MARK GRIFFITHS, P.E.

SME — Engineering Chief - Electrical

FIRM
STV

EDUCATION
Bachelor Science, Electronic and Electrical Engineering; Western Michigan University

PROFESSIONAL REGISTRATION
Professional Engineer: District of Columbia, Maryland, New Jersey, New York, Texas, Florida, and California

Mark is a chief engineer with more than 40 years of experience in the design and construction of rail and bus transit systems. He is highly skilled in engineering management and supervision for the design and construction of bus depot charging infrastructure and major rail transit systems, including signaling, communications, traction electrification, operations control, facility power, emergency power, station electrical, lighting, fire alarm, fire suppression, and corrosion control. Mark has managed systems design for some of the largest transit and commuter rail projects within the United States in recent years. This has included responsibility for design, construction phase services, and specialty subconsultants from project definition through substantial completion.

PROJECT EXPERIENCE

WMATA/Fairfax County Cinderbed Road Maintenance Facility and Route 1 BRT | BEB Electrical Lead

Provided 30% percent charging infrastructure design documents for charging infrastructure to accommodate 24 buses at an outdoor bus storage facility in Fairfax, VA. The WMATA-owned facility is leased by Fairfax County to store and maintain new battery-electric buses (BEB) for its proposed Route 1 bus rapid transit (BRT) project. The bus charging infrastructure developed by Mark consists of outdoor 13.2 kV medium-voltage, DC-DC charger equipment rated at 2.5MW, capable of charging up to 30 buses at 75 kW each. The charger will be mounted on a platform with a backup compressed natural gas (CNG) generator, and inverted pantographs will be supported from gantries spanning the bus storage areas. The design includes developing utility load letters, underground MV distribution, and conduit risers for supplying power to the charging equipment. The DC power and communication cable distribution to each charge point will be supplied from cable tray and conduits.

WMATA Northern Bus Garage PDB | BEB Electrical Lead

Preparing 100% charging infrastructure design for the reconstruction of the Washington Metropolitan Area Transit Authority's (WMATA's) 333,000-sf Northern Bus Garage in Washington, D.C. The firm is the lead designer for this $350 million progressive design-build (PDB) project to deliver a state-of-the-art facility to support a fleet of 150 40-ft and articulating 60-ft battery-electric buses (BEBs). Mark's design includes detailed charging infrastructure for 131 bus storage positions and 32 maintenance bay positions using a medium-voltage bulk charging solution.

MBTA Quincy Bus Maintenance Facility | BEB Electrification Task Lead

Prepared design through 100% bid documents for a new 350,000-sf Quincy Bus Maintenance Facility. The $250 million MBTA facility will consist of four interconnected structures with a bus storage area, a maintenance area, an office building, and a fueling and wash area. The charging infrastructure design includes 13.8-kV power distribution from a prefabricated main-tie main switching station supplying power to two step-down double-ended unit 480-VAC substations located inside the bus garage to support charging stations for 120 buses with a 2:1 charger ratio. The overall installed charging capacity is 7.2 MW and the calculated power demand is 5.75 MW using a smart managed charging system. The facility design also includes a fully elevated catwalk superstructure in the storage bay area to elevate the chargers and support inverted pantograph connections. Mark's responsibilities included preparing a load letter for the utility service connections and follow-on coordination with National Grid Massachusetts to define the service redundancy.

MTA Jamaica Bus Depot DB | BEB Electrical Lead

Preparing 100% percent charging infrastructure design documents for a joint-venture design-build project to construct the new Jamaica Bus Depot, in the Jamaica neighborhood of Queens, NY for the Metropolitan Transportation Authority (MTA). With space to maintain and store 279 BEBs, the two-level facility will support the MTA's program to transition from diesel-fueled vehicles to a full BEB fleet. The design requires charging infrastructure for charging 60 buses initially, and capacity to charge an additional 210 buses in the future. Mark's charging infrastructure design is based on 480-volt power distribution to outdoor-rated, 1-MW chargers capable of charging up to 10 buses each at 100 kW each.

MDOT MTA Eastern Bus Garage Conceptual Site Plan for 100% Fleet & Facility Electrification | BEB Engineer Lead

Preparing 100% percent design bid documents for fast-track project to develop a site plan at the Eastern Bus Garage in Baltimore for the Maryland Department of Transportation Maryland Transit Administration (MDOT MTA). Plans feature a 145,000-sf facility to store, charge, and maintain 100 BEB. The garage will be an open-air covered structure that can contain 190 bus charging positions. Mark's charging infrastructure design includes six 34.5 kV, 2.5-MW outdoor-integrated chargers installed on the upper-level parking deck. Under the deck, each charger will supply a zone of buses along with a cable tray distribution system.

Metra PMO Services | Electrical and Mechanical Task Lead

Performed engineering design services in support of program management oversight (PMO) for Metra's $2.5 billion, 2020-2024 capital program to improve and renew infrastructure and facilities across its rail network in the greater Chicago area. The scope of services includes planning, project controls, and project administration; signal engineering; and oversight of project development, design, construction, and NEPA/environmental permitting. Mark's activities included developing design criteria for all electrical and mechanical systems and installations, assisting Metra project managers in the solicitation and execution of design contracts, and providing technical expertise and design submission reviews.

WMATA Manual of Design Criteria Revisions | Traction Power Technical Lead

Performed traction power design services to the Washington Metropolitan Area Transit Authority (WMATA) as part of a project to review, update, consolidate, and provide consistency throughout the current version of the authority's Manual of Design Criteria. The project established and defined the technical policies and standards used by engineering personnel and design consultants on all WMATA system lines. Mark's activities included interviewing WMATA staff for input, providing current updates for best practices, and capturing new standards.