Lead Electrical Design Engineer for ALSF2 approach lighting system and Localizer Antenna facility. Tasks include but not limited to design and calculations for new Regulator substation building, Emergency Generator facility, Approach lighting integration in EMAS system and Pier grounding system. All work carried out per FAA guidelines.

Massachusetts Port Authority, Logan International Airport, Terminal C Triturator Pump replacement Boston, MA
Lead Electrical Design Engineer for replacement of triturator pumps in Terminal C area. Work included New 480V distribution services for pump operation and connections to building automation systems new lighting and fire alarm system modifications.

David Massenzio, PE

STRUCTURAL ENGINEER

Mr. Massenzio has been involved in a variety of structural and highway engineering projects for the Massachusetts Department of Transportation (MassDOT), Massachusetts Bay Transportation Authority (MBTA), RIDOT, Maine Turnpike Authority (MTA) and municipalities. Projects have included tasks such as structural analysis, computer modeling, and structural design. David has performed the design of several foundations for sign support structures, light poles, and CCTV camera poles. Tasks also included analysis of existing truss and monopole structures supporting all-electronic tolling equipment. Foundation designs and structural analysis were performed in accordance with AASHTO standards.

David has also inspected, analyzed and verified capacities of existing bridges for support of new conduit and standpipe systems, signage, CCTV equipment, and light poles.

Relevant Project Experience

Massachusetts Department of Transportation, Highway Division, All Electronic Toll Collection (AETC) System, Tobin Bridge, Boston, MA
Lead Structural Engineer on a fast track design of two gantries (truss and monopole) at Connector T-C (to Boston/Cape Cod) and Ramp T-L (to Charlestown) to replace the existing upper level toll plazas on the Tobin Bridge. Project also includes widening of Ramp T-L from one lane to two lanes, signage modifications to support the electronic toll collection, demolition of the existing toll plaza, reconfiguration of the travel lanes at the existing tolls on the bridge, and testing of the AETC system. Responsibilities included design of the foundation for a prefabricated electrical hub building; and preliminary foundation design for the gantries. Specifications and plans were developed to specify gantry design requirements for the Contractor. Responsibilities included technical design calculations, preparation of plans, specifications, and estimate, coordination, and bid phase services. Design was completed in four months.

Massachusetts Department of Transportation, Highway Division, Complex Bridge Inspection (Contract Nos. 43745 and 63785), Various Locations, MA
Team member responsible for the routine, fracture-critical, and special member inspections of several structures on the MassDOT Complex Bridge list as part of the Joint Venture Complex Bridge Inspection Contracts with HNTB. Inspections include the Fall River Viaduct and “spaghetti ramps”, and the Upper County Bridge in Haverhill.

Massachusetts Department of Transportation, Highway Division, Conduit Support Replacement & Fire Protection Standpipe Modification Along I-93 Viaduct, Boston/Somerville, MA
Engineer responsible for the design, drafting, specifications, and estimate for the structural and highway features of the project. Project included the relocation of the suspended conduit above I-93 Southbound roadway

EDUCATION/QUALIFICATIONS

B.S., Civil Engineering/Structural and Geotechnical, Lafayette College , 2006

REGISTRATIONS/ CERTIFICATIONS

Professional Engineer, Massachusetts, Structural (#49996), 2012

SPECIALIZED TRAINING

Fracture Critical Bridge Inspection

OSHA 10-hr. Construction Safety

Confined Space Entry

Aerial Lift Safety

Commuter Rail RWP

First Aid/CPR/AED

LENGTH OF SERVICE

Jacobs: 2006-Present

Industry: 2006-Present

David Massenzio, PE
STRUCTURAL ENGINEER

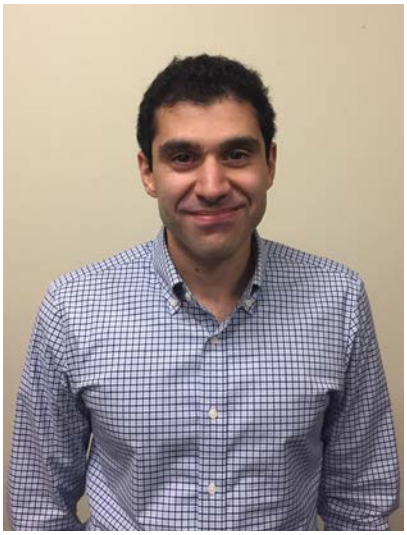
between MBTA Community College Station and Cambridge Street. Project included development of plans and details for the removal of the existing conduit cluster and proposed buried conduit duct bank located along the west side of the I-93 Viaduct. In addition to the conduit support replacement work, the project also included modifications to the existing fire standpipe system along the I-93 Viaduct from MBTA Community College Station to Temple Road. The standpipe modifications work included the design of pipe supports, drafting of support details, and development of specifications and estimate.

Massachusetts Department of Transportation, Highway Division, I-90 Commonwealth Ave to Dalton Street, Median Barrier, Lighting and Misc. Work, Boston, MA
Engineer responsible for the design, drafting, and specifications for the structural and highway aspects of the project. The work included the installation of new precast barriers, repaving, bridge modifications, utility support installation, light pole foundation design, and miscellaneous electrical upgrades. The project also included the installation of new CMU block infill walls in between pier columns on the bridges adjacent to the Prudential Tunnel west portal.

Massachusetts Department of Transportation, Highway Division, Prudential Tunnel and Approaches, Boston, MA
Engineer responsible for the construction administration services and coordination with MassDOT resident engineers. Project included installation of new precast barriers, light poles, repaving, and miscellaneous electrical, lighting, and tunnel upgrades. The project was advertised in 2010.

Massachusetts Bay Transportation Authority, Fitchburg Commuter Rail, South Acton and Littleton, MA
Structural Design Engineer for Commuter Rail Stations located in South Acton and Littleton, MA. Responsibilities included structural design of the station platforms, canopies, pedestrian bridges, sign foundations, equipment support foundations, light pole foundations, miscellaneous structures and ramps. Duties included design and detailing of steel and concrete elements involved with structural design and cost estimating.

