



Jean Yves Twagirayezu

STRUCTURAL ENGINEER

PROJECT TECHNICAL CONSULTANT

PROFILE

Mr. Twagirayezu has over 20 years in the professional engineering field with technical experience in structural design and geotechnical engineering, transmission & distribution design, as well as GM/CM engineering related work. His experience includes structural analysis and design of various complex projects including bridges, culverts, retaining walls, sign structures, and substations. Responsibilities include bridge fracture critical and biannual inspections, tunnel inspections, sign structure analysis, retaining wall designs, and foundation designs. Additional experience includes GC and construction management related work. Responsibilities include rehabbing multifamily units, construction management of multi-story buildings, Phase 1 & 2 detail engineering design, Phase 3 engineering support for transmission work, and distribution design of various customer target projects.

EDUCATION

Bachelor of Science
Civil Engineering -
Structure emphasis
University of Maryland
College Park, MD
2007

EXPERTISE

Project Management
Project Inspection
Concrete Design
Earth Retention Design
Bridge & Tunnel Inspections
Transmission Design
Distribution Design
Contract Administration
Cost Estimates & Specifications

SOFTWARE

CONSPAN, RC-Pier, GeoPak
STAAD, MDX, L-Pile, MathCad
PLS-CADD, PLS-POLE
TED/CEGIS, AS8, PoleForman

TRAINING

IDOT Team Leader - Element
FHWA-NHI Safety Inspection of
In-Service Bridges
National Highway Institute
FHWA NBIS Element Level Inspection
MTA Light Rail Training
OSHA Construction
Safety Training
Confined Space Training
CPR/AED & First Aid Training

WORK EXPERIENCE

Four Seasons Hotel

ICS CONSULTANTS GROUP

Retained by Four Seasons Chicago for a high-net-worth private residence to provide full-scope estate management services. Direct all building systems, mechanical, electrical, and security, ensuring zero-disruption operation of a premium property. Established and maintain vendor and subcontractor relationships, negotiate service contracts, and manage a rolling maintenance program with proactive issue resolution. Serve as the single point of accountability for all facility operations and issue resolution.

3 Units Multifamily Rehab

ICS CONSULTANTS GROUP

Project Engineer responsible for GC/CM services for the full rehabilitation of existing multifamily structure. Work included full-gut demolition, new framing, plumbing, ventilation, and electrical work. Responsibilities included creating contracts, securing clients, managing operations and sales, day-to-day business including, obtaining permits, planning, providing quantity and cost estimating, and construction management services. Additional work included managing and coordinating subcontractors, monitoring construction quality services, and creating progress reports to the client.

EXPERIENCE

ICS CONSULTANTS GROUP
Chicago, IL (2020-Present)

BURNS & McDONNEL/DBS
Chicago, IL (2017-2021)

DB STERLIN
Chicago, IL (2016-2021)

JACOBS ENGINEERING
Baltimore, MD (2007-2016)

SCHNABEL ENGINEERING
Baltimore, MD (2005-2007)

KEY CLIENTS

IDOT, CDOT, IL TOLLWAY, CTA
COMED

CDA

MDTA, MTA, SHA

FDOT

KYTC

VDOT

PROFESSIONAL AFFILIATIONS

American Council of Engineering
Companies of Illinois

CONTACT INFORMATION

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Eberhart Avenue – Renovation

ICS CONSULTANTS GROUP

Project Engineer responsible for engineering and construction services for the full rehabilitation of existing family home. Work included full-gut demolition, new framing, windows, plumbing, ventilation, and electrical work. Additional work included repairs to structure and roof. Responsibilities included creating contracts, securing clients, managing operations and sales, day-to-day business including planning and support for construction management services, coordinating subcontractors, monitoring construction quality services, and creating progress reports to the client.

Grand Ave Bascule Bridge and Viaduct – Structural Repairs

CHICAGO DEPARTMENT OF TRANSPORTATION

Project Engineer assisted in the inspection and preparation of short-term repair plans for multiple components of Grand Avenue bascule bridge over Chicago River. Repair options includes plating, sections replacements, and addition of temporary support bolsters. The purposed of the repair was to complete interim repairs needed for the bridge to safely carry traffic up to 5 years before a full bridge reconstruction.