Massachusetts Department of Transportation, Highway Division, Tobin Bridge Toll Plaza and Administration Building Demolition, Boston, MA
Lead project engineer responsible for team coordination, structural analysis, and preparation of contract documents. Project includes demolition and restoration work at the Maurice J. Tobin Memorial Bridge located in Boston and Chelsea, Massachusetts. Project includes replacement of steel grid deck, modifications to existing bridge features including safety walk and railings. Design of new supports for lighting, conduits, and miscellaneous electrical equipment is provided. Also included under this project is the structural modeling and analysis of the bridge structure in STAAD. The purpose of the analysis is to evaluate the bridge stability after removal of all ancillary structures including the toll plaza, canopy and service walkway structure on the upper bridge deck, administration building and stair/elevator tower.



Mario Rif

ELECTRICAL ENGINEER

Mr. Rif has 10 years of experience in the development of electrical and lighting designs. His experience includes lighting designs for new and rehabilitated roadways, bridges and tunnels. He knowledgebase of tools includes AutoCAD, Microstation, AGi32 lighting software and Powertools. Mario has a strong understanding of RP-8, RP-20, and RP-22 Lighting Standards. Mario has been involved in several key projects for MassDOT, MBTA, FDOT, and other clients throughout the Eastern U.S.

Relevant Project Experience

Massachusetts Department of Transportation, Highway Division, Tobin Bridge Lighting, MA
Lighting Engineer. Designed the upgraded Tobin Bridge lighting system to utilize new LED Light Fixtures. Calculated light levels using AGi32 lighting software to comply with MASSDOT and RP-8 Roadway Lighting Standards.

Massachusetts Department of Transportation, Highway Division, Toll Plaza Lighting, MA
Lighting Engineer. Evaluated existing Toll Plaza Sign lighting for conformance with sign lighting standards. Recommend and designed sign lighting upgrades for the Toll Plaza "Fast-Lane" signage with an emphasis on energy efficiency, lighting uniformity and lowered cost of maintenance. Lighting design incorporated LED sign lighting fixtures.

Massachusetts Department of Transportation, Highway Division, Rehabilitation and Restoration of the Longfellow Bridge over the Charles River, Boston and Cambridge, MA
Lighting Engineer. Designed new Bridge and Parkland lighting system with an emphasis on preserving the Bridge's historical design elements. Coordinated with the project architect to choose the most energy efficient and historical site lighting fixtures.

Massachusetts Department of Transportation, Highway Division, Massachusetts Turnpike General Engineering Consulting Services - Central Artery I-90 Tunnel, Boston, MA
Electrical/Lighting Engineer. Performed lighting tests for the I-90 tunnel in order to verify the lighting levels met RP-22 standard tunnel lighting requirements.

Massachusetts Bay Transportation Authority, Wachusett Extension – Station and Layover Facility, Winchester, MA
Lighting Engineer. Designed the entire lighting system for the new Wachusett Commuter Rail Layover Facility. Lighting for the system included Track Lighting, Site Lighting, and interior locations.

Massachusetts Bay Transportation Authority, Blue Line Station Modernization Program - Orient Heights Station, East Boston, MA
Lighting Engineer. Designed the entire lighting system for the remodled MBTA Station. Lighting for the system included Track lighting, Busway,

EDUCATION/QUALIFICATIONS

B.S., Electrical Engineering, Boston University, 2006

REGISTRATIONS/ CERTIFICATIONS

FE/EIT, 2009

SPECIALIZED TRAINING

OSHA 10-hr. Construction Safety

Confined Space Entry

MBTA ROW

First Aid/CPR/AED

LENGTH OF SERVICE

Jacobs: 2006-Present

Industry: 2006-Present

Mario Rif
ELECTRICAL ENGINEER

and interior locations. Designed to meet “green” standard by incoroparting occupancy sensors and energy efficient light fixtures, including LEDs.

Florida Department of Transportation, I-4 Highway, FL
Lighting Engineer. Designed the upgraded I-4 Highway lighting system to utilize new LED Light Fixtures. Calculated light levels using AGi32 lighting software to comply with FDOT and RP-8 Roadway Lighting Standards.

Florida Department of Transportation, Port of Miami Tunnel, Miami, FL
Lighting Engineer. Evaluated LED, High Pressure Sodium, Fluorescent and Indiction fixtures to be used in the Port of Miami tunnel. Calculated lighting requirements and lead the design of the tunnel lighting system. Designed the tunnel lighting layout to IESNA RP-22 standards. Designing the tunnel light level switching criteria.

Maryland Transit Administration, Prince Frederick and Waldorf Park and Ride, MD
Lighting Engineer. Performed lighting tests and design work for the Prince Frederick and Waldorf parking lots in order to design a lot to meet standard lighting requirements. Designed the parking lot lighting for two permanent parking lots and one temporary parking lot. Lighting design included “green” design elements by way of using “dark-sky” compliant fixtures.

Metropolitan Transportation Authority, Bridge and Tunnel, Brooklyn Battery Tunnel, New York, NY
Electrical/Lighting Engineer. Performed short circuit calculations and a coordination and load study in order to determine current loads. The current loads were studied in order to process the replacement of fan motors in the tunnel.

City of Chelsea Schools Department, Engineering Consulting Services - Chelsea High School, Chelsea, MA
Lighting Engineer. Evaluated existing site lighting levels around the Chelsea High School for conformance with standards for site lighting safety. Recommended and designed lighting upgrades for the school building and adjoining parking lot facilities to meet safety standards. Lighting design incorporated “green” design elements such as “dark-sky” compliant LED lighting fixtures.

City of Chelsea Schools Department, Engineering Consulting Services – Mary C. Burke Elementary Complex, Chelsea, MA
Lighting Engineer. Evaluated existing site lighting levels around the Mary C. Burke School for conformance with standards for site lighting safety. Recommended and designed lighting upgrades for the school building and adjoining parking lot facilities to meet safety standards. Lighting design incorporated “green” design elements such as “dark-sky” compliant LED lighting fixtures.

CLIENT NAME

City of Boston, Public Works Department

OUR ROLE

Prime Consultant

SERVICES

City Engineering
Transportation Planning
Traffic Engineering
Surveying
Public Participation
Street Lighting
Streetscape/Landscape

START DATE

2004

END DATE

2005

Edward Everett Square

BOSTON, MA

Project Description/Services Provided

Jacobs performed comprehensive streetscape design services as part of the reconstruction of Edward Everett Square in the Dorchester section of Boston, Massachusetts. Edward Everett Square is a densely populated historic neighborhood with a complex roadway and intersection system that contains a mix of small businesses interspersed with multi-family housing and limited open space.

The intersection suffered from poor geometrics, outdated signal equipment, inadequate capacity, and non-compliance with ADA standards. Most importantly, it suffered from a lack of identity and did not act as a place-marker in the community, like so many other squares in the Boston area did. Working in a collaborative effort as part of a design team with local artist Laura Baring-Gould, a main component of the reconstruction plan was to develop a distinctive streetscape design that acted as both a catalyst for future development as well as a framework for locally inspired sculpture pieces that will become part of the fabric of the Square. The pieces were set in such a manner so as to act as place-markers for the community.

The project scope included complete design and construction documentation services, and included extensive public input. The design developed an improved pedestrian network, including new street crossings, widened sidewalks, shortened crossing distances, new bicycle lanes, new street lighting, new traffic signals and small park areas for pedestrian and for the display of the sculpture pieces.

Key Personnel

Rod Emery, PE, PTOE, FITE

Peter Vasiliou, PE, PTOE, IMSA III, LEED AP

CLIENT NAME

Massachusetts Department of Transportation - Highway Division

OUR ROLE

Prime Consultant

SERVICES

Traffic management plans
Lighting design
Historic bridge rehabilitation
Bridge inspection
Bridge rating
Environmental
Geotechnical
Seismic analysis
Uninterrupted Rapid Transit Operations

START DATE

2003

END DATE

Ongoing

Rehabilitation And Restoration Of The Longfellow Bridge

BOSTON AND CAMBRIDGE, MA

Project Description/Services Provided

MassDOT is undertaking a major project for the rehabilitation and restoration of the Longfellow Bridge across the Charles River between Boston and Cambridge. They selected a multi-disciplinary consultant team led by Jacobs to provide preliminary design and design-build procurement documents. Jacobs is now serving as the owner's representative during construction.

The bridge connects Boston and Cambridge and carries the MBTA Red Line and two-way vehicular traffic across the Charles River. The bridge carries 28,000 motor vehicles, 90,000 transit users, and significant numbers of pedestrians and cyclists each day. The 1,787-ft. long bridge consists of 11 open-spandrel, steel deck arch spans and 3 approach spans.

The main goals of this project are to repair deteriorated parts of the structure and to make improvements to its ramped approaches. All repairs and modifications need to be consistent with the historic character of the bridge. A primary objective of the proposed rehabilitation is to address the bridge's structural deficiencies, upgrade its structural capacity (where appropriate), and bring the bridge up to modern code. In particular, structural steel elements supporting the bridge deck had deteriorated and required upgrading and the abutments needed to be modified slightly to allow the sidewalk approaches to meet ADA guidelines. At the same time, the bridge's ornate pedestrian railings will be restored or replicated, its masonry elements cleaned and conserved, and a new street lighting for the bridge and park areas as well as architectural lighting system has been designed. **The lighting system was coordinated to utilize energy efficient fixtures in a manner to preserve the bridge's historical design elements.**

Rehabilitation And Restoration Of The Longfellow Bridge

BOSTON AND CAMBRIDGE, MA

Uninterrupted transit service throughout construction was a critical project requirement that presented significant challenges to the Jacobs design team. We evaluated several alternatives for maintenance of MBTA operations during construction. The shoo-fly alternative would relocate the MBTA tracks onto the roadway, requiring a detailed evaluation of whether the existing structure can support the increased transit loadings. Complex traffic management plans were also developed to enable replacement of the entire bridge deck while maintaining roadway and pedestrian traffic.

Jacobs' geotechnical staff performed a subsurface investigation which includes borings, sampling and classifications of soils and rocks, geophysical techniques, probing, cone penetration tests and test pits. The team worked seamlessly with our structural engineers to develop a seismic retrofit design for the bridge that would meet current requirements.

Jacobs has a long history with this structure dating back over 20 years, having performed previous bridge inspections for both DCR and the MBTA. For the rehabilitation, we have completed an in-depth inspection in accordance with National Bridge Inspection Standards (NBIS), as well as an updated load rating of the entire structure.

Key Personnel

Peter Vasiliou, PE, PTOE, IMSA III, LEED AP

Mario Rif

CLIENT NAME

Massachusetts Department of Transportation - Highway Division

OUR ROLE

Prime Consultant

SERVICES

Electrical
Street Lighting
Structural
Traffic Management
Intelligent Transportation Systems

START DATE

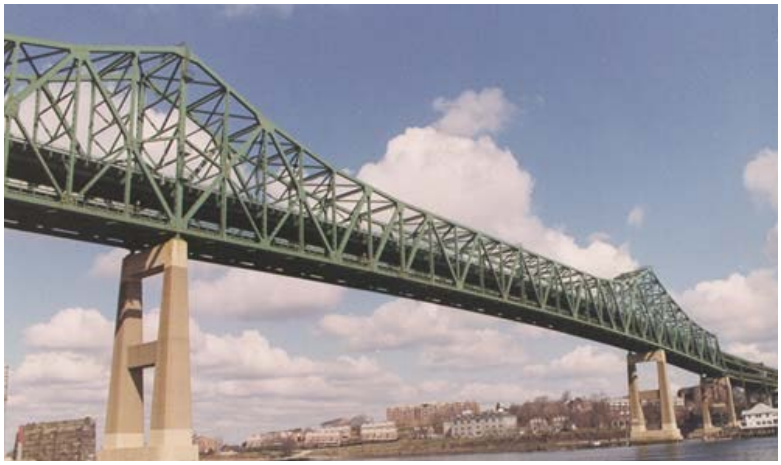
2016

END DATE

Ongoing

Tobin Bridge Lighting Project

BOSTON, MA



Project Description/Services Provided

MassDOT is undertaking a major project for upgrading the electrical, street lighting and monitoring cameras on the Tobin Bridge and associated ramps. Jacobs is providing the design of the conduit system, lighting system, monitoring camera which includes the design of mounting each component to the bridge.

The bridge connects Boston and Chelsea and carries two-way vehicular traffic across the Mystic River on two separate decks. The bridge carries almost 80,000 motor vehicles each day.

The main goals of this project are to replace the electrical conduit and lighting system and improve the security monitoring system. All improvements will need to be securely mounted to the bridge without compromising the structural integrity of the bridge. The proposed lighting system will utilize LED light fixtures spaced to meet the IES RP-8 criteria and will include new poles and mounting hardware. Traffic management plans will be prepared so that the work can be done with night-time lane closures.

Jacobs has a long history with this structure which have included other projects such as the All Electronic Tolling that was introduced in 2014, Demolition of the toll plaza and administration building.