ComEd Bridge Removal

COMMONWEALTH EDISON / EXELON

Project Engineer responsible for engineering and construction services for the removal of three railroad bridges along ComEd access routes in South Chicago. Work included removal of ballast, desk components, steel superstructure, and bearings. Work also included repair to abutments walls to remain, and repair to the remaining roadway medians. Responsibilities included preparation of demolition plans, monitoring and construction quality services, reviewing shop drawings and staging plans, approving mix-designs, and creating progress reports to the client.

ComEd TSS 184 Elk Grove Substation

COMMONWEALTH EDISON / EXELON

Transmission Engineer provided Phase-2 Engineering design for an expansion project at a new substation in Elk Grove Illinois. New Substation designed to meet anticipated need for more power due to growth and operation of data centers in and around the village's technology park and O'Hare market area.

Midway International Airport Terminal Parking Garage Expansion

CHICAGO DEPARTMENT OF AVIATION

Structural Engineer assisted with the design of two new retaining walls, including a T-Type retaining wall on a spread footing and a permanent sheet pile wall. Also designed a retrofit for an existing retaining wall, which entailed the installation of permanent tiebacks in a T-Type retaining wall. In addition, wrote specifications for the retaining walls, created cost estimates, and performed CADD services. The project consisted of expanding the existing parking facility to provide more capacity and revenue for Midway International Airport. The project also provided several ancillary improvements, such as a new south entrance bridge and ramp from northbound Cicero Avenue.

ComEd Program - Transmission Line Design

COMMONWEALTH EDISON / EXELON

Transmission Engineer responsibilities included performing detailed engineering study for ComEd-owned segment of L1352 designated to be bought by Ameren. Line 1352 is a 138kV line running from ComEd's STA 3 to Ameren's Havana Substation. Work included clearance analysis and wood poles analysis and capacity check. Mitigation options included phase adjustment, adding push poles, guying, realignment, pole relocation, and upgrading existing conductor.

IL Route 47 at Main Street

ILLINOIS DEPARTMENT OF TRANSPORTATION

Structural Engineer responsibilities included the preparation of prefinal retaining walls plans, quantities and cost estimates, and preparation of a moment slab design over one retaining structure. The project consisted of extensive profile changes along both Main Street and IL Route 47, design of new bridge structures over Blackberry Creek, and design of associated retaining walls.

RR-13-4116, I-88 Reagan Memorial Tollway, Roadway Reconstruction

ILLINOIS TOLLWAY

Structural Engineer responsible for the preparation of plans and calculation of quantities for various Tollway bridges, including Roosevelt Road under I-88, York Road over I-88, and I-88 over Salt Creek. Also performed a bridge inspection to identify deficiencies in one of the bridges. The project involved design work for the proposed reconstruction of the Reagan Memorial Tollway between York Road and I-290 in DuPage and Cook Counties, Illinois.

Bridge Inspection Project

CHICAGO DEPARTMENT OF TRANSPORTATION

Structural Engineer responsible for multiple structural bridge inspections and preparation of bridge inspection reports, IDOT forms, status memos, and bridge maintenance forms for multiple bridges. The project involves the biennial bridge inspection for 370 bridges located in the City of Chicago. The project also includes special inspections, fracture critical inspections, and element level inspections.

I-4 Ultimate Project

FLORIDA DEPARTMENT OF TRANSPORTATION

Project Engineer performed MSE retaining walls and sign structures design and layout. Responsibilities included the design of MSE walls, cantilever signs, and truss signs using FDOT standards. The designs of sign structures were generated using Mathcad program. Also responsible for coordinating between design disciplines for successful completion of project. Coordination required communication between Drainage and Highway Groups, as well as coordinating between multiple design offices. The goal of the project was to provide express lanes and improve overall traffic operation level throughout the length of the corridor. The project was 21 miles long, with 21 interchanges, and 142 bridges along the I-4 corridor in Central Florida, Orange County.