Key Personnel

Peter Vasiliou, PE, PTOE, IMSA III, LEED AP

Raymond Walsh, Jr., PE

Mario Rif

David Massenzio, PE

SECTION 03

APPROACHES

DESIGN DEVELOPMENT AND MANAGEMENT

We believe in the power of light to create a sense of community, to bring people together and to make people proud of their neighborhoods during the evening hours. With the right design and design process we can create a unique environment occupying a night time prominence at the heart of the community. The key to arriving at a successful design is implementing a process that listens to people's aspirations and ideas and synthesizing these into a design that communicates a singular vision. We believe in a process that is participatory as well as projective – engaging the community to produce a strong and integrated design. A successful project is able to derive its logic from the particulars of the place and the people with whom it interacts.

We further understand the practicalities of meeting design and construction budgets and that the lighting installation should be sustainable and maintainable. In particular, the desired outcome of the RFP is to hire a consultant to develop the lighting plan, manage the installation and provide a maintenance plan for the lighting of the Congress St. Bridge. As such, we have prepared a conceptual design and already obtained budgetary estimates for material and installation labor. Additionally, as the implementation of the lighting requires electrical and structural engineering services, drawings and project support, we will approach this project in partnership with Jacobs Engineering. Jacobs has extensive experience on City of Boston and other municipal projects and meetings will be facilitated in their office located at 343 Congress Street. We feel that we have a solid design, strategy and team to execute a vision within the project budget and timeline of completion.

REVIEW AGENCY APPROVAL

The Congress Street Bridge spans Fort Point Channel and provides an important pedestrian and vehicular connection from downtown Boston, South Station and the Rose F. Kennedy Greenway on one side to Fort Point and the South Boston Waterfront on the other. This historic trunnion bascule drawbridge also represents the connection between Boston's revolutionary and industrial past to its bright and innovative future. The FPCD is marked by an exceptional degree of visual uniformity. The buildings in the area are, with few exceptions, loft structures built between the 1880s and 1920s by the Boston Wharf Company, and represent an unusually coherent and well-preserved collection of late 19th and early 20th century lofts that reflect a critical period of social, economic, and physical development in the City and the region, listed on the National Register as part of the 55 Acre Fort Point Channel Historic District.

Hartranft Lighting Design's team respects the historical significance of the area and impact of the illuminated bridge and will work closely with the BPRA to conduct an early and meaningful outreach campaign. The goals of this campaign will be to solicit constructive input and ideas for the lighting design of the bridge from a broad range of stakeholders and to build strong support for the approvals of the design. The campaign will seek to be inclusive of the immediate neighbors and key stakeholders such as the Friends of Fort Point Channel, Fort Point Channel Historical District, Light Boston, the City of Boston and BPDA.

Along with the BPRA, we anticipate multiple meetings with various commissions, neighborhood associations, local business groups and civic associations.

DESIGN AND CONSTRUCTION MILESTONES

DECEMBER 2016	RFP AWARD
JANUARY 2017	CONCEPTUAL DESIGN DESIGN DEVELOPMENT/REFINE DESIGN CONCEPTS
FEBRUARY 2017	CONCEPTUAL DESIGN APPROVAL/PRELIMINARY DESIGN PRELIMINARY PLANS/SCHEDULES/COST ESTIMATES PROJECT MOCK UPS
MARCH 2017	PERMITTING AND PUBLIC COMMENT SUPPORT PUBLIC WORKS DEPARTMENT MEETINGS (2) BOSTON LANDMARK COMMISSION HEARING COMMUNITY MEETINGS WITH FORT POINT STAKE HOLDERS REFINE DESIGN AS NEEDED
JUNE 2017	FINAL DESIGN PREPARE FINAL DESIGN AND COST ESTIMATE STAMPED & SEALED ELECTRICAL & STRUCTURAL PLANS/SCHEDULES/SPECIFICATIONS SUITABLE FOR PUBLIC BIDDING
JULY 2017	CONSTRUCTION ADMINISTRATION PRE-BID CONFERENCE SUBMITTAL REVIEW WEEKLY PROJECT MEETINGS/BI-WEEKLY SITE VISITS AIMING/PROGRAMMING
OCTOBER 2017	COMPLETE JOB & PUNCH MAINTENANCE PLAN IN PLACE

SECTION 04

PROPOSED LIGHTING DESIGN SOLUTION

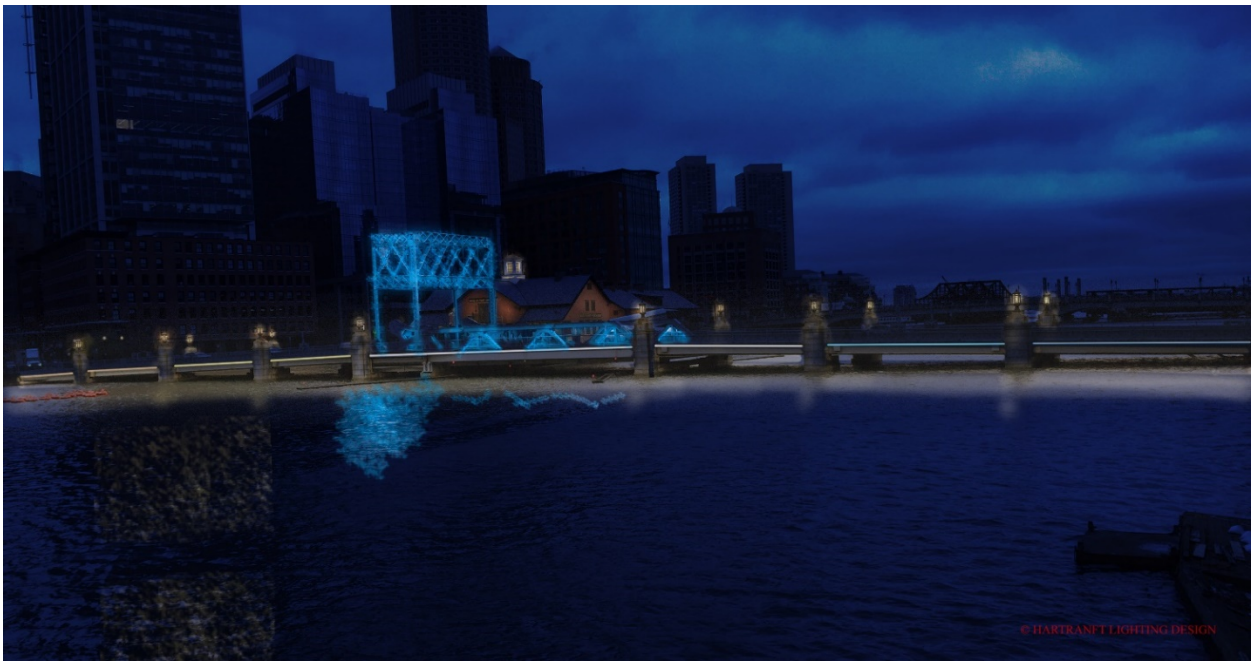


Figure 1: Conceptual Rendering Blue Truss and Dynamic White Bridge Deck

To initially engage the design process, we have prepared a first concept lighting study and renderings showing how we envision the bridge might be lit. These markups and images have been developed to provide inspiration. We will welcome input from key stakeholders and the community to fine tune the design and anticipate refinements to light fixture selection as well as on site mock ups to ensure any undue spill light is addressed.

The composition of the bridge lighting design will include surface mounted linear elements along the longitudinal vertical faces of the bridge deck and highlight of the bascule trusses and counterweight frame. Illuminating the bridge deck with linear light fixtures creates a rhythm with the large lanterns atop each of the piers. The linearity of the design, reinforces the strength and span of the bridge while anchoring it to the water sheet, thus supporting the Fort Point Channel Activation Plan, by providing illumination on the Art Basin between the Congress Street and Summer Street bridges. We envision these luminaires to have a diffused face to permit direct view from the surrounding bridges, channel banks and walkways. The luminaires will incorporate dynamic white LED sources that can be programmed with varying intensity and

white color ranging from very warm white color of gas lanterns to cooler white color temperatures. We imagine one of these lighting scenes to consist of a warm white light on the city side of the bridge that gradually transitions to a cooler white color as the gateway to the waterfront innovation district.

Lighting of the trusses and frames will also be achieved by LED light sources mounted in the truss structure and counterweight frame. Use of varying beam shapes and shielding will highlight the diagonal cross members of the truss frames while also visually anchoring the counterweight frame to the bridge deck, giving an airiness to the metal frame. We envision the lighting to be complement the white color of the bridge deck lighting and lanterns, but by incorporating RGBW (red, green, blue and white) LED channels of lighting, we will have an infinite palate of colored possibilities. Consistent with the added aesthetic lighting of this design, we would also anticipate retrofitting the existing lanterns to LED and would work to include these enhancements as part of this lighting project. (See Figure 1-3 – Inspirational Images).

With LED lighting and controls technologies available today, night time illumination of the bridge can be achieved with small, lightweight, low wattage sources that are easily attached to the bridge or concealed within the truss structure as needed. Fixture types and locations shall be chosen to facilitate use of existing power feeds, consuming far less power than provisionally provided for the FMS lighting design. (See Figure 4 – Proposed Lighting Markup). The lighting control equipment is also simplified by use of directly wired power/data cables to the luminaires, Ethernet data cabling and a remotely accessible lighting control system (See Figure 5 – Sample Lighting & Controls Wiring). The controls can provide a number of pre-programmed control cues which can be automatically triggered or changed as desired by the BPRA or City entity chartered with ownership of the lighting. But control need not be limited to these fixed scenes. Dynamic lighting cues could also be triggered by inputs like traffic flow, weather conditions or any one of a number of application based user inputs. This provides an opportunity for community engagement and memorable experiences for residents and visitors to the area.

Furthermore, to address the need for a maintenance plan, the cornerstone for this design is LED lighting with calculated life ratings of 50,000 hours operation. At typical annual use of 2000 hours per year (6 hours a day x 365 hours/year) the projected life of the LED lighting is 25 years. Selected luminaires will be required to meet marine environment conditions, bridge vibration standards acceptable for application on a working bridge and have a means for parts replacement. Additionally, a 5-year warranty of the luminaires and the ability to service the luminaires in the field when replacement parts are needed will also be required. The lighting control system will allow remote access 24/7, 365 days a year in order to monitor the system and change system settings and manage lighting show content. In theory, as other lighting projects are commissioned by the BPRA, City of Boston, etc. all lighting could be tied to a single centralized control system allowing synchronous control of lighting which is incorporated in the system. For example, the Congress Street Bridge, Northern Avenue, Summer Street and Moakley bridges could all be controlled together to create a larger scale application of Fort Point Channel landmarks in a way that is flexible and easy to change or maintain.

In summary, we believe our experience designing lighting for large municipal projects, combined with our thoughtful designs that consider the surrounding neighborhood needs, our understanding of the latest lighting and controls technologies, combined with our ability to form and work collaboratively with the team to ensure that the final environment is compelling, seamless, without perceived visual conflict. We will help you to balance both long and short term budget concerns. Finally, we strive to leave the owner a lighting system that is as easy to maintain over the long haul as possible.