All Aboard Florida Owner – Passenger Rail Project

FLORIDA DEPARTMENT OF TRANSPORTATION

Structural Engineer performed preliminary designs of substructure layout. Work performed included the design of straddle piers and hammerhead piers for the Entrance Ramp Bridge and Exit Ramp Bridge. The substructure consisted of the abutments, MSE walls, piers, and approach slabs. The designs were generated using RC-PIER and CONSPAN. In addition, prepared proposed arrangements of bridge structures; multiple factors were considered including geometry, right-of-way-impacts, clearance criteria, and economics. Also prepared drawings and estimates. Steel vs. concrete superstructure alternatives were compared for cost recommendations. The project is a privately owned and operated rail project along existing Florida East Coast Corridor (between Miami and Orlando). The scope of work included preparation of Bridge Development Reports for use in the Design-Build RFP. Preliminary designs were based on AREMA and incorporated FDOT Design Criteria where appropriate.

I-65 over the Ohio River Bridge Inspection

KENTUCKY TRANSPORTATION CABINET

Lead Inspector performed condition inspections of truss members for the Kennedy Memorial Bridge. Work performed included utilizing ultrasonic thickness (UT) gauges to measure section loss and checking fracture critical chord members to verify as-built plans for later load rating analysis. The Kennedy Memorial Bridge carries I-65 across the Ohio River and connects Louisville, KY with Jeffersonville, IN.

Metro Facilities Inspection

METROPOLITAN TRANSPORTATION AUTHORITY

Lead Inspector performed visual inspections of all accessible portions of the underground structures, documented inspection findings and prepared the inspection report which provided repair recommendations to MTA. The facilities inspected included the mid-line ventilation shafts and a pumping station for the underground portions of the Baltimore Metro System.

Hampton Roads Bridge Tunnel Inspection

VIRGINIA DEPARTMENT OF TRANSPORTATION

Lead Inspector performed visual inspections of all accessible structural elements within the exhaust ducts of both bores of the HRBT, documented inspection findings and prepared the final inspection report which provided repair recommendations to VDOT.

Baron Road Over CSX

MARYLAND STATE HIGHWAY ADMINISTRATION

Structural Engineer prepared structural final design, PS&E, and advertisement documents for the superstructure replacement. The work included preparation of superstructure designs, including deck design, MDX beams design, shear studs design, and splice design. MDX and various design spreadsheets were utilized in design. In addition, prepared quantities & cost estimates at various phase of the project. His work consisted of the replacement of Baron Road Bridge over CSX. The existing bridge consists of a 5-span structure with two simple timber beams spans at each approach and a multiple steel beams main span. Deterioration of structure resulted in the bridge being closed to traffic. The proposed structure is a three-span bridge with concrete deck on steel beams.

ComEd NERC Assessment, Phases II & III

COMMONWEALTH EDISON / EXELON

Transmission Engineer provided Phase II detail engineering and Phase III construction support for various ComEd transmission lines for upgrades and improvements to the Illinois infrastructures. The improvements were performed in two bundles, a (52) transmission lines package, and a (38) transmission lines package, including both 345kV and 138kV lines. Work performed included analyzing PLS-CADD models, Producing IFA, IFC, and IFR packages, BOM and MR preparation, as well as construction support and as-built and closeout.

DMS Designs and Integration

District Department of Transportation

Structural Engineer performed analysis of sign structure configurations for allowable stresses and fatigue, designed and detailed specific members and their connections and conducted field surveys with planners and ITS personnel in order to optimize location of signs.

Purple Line Preliminary Engineering Phase

METROPOLITAN TRANSPORTATION AUTHORITY

Project Engineer performed Pre-TS&L plans for eight structures along the proposed Line and preliminary design of aerial structures and a station platform. The purple Line is a proposed 16-mile light-rail transit corridor that serves as an east-west link for Washington D.C.'s metro system.