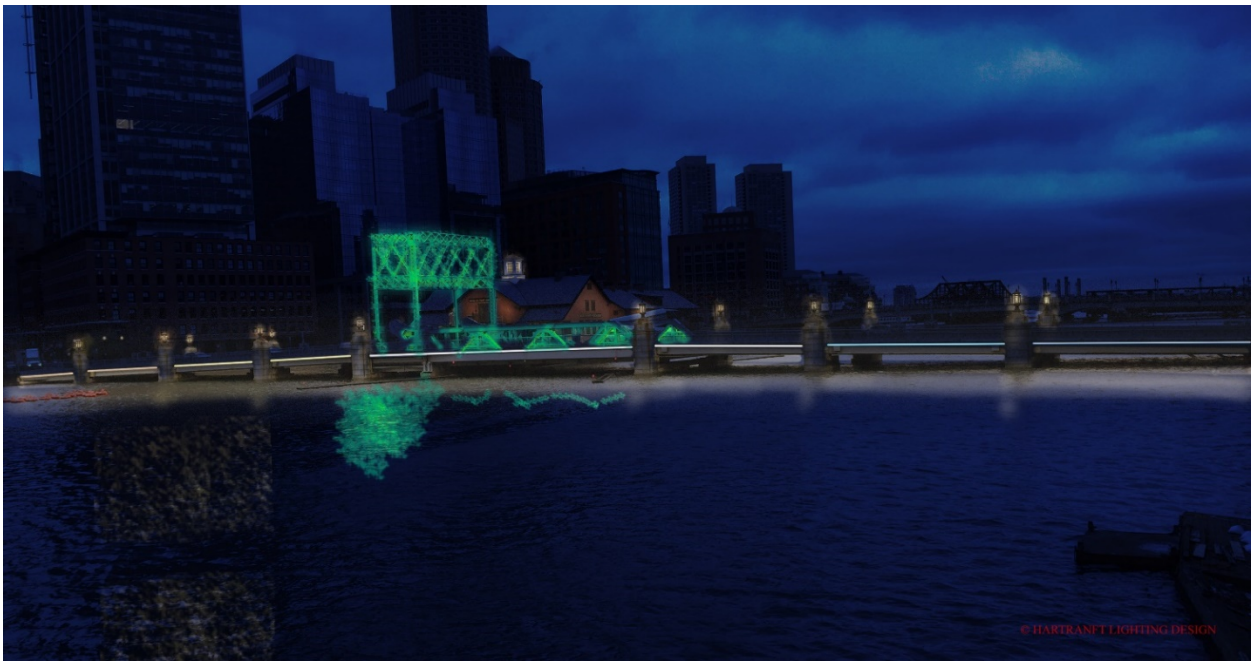


Figure 2: Conceptual Rendering Green Truss and Dynamic White Bridge Deck

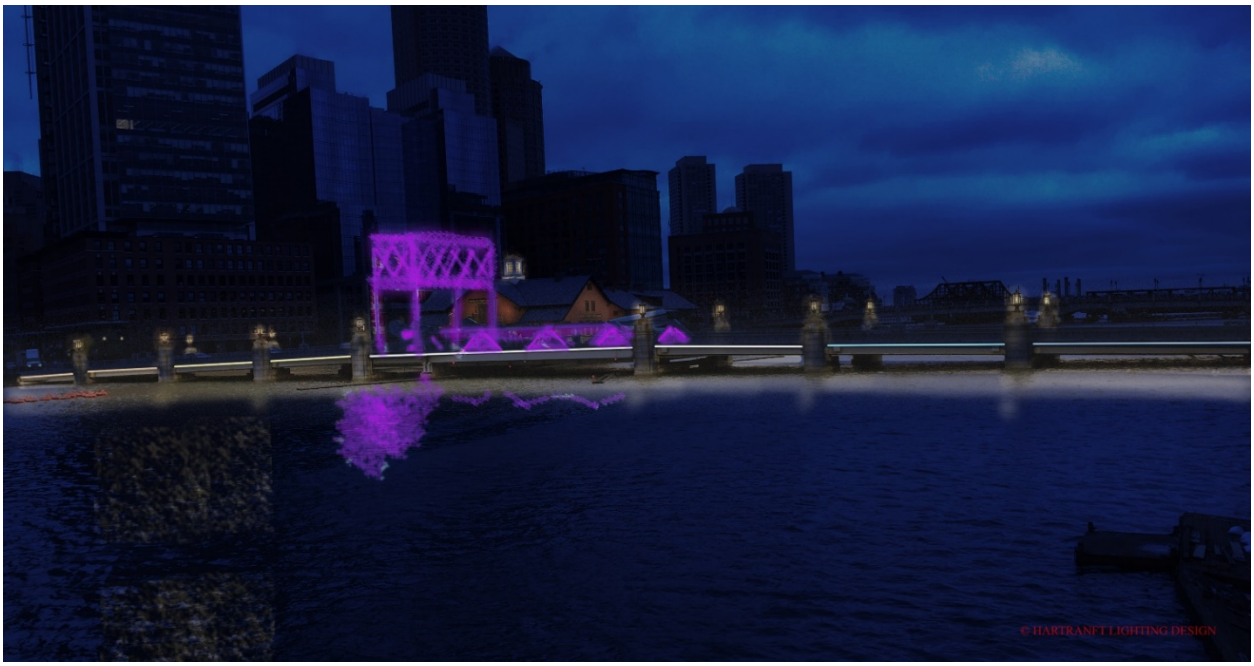


Figure 3: Conceptual Rendering Magenta Truss and Dynamic White Bridge Deck

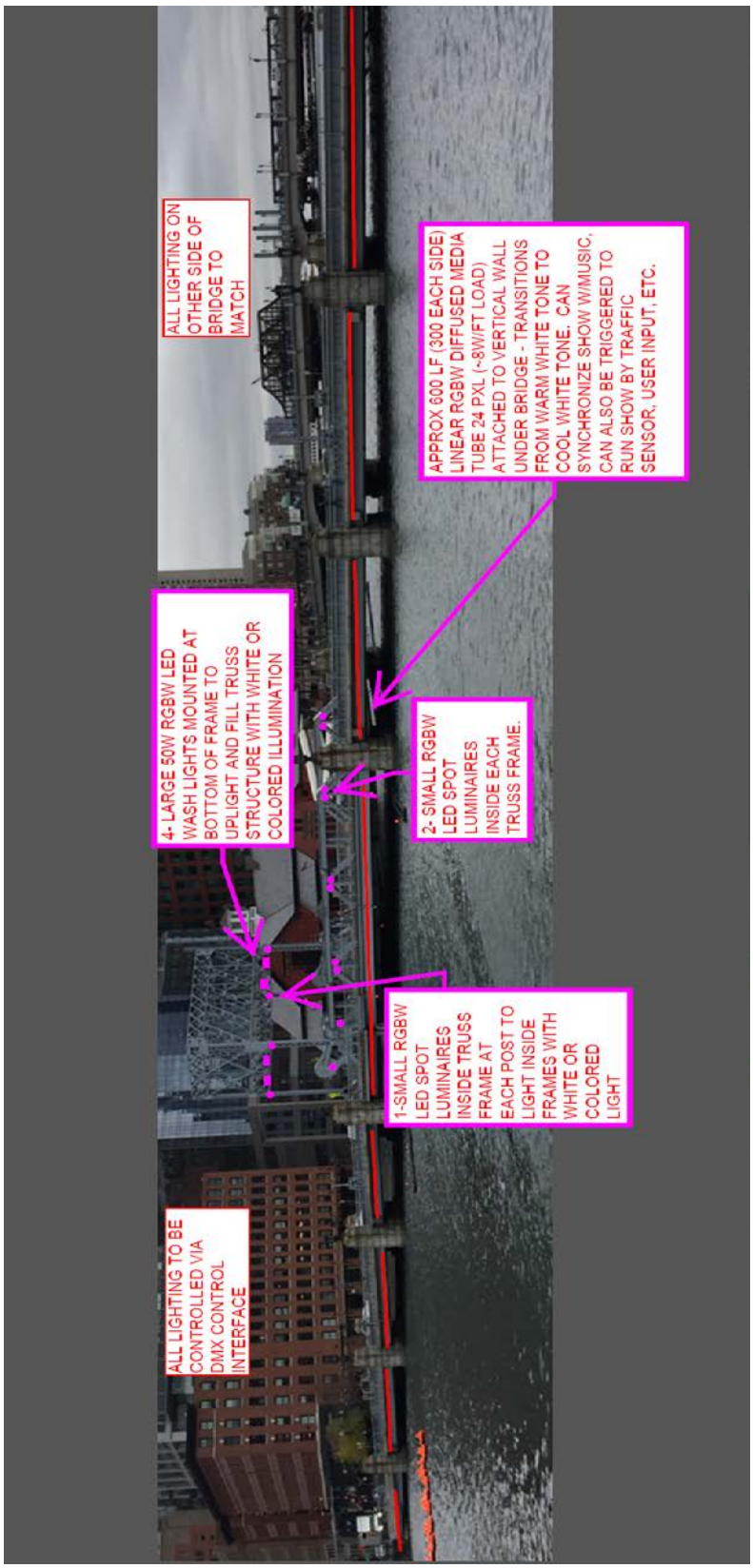


Figure 4: Preliminary Fixture Location Markup

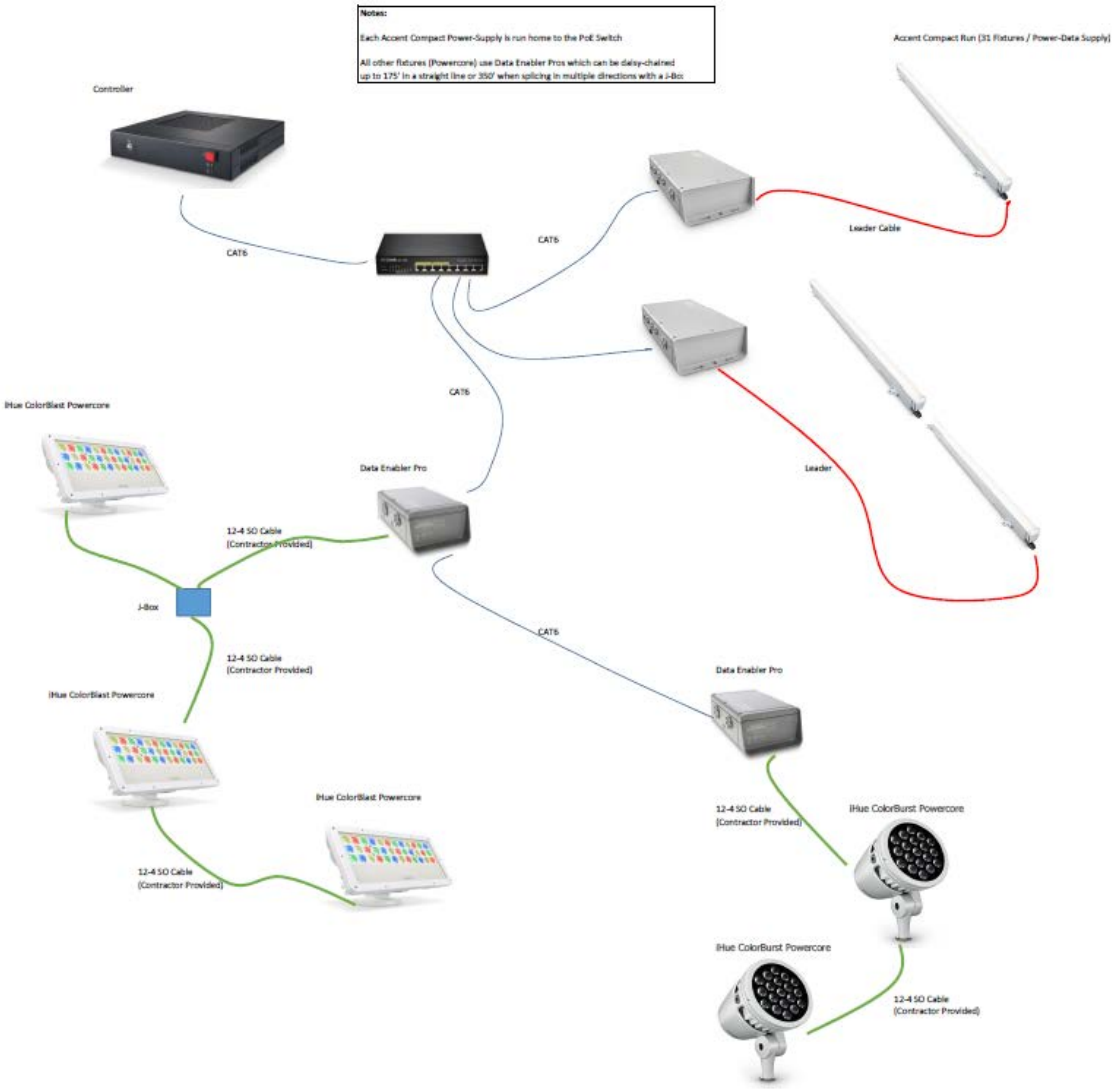


Figure 5: Preliminary Lighting and Controls Wiring

SECTION 05

CERTIFICATES

NOTE: COMMONWEALTH OF MA
WBE APPLICATION PENDING
FILED WITH SDO ON 10/31/16

Transportation

PAT McCRORY
Governor

NICHOLAS J. TENNYSON
Secretary

November 17, 2015

HARTRANFT LIGHTING DESIGN, LLC
410 HAWTHORNE LANE, SUITE 110-269
CHARLOTTE, NC 28204

SUBJECT: DBE CERTIFICATION APPROVAL

To ANDREA HARTRANFT:
Your application for certification as an Airport Concessions Disadvantaged Business Enterprise (ACDBE)/ Disadvantaged Business Enterprise (DBE) has been approved by the NC Department of Transportation, and is effective October 31, 2015.

Your firm will be listed in North Carolina's UCP DBE Directory which can be accessed through the Departments website: https://partner.ncdot.gov/VendorDirectory/search.html?s=cert&a=new . Prime contractors and consultants can verify your firm's DBE certification status and identify the work area(s) for which the firm is DBE eligible through this Directory.

Your firm has been certified to provide the following services as outlined in the North American Industry Classification System (NAICS):

NAICS Code: 541490 OTHER SPECIALIZED DESIGN SERVICES

In order to remain an eligible DBE, your firm will be required to submit an affidavit to this office by your anniversary date of 10/31/2016. Failure to submit an affidavit with the appropriate supporting documentation on an annual basis will result in removal of your firm's DBE certification. The affidavit will attest to the fact that no changes have occurred that would affect your status as a Disadvantaged Business Enterprise, and that your personal net worth has not exceeded $1.32 million as required by federal regulations for economically disadvantaged individuals. The Office of Equal Opportunity & Workforce Services will provide you with the appropriate forms at least 30 days prior to the anniversary date of your certification.

Should you experience any changes in ownership, management responsibility, specialty, address and/or telephone numbers, you are required to notify this office in writing within 30 days of the change. Failure to inform this office of a change may result in removal of your firm's DBE certification status.

Please note that DBE certification status is not considered pre-qualification to bid, or approval to perform work for the Department of Transportation. To become pre-qualified to bid on Department of Transportation projects, or to be approved as a subcontractor, please contact the pre-qualification section at (919) 707-4800.

Thank you for your participation in the Disadvantaged Business Enterprise Program. If you have any questions, please do not hesitate to call my direct line (919) 508-1934.

Sincerely,
DocuSigned by:
Jamalh Greene
1DF2C26BFD964E8...
Jamalh Greene
DBE Certification Officer

96000

Nothing Compares℠

State of North Carolina | Department of Transportation | Business Unit Name
104 Fayetteville St Raleigh, NC 27601| 1511 Mail Service Center | Raleigh, NC 27699-1511
919- 508-1945 T

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/29/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER
Insurance Management Consultants, Inc.
P.O. Box 2490
Davidson NC 28036

CONTACT NAME:
PHONE (A/C, No, Ext): (704)799-1600 FAX (A/C, No): (704)799-2955
E-MAIL ADDRESS: cert@imcipls.com

INSURER(S) AFFORDING COVERAGE	NAIC #
INSURER A : RLI Insurance Company	13056
INSURER B :	
INSURER C :	
INSURER D :	
INSURER E :	
INSURER F :	

INSURED
Hartranft Lighting Design, LLC
401 Hawthorne Lane
Charlotte NC 28204

COVERAGES **CERTIFICATE NUMBER:** 9/4/2016 Renewal **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: X POLICY PRO-JECT LOC OTHER:	X	Y	PSB0004025	9/4/2016	9/4/2017	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG 30 NOC-FRIT	$ 2,000,000 $ 1,000,000 $ 10,000 $ 2,000,000 $ 4,000,000 $ 4,000,000 $
A	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS SCHEDULED AUTOS X HIRED AUTOS X NON-OWNED AUTOS	X	Y	PSB0004025	9/4/2016	9/4/2017	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 2,000,000 $ $ $
A	UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $	X	Y	PSE0003076	9/4/2016	9/4/2017	EACH OCCURRENCE AGGREGATE	$ 1,000,000 $ 1,000,000 $
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N: N (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	Y	PSW0002170	9/4/2016	9/4/2017	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ 1,000,000 $ 1,000,000 $ 1,000,000
A	PROFESSIONAL LIABILITY		Y	RDP0021298	9/4/2016	9/4/2017	PER CLAIM AGGREGATE	$1,000,000 $2,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

CERTIFICATE HOLDER

Boston Planning & Development Agency
One City Hall, Ninth Floor
Boston, MA 02201

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Jeff Todd/CM

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 11/21/2016

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER LIC #0437153 1-212-948-1306 Marsh Risk & Insurance Services CIRTS_Support@internal.jacobs.com 777 S. Figueroa Street Los Angeles, CA 90017-5822	CONTACT NAME: PHONE (A/C, No, Ext): FAX (A/C, No): 1-212-948-1306 E-MAIL ADDRESS:
INSURED Jacobs Engineering Group Inc. 155 North Lake Avenue, 9th Floor Pasadena, CA 91101	INSURER(S) AFFORDING COVERAGE / NAIC # INSURER A : ACE AMER INS CO 22667 INSURER B : INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES **CERTIFICATE NUMBER: 48493219** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE / OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY / PRO-JECT / LOC OTHER:						EACH OCCURRENCE $ DAMAGE TO RENTED PREMISES (Ea occurrence) $ MED EXP (Any one person) $ PERSONAL & ADV INJURY $ GENERAL AGGREGATE $ PRODUCTS - COMP/OP AGG $ $
	AUTOMOBILE LIABILITY ANY AUTO ALL OWNED AUTOS / SCHEDULED AUTOS HIRED AUTOS / NON-OWNED AUTOS						COMBINED SINGLE LIMIT (Ea accident) $ BODILY INJURY (Per person) $ BODILY INJURY (Per accident) $ PROPERTY DAMAGE (Per accident) $ $
	UMBRELLA LIAB / OCCUR EXCESS LIAB / CLAIMS-MADE DED / RETENTION $						EACH OCCURRENCE $ AGGREGATE $ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N: N / N/A (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below						PER STATUTE / OTH-ER E.L. EACH ACCIDENT $ E.L. DISEASE - EA EMPLOYEE $ E.L. DISEASE - POLICY LIMIT $
A	PROFESSIONAL LIABILITY "CLAIMS MADE"			EON G21655065 007	07/01/16	07/01/17	PER CLAIM/PER AGG 3,000,000 AGGREGATE DEFENSE INCLUDED

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PROJECT MGR: Peter Vasiliou. CONTRACT MGR: Michael Perry. RE: Jacobs will be a subconsultant to Hartranft Lighting Design Group for the architectural lighting of the Congress St Bridge in Boston, MA. CONTRACT END DATE: 11/1/2020. SECTOR: Public. *THIS IS A SAMPLE CERTIFICATE ONLY*. THE ACTUAL CERTIFICATE FOR THE PROPOSED PROJECT WILL COMPLY WITH THE TERMS AND CONDITIONS NEGOTIATED IN THE FINAL CONTRACT, CONSISTENT WITH POLICY TERMS AND CONDITIONS.

CERTIFICATE HOLDER	CANCELLATION
Hartranft 12 Fulton Road Andover, MA 01810 USA	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE