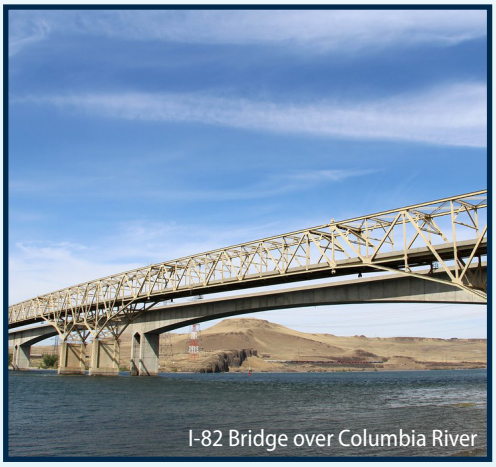
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

IDIQ CONTRACT FOR BRIDGE RATING STATEWIDE

CONTRACT Nos. 4400027650, 4400027651 & 4400027652


Lapalco Bridge over Harvey Canal


I-82 Bridge over Columbia River


SR-605 over Bernard Bayou


I-395 Segmental Bridge (Miami)


Outerbridge Crossing (New York)


I-59 (Downtown Birmingham)

Submitted by: Hardesty & Hanover

SEPTEMBER 2023

3850 N. Causeway Boulevard
Suite 1625
Metairie, LA 70002
T: 504.962.9212
www.hardestyhanover.com

September 12, 2023

Submitted via email: DOTDConsultantAds80@la.gov

Re: IDIQ Contract for Bridge Rating - Statewide
Contract Nos. 4400027650, 4400027651, and 4400027652

Dear Consultant Evaluation Committee Members:

Hardesty & Hanover, LLC (H&H) welcomes this opportunity to propose on the IDIQ Contract for Bridge Rating Services throughout Louisiana. For this contract, we have assembled an ideal team of engineers to perform the required load rating services for various bridge types such as concrete, truss, movable, and segmental bridges. We are confident our staff who are familiar with the Federal Highway Administration's (FHWA) Load & Resistance Factor Rating processes and requirements will meet the challenges for bridge rating of any complex structure assigned to our team.

In addition to exceeding your MPRs requirements, our team consists of industry leaders, proven technical and management staff, who are capable, experienced, and available to work on this contract. Our bridge experts have firsthand experience with the problems associated with aging bridge structures. H&H's multi-disciplined team proposed for this contract understands the importance of providing accurate load ratings to ensure the safety of an infrastructure for the traveling public. We have provided LADOTD, other DOTs, and local government agencies with decades of comprehensive bridge design and load rating services.

As Project Manager for this contract, Dr. Naghavi, a highly respected, experienced, and effective project manager will lead the H&H team. He is a former LADOTD engineer/administrator with 42 years of LADOTD bridge and roadway design and contract management experience. He will ensure that the project deliverables associated with this contract are delivered on time, within budget, and in compliance with the latest procedures and standards. He will be supported by several Louisiana registered project engineers who have years of experience providing load rating services throughout the nation for various types of complex structures as well the use of AASHTOWare.

The depth of our available technical resources supplemented with professionals from Gresham Smith will allow for our team to deliver quality final products for all task orders when multiple task orders are issued simultaneously. We have successfully teamed with Gresham Smith in previous transportation projects. Complementing this team is a group of distinguished technical bridge experts who will oversee the QA/QC process for the load rating tasks.

We look forward to a favorable review of our proposal and hope to be working with LADOTD on this important contract. If you have any questions regarding our proposal, please do not hesitate to contact me, directly at 504.962.9212 or bnaghavi@hardestyhanover.com.

Sincerely,
Hardesty & Hanover

Babak Naghavi, PhD, PE, PH
Regional Manager

DOTD FORM: 24-102

(Revised January 1, 2023)

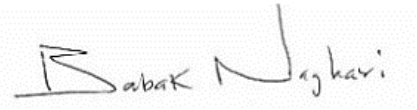
PROPOSAL TO PROVIDE CONSULTANT SERVICES

Prime consultant shall complete the DOTD Form 24-102 without altering the Form's text; however, the instruction and/or guidance for Sections 12 through 23 can be removed but do not remove Section title and number.

ANY CONSULTANT FAILING TO SUBMIT ANY OF THE INFORMATION REQUIRED ON THE DOTD FORM 24-102, OR PROVIDING INACCURATE INFORMATION ON THE DOTD FORM 24-102, MAY BE CONSIDERED NON-RESPONSIVE.

Prime consultant should enter the firm name in the footer at the bottom of this page. (It will carry over to subsequent pages.)

1. Contract title as shown in the advertisement	IDIQ Contract for Bridge Rating Statewide
2. Contract number(s) as shown in the advertisement	4400027650, 4400027651, and 4400027652
3. State Project Number(s), if shown in the advertisement	N/A
4. Prime consultant name **(name must match as registered with the Louisiana Secretary of State where such registration is required by law**)	Hardesty & Hanover, LLC
5. Prime consultant license number (as registered with the Louisiana Professional Engineering and Land Surveying Board (LAPELS) if registration is required under Louisiana law)	LAPELS: EF.0005124 CAGE: 1MD51 DUNS: 05-455-2252
6. Prime consultant mailing address	Hardesty & Hanover, LLC 3850 N. Causeway Boulevard, Suite 1625 Metairie, LA 70002
7. Prime consultant physical address (existing or to be established, if location is used as an evaluation criteria)	Hardesty & Hanover, LLC 3850 N. Causeway Boulevard, Suite 1625 Metairie, LA 70002
8. Name, title, phone number, and email address of prime consultant's contract point of contact	Babak Naghavi, PhD, PE, PH Regional Manager 504.605.7940 bnaghavi@hardestyhanover.com
9. Name, title, phone number, and email address of the official with signing authority for this proposal	Babak Naghavi, PhD, PE, PH Regional Manager 504.605.7940 bnaghavi@hardestyhanover.com

10. This is to certify that all information contained herein is accurate and true, and that the team presently has sufficient staff to perform these services within the designated time frame. By submitting this proposal, proposer certifies that it is not engaged in a boycott of Israel and it will, for the duration of its contract obligations, refrain from a boycott of Israel. Proposer also certifies and agrees that the following information is correct: In preparing its response, the proposer has considered all proposals submitted from qualified, potential subcontractors and suppliers, and has not, in the solicitation, selection, or commercial treatment of any subcontractor or supplier, refused to transact or terminated business activities, or taken other actions intended to limit commercial relations, with a person or entity that is engaging in commercial transactions in Israel or Israeli-controlled territories, with the specific intent to accomplish a boycott or divestment of Israel. The proposer also has not retaliated against any person or other entity for reporting such refusal, termination, or commercially limiting actions. DOTD reserves the right to reject the response of the bidder or proposer if this certification is subsequently determined to be false, and to terminate any contract awarded based on such a false response.	 Signature above shall be the same person listed in Section 9: Date: 9/12/2023
11. If a Disadvantaged Business Enterprise (DBE) goal has been set for this advertisement, indicate which firm(s) will be used to meet the DBE goal and each firm(s)' percentage.	Firm(s): Firm(s)' %: No DBE Goal has been established for this contract

12. Past Performance Evaluation Discipline Table:

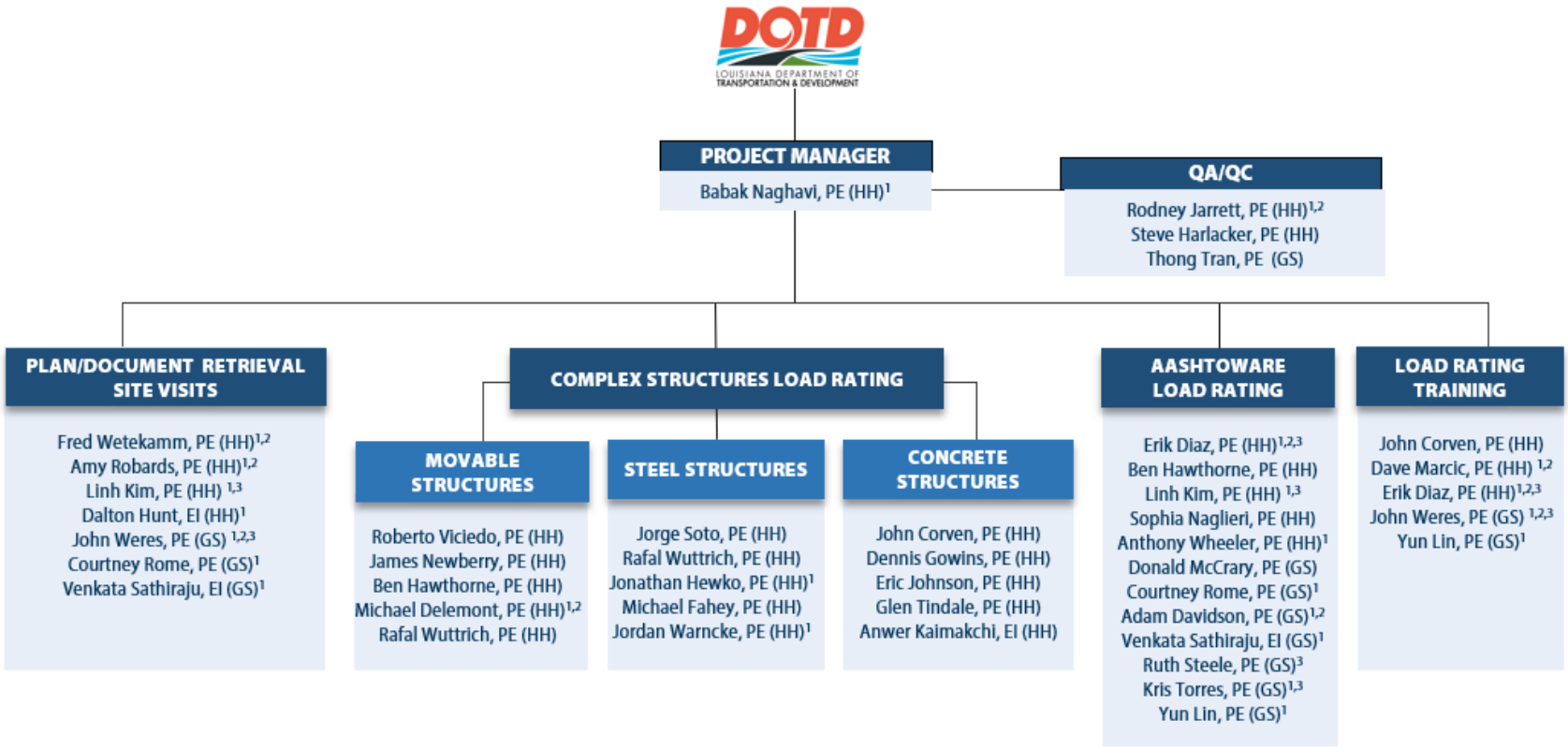
Past Performance Evaluation Discipline(s)	% of Overall Contract	Prime: Hardesty & Hanover	Subconsultant: Gresham Smith	Each Discipline must total 100%
Bridge	100%	80%	20%	100%
Identify the percentage of work for the overall contract to be performed by the prime consultant and each sub-consultant.				
Percent of Contract	100%	80%	20%	100%

13. Firm Size:

Firm name	DOTD Job Classification	Number of personnel committed to this contract	Total number of personnel available in this DOTD Job Classification (if needed)
Hardesty & Hanover, LLC	Principal	1	3
	Supervisor – Eng	5	10
	Engineer	9	20
	Engineer - Other	9	32
	Engineer Intern	2	10
	Administrative	1	3
Gresham Smith	Principal	1	2
	Supervisor – Eng	2	4
	Engineer	2	4
	Engineer - Other	4	6
	Engineer Intern	1	6

14. Organizational Chart:

LADOTD IDIQ Contract for Bridge Rating Statewide
CONTRACT NOS. 4400027650, 4400027651, AND 4400027652



TEAM
HH: Hardesty & Hanover
GS: Gresham Smith

BRIDGE INSPECTION CERTIFICATIONS
1: NHI 130055, 130053, 130056 Safety Bridge Inspection; Refresher
2: NHI 130078 Fracture Critical Inspection
3: NHI 130092 Fundamentals of LFR and Applications of LRFR for Bridge Superstructures

15. Minimum Personnel Requirements:

MPR No. Do not insert wording from ad	Personnel being used to meet the MPR (Individual(s) may not satisfy more than one MPR unless specifically allowed by Attachment B of the advertisement)	Firm employed by	Type of license and discipline meeting MPR/ certification & number (Ex: PE # - Civil)	State of license	License / certification expiration date
1	Babak Naghavi	Hardesty & Hanover	PE #20745 – Civil	LA	9/30/2024
2	Babak Naghavi	Hardesty & Hanover	PE #20745 – Civil	LA	9/30/2024
3	Babak Naghavi	Hardesty & Hanover	PE #20745 – Civil	LA	9/30/2024
	Fred Wetekamm	Hardesty & Hanover	PE #25369 - Civil	LA	3/31/2024
	Erik Diaz	Hardesty & Hanover	PE #37712 - Civil	LA	9/30/2025
4	Dennis Gowins	Hardesty & Hanover	PE #24468 - Civil	LA	9/30/2023
	Roberto Viciedo	Hardesty & Hanover	PE #36533 - Civil	LA	3/31/2024
	James Newberry	Hardesty & Hanover	PE #45742 – Structural/Civil	LA	9/30/2025
	Rodney Jarrett	Hardesty & Hanover	PE #43868 – Civil	LA	3/31/2024
	John Corven	Hardesty & Hanover	PE #38309 – Civil	LA	3/31/2024
	Michael Delemont	Hardesty & Hanover	PE #43170 – Structural	LA	9/30/2025
	John Weres	Gresham Smith	PE #36429 – Civil	LA	9/30/2025
	Thong Tran	Gresham Smith	PE #32072 – Civil	LA	3/31/2024
5	Erik Diaz	Hardesty & Hanover	PE #37712 - Civil	LA	9/30/2025
	Ben Hawthorne	Hardesty & Hanover	PE #44620 - Structural	LA	9/30/2024
	Steven Harlacker	Hardesty & Hanover	PE #37057 – Structural/Civil	LA	9/30/2024
	Yun Lin	Gresham Smith	PE #42444 – Civil	LA	9/30/2024
	Courtney Rome	Gresham Smith	PE #43355 - Civil	LA	9/30/2025

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Babak Naghavi, PhD, PE, PH**	Years of relevant experience with this employer	6
Title	Regional Manager	Years of relevant experience with other employer(s)	36

Degree(s) / Years / Specialization			PhD / 1993 / Civil Engineering M.S. / 1982 / Civil Engineering B.S. / 1979 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 20745 / LA / 9/30/2024 ATSSA Traffic Control Supervisor Refresher – ATSSA Flagger Safety Inspection of In-Service Bridges, NHI # 130055/53 Maintenance & Rehabilitation of Historic Bridges (LADOTD) Underwater Bridge Inspection, NHI # 130091 Bridge Inspection Non-Destructive Testing, NHI # 130099
Year registered	1983	Discipline	Civil and Environmental Engineering
Contract role(s) / brief description of responsibilities			**Project Manager – Meets MPR 1, 2, and 3**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/23 - Present	**H.009730.5; LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Project Manager** supervising inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
06/22 - Present	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Project Manager** responsible for the inspection and load rating services of SR 609 bascule bridge, as a task-order under the IDIQ Master Bridge Contract. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR** load rating software.
06/18 – Present	**H.002798.6; Bayou Teche Movable Bridge at Oaklawn Rehabilitation, St. Mary Parish, LA – LADOTD** **Project Manager** responsible for design and plan preparation of the bridge power distribution and relay-based control system for this movable bridge located in St. Mary Parish, LA. The new through girder swing-span rotates with hydraulically actuated slewing (push-pull) cylinders. The project is currently in the construction phase.
08/20 - Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourg, LA – LADOTD** **Project Manager** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Scope of work include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD,

	contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates, and progress reports; preparing final estimate packages; conducting construction progress meetings; construction closeout, etc.
08/20 – 12/22	**SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – MDOT** **Project Manager** responsible for the assessment, design, plan review, and quality control of SR 605 double-leaf bascule bridge, as a task-order under the IDIQ Master Bridge Contract which includes developing standard and special bridge services statewide for MDOT. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with **AASHTO**, FHWA and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
08/18-6/22	**Lake Pontchartrain Causeway Safety Bay Improvement Project, New Orleans, LA - Greater New Orleans Expressway** **Project Manager** responsible for construction engineering and inspection services for this fast-paced $60 million bridge improvement project designed according to **LADOTD Standards and Specifications**. Scope of work utilized the Construction Manager at Risk (CMAR) delivery method. Improvements increased emergency stopping areas and widened both causeway bridges to provide new shoulders in at least six locations in each direction.
01/19 - Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Project Manager** for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. Scope of work includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of work also includes the design of a new bridge to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. Improvements to bridge and roadway approaches for eastbound and westbound traffic is also included in scope of work. **Load rating** was performed using **AASHTOWare BrDR** load rating software. All design work is according to **Louisiana DOTD Standard and Specifications** and reviewed by LADOTD.
01/11 – 12/13	**I-10 Calcasieu River Bridge Repairs, Calcasieu Parish, LA – LADOTD** **Project Manager,** for construction engineering and inspection for structural repairs to 1-10 Calcasieu River Bridge. The project consisted of repairs to main deck truss and steel cantilever truss members, approach trestle pin plate connections, approach trestle anchor bolt repair, approach trestle bent repairs, deck joints repair, bridge railing repair, and approach roadway pavement expansion joints. The project also included cleaning and removal of lead-based paint and painting of truss connections and the replaced railing.
03/14 – 01/17	**Off-System Hwy Bridge Replacement – St. Ann Bridge Over Bayou Terrebonne, Terrebonne, LA – LADOTD** **Project Manager** for this construction engineering and inspection project that involved removal of a single-lane truss swing span bridge structure, existing fender system, timber bulkhead, operator house, and existing timber piling. New construction involved a single swing span bridge, concrete slab bridge approaches, concrete approach slabs, timber fender system, navigational lighting, grading, aggregate surfacing, and asphaltic concrete roadway paving.
08/81 – 08/87	**Road Design Section, Hydraulics Unit, Baton Rouge, LA - LADOTD** **Senior Hydraulics Engineer** responsible for the review and design of the numerous drainage projects including the drainage design of roadway and bridge structures, scour analysis of bridges; and stabilization of stream banks and shorelines according to Louisiana Standard Specifications for roads and bridge. Also developed the Hydraulic Design Manual and all the hydraulics and hydrologic computer programs that were used by the LADOTD, other government agencies, and the consultant community for hydraulic design of roads and bridges.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Frederick Wetekamm, PE**	Years of relevant experience with this employer	5
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	30

Degree(s) / Years / Specialization			M.E. / 2018 / Construction Engineering Management B.S. / 1984 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 25369 / LA / 3/31/2024 Maintenance & Rehabilitation of Historic Bridges (LADOTD) NHI 130055 - Safety Inspection of In-Service Bridges NHI 130078 - Fracture Critical Inspection Techniques for Steel Bridges ATSSA Traffic Control Supervisor and Flagger
Year registered	1993	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits. Meets MPR 3**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/23 - Present	**H.009730.5; LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Senior Bridge Engineer** supervising inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
06/22 - Present	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Structural Team Leader** for inspection of SR 609 Bridge. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR** load rating software.
1996 - 2007	**LADOTD Bridge Maintenance Engineer, LADOTD District 2, LA – LADOTD** **Bridge Maintenance Engineer** responsible for managing the program for Bridge Inspection, Operations and Maintenance Program, bridge operators, repair crews, and inspectors. The New Orleans Area has over 950 bridges (32 movable bridges), three tunnels, two navigation locks, and three drainage pumping stations. Responsible for creating and distributing repair work orders and coordinating the repairs, materials, equipment, labor, media information, and/or traffic control. Wrote major repair requests and generated project plans and specifications for repair projects and accident damages to the bridges for marine, vehicular, and environmental damages. **Lead Coordinator** for the projects with LADOTD District/statewide forces, contractors, consultants, public officials, media, property owners, and bridge maintenance supervisors. Provided construction inspection and damage assessments (DIR) for federally reimbursed repairs from hurricanes and tropical storms. Experienced with specialized traffic requirements for the bridge/tunnel couplets, District traffic and marine requirements for temporary bridge closures, and permit load crossings. Bridge evaluations were completed using the Louisiana DOTD Bridge Design Manuals and AASHTO.

01/20 - Present	**Almonaster Avenue Railroad Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans/LADOTD** **Senior Bridge Engineer** for the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&H's 2019 assessment of the circa-1920, eligible for the National Register of Historic Places bridge, revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications were deemed necessary to accommodate the rehabilitated superstructure. H&H developed necessary design plans to replace the span drive and span lock machinery, operating strut, guide assembly, live load bearings, counterweight trunnion pin, and bushing. The main trunnion bearings were rehabilitated and repositioned. All design work is according to **LADOTD Standards and Specifications** and reviewed by LADOTD.
08/20 – 12/22	**SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – MDOT** **Structural Engineer** responsible for the assessment, design, plan review, and quality control of SR 605 double-leaf bascule bridge, as a task-order under the IDIQ Master Bridge Contract which included developing standard and special bridge services, statewide for MDOT. Scope of work included inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs were in accordance with AASHTO, FHWA and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
8/20 - Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourg, LA – LADOTD** **Project Engineer** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD, contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; construction close-out, etc.
01/19 - Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Senior Bridge Engineer** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. The project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also includes the design of a new bridge to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. Improvements to bridge and roadway approaches for eastbound and westbound traffic as well as the development of a traffic control plan is also included in scope. **Load rating** was performed using **AASHTOWare BrDR** load rating software. All design work is according to **LADOTD Standards and Specifications** and reviewed by LADOTD.
10/19 – 06/23	**Annual Inspections of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Structural Inspection Team Leader** for an annual (2019-2022) inspection of the Almonaster Avenue Railroad Bascule, which involved a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.
08/18 – 06/22	**Lake Pontchartrain Causeway Safety Bay Improvement Project, New Orleans, LA - Greater New Orleans Expressway** **Project Engineer** responsible for construction engineering and inspection services for this fast-paced $60 million bridge improvement project designed according to **LADOTD Standards and Specifications**. The project utilized the Construction Manager at Risk (CMAR) delivery method. Improvements increased emergency stopping areas and widened both causeway bridges to provide new shoulders in at least six locations in each direction.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Amy Robards, PE**	Years of relevant experience with this employer	5
Title	Bridge Inspection Team Leader	Years of relevant experience with other employer(s)	7

Degree(s) / Years / Specialization			B.S. / 2012 / Civil Engineering
Active registration number / state expiration date			Professional Engineer: 41718 / LA / 9/30/2025 NHI 130078 - Fracture Critical Inspection Techniques for Steel Bridges FHWA-NHI 130055/53 Safety Inspection of In-Service Bridges / Refresher 2018 ATSSA Traffic Control Supervisor Refresher – ATSSA Flagger DOTD Certified Structural Concrete Inspector / LADOTD / 12/13/2023
Year registered	2017	Discipline	Civil and Environmental Engineering
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/23 - Present	**H.009730.5; LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Structural Team Leader** for inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
08/20 – Present	**H.001498.6; LA 24 and LA 16 Company Canal Vertical Lift Bridge, Bourg, LA – LADOTD** **Assistant Project Engineer** delivering construction engineering and inspection services for a new vertical lift bridge and operator's house. Services include daily monitoring of all construction activities; maintaining all construction field records; coordinating with DOTD, contractor, parish government, and utilities; performing field testing; maintaining records of contractual operations, pay estimates and progress reports; preparing final estimate packages; conducting construction progress meetings; construction close-out, etc.
06/22 - Present	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Structural Team Leader** for inspection of SR 609 Bridge. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR** load rating software.
09/19 – 08/20	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Structural Inspector** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. The project included rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services included inspection and load rating services. **Load rating** was performed using **AASHTOWare BrDR** load rating software. All design was in accordance with LADOTD Standards and Specifications and reviewed by LADOTD.

10/19 – Present	**Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Structural Engineer/Inspector** for an annual inspection of the Almonaster Avenue Railroad Bascule, an eligible for the National Register of Historic Places bridge, which involves a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.
08/18 – 06/22	**Lake Pontchartrain Causeway Safety Bay Improvement Project, New Orleans, LA – Greater New Orleans Expressway** **Structural Inspector** responsible for construction engineering and inspection services for this fast-paced $60 million bridge improvement project designed according to LADOTD Standards and Specifications. The project utilized the Construction Manager at Risk (CMAR) delivery method. Improvements increased emergency stopping areas and widened both causeway bridges to provide new shoulders in at least six locations in each direction.
03/16 – 10/17	**US 190 Mississippi River Bridge CE&I, Baton Rouge, LA – LADOTD** **Structural Inspector** responsible for providing construction engineering and inspection services required during the repairs to the US 190 Mississippi River Bridge approaches in Baton Rouge, LA. The project included assorted repairs and the replacement of anchor bolts at concrete footings and other steel approach spans elements.
03/19 – 06/22	**Seabrook Railroad Bridge Annual / In-Depth Bridge Inspection, Port of New Orleans, LA – Port of New Orleans** **Structural Inspector** responsible for conducting annual inspection of the Seabrook Trunnion Bascule Bridge crossing the International Harbor Navigational Canal, IHNC, in New Orleans, LA. This inspection included a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.
02/18 – 03/18	**Lapalco Boulevard Bridge Repairs Construction Supplement, Lapalco, LA - Jefferson Parish** **Structural Engineer/Inspector** responsible for providing annual inspection services and contributing to the subsequent inspection report. Jefferson Parish requested a yearly valuation to determine the value of the bridge.
12/15 – 05/18	**Huey P. Long Bridge over the Mississippi River Annual Inspections, Bridge City, LA – New Orleans Public Belt Railroad (NOPBRR) and LADOTD** **Structural Engineer/Inspector** provided annual inspection services for the main bridge and railroad approaches of the Huey P. Long Bridge, a 2,400-foot-long cantilevered steel through truss bridge that carries a two-track railroad line and three lanes of US 90, as well as the turntable span and maintenance facilities. Inspected the primary members on the deck truss, main spans, piers, towers, and girders using standard climbing techniques and used technical access (rappelling) to inspect the piers. Contributed to the pre-inspection planning, coordination, and writing the final inspection reports.
04/18 – 06/18	**19 Complex Bridge Inspections and Load Ratings, Statewide, LA – LADOTD** **Structural Engineer** provided inspection and evaluation services for 19 complex bridges at various locations throughout Louisiana.
06/17 – 08/17	**International Paper Company Bridge I&R Load Rating and Inspection, Mansfield, LA – LADOTD** **Structural Engineer** responsible for conducting **load rating** analysis for International Paper Company's Bridge (IPC) bridge facilities. IPC wanted to add additional weight to its railroad line.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Dalton Hunt, EI**	Years of relevant experience with this employer	2
Title	Civil Designer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 2021 / Civil Engineering
Active registration number / state / expiration date			Engineer In Training: 0035118 / LA/ 09/30/2024 NHI 130055 - Safety Inspection of In-Service Bridges
Year registered	2022	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/23 - Present	**H.009730.5; LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Structural Inspector** for inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
02/22 – Present	**Almonaster Avenue Bridge Rehabilitation and New Connector Road, New Orleans, LA – Port of New Orleans** **Engineer Intern** for the bridge assessment, complete rehabilitative engineering design, and road design services required for the partial replacement of the Almonaster Avenue Bridge and a new connector road. The road design services include a new alignment for the connecting road, including all drainage structures. H&H also developed a hydraulic study and site plan that includes several retention ponds for drainage improvements. All design work is according to **LADOTD Standards and Specifications** and reviewed by LADOTD.
04/22 – 12/22	**SR 605 Bascule Bridge over Industrial Waterway, Harrison County, MS – MDOT** **Engineer Intern** for the comprehensive rehabilitation of this bascule bridge over the Industrial Waterway. Work also included design and detailing of a new PPC pile-supported reinforced concrete generator platform. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
06/22 - Present	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Engineer Intern** for inspection of SR 609 Bridge. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR load** rating software.
02/22 – Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Engineer Intern** for the pre-design inspection, rehabilitation, and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, as well as the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. The scope of services also includes the design of a new bridge to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. All design work is accordance to LADOTD Standards and Specifications and reviewed by LADOTD. **Load rating** was performed using **AASHTOWare BrDR** load rating software.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Erik Diaz, PE**	Years of relevant experience with this employer	4
Title	Senior Bridge Structural Engineer	Years of relevant experience with other employer(s)	11

Degree(s) / Years / Specialization			B.S., 2008, Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 37712 / LA / 09/30/2025 Maintenance & Rehabilitation of Historic Bridges (LADOTD) NHI 130078. Fracture Critical Inspection Techniques for Steel Bridges NHI 130092. Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures NHI 130081. Load and Resistance Factor Design (LRFD) For Highway Bridge Superstructures NHI 130056. Safety Inspection of In-Service Bridges
Year registered	2013	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating and Load Rating Training. Meets MPR 3 and 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience time specified in the applicable MPR(s).
06/23 - Present	**H.009730.5; LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Structural Team Leader** for inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
06/22 – 08/23	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Senior Structural Engineer** responsible for the inspection and load rating services of SR 609 bascule bridge, as a task-order under the IDIQ Master Bridge Contract. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR** load rating software.
08/19 – Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Jefferson Parish, Louisiana – Jefferson Parish DPW/LADOTD** **Senior Structural Engineer** for the pre-design inspection and design of a new three-lane double bascule movable bridge crossing of Harvey Canal and the widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction. The new bridge was constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. Project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane, improvements to bridge and roadway approaches, and development of a traffic control plan. All design work is **accordance to LADOTD Standards and Specifications** and reviewed by LADOTD. **Load rating** was performed using **AASHTOWare BrDR** load rating software.

08/20 – 12/22	**SR 605 Bascule Bridge Over Industrial Waterway, Harrison County, MS – MDOT** **Senior Structural Engineer** performing the bridge **load rating** for movable and fixed bridge approaches. Contributing to structural design for the comprehensive rehabilitation of this bascule bridge over the Industrial Waterway. Work on this project includes design and detailing of a new PPC pile-supported reinforced concrete generator platform as well as the design and detailing of steel access improvements. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
10/14 – 12/16	**Bridge Ratings for 110 Bridges, Statewide – LADOTD** **Bridge Structural Engineer** responsible for developing spreadsheets and processes for rating of several bridge structures. Also, performed **load ratings** for bridge superstructures and substructures using **AASHTOWare BrR** load rating software and Excel. He also developed the bridge **load rating** reports.
12/12 – 10/15	**Houma Navigation Canal Bridge Rehabilitation, Houma, LA – LADOTD** **Bridge Structural Engineer** responsible for performing bridge inspections to identify repairs for rehabilitation as well as providing bridge **load rating** using **AASHTOWare BrR** load rating software to identify areas for strengthening. Also, designed and detailed various elements for bridge rehabilitation.
08/15 – 02/19	**Vermillion River Vertical Lift Bridges Rehabilitation, Vermillion Parish, LA – LADOTD** **Senior Structural Engineer** for the inspection, rating, and final rehabilitation recommendations report for two steel vertical lift bridges over the Vermillion River. Work on this project included inspection and **load rating** to identify components of the bridge to be rehabilitated. Evaluation of various alternatives for strengthening the bridge and increasing vehicular vertical clearance. Produced engineers cost estimate for repairs, and prepared final report of recommendations.
01/20 – Present	**Almonaster Avenue Railroad Bridge of the Industrial Canal Rehabilitation, New Orleans, LA – Port of New Orleans** **Bridge Structural Engineer** for the bridge assessment, rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&H's 2019 assessment of the circa-1920, National Register of Historic Places eligible bridge revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. Although the existing substructure could remain, modifications to other bridge elements were deemed necessary to accommodate the rehabilitated superstructure. All design work is in accordance with **LADOTD Standards and Specifications** and reviewed by LADOTD.
08/19 – 10/19	**Seabrook Bascule Bridge Bearing Repairs, New Orleans, LA – Port of New Orleans** **Movable Bridge Field Engineer** for the construction of repairs to the concrete bent cap at the toe of the span. Work on this project included design of bent cap strengthening due to cracking at bridge bearing, tracking contractor progress, and construction compliance with design plans. Preparation of final acceptance report upon completion of construction.
10/08 – 04/13	**Huey P. Long Bridge Over The Mississippi River, Bridge City, LA – New Orleans Public Belt Railroad and LADOTD** **Bridge Structural Engineer** responsible for checking and approving shop drawings as well as performing various construction support calculations. The project was a major widening of the bridge including HPL trusses and approaches.
07/16–07/17	**Two US 11 Bascule Bridges over Lake Pontchartrain Rehabilitation, Jefferson and St. Tammany Parishes, LA – LADOTD** **Senior Bridge Structural Engineer** for the comprehensive rehabilitation of one bascule and replacement of another bascule bridge over Lake Pontchartrain. Work on this project included the inspection of old spans, the rehabilitation design development for the north bascule span and fender, as well as the design of construction plans for a new south bascule span.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Dennis Gowins, PE**	Years of relevant experience with this employer	2
Title	Structural Engineer	Years of relevant experience with other employer(s)	42

Degree(s) / Years / Specialization			B.S. / 1978 / Civil Engineering M.S./ 1990 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0024468 / LA / 09/30/2023
Year registered	1991	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Concrete Structures) Load Rating. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/23 - Present	**I-59 / I-20 Box Girder Bridges Inspection and Load Rating, Meridian, MS – MDOT** **Load Rating Engineer** for the **load rating** of the two box girder bridges. Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 are located near Meridian in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes. The **load rating** analyses included developing a finite element model of each bridge and for load ratings to follow LFR considering MDOT's permitted vehicle legal loads. The repair recommendations will be made based on the inspection results and the load rating.
08/14 – 10/15	**I-269 Over Coldwater River, Marshall County, MS – MDOT** **Structural Engineer** responsible for the seismic analysis and **load rating** of this 4,054-foot-long, 62 span bridge (17 units) carrying I-269 over Coldwater River. The 98-foot-wide bridge carries six lanes of traffic with barriers. The 65-foot spans are comprised of nine Type III AASHTO beams on 11-foot, 6-inch spacings with an 8-inch concrete deck. The bridge is supported on precast concrete pile bents with 24-inch prestressed concrete piles. A site-specific response spectrum analysis was performed with an extensive 3D finite element model. Nonlinear springs were applied along each pile element to emulate the response of the extremely variable soil layers.
06/03 – 12/04	**Replacement of the US 17A Over I-26, Berkeley County, SC – SCDOT** **Structural Engineer** for the development of the final design including **load rating** of the 360-foot, four-span bridge replacement. This structure, which was analyzed for site-specific seismic loads and is located on a main arterial between the northern suburbs and the City of Charleston. The 145-foot-wide superstructure is supported by bulb-tee and AASHTO girders, which in turn are supported by traditional bents and drilled shafts founded in cooper marl.
09/13 – 06/14	**Tampa International Airport Taxiway B Bridge, Tampa, FL – Hillsborough County Aviation Authority** **Structural Engineer** responsible for independent checks of the longitudinal analyses, principal stresses, **load rating**, and 3-D finite element analyses of the adequacy of the existing bridge. The project included the inspection / peer review of the 227-foot, 6-inch-long by 217-foot, 6-inch-wide bridge and calculations following inspection. The inspection revealed cracking in the deck and blocked tendons. The major spans of the bridge are 97 and 94 feet with a small outer span of 36 feet. The bridge is a multicell cast-in-place post-tensioned (31K6 tendons) concrete bridge. The bridge is founded on columns supported on four-foot drilled shafts.

08/16 – 06/21	**SR 836 / I-95 / I-395 Interchange, Miami , FL – FDOT** **Structural engineer** responsible for all substructure and miscellaneous structural designs and **load rating** for the segmental bridges during the successful design-build pursuit. For final design, responsible for review of all substructure bridge designs (bridges 4,5,6w,6e,7w,7e and 11 – 12,600 lf) and final design of all abutments and miscellaneous structures. The segmental bridges are built in balanced cantilever and are founded on footings supported by auger cast concrete pilings. This $800 million project is all about transforming Miami by reconnecting communities that were once divided, creating a safer environment for pedestrian and vehicular traffic, and solving mobility challenges that have inhibited traffic for many years.
06/97 – 12/01	**SR 84 Bridge over South Fork New River, Davie, FL – FDOT** **Bridge Structural Engineer** responsible for the design, detail of repairs, and preparation of cost estimates for a $4 million Hopkins trunnion single-leaf bascule span bridge rehabilitation. The project included in-depth structural, mechanical, and electrical inspection; reports; **load ratings** on bascule and approach spans; and rehabilitation plans for the structural, mechanical, and electrical systems.
02/08 – 12/10	**SR 5 / US 1 Parker Bascule Bridge Rehabilitation, Palm Beach, FL – FDOT** **Bridge Project Engineer** responsible for project coordination for the twin double-leaf Hopkins trunnion bascule span bridge rehabilitation project. Scope included in-depth inspection, condition report with **load ratings**, rehabilitation recommendations, as well as preparation of structural, architectural, mechanical, and electrical plans for hydraulic machinery retrofit, electrical system improvements, control house modifications, bridge widening, roadway design, and embankment improvements
01/98 – 08/07	**SR 786/PGA Boulevard Bascule Bridge Rehabilitation, Palm Beach Gardens, FL – FDOT** **Bridge Structural Engineer** responsible for the design, repair details, **load rating analysis**, and cost estimate preparation. This $15 million multi-phase construction project included in-depth inspection, condition report with load ratings and recommendations, preparation of structural, mechanical, and electrical rehabilitation plans, and bascule span replacement plans for this twin double-leaf bascule span bridge. Project design utilized existing bascule pier foundations and approach span structure to minimize costs. The design required multi-phase construction to maintain traffic.
06/20 – 12/20	**Roosevelt Bridge Emergency Post-Tensioning Repairs, Stuart, FL – FDOT** **Structural Engineer** for the emergency repairs. The twin, 4,500-foot-long post-tensioned segmental bridges carry US Highway 1 over the St. Lucie River. During a routine biannual inspection, inspectors found significant cracking, leading to the closing of both the northbound and southbound bridges was discovered on June 16, 2020 by the Florida DOT . The cracking was the result of post-tensioning tendon failures as a result of excessive corrosion. The engineering team was mobilized the following day under emergency conditions. Within 5 days, the bridges were inspected and analyzed, such that the northbound bridge could reopen to reduced two-way traffic. Two months later the final analysis, design, and repair plans were completed. Using an innovative CMGC contract, repairs were made and the bridges opened to traffic in November of 2020. The work included partial deconstruction and then reconstruction of the segmental bridge, the addition of new post-tensioning tendons, **load rating calculations and analysis**, and repair plans.
05/21 - Present	**I-395 Segmental Bridges, Miami, FL – FDOT** **Structural Engineer** for the design of five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor improvements. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Directed the development of the bridge layouts, cross sections, and construction methodology. The work also includes design, **load rating,** oversite of the final design, shop drawings, and construction engineering.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Roberto Viciedo, PE**	Years of relevant experience with this employer	26
Title	Structural Engineer	Years of relevant experience with other employer(s)	1

Degree(s) / Years / Specialization			B.S. / 1995 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0036533 / LA / 03/31/2024
Year registered	2011	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Movable Structures) Load Rating. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/18 – 06/19	**SR 609 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – MDOT** **Senior Structural Engineer** for full rehabilitation of SR 609 bascule bridge, as a task-order under the IDIQ Master Bridge Contract which included developing standard and special bridge services, statewide for MDOT. Scope of work included inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA, and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
07/07 – 06/11	**Mathews Bridge (SR 115) Emergency Bridge Repair, Jacksonville, FL – FDOT** **Structural Engineer** for emergency repair to the bottom chord and floor system for the 810-foot suspended span on the main channel span cantilevered truss due to a ship collision. Temporary bottom chord and jacking system was designed to temporarily support the severed truss chord, and jack load into the chord to correct truss geometry. Repairs also included heat straightening of truss gusset plates, gusset plate replacement, and lateral bracing replacement. Design was completed in 3 days.
04/18 – 08/18	**Brorein Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa** **Structural Engineer** responsible for design services, including a **load rating analysis**, for the rehabilitation of the movable span of the Brorein Street bascule bridge over the Hillsborough River in downtown Tampa, FL. The project included widening of the approach spans and the bascule leaves to provide a 10-foot shared use path on each side.
07/18 – 01/21	**SR 3/Christa McAuliffe Bridge Over Canaveral Barge Canal, Merritt Island, FL – FDOT** **Project Manager** in charge of general project coordination and a task for the design, repair details, **load rating** analysis using **AASHTOWare BrDR,** and cost estimate preparations during the design phase. Also provided construction support services for this $3.9 million span lock replacement project for twin double-leaf bascule bridges. The existing underdeck span locks were removed and replaced with new barrier mounted span locks.

02/14 – 12/18	**SR 968/SW 1st Street Bridge Over Miami River, Miami, FL – FDOT** **Project Engineer / Structures Task Leader** responsible for general project coordination, design, **load rating**, and managing construction support services phase for the replacement of the nationally registered historic bridge crossing the Miami River. The new 507-foot bridge included a 315-foot double-leaf bascule span over a widened 125-foot navigation channel. Two new approach spans consisting of prestressed concrete beams provided at least 16.5 feet of clearance over North and South River Drives.
07/04 – 07/10	**SR 7/NW 5th Street Bascule Bridge Over Miami River, Miami, FL – FDOT** **Project Engineer** responsible for design, **load rating** analysis and construction support services for this $50 million bridge replacement project which included double-leaf bascule spans, bridge, control tower, approach roadways, and riverwalk. The 180-foot bridge used the appearance of a deck truss Chicago-style trunnion bascule span to fit in with the historic and aesthetic character of Miami's Little Havana community.
04/98 – 08/07	**SR 786/PGA Boulevard Bridge Over ICWW, Palm Beach Gardens, FL – FDOT** **Structural Engineer** responsible for the design, detail of repairs, **load rating** analysis, and preparation of cost estimates. This $15 million multi-phase rehabilitation project included in-depth inspection, condition report with load ratings and recommendations, preparation of structural, mechanical, and electrical rehabilitation plans, and bascule span replacement plans for this twin double-leaf bascule span bridge. Project design utilized existing bascule pier foundations and approach span structure to minimize costs. The design required multi-phase construction to maintain traffic.
01/11 – 03/17	**SR A1A / Flagler Memorial Bridge Over ICWW, Palm Beach, FL – FDOT** **Structural Task Leader** responsible for the design of twin double-leaf rolling lift bascule span superstructures, **load rating**, and construction support services for the $95 million design-build project that included replacement of the entire bridge off-line and parallel to the existing bridge to maintain traffic for this busy causeway connecting West Palm Beach to Palm Beach. The replacement bridge, completed in 2018, included a twin double-leaf rolling lift bascule span bridge with a 150-foot rolling-lift-span over the navigable channel; twelve 150-foot pre-stressed concrete approach spans; and approach roadway work.
08/14 – 07/19	**Camino Real Bridge Over ICWW, Boca Raton, FL – Palm Beach County** **Structural Engineer** responsible for the **load rating** analysis of the main girders and the detailing of the bascule span rehabilitation plans of a historic double-leaf rolling lift span constructed in 1939. The rehabilitation of this historic double-leaf rolling lift span included designs for rehabilitated machinery, new tender house HVAC units, new plumbing systems, new span locks, and the development of technical special provisions. Structural rehabilitation designs involved new roadway grating, floor beam brackets for wider sidewalks, stringers, and bridge railing. Aluminium structural components were used to minimize weight to counterbalance.
01/08 – 08/16	**Gasparilla Island Swing Bridge Over ICWW, Placida, FL – Gasparilla Island Bridge Authority** **Structural Task Leader** responsible for the final design and **load rating** for the replacement of a 220-foot swing span bridge. Also provided construction support services for this $20-million project consisting of 678 feet of the new bridge including a 250-foot deck girder swing span and approach spans utilizing Florida I-Beams. Embankments, supported by MSE walls, were protected by new bulkheads and revetment. In addition to the bridge structures, a new pile-supported tender house was included.
04/22 - Present	**US 92 / SR 600 at Hillsborough River Movable Bridge Rehabilitation, Tampa, FL - FDOT** **Structures Task Leader** responsible for the design, detail of repairs, and preparation of cost estimates for the rehabilitation of the bascule and lift bridges. Repairs to the bascule span included total replacement of the roadway steel open grid deck and modification of the longitudinal filled deck joints. Repairs to the lift span included partial replacement of the roadway steel open grid deck, replacement of the towers steel bracing members and connection plates.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**James Newberry, PE, SE**	Years of relevant experience with this employer	7
Title	Movable Bridge Structural Engineer	Years of relevant experience with other employer(s)	11

Degree(s) / Years / Specialization			M.S. / 2006 / Civil Engineering B.S. / 2006 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 45742 / LA / 09/30/2025
Year registered	2021	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Movable Structures) Load Rating. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/21 – 09/21	**Brorein Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa** **Structural Engineer** responsible for design services, including **a load rating analysis**, for the rehabilitation of the movable span of the Brorein Street bascule bridge over the Hillsborough River in downtown Tampa, Florida. The project included widening of the approach spans and the bascule leaves to provide a 10-foot shared use path on each side.
07/07 – 02/08	**Wilson Pigott (SR 31) over Okeechobee Waterway Bascule Bridge Rehabilitation, Fort Myers, FL – FDOT** **Movable Bridge Structural Designer** performed the span balance calculations, assisted with design calculations of other structural components, reviewed, and analyzed load test data to assist in the assessment of priority repairs. Services called for the in-depth inspection, evaluation, **load rating** per LRFR methodology, and rehabilitation design of this 50-year-old, 3,120-foot-long bridge with a double-leaf trunnion bascule main span. Responsibilities included performing independent peer review of the machinery repairs and steel grid deck replacement – plus performing peer review of the capacity evaluation of the unique precast, post tensioned concrete beams of the approach spans, which were among the first widespread use of prestressed concrete in the United States.
03/09 – 12/10	**LaBelle Drawbridge (SR 29) Repairs & Rehabilitation, Labelle, FL – FDOT** **Movable Bridge Structural Designer** produced assorted designs for the structural components for repairs to the approach and bascule spans, including the bascule leaf cantilever bracket, stringers, approach span bearing pads, and mast arms on the approaches. Checked the adequacy of the existing approach span diaphragms for jacking the spans. Provided quality control check of the bascule span balance calculations. **Load rated** the 40-foot approach span prestressed concrete beams, bascule span stringers and stringers over machinery, main girder, grid deck, and floorbeams. **Load rated** the flanking span stringers and floorbeams.
11/16 – 10/18	**I-95 Load Ratings, Broward and Dade Counties, FL - FDOT** **Structural Engineer** calculated **load rating** for 18 bridges along I-95 in Florida DOT Districts Four and Six before proposed bridge widenings to determine whether rehabilitation / widening was a viable option for each structure.

02/16 – 12/18	**Wave Streetcar / SE 3RD Avenue Bridge Over The New River, Fort Lauderdale, FL – FDOT** **Structural Engineer** responsible for the **load rating** of the existing post-tensioned concrete beam approach spans for SE 3rd Avenue Bridge. The new WAVE Streetcar will travel across the existing 3rd Avenue Bridge. H&H's scope included all necessary design modifications to the rolling-lift-span, pier, and associated mechanical/electrical systems and **load rating** to accommodate the new embedded rail while providing sufficient strength, stiffness, and ride-ability for the new mode of transportation. The goal was to replace the leaf with a new bascule span, which is 61-feet-long between centers of roll and features tracks and treads on a 6-foot, 2-inch roll radius, mechanical drive train with enclosed gearing driving the rack pinion, and tail lock mechanism. The SE 3rd Avenue bascule bridge will become the only double-leaf bascule in the nation to carry rail traffic. This challenging project required careful coordination of several disciplines and industry experts including movable bridge, roadway, rail, transportation systems, and control systems.
12/16 – 02/17	**Longboat Pass Bridge Bascule Span Condition Assessment Report and Load Rating, Manatee County, FL – FDOT** **Movable Bridge Structural Engineer** responsible for drafting report and cost estimate, conducted structural inspection of bascule span and load rated the existing bascule span structural steel elements. The objective of the report, cost estimate, and **load rating** was to identify deficiencies of the bascule span that required repairs in the next ten years, including structural, mechanical, and electrical items.
08/12 – 07/14	**Crescent Beach (SR 206) Bridge Repairs, St. Johns County, FL - FDOT** **Lead Structural Designer** responsible for **load rating** the bascule span (main girders, floorbeams, and stringers), steel flanking span, and prestressed concrete approach spans. Assisted with plans production.
06/08 – 04/11	**I-75 over Jacaranda Boulevard Bridge Widening Design-Build, Sarasota County, FL - FDOT** **Structural Designer** participated in plans preparation and **load rating** analysis. Project involved new full-depth cast-in-place decks, which replaced the existing composite precast panel concrete decks, and the design of new steel girders and concrete substructures for the widened portion of the bridges.
04/06 – 08/08	**I-75 Southbound and Northbound Bridges Over Fox Creek | Sarasota County, FL - FDOT** **Structural Designer** responsible for **load rating analysis** for a proposed roadway widening. The median portion of the existing two-span continuous 102-foot bridges was removed and the bridges were widened by adding three prestressed concrete AASHTO Type II girders on widened bents. Performed **load rating** analysis for existing and final configuration of AASHTO precast prestressed concrete girders using **AASHTOWare BrDR** load rating software.
01/19 – Present	**Beckett Bridge Replacement, Tarpon Springs, FL – Pinellas County** **Movable Bridge Structural Designer** on the bridge replacement project which entails replacing an existing historic bridge with a new 360-foot single-leaf, rolling-lift, bascule bridge. The structure carries Riverside Drive over Whitcomb Bayou and features two traffic lanes, and a sidewalk. The movable span features steel plate girder main girders and floorbeam and an Exodermic deck that spans longitudinally between floorbeams. The bascule pier footing and approach pier caps feature precast concrete elements to facilitate accelerated bridge construction. Foundations are drilled shafts and pipe piles, designed to accommodate challenging site conditions including a relict sinkhole under the bridge. Design responsibilities included quality control for approach span substructure and foundations, and retaining walls, and the final design of bascule span structural steel elements.
06/11 – 12/11	**Pinellas Bayway Structure "C" Bridge Repairs, Pinellas County, FL – FDOT** **Structural Designer** performed the span balance calculations for the proposed bascule leaf repairs. Performed **load rating** of the bascule span. This project was shelved in lieu of a replacement.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Benjamin Hawthorne, PE, SE**	Years of relevant experience with this employer	18
Title	Bridge Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 2005 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 44620 / LA / 09/30/2024
Year registered	2020	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating. Meets MPR 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/19 – Present	**East Haddam Swing Bridge over the Connecticut River Rehabilitation, Haddam, CT – CTDOT** **Bridge Project Engineer** responsible for the preparation of **load ratings** and feasibility study reports in support of a rehabilitation of this four-span truss swing bridge. The bridge, which opened in 1913 and has been listed on the National Register of Historic Places, carries two lanes of Route 82 traffic over the Connecticut River and includes a deck truss span, through truss span, and a 465-foot-long through truss swing span. Rated elements included gusset plates, pins, tension and compression members, truss chord box members subject to bending, floor beams, and stringers. The structural feasibility study evaluated the addition of an external sidewalk to allow pedestrian access across the bridge, which has a narrow 24.5-foot roadway. **Load rating** and feasibility analysis included the use of **AASHTOWare** Bridge Rating software and the creation of a 3D computer model using Midas Civil finite element analysis software. Ben has remained involved in the rehabilitation project through preliminary and final design as a Senior Structural Engineer providing technical expertise and review of truss strengthening, floor system replacement, and cantilever sidewalk development.
08/17 – 07/19	**Rehabilitation of Route 202 Bridge Over Housatonic River, New Milford, CT - CTDOT** **Team Leader/Structural Engineer** responsible for condition inspection of the New Milford truss bridge over the Housatonic River. This single-span, steel, through-truss bridge rehabilitation project addressed deficiencies on the steel truss superstructure and post-tensioned concrete deck and included sidewalk repairs and new bridge rail. The project included inspection, **load rating**, preliminary and final design as well as environmental permitting and public involvement. Ben provided technical oversight and peer review of the truss **load rating** procedures with the use of **AASHTOWare** as well as the structural repair details developed from the inspection.
07/16 – 07/17	**Rehabilitation of Route 133 Truss Bridge Over Housatonic River, Brookfield, CT – CTDOT** **Project Engineer** responsible for performing **load ratings**, document reviews, field inspections and compiling reports for this four-span simply supported Pratt through truss bridge carrying two lanes of traffic over the Housatonic River. **Load ratings** were performed in accordance with the latest AASHTO LRFR requirements for the as-built, as-inspected, and as-rehabilitated condition of the bridge, including gusset plate evaluations per the latest AASHTO Manual for Bridge Evaluation revisions. **Load rating** analysis included the use of **AASHTOWare** Bridge Rating software and the creation of a 3D model using Midas Civil finite element analysis software. Based on the results of the **load rating** analysis, emergency repairs were required at end node gusset plates and Ben led the design effort to develop an expedited solution.

01/19 – Present	**Middletown Swing Railroad Bridge Rehabilitation, Middletown, CT – CTDOT** **Project Manager** for the rehabilitation of a 300-foot, single-track swing span, four 200-foot through truss approach spans, and a 60-foot through girder span. The structure is serves Providence & Worcester Railroad customers in Portland, CT. Rehabilitation and repair details are based on results of an in-depth structural, mechanical, and electrical inspection and **load rating** of the structure. Structural repairs target primary members in poor condition and any elements that do not rate for a 286K carload. Additional work includes safety upgrades to the access system and fender system repairs. Swing span operating system rehabilitation includes replacement of low-torque high-speed mechanical equipment and upgrades to the electrical system.
07/13 – 05/19	**Sarah M. Long Vertical Lift Bridge, Kittery, ME – Maine DOT** **Bridge Structural Engineer** on joint-venture team for a complete vertical lift bridge replacement. Responsible for design of the steel box girder lift span and associated structural elements. Ben was involved in all phases of the project, providing design services for the preliminary design, final design, and design support during construction, including providing a preliminary design report, plans, design and design check computations, **load ratings**, specifications, and estimates, for the replacement of the Sarah Mildred Long Bridge located on U.S. Route 1 Bypass between Kittery and Portsmouth. The bridge carries Pan Am Railway and highway traffic and was designed in accordance with AREMA and AASHTO specifications.
11/14 – 06/20	**AETNA Viaduct (I-84) Bridges/Phase 2 Rehabilitation, Hartford County, CT - CTDOT** **Project Engineer** for the design and construction support phases of the rehabilitation of bridges carrying I-84 over Amtrak's Hartford Line, Fastrack busway, parking areas, and local streets. Preliminary design phases included condition inspection and **load rating** of the approximately 5,000-foot-long multi-girder viaduct structure to determine rehabilitation and repair strategies. Rehabilitation included deck patching and overlay, deck end reconstruction and joint replacement, structural steel repairs primarily at beam ends, elastomeric bearing replacement, parapet safety upgrades including reconstructed median barrier with new deck overhangs, illumination upgrades, IMS facilities upgrades, and concrete substructure repairs. During construction, led the effort to design new high-load multi-rotational (HLMR) disc bearings and developed concrete column top reconstruction details to facilitate installation and improve long- term durability of the column.
12/11 – 01/13	**Saugus Drawbridge Rehabilitation, Saugus, MA – Massachusetts Bay Transportation Authority** **Bridge Structural Engineer** responsible for analysis and design for this project involving comprehensive modeling, ratings analysis of as inspected conditions, real time structural monitoring, and strengthening of an existing pier compromised by extensive structural deterioration. Responsibilities included development of **load rating** methods to determine existing substructure capacity and design of an interim strengthening concept including a temporary pier to allow the bridge to remain in service at full capacity until a comprehensive replacement project can be undertaken. Temporary pier design included an integrated fender design that incorporated energy absorbing elements to provide adequate protection of the existing pier in a narrow footprint and in an area of poor soil conditions. As a subconsultant, it required cooperation of multiple parties to balance existing structural capacities, emphasis on rapid construction, and the need to maintain traffic prior to and during construction of the interim strengthening.
02/19 – 12/22	**Brorein Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa** **Structural Engineer** responsible for design services, including a **load rating** analysis, for the rehabilitation of the movable span of the Brorein Street bascule bridge over the Hillsborough River in downtown Tampa, FL. The project included widening of the approach spans and the bascule leaves to provide a 10-foot shared use path on each side.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Steven Harlacker, PE, SE**	Years of relevant experience with this employer	27
Title	Movable Bridge Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 1996 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0037057 / LA / 09/30/2024
Year registered	2012	Discipline	Structural and Civil Engineering
Contract role(s) / brief description of responsibilities			**Quality Assurance / Quality Control. Meets MPR 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/15 – 06/21	**Eastbound I-84 Bridge Rehabilitation, Hartford, CT – CTDOT** **Project Manager** responsible managing the preliminary and final design services for a bridge and roadway rehabilitation featuring Bridge 1765, a 10-span steel multi-girder structure with pin and hanger supported spans carrying four travel lanes of I-84 through downtown. Scope included deck repair, membrane, overlay, deck joint replacement, header replacement, expansion bearing replacement, bearing keeper construction partial structural painting, structural steel repairs, repairs to concrete substructure, parapet modification and repair, drainage repairs, and lighting repair. Performed complete LRFR **load ratings** in compliance with the AASHTO Manual for Bridge Evaluation, using **AASHTOWare Bridge Rating Software**.
06/14 – 06/20	**Rehabilitation of the Aetna Viaduct, Phase II, Hartford, CT – CTDOT** **Project Manager** responsible for the development of repair concepts, economic and feasibility evaluations, and structural rehabilitation of this vital, high-volume series of bridges carrying I-84 over Amtrak, CT Fastrak busway, parking areas, and local streets. The rehabilitation included deck and deck joint rehabilitation, structural steel rehabilitation, bearing replacement, parapet safety upgrades, illumination, IMS facilities, and concrete substructure repairs. Developed the project scope; managed the design, project, schedule, and budget; and ensured compliance with H&H's standards for Quality Management and client standards. H&H prepared rehabilitation plans for bearing replacement, repairs to over 125 concrete substructure units, and repairs to nearly 300 steel superstructure members. Also included, was the replacement of the median barrier along with the adjacent bridge deck, modifications to the left and right parapet along the entire length of the viaduct structure, highway illumination, and IMS facilities. This series of structures, which governs the load capacity of the I-84 corridor through Hartford, was also load rated using LRFR **load rating** methods and **AASHTOWare BrDR** software. The **load rating** computations included consideration and reporting for steel cap girders, chorded girders, hunched girders, variable deck overhang segments, pin and hanger spans, and deficient beam end areas. In total, H&H performed structural **load ratings** for 40 transverse steel pier cap girders and all members within 129 multi-girder spans, including complete accounting of documented deterioration remaining on unrepaired members at the completion of the rehabilitation.

05/17 – 09/19	**Stevenson Dam Bridge Route 34 Over Housatonic, Monroe/Oxford, CT – CTDOT** **Project Manager** for design of the new Route 34 bridge over the Housatonic River. Coordinated with highway team subconsultant to develop and evaluate alignment and structure type alternatives. The initial phase included the computation of bridge **load ratings** for AASHTO design vehicles and the State of Connecticut Legal and Permit Vehicles to determine the existing capacity and sufficiency of the bridge. **Load ratings** were performed following AASHTO Manual For Bridge Evaluation and CTDOT **Load Rating Manual** requirements with the use of **AASHTOWare.** Worked with CTDOT to determine the appropriate load posting for the structure. Supplemental computations were performed to assess the ability to support emergency vehicles owned by the Monroe and Oxford Fire Departments. Developed an operating protocol to allow safe passage of the vehicles under specific traffic conditions and at specific positions on the bridge deck.
02/19 – 12/22	**Brorein Street Bascule Bridge Rehabilitation, Tampa, FL – City of Tampa** **Structural Engineer** responsible for design services, including a **load rating** analysis, for the rehabilitation of the movable span of the Brorein Street bascule bridge over the Hillsborough River in downtown Tampa, FL. The project included widening of the approach spans and the bascule leaves to provide a 10-foot shared use path on each side.
05/16 – 06/18	**Route 133 Truss Bridge over Housatonic River Rehabilitation, Brookfield, CT – CTDOT** **Project Manager** managed the preliminary and final design engineering services. Preliminary design work included a structural feasibility study of alternatives to increase roadway vertical clearance to truss bracing elements, as well as developing bridge rehabilitative repair designs. The rehabilitation included partial and full depth patching of the bridge deck, replacement of bridge deck joints, deck drainage modifications, and replacement of the bridge parapets. Scope included calculating LRFR **load ratings** of the as-built, as-inspected, and as-rehabilitated conditions using Midas Civil software in compliance with Connecticut DOT and AASHTO Manual for Bridge Evaluation requirements.
09/17 – 6/19	**Bridge No. 901 US Route 202/Route 67 over the Housatonic River, New Milford, CT – CTDOT** **Project Manager** for the rehabilitation **load rating** of the single span 325-foot-long arched truss. The 13-panel modified Parker through truss was constructed in 1953. It carries two lanes of traffic and includes a sidewalk cantilevered off the north truss. The rehabilitation includes deck repairs, steel truss member repairs and anchoring the superstructure to the substructure for lateral loading.
12/11 – 05/12	**Saugus Drawbridge Rehabilitation, Saugus, MA – Massachusetts Bay Transportation Authority** **Project Engineer** responsible for the analysis and design supervision for this project involving comprehensive modeling, **load ratings** analysis of as-inspected conditions, real-time structural monitoring, and resultant strengthening of an existing pier compromised by extensive structural deterioration. Responsibilities included development of **load rating** methods to determine existing substructure capacity and design of an interim strengthening concept which included a temporary pier to allow the bridge to remain in service at full capacity until a comprehensive replacement project was undertaken.
04/07 – 07/08	**Load Ratings and Scour Evaluations for the Woods Memorial Bridge, Boston, MA – Mass. Dept. of Conservation & Recreation** **Project Engineer** for concept development, design team management, and design of the rehabilitation of this formerly movable bridge, which was locked into the closed position. Design included lock bar removal and replacement with a supplementary restraint system to eliminate bridge bounce under live load. New live load bearings and repairs to the supporting structure were also designed.

16. Staff Experience:

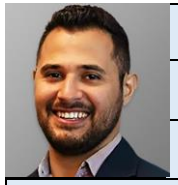
Firm Employed by	Hardesty & Hanover		
Name	**Linh-Thien Kim, PE**	Years of relevant experience with this employer	3
Title	Civil Engineer	Years of relevant experience with other employer(s)	2

Degree(s) / Years / Specialization			B.S. / 2017 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0047527 / LA / 9/30/2025 NHI #130055 - Safety Inspection of In-Service Bridges NHI #130092 - Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures
Year registered	2023	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits and AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/23 - Present	**H.009730.5: LADOTD In-Depth Bridge Inspection of Complex Structures, Statewide, LA – LADOTD** **Structural Engineer** for inspection of complex structures such as cantilever trusses, cable-stayed bridges, steel vertical lift bridges, and plate girder bascule bridges statewide under separate task orders. Inspection of two steel truss bridges (Jimmie Davis and Miller's Bluff) and a vertical lift bridge (West Fork) have been completed to date.
07/20 – Present	**Almonaster Avenue Railroad Bascule Bridge over the Industrial Canal Rehabilitation, New Orleans, LA – Port NOLA/LADOTD** **Bridge Engineer** contributing to the bridge assessment, complete rehabilitative engineering design, and construction inspection services required for the partial replacement of the Almonaster Avenue Bridge, a movable Strauss-heel trunnion bridge. H&H's 2019 assessment revealed that improvements to the electrical and mechanical systems, superstructure, and counterweight were required to return this bridge to its full operating capability. All design work is according to **LADOTD Standards and Specifications** and reviewed by LADOTD.
08/20 – 12/22	**SR 605 Movable Bascule Bridge Rehabilitation, Ocean Springs, MS – MDOT** **Movable Bridge Engineer Intern** performed the bridge **load rating** for movable bridge and fixed bridge approaches. Contributing to the civil design for full rehabilitation of SR 605 double-leaf bascule bridge. Scope of work includes inspection and rehabilitation of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches and development of maintenance and repair plans. All designs are in accordance with AASHTO, FHWA and MDOT guidelines and specifications. **Load rating** was performed using **AASHTOWare BrDR** load rating software.
08/20 - Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Civil Engineer Intern** for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. project includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of services also includes the design of a new bridge to be constructed as an independent structure

	immediately adjacent and north of the existing bridge with a new operator house. **Load rating** was performed using **AASHTOWare BrDR** load rating software. All design work is according to LADOTD Standards and Specifications and reviewed by LADOTD.
06/22 – 08/23	**SR 609 Movable Bascule Bridge Inspection and Load Rating, Ocean Springs, MS – MDOT** **Structural Engineer** responsible for the inspection and load rating services of SR 609 bascule bridge, as a task-order under the IDIQ Master Bridge Contract. Scope of work includes the in-depth, NSTM, routine, and element level inspection of structural, mechanical, and electrical components of the bridge, as well as the roadway approaches. **Load rating** is being performed using **AASHTOWare BrDR** load rating software.
09/21 – 07/22	**Tennessee Bridge Inspection and Load Rating, Decatur, AL – Norfolk Southern Corporation** **Structural Engineer Intern** provided inspection, **load rating**, and engineering design services under the Systemwide Engineering and Design Services contract. The Steel repairs at Gulf Division MP 362.60-A Decatur, AL task was awarded to H&H through this contract. The task involved the performance of an onsite inspection, preparation of **load rating** calculations, and development of repair plans for the structure in accordance with the scope of work. The structure consists of three superstructure types: vertical lift span, deck plate girder span, and seven through truss spans.
11/20 – 12/22	**Annual Inspection of Almonaster Railroad Bascule Bridge over the Industrial Canal, New Orleans, LA – Port of New Orleans** **Movable Bridge Engineer Intern** for the annual inspections (2020-2022) of the Almonaster Avenue Railroad Bascule, which involves a structural inspection of the fracture critical steel, primary and secondary steel members, an electrical inspection of the electrical systems and controls, and a mechanical inspection of the machinery.
11/20 – 12/22	**Annual Inspection of Seabrook Railroad Bascule Bridge, New Orleans, LA – Port of New Orleans** **Movable Bridge Engineer Intern** for the annual inspections (2020-2022) of the Seabrook Trunnion Bascule Bridge. These inspections included a structural inspection of the fracture critical steel and primary and secondary steel members, an electrical inspection of the electrical systems and controls, and an inspection of the mechanical systems and machinery.
01/19 - 04/19	**H.009498.5: LA 121: Calcasieu River Bridge – LADOTD** **Civil Engineer Intern**. Designed and detailed an LG-36 (I-Beam) Concrete Prestressed Girder Bridge using continuous deck spans on a horizontal curve with a 5% slope. The continuous deck spans were 240 feet long using four 60-foot-long deck spans with a bridge width of 42.5 feet wide. The superstructure and girders were designed using Bentley's Conspan software and LADOTD's Bridge Design Evaluation Manual. The substructure consists of pile bents designed using STAAD Modeling software and Excel postprocessing.
05/19 – 07/19	**H.003184.5: I-10: Texas State Line - East of Coone Gully – LADOTD** **Civil Engineer Intern**. Designed and detailed an LG-36 (I-beam) Concrete Prestressed Girder Bridge using continuous deck spans with a 2.5% slope. The continuous deck spans were 240 and 300 feet long using four 60-foot-long and five 60-foot-long deck spans, respectively. The bridge width was 72.5 feet wide. Superstructure and girders were designed using Bentley's Conspan software and LADOTD's BDEM. Substructure pile bents were designed using STAAD Modeling software/Excel postprocessing.
06/19 – 06/19	**H.012739.6: I-20 MRB At Vicksburg Overlay and Rehabilitation – LADOTD** **Civil Engineer Intern**. Worked closely with the Project Engineer to assist in developing quantities and cost estimates for paint striping and barrier movements through phases of the rehabilitation project.
07/19 – 08/19	**H.000303.6: Danziger Bridge Rehabilitation – LADOTD** **Civil Engineer Intern.** Assisted Project Engineer in calculating joint thermal movement for the new sliding plate and determine if a new sliding plate is suitable. Completed detailing of new change order sheets for the new joint sliding plates for the project.

16. Staff Experience:



Firm Employed by	Hardesty & Hanover		
Name	**Anwer Kaimakchi, PhD EI**	Years of relevant experience with this employer	2
Title	Bridge Designer	Years of relevant experience with other employer(s)	6

Degree(s) / Years / Specialization		PhD / 2021 / Civil Engineering M.S. / 2017 / Civil Engineering B.S. / 2013 / Civil Engineering	
Active registration number / state / expiration date		Engineer In Training: 60408 / TX / 09/20/2025	
Year registered	2017	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities		**Complex (Concrete Structures) Load Rating.**	

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/23 - Present	**I-59 / I-20 Box Girder Bridges Inspection and Load Rating, Meridian, MS – MDOT** **Load Rating Engineer** for the **load rating** of the two box girder bridges. Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 are located near Meridian in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes. The **load rating** analyses included developing a finite element model of each bridge and for load ratings to follow LFR considering MDOT's permitted vehicle legal loads. The repair recommendations will be made based on the inspection results and the **load rating**.
05/13 – 02/21	**Replacement of the Viaducts at I-59/I-20 Central Business District (CBD), Birmingham, AL – ADOT** **Bridge Designer** who performed the longitudinal analysis of the precast segmental superstructure for the project including **load rating** analysis. Interstates 59 and 20 converge in downtown Birmingham to form the most heavily traveled roadway in Alabama. H&H designed segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.
05/21 - Present	**I-395 Segmental Bridges, Miami, FL – FDOT** **Bridge Designer** for the design of five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor improvements. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Directed the development of the bridge layouts, cross sections, and construction methodology. The work also includes design, **load rating,** oversite of the final design, shop drawings, and construction engineering.
01/22 – 04/22	**Garcon Point Bridge, Santa Rosa County, FL – FDOT** **Structural Insector** for the Garcon Point Bridge. This 3.5-mile-long precast segmental bridge has 140-foot typical spans and a 225-foot main span over the Intracoastal Waterway. The 140-foot spans were erected span-by-span and the 225-foot span was erected balanced

	cantilever. The high-level piers were precast and post-tensioned. Anwer participated in the vibration testing of all external tendons to develop a benchmark that will be used to plan future maintenance activities if required.
04/22 – 09/22	**I-82 Columbia River Bridge at Umatilla, Umatilla, OR – WSDOT** **Bridge Designer** for the **Load Rating** of this cast-in-place balanced cantilever segmental bridge that opened to traffic in 1988. The bridge has eight spans and a length of 3,365 feet and features two 660-foot spans (approximately) crossing the Columbia River. These two spans are supported by fixed, twin-walled columns.. In service, the twin-wall piers provided increased longitudinal flexibility to accommodate creep, shrinkage, and thermal movements. The superstructure of the I-82 westbound bridge is a variable depth box girder with a width of approximately 51 feet. The bridge carries two 12-foot lanes, shoulders, and a barrier separating the pedestrian lane. H&H completed an in-depth **load rating** of the I-82 westbound bridge. Anwer was involved in the three-dimensional model using CSiBridge software, including construction stages and calculated the time-dependent properties of the concrete. Anwer reviewed flexural and shear capacities of the concrete segments.
10/22 - Present	**Sunshine Skway Bridge, Tampa, FL – FDOT** **Structural Inspector** for the Sunshine Skyway Bridge carrying I-275 over Tampa Bay, the Sunshine Skyway is a 21,878-foot-long bridge with 8,860 feet of precast segmental structures. The 4,000-foot-long precast segmental main span unit which includes a 1,200-foot-long center cable-stayed span and was built in balanced cantilever. The high-level approach spans are 135 feet in length and were built in span-by-span with external tendons. Anwer recently participated in the bi-annual walk-through visual inspection as part of H&H's Asset Management contract for the Sunshine Skyway Bridge Corridor.
12/21 – 05/22	**Gold Star Memorial Bridge on Interstate Route 95, New London, CT – CTDOT** **Bridge Designer** for the Gold Star Bridges, consisting of two separate structures carrying I-95 and US Route 1 north and southbound over the Thames River between Groton and New London, CT are the largest bridges in the state. H&H performed an in-depth **load rating** of the I-95 northbound structure. The structure consists of a combination of original girder spans, original approach trusses, and a reconstructed main channel span truss all topped with a reconstructed floor system. The main channel span is a three-span continuous welded box truss with a suspended center span. Anwer conducted **load rating analyses** for girders on northbound original girder spans where he modeled northbound original girder spans (9 to 21, 35 and 36) using Midas Civil program to calculate loads. He calculated and checked the flexural and shear capacities of girders on the northbound original girder spans following AASHTO LRFD design specifications.
06/20 – 12/20	**Roosevelt Bridge Emergency Post-Tensioning Repairs, Stuart, FL – FDOT** **Bridge Designer** for **load rating** and the emergency repairs to the Roosevelt Bridge in Stuart, Florida. The twin, 4,500-foot-long post-tensioned segmental bridges carry US Highway 1 over the St. Lucie River. During a routine biannual inspection, inspectors found significant cracking, which led Florida DOT to close the north and southbound bridges. The cracking was the result of post-tensioning tendon failures due to excessive corrosion. The engineering team was mobilized the following day under emergency conditions. Within five days, the bridges were inspected and analyzed, such that the northbound bridge could reopen to reduced two-way traffic. Two months later the final analysis, design and repair plans were completed. Using an innovative CMGC contract, repairs were made, and the bridges opened to traffic. The work included partial deconstruction and then reconstruction of the segmental bridge as well as the addition of new post-tensioning tendons.

16. Staff Experience:

<table>
<tr><td rowspan="4">  </td><td>Firm Employed by</td><td colspan="3">Hardesty & Hanover</td></tr>
<tr><td>Name</td><td>John Corven, PE</td><td>Years of relevant experience with this employer</td><td>2</td></tr>
<tr><td>Title</td><td>Civil Designer</td><td>Years of relevant experience with other employer(s)</td><td>40</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td colspan="2">Degree(s) / Years / Specialization</td><td colspan="3">B.S. / 1978 / Civil Engineering
M.S. / 1979 / Civil Engineering</td></tr>
<tr><td colspan="2">Active registration number / state / expiration date</td><td colspan="3">Professional Engineer: 38309 / LA / 03/31/2024</td></tr>
<tr><td>Year registered</td><td>2013</td><td>Discipline</td><td colspan="2">Civil Engineering</td></tr>
<tr><td colspan="3">Contract role(s) / brief description of responsibilities</td><td colspan="2">Complex (Concrete Structures) Load Rating and Load Rating Training. Meets MPR 4</td></tr>
<tr><td>Experience dates (mm/yy–mm/yy)</td><td colspan="4">Experience and qualifications relevant to the proposed contract; i.e., “designed drainage,” “designed girders,” “designed intersection,” etc. Experience dates should cover the years of experience specified in the applicable MPR(s).</td></tr>
<tr><td>01/23 - Present</td><td colspan="4">I-59 / I-20 Box Girder Bridges Inspection and Load Rating, Meridian, MS – MDOT
Senior Structural Engineer for the load rating of the two box girder bridges. Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 are located near Meridian in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes. The load rating analyses included developing a finite element model of each bridge and for load ratings to follow LFR considering MDOT’s permitted vehicle legal loads. The repair recommendations will be made based on the inspection results and the load rating.</td></tr>
<tr><td>04/22 – 09/22</td><td colspan="4">I-82 Columbia River Bridge at Umatilla, Umatilla, OR – WSDOT
Chief Engineer for the load rating of the I-82 westbound structure that is a cast-in-place balanced cantilever segmental bridge that opened to traffic in 1988. The bridge has eight spans and a length of 3,365 feet. The bridge features two 660-foot spans (approximately) crossing the Columbia River. These two spans are supported by fixed, twin-walled columns. These columns provided overturning stability during cantilever construction. In service, the twin-wall piers provided increased longitudinal flexibility to accommodate creep, shrinkage, and thermal movements. The superstructure of the I-82 westbound bridge is a variable depth box girder with a width of approximately 51 feet. The bridge carries two 12-foot lanes, shoulders, and a barrier separating the pedestrian lane. H&H completed an in-depth load rating of the I-82 westbound bridge. Involved in the three-dimensional model using CSiBridge software, including construction stages and calculated the time-dependent properties of the concrete. Reviewed flexural and shear capacities of the concrete segments.</td></tr>
<tr><td>03/13 – 06/21</td><td colspan="4">Replacement of the Viaducts at I-59/I-20 Central Business District (CBD), Birmingham, AL – ADOT
Chief Engineer who performed the longitudinal analysis of the precast segmental superstructure for the project including load rating analysis. Interstates 59 and 20 converge in downtown Birmingham to form the most heavily traveled roadway in Alabama. H&H designed segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million</td></tr>
</table>

	square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.
06/12 – 12/18	**WMATA Segmental Bridges – Inspections and Repairs, Washington, DC – Washington Metropolitan Area Transit Authority** **Project Manager / Lead** of the engineering team responsible for the design of the aerial structures. The inspection of segmental bridges J2e, E6f, and F10a. Post-tensioning corrosion was observed during a routine inspection on WMATA's precast segmental bridges. Performed an inspection, an evaluation of the post-tensioning systems and a **load rating** of seven segmental bridges. Project tasks included inspection, remediation plan, and **load rating**.
07/11 – 09/14	**Plymouth Avenue Bridge Post-Tensioning Repair, Minneapolis, MN – City of Minneapolis** **Project Manager** for the inspection of the 934-foot bridge consisting of two connected box girders with span lengths from 120 to 260 feet. The total width is 75 feet, 6 inches and the box girders vary in depth from 10 to 13 feet. Severe post-tensioning corrosion was found during a routine inspection. Assessed the condition of the post-tensioning system and the integrity of the bridge, analyzed the stresses in the bridge, and developed construction documents to restore the integrity of the bridge. During construction, provided onsite technical assistance. The final phase of the project included a **load rating** of the bridge.
03/01 – 05/05	**New Directions for Florida Post-Tensioned Bridges, FL – FDOT** **Project Manager and Principal Author** who worked with the Central Office of the Florida DOT, developed guidelines for **load rating** post-tensioned bridges. Guidelines were developed first for segmental bridges and then extended to all prestressed concrete bridges. John helped prepare **load rating analyses** to calibrate load and resistance factors appropriate to operating and inventory **load ratings for segmental bridges.**
5/01-12/05	**New Directions for Florida Post-Tensioned Bridges, FL - FDOT** **Project Manager / Principal Author** worked with the Central Office of the Florida DOT, developed guidelines for **load rating** post-tensioned bridges. Guidelines were developed first for segmental bridges and then extended to all prestressed concrete bridges. John prepared **load rating analyses** to calibrate load and resistance factors appropriate to operating and inventory **load ratings for segmental bridges.**
6/02-12/04	**I-75 / SR 826 Ramp A Widening, Miami, FL – FDOT** **Project Manager / Principal Designer** for the widening of this 3000' long precast segmental bridge. This project represents the first segmental bridge to be widened in America. The 17-year-old single-lane bridge was widened to accommodate a second lane of traffic. Prepared the final design for the widening. Time-dependent construction analyses were performed to determine the current state of stress in the bridge and to study the effects of additional post-tensioning to strengthen the bridge. Three-dimensional analyses of the complete bridge were performed to determine the effect of the sequence of bridge widening transversely and the effects of lateral shifts in traffic required to maintain traffic throughout the widening.
05/21 - Present	**I-395 Segmental Bridges, Miami, FL – FDOT** **Chief Engineer** for the design of five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor improvements. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Directed the development of the bridge layouts, cross sections, and construction methodology. The work also includes design, **load rating**, oversite of the final design, shop drawings, and construction engineering.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**Rodney Jarrett, PE**	Years of relevant experience with this employer	13
	Title	Project Manager	Years of relevant experience with other employer(s)	16

Degree(s) / Years / Specialization			B.S. / 1995 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 43868/ LA/ 03/31/2024 NHI 130055/53 Safety Inspection of In-Service Bridges NHI 130078 – Fracture Critical Inspection Techniques for Steel Bridges
Year registered	2019	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Quality Assurance / Quality Control. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/06 – 12/09	**John James Audubon Bridge over the Mississippi River, St. Francisville, LA - LADOTD** **Bridge Design Manager** involved in the $360M design-build contract to build the largest cable-stayed bridge in North America. In addition to the main river crossing, the project included approximately 15 miles of roadway and seven conventional approach bridges. Responsibilities included managing and coordinating the approach bridge designs which used precast, prestressed concrete slabs, and AASHTO Type III girders. Work was performed on-site for this design-build project. Served as the liaison between the various design consultants, owner, and contractor. Also wrote special provisions and prepared design drawings, checked shop drawings, addressed field changes, prepared as-built drawings, and had project management and QC responsibilities for project deliverables.
06/18 - Present	**BR 3-164 on SR36 Cedar Beach Road Bridge Replacement, Sussex County, DE – DELDOT** **Lead Structural Engineer** responsible for the delivery of bridge design service required for this bridge replacement contract. Responsible for leading and coordinating preliminary and final design services, and technical performance oversight of the multidisciplinary team. Following the Client design standards and AASHTO LRFD bridge code for design and **load ratings.** Responsible for coordinating the design effort between various firms, offices, and disciplines as well as overseeing the overall quality management plan, including the quality assurance (QA) and the quality control (QC) checking. Responsible for the team's development of project special provisions, cost estimates, and adherence to Client and project design standards. H&H is providing full design services to the Delaware DOT Bridge Department for their Cedar Beach Road Bridge Replacement project in Sussex County, Delaware as a task under the DelDOT bridge on-call contract. The three-span bridge structure will utilize precast panels with UHPC keyways and a reinforced concrete overlay in the end spans. A steel girder and floorbeam system are being designed for the main span crossing the navigable waterway. An orthotopic steel deck (OSD) with a latex-modified concrete (LMC) overlay will be utilized to provide the shallow superstructure depth required for this location and minimize the weight of the superstructure. The steel unit is being designed and detailed per AASHTO LRFD and will be assembled off-site, floated to the bridge site, and installed in one piece. The pier substructures are anticipated to be a combination of precast and cast-in-place concrete elements supported by steel pipe pile foundations. Accelerated Bridge Construction (ABC) techniques are being used to minimize the duration of the roadway and channel closure. Stub abutments are anticipated to use CIP concrete caps that are supported by a king pile and sheeting system. Due to the poor soil conditions at the site, soil nail anchors are being designed to limit anticipated lateral deflection that may occur during construction or under a full scour condition.

03/15 – 08/21	**BR 3-153 and BR 3-154 Bridge Rehabilitation, Sussex County, DE - Delaware DOT** **Design Manager** responsible for the delivery of preliminary and final bridge design service required for to rehabilitate two bridges over navigable waters. Responsible for coordinating and leading the preliminary and final design services, and technical performance oversight of the multidisciplinary team. Followed the Client design standards and AASHTO LRFD bridge code for design and ratings. Responsible for managing and reviewing the design drawings between various firms, offices, and disciplines as well as overseeing the overall quality management plan, including the quality assurance (QA) and the quality control (QC) checking. Responsible for the team's development of project special provisions, cost estimates, and adherence to Client and project design requirements. Construction support services included managing the shop drawings, RFIs and field support services.
11/10 – 06/17	**Condition Inspection, Evaluation, and Design Services Statewide, MD – Maryland State Highway Administration** **Project Manager** responsible for various design and construction tasks related to the complex and movable bridges throughout Maryland. He was responsible for planning and executing the structural, mechanical, and electrical inspections of movable bridges as well as bridge rehabilitation and troubleshooting services. Recent services for this task order contract included the submarine cable replacement and scoping for the rehabilitation of the Kent Narrows bascule bridge, the replacement of the end lift cylinders at the Weems Creek swing bridge, the structural **load rating** of the Woodrow Wilson Bridge bascule spans and hands-on inspections of numerous movable bridges. His responsibilities also included project management and scheduling; obtaining permits; coordination with USCG; performance oversight of the multidisciplinary team; updating SI&A and Pontis; and QA/QC of all reports.
02/11 – 08/12	**Pennington Avenue Bridge over Curtis Creek, Baltimore, MD – City of Baltimore DOT** **Quality Assurance/Quality Control Engineer** responsible for QA reviews of project management documents during the construction phase of this rehabilitation project. Project involved inspection, rehabilitation design, **load rating,** and construction support for all substructure and superstructure elements of the twin, double-leaf Hopkins trunnion-type bascule bridge. Involved span lock and tail lock systems, operating machinery on machinery platforms, and electrical systems on all bascule leaves. Construction support services included. Responsible for the rehabilitation design of the span drive machinery, trunnion bearings, live load bearings, and the complete replacement of the center lock and tail lock machinery.
10/09 – 10/10	**Intercounty Connector Contract B, Rockville, MD – Maryland DOT** **Design Engineer** on the design-build team for the new $560M seven-mile toll facility being constructed near Washington, DC. Performed girder design and **load rating** calculation for a dual 590-foot-long bridge over Good Hope Creek. Prestressed concrete AASHTO BT girders were used and designed to be continuous for live load. Various other bridge design and detailing tasks included bearing design, checking pier, and foundation designs. Also performed construction services, which included shop drawing review, requests for information, field changes, and had project management responsibilities.
01/13 – 08/15	**Bridge 0208100 MD 436 over Weems Creek Bridge Rehabilitation, Phoenix, MD – Maryland State Highway Administration** **Senior Bridge Engineer** responsible for structural repair and rehabilitation design. Provided advertised design drawings and quality control checks on a steel multi-girder bridge repair project. Responsible for the scoping level field investigations, AASHTO LRFD design for preparing steel and concrete rehabilitation plans, estimates, specifications, and as-built documentation. Collaborated directly with the Client's contractors and the Client's Remedial Design and Construction Divisions by assisting with engineering support, on-site troubleshooting, and construction support activities to improve the reliability of the bridges. H&H performed design engineering and construction support services for the structure preservation and rehabilitation of the existing Bridge 0208100 MD 436 over Weems Creek as an assignment under the MDSHA structures on-call. Scope included inspection, **load ratings**, repair scoping, steel superstructure repairs, and concrete substructure repairs.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Eric Johnson, PE**	Years of relevant experience with this employer	2
Title	Bridge Engineer	Years of relevant experience with other employer(s)	21

Degree(s) / Years / Specialization			B.S. / 1998 / Civil Engineering M.S. / 2000 / Structural Engineering
Active registration number / state / expiration date			Professional Engineer: 60838 / FL / 02/28/2025
Year registered	2004	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Concrete Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/23 - Present	**I-59 / I-20 Box Girder Bridges Inspection and Load Rating, Meridian, MS – MDOT** **Load Rating Engineer** for the **load rating** of the two box girder bridges. Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 are located near Meridian in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes. The **load rating** analyses included developing a finite element model of each bridge and for load ratings to follow LFR considering MDOT's permitted vehicle legal loads. The repair recommendations will be made based on the inspection results and the load rating.
05/21 - Present	**I-395 Segmental Bridges, Miami, FL – FDOT** **Project Engineer** for the design of five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor improvements. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Directed the development of the bridge layouts, cross sections, and construction methodology. The work also includes design, **load rating,** oversite of the final design, shop drawings, and construction engineering.
08/02 – 08/03	**Palm Beach International Airport Interchange Construction Engineering Services, Palm Beach, FL – Palm Beach County Airport** **Design Engineer** who provided construction engineering services for these precast segmental concrete ramps that provide the public with direct access to the Palm Beach International Airport. Assisted with the contractor-elected foundation redesign. Constructed three-dimensional frame models for the substructure **load rating/analysis** and pile load determination, performed strut-and-tie analyses for the footing design and confirmed the capacity of the columns.
03/13 – 06/21	**Replacement of the Viaducts at I-59/I-20 Central Business District (CBD), Birmingham, AL – ADOT** **Engineer of Record/Project Manager** who performed the longitudinal analysis of the precast segmental superstructure for the project including **load rating** analysis. Interstates 59 and 20 converge in downtown Birmingham to form the most heavily traveled roadway in Alabama. H&H designed segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.

12/04 – 12/06	**Penobscot Narrows Bridge Design-Build, Prospect-Verona, ME – Maine DOT** **Project Engineer** developed the erection manual, designed the steel erection equipment, including strongback beams, main span closure struts and various scaffoldings and falsework. Maintained close coordination with the contractor and owner during construction. Oversaw the plans production for the erection manual and erection equipment. This 2,120-foot cable-stayed segmental concrete bridge was an owner facilitated design-build project on an aggressive schedule.
06/20 – 12/20	**Roosevelt Bridge Emergency Post-Tensioning Repairs, Stuart, FL – FDOT** **Structural Engineer** for the emergency repairs. The twin, 4,500-foot-long post-tensioned segmental bridges carry US Highway 1 over the St. Lucie River. During a routine biannual inspection, inspectors found significant cracking, leading to the closing of both the northbound and southbound bridges was discovered on June 16, 2020 by the Florida DOT . The cracking was the result of post-tensioning tendon failures as a result of excessive corrosion. The engineering team was mobilized the following day under emergency conditions. Within 5 days, the bridges were inspected and analyzed, such that the northbound bridge could reopen to reduced two-way traffic. Two months later the final analysis, design, and repair plans were completedThe work included partial deconstruction and then reconstruction of the segmental bridge, the addition of new post-tensioning tendons, load rating calculations and analysis, and repair plans.
01/14 – 04/14	**Dresbach Bridge Design, Dresbach, MN and La Crosse, WI – Minnesota DOT** **Project QC Lead Engineer** for this cast-in-place segmental concrete bridge across the Mississippi River. Managed the independent design and plans review for this bridge, including analyses and review of the superstructure, substructure, and construction feasibility. Also provided technical direction and coordinated the work efforts of up to six engineers.
11/03 – 11/04	**Memorial Causeway Bridge Rehabilitation, Clearwater, FL – FDOT** **Design Engineer who** provided construction engineering services for these 2,340-foot-long twin cast-in-place segmental concrete bridges. Performed transverse analysis checks and longitudinal camber analyses for construction. Assisted with the development of the step-by-step erection manual and the design of various construction equipment including strongback beams, falsework, and cantilever stability towers. Assisted with the design of twin-wall main span piers that were constructed with the superstructure in place. Coordinated closely with the Contractor's project manager and surveying team for form-traveler casting setups during construction.
06/05 – 08/05	**Goethals Bridge Replacement, New York, NY – Port Authority of New York and New Jersey** **Project Engineer** for the proposed precast segmental concrete cable-stayed bridge. Developed span layouts and structural configurations, and the preliminary design of the cable-stayed main-span and longitudinal analyses of the segmental approaches.
11/08 – 10/12	**Jordan Bridge Design-Build, Portsmouth and Chesapeake, VA – United Bridge Partners** **Design Manager** for the erection for the 5,372-foot precast segmental concrete bridge was accomplished using the span-by-span and balanced cantilever methods. The superstructure is supported by precast segmental concrete piers. Provided technical guidance for the conceptual and final bridge designs, assisted with the project development of the privately financed design-build project and coordinated with the subconsultant, subcontractor and material supplier for a detailed construction pricing initiative. Also developed permitting and land-acquisition documents.
08/05 – 12/05	**Rehabilitation of the Cochrane Bridge, Mobile, AL – ADOT** **Project Manager/Technical Lead** who led the evaluation of the bridge and coordinated the development of repair plans, specifications, and procedures. During Hurricane Katrina, an oil rig broke loose from its moorings and crushed against the superstructure of the bridge, damaging several key components, and moving the cable-stayed main-span. Evaluated the condition of the bridge, developed and designed procedures for jacking the superstructure back into position, replaced bearings and addressed the concrete and cable-stay repairs. Coordinated the development of repair plans, specifications, and procedures.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**David Marcic, PE**	Years of relevant experience with this employer	28
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 1995 / Civil Engineering M.S. /1999 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 077478 / NY / 06/30/2026 NHI 130055/53 Safety Inspection of In-Service Bridges NHI 130078 – Fracture Critical Inspection Techniques for Steel Bridges
Year registered	2000	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Load Rating Training.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/23 - Present	**Outerbridge Crossing, New York & New Jersey – Port Authority of New York and New Jersey** **Load rating** Engineer responsible for performing **load rating** of the existing steel truss bridge. Tasks included collecting and tabulating all the section properties and material information, gathering and organizing any elements contributing to the dead load on the structure in its existing condition performing the analyses using **AASHTOWare** for the development of the truss bridge models and **load rating** of gusset plates. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. Additionally, a library of ratings that can be updated will be developed for the client. The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as AASHTOWare Virtis or CSiBridge.
04/22 – 09/22	**I-82 Columbia River Bridge at Umatilla, Umatilla, OR – WSDOT** **Structural Engineer** for the **Load Rating** of the I-82 westbound structure that is a cast-in-place balanced cantilever segmental bridge that opened to traffic in 1988. The bridge has eight spans and a length of 3,365 feet. The bridge features two 660-foot spans (approximately) crossing the Columbia River. These two spans are supported by fixed, twin-walled columns. These columns provided overturning stability during cantilever construction. In service, the twin-wall piers provided increased longitudinal flexibility to accommodate creep, shrinkage, and thermal movements. The superstructure of the I-82 westbound bridge is a variable depth box girder with a width of approximately 51 feet. The bridge carries two 12-foot lanes, shoulders, and a barrier separating the pedestrian lane. H&H completed an in-depth **load rating** of the I-82 westbound bridge. Involved in the three-dimensional model using CSiBridge software, including construction stages and calculated the time-dependent properties of the concrete. Reviewed flexural and shear capacities of the concrete segments.

02/17 – 01/23	**Replacement of the Raritan River Bridge | Perth Amboy and South Amboy, NJ - New Jersey Transit** **Structural Engineer** for a $500 million post-Sandy resiliency project. The project involved replacing the Raritan River Bridge on N.J. Coast Line and the reconstruction of approximately one mile of railroad tracks between Perth Amboy and South Amboy Stations. Mr. Marcic was involved with the lift span towers' 3D computer model, long span lift truss, and multi-girder approach spans. The analysis included the effects of dead load, live load, dynamic, wind, and seismic analysis.
01/18 – 04/18	**Bridges 3A and 19A Load Rating and Evaluation, Ontario, CA – St. Lawrence Seaway Management Corporation** **Project Manager** for the **load rating** and inspection of two rolling-lift bascule bridges, the Welland Canal and Carlton Street Bridges. Mr. Marcic led the team responsible for creating comprehensive models that captured various open/closed bridge positions as well as live, wind, and seismic load cases. The team produced ratings for all critical members for live load, special permit loads, and fatigue; and crafted a permit load rating tutorial for the client to conduct **load ratings** independently for any future permit vehicles.
11/17 – 12/17	**Throgs Neck Suspension Bridge, Bronx, NY – Triborough Bridge and Tunnel Authority** **Structural Engineer** for the **load rating** and evaluation of the Throgs Neck Bridge for all AASHTO Special Haul Vehicles. Mr. Marcic used analysis models to conduct comprehensive **load ratings** for the floorbeam trusses, the stringers at span, anchorage and tower locations, the deck slab, the stiffening trusses, and the suspension cables.
02/15 – 05/17	**Bay Bridge Deck Replacement Study, Arnold, MD – Maryland Transportation Authority** **Structural Engineer** responsible for the deck replacement study for the eastbound Bay Bridge truss spans. The study involved the evaluation of multiple deck types, including accelerated construction methods using prefabricated concrete, Exodermic or steel orthotropic systems with improvements to the bridge geometry. The **load rating** of the trusses was also evaluated for the effect of the new deck system weigh and associated strengthening methods and cost. Concept plans and construction staging plans were developed as well as preliminary construction and life cycle cost estimates for all options considered. Developed a comprehensive concept report. This task also included the review of concept reports prepared by other consultants for the deck replacement on other parts of the structure.
06/05 – 05/16	**Bridge Engineering Services, Statewide, MD – Maryland State Highway Administration** **Lead Structural Engineer** responsible for structural engineering services for multiple cycles of this Contract. Mr. Marcic was the Inspection Team Leader for complex bridges (Thomas Johnson Bridge) and movable bridge inventory. **Load ratings** were performed for the steel superstructure elements in the bascule span of the Snow Hill and the Woodrow Wilson bascule bridges. SHA design trucks and special permit trucks were used in the analysis to develop the Inventory and operating ratings for the girders, floorbeams and stringers. Strain gage balance testing has also been performed for SHA under this ongoing Contract. Strain data was recorded and analyzed from the Chester River Bridge to establish a base-line balance condition of the bridge prior to a painting and rehabilitation contract.
11/06 – 07/07	**Route 1 & 9T (25) Final Design, Jersey City, NJ – NJDOT** **Structural Engineer** responsible for **load ratings** and seismic analysis of the new ramp structures. This project was a new interchange with elevated structures, including an extended viaduct and ramps totaling 7,300 feet to connect Tonnele Avenue to Routes 7 and 1 & 9T. The analysis included the creation of a 3D computer analysis using SAP2000 software. David prepared **load rating** calculations and a seismic evaluation report.
01/05 – 12/05	**Bridge Safety Inspection Services (2005), Statewide, DE – DELDOT** **Structural Engineer** for on-call Contract to provide condition inspections and evaluations of existing structures. These tasks included: furnishing maintenance of traffic set-ups and obtaining necessary right-of-entry permits; furnishing access equipment and providing written and electronic reports; performing **load rating** analysis; providing structural, electrical, and mechanical inspection of movable bridges; making maintenance recommendations; providing Non-Destructive Testing for fracture critical members; and other incidental work.

16. Staff Experience:

	Firm Employed by	Hardesty & Hanover		
	Name	**R. Glenn Tindale, PE**	Years of relevant experience with this employer	2
	Title	Bridge Engineer	Years of relevant experience with other employer(s)	21

Degree(s) / Years / Specialization			B.S. / 1999 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 60797 / FL / 02/28/2025
Year registered	2004	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Concrete Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
05/21 - Present	**I-395 Segmental Bridges Design-Build, Miami, FL – FDOT** **Structural Engineer** for the design of the superstructure and performing the **load ratings**. H&H is designing seven new precast segmental bridges that are a part of the SR 836 / I-95 / I-395 corridor upgrade. This design-build project is being constructed by the Archer Western-De Moya Joint Venture. The overall construction value of the project is $800 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million).
11/11 – 12/14	**Plymouth Avenue Bridge Inspection, Minneapolis, MN – City of Minneapolis** **Inspector** for location and condition of interior post-tensioning in twin five-span bridges heavily damaged by salt laden runoff. Severe post-tensioning corrosion was found during a routine inspection. H&H performed in-depth inspections to determine the condition of the bridge's post-tensioning system. Structural analyses, replicating the construction of the bridge were performed to determine the current state of stress within the bridge. The results of inspections and structural analyses were used to develop detailed designs, plans and specifications for the rehabilitation of the bridge. During construction, H&H provided on-site assistance to address varying conditions as they were encountered. The project concluded with a **load rating** of the bridge in its as-built rehabilitated condition.
02/08 – 08/10	**New Bridge Design of the Vista Avenue over I-84, Boise, ID – Idaho DOT** **Structural Engineer** who performed a superstructure analysis including dynamic loading associated with moving pre-constructed bridge into place using SPMTs. He also performed LRFR **load rating** of the final structure. Vista Avenue is a two-span bridge passing over ten lanes of I-84. It is an elevated SPUI structure approximately 197 feet wide and 187 feet long. The superstructure was designed to be built off-site and moved into place using self-propelled modular transporters in four quadrants. Precast abutments and pier caps were utilized to minimize impacts to traffic. H&H designed and served as engineer of record for the bridge.
02/06 – 07/06	**Construction Engineering for the Design-Build of the Ernest Lyons Bridge, Stuart, FL – FDOT** **Project Leader** for the LRFR **load rating** of the Ernest Lyons bridge. The Ernest Lyons bridge is a $46 million design-build project with a 4,661-foot-long precast segmental bridge and two short access bridges. The segmental bridge consists of a 61-foot-wide box girder and 152-foot spans, constructed span-by-span. H&H provided peer review services during design, technical support during construction and **load rating** of the bridge incorporating as-built conditions.

07/07 – 12/13	**Dulles Corridor Metrorail New Bridge Design, Fairfax County, VA – Washington Metropolitan Area Transit Authority** **Project Manager and Structural Engineer** who designed the superstructure and integral sub-structure for the WMATA Dulles Metro Extension to Tysons Corner. He headed the construction engineering, including geometry control and construction load analysis, and worked as a liaison between H&H, Bechtel and Rizzani. H&H provided design and construction engineering services to Dulles Transit Partners for the $1.6 billion Phase 1 extension of the WMATA transit system to Dulles Airport. The project contains 5.2 miles of single track precast segmental box girder bridge. Construction was principally performed by the span-by-span method, with balanced cantilever construction used to cross I-495.
01/14 – 06/21	**Replacement of the Viaducts at I-59/I-20 Central Business District (CBD), Birmingham, AL – ADOT** **Structural Engineer** who performed the longitudinal analysis and **load rating** of the precast segmental superstructure for the project. Interstates 59 and 20 converge in downtown Birmingham to form the most heavily traveled roadway in Alabama. H&H designed segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays a significant role in the wider revitalization of the central business district.
02/02 – 04/04	**Load Rating for the Widening of the I-75/SR 826 Ramp A, Miami, FL – FDOT** **Bridge Designer** who checked calculations and preformed a LRFR **load rating** for the project. This project represents the first segmental bridge to be widened in America. The 17-year-old, single lane bridge was widened to accommodate a second lane of traffic. H&H prepared the final design for the widening. Time-dependent construction analyses were performed to determine the current state of stress in the bridge and to study the effects of additional post-tensioning to strengthen the bridge. Three-dimensional analyses of the complete bridge were performed to determine the effect of the sequence of bridge widening transversely and the effects of lateral shifts in traffic required to maintain traffic throughout the widening.
08/12 - Present	**Evaluation of the Post-tensioning for the Sunshine Skyway Bridge, Tampa, FL – FDOT** **Project Manager/Structural Engineer** who took samples of the post-tensioning duct and borescope tendons for the evaluation. Led the **load rating** of the bridge. Carrying I-75 over Tampa Bay, the Sunshine Skyway is a 21,878-foot-long bridge with 8,860 feet of precast segmental structures. The 4,000-foot-long precast segmental main span unit which includes a 1,200-foot-long center cable-stayed span and was built in balanced cantilever. The high-level approach spans are 135 feet in length and were built in span-by-span with external tendons. H&H assisted with the inspection of the longitudinal post-tensioning tendons and performed a LRFR **load rating** of the cable-stayed main-span unit and high-level approaches. Glen has been the principal writer of the specialty engineers report for the 2016 to 2022 inspections.
04/13 – 12/21	**New Bridge Design for the I-59/I-20 Central Business District, Birmingham, AL – ADOT** **Structural Engineer** who investigated the plausibility of erecting four bridges side-by-side in the congested downtown area using underslung trusses. I-59 and I-20 combines in downtown Birmingham to form the most heavily traveled roadway in AL. H&H designed and **load rated** segmental concrete urban viaducts to replace substandard steel bridges built in the early 1970s. The project, which includes 1 million square feet of elevated bridge deck, was constructed in less than 12 months, and plays an influential role in the wider revitalization of the central business district.
09/11 – 10/18	**FHWA-NHI LRFD Design Manual on Concrete Bridges – Federal Highway Administration** **Bridge Engineer** who wrote the Flexural Strength portion of the FHWA/NHI LRFD Superstructure manual. H&H prepared the LRFD Design Manual and the associated teaching material for prestressed concrete bridge superstructures. In addition to developing all course materials, H&H has taught many of the design classes.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Jorge Soto, PE**	Years of relevant experience with this employer	7
Title	Structural Engineer	Years of relevant experience with other employer(s)	17

Degree(s) / Years / Specialization			B.S. / 1998 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 59509 / FL / 02/28/2025
Year registered	2003	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Steel Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
05/22 - Present	**Linton Boulevard Bascule Bridge Load Rating Analysis, Delray Beach, FL – Palm Beach County** **Structural Engineer** responsible for the **load rating analysis** and review of stringers, floorbeams, and main girders of this double leaf bascule bridge. The load ratings were performed for LFR and LRFR.
04/16 – 03/21	**Coconut Isle Bridge Replacement, Fort Lauderdale, FL – City of Fort Lauderdale** **Structural Engineer** providing structural design services for the Bridge Alternatives Study and complete set of engineering plans for a single-span fixed concrete replacement bridge. Scope of work includes permitting, geotechnical investigation, **load rating,** drainage, utility coordination, bridge bulkhead wall design, temporary bridge, MOT, public involvement support, and bid and post-design services.
12/16 – 12/17	**Districtwide Miscellaneous Structural Projects & Minor Design, Miami, FL – FDOT** **Structural Engineer** responsible for the development of plans, specifications, **load rating**, and estimates under the Districtwide On-Call Structures contract. For the US 1 Bridge over Channel 2 TWO, the scope consisted of repairs to prestressed AASHTO beams and a reinforced concrete deck. Impressed current cathodic protection was also installed on the six-foot drilled shaft.
04/16 – 12/16	**Atlantic Isle Lagoon Bridge, Sunny Isles, FL – FDOT** **Structural Engineer** contributing to the feasibility study to rehabilitate Bridge No. 874218 under a Districtwide On-Call Structures contract. Responsible for the condition assessment, as well as the review of previous biennial inspection and **load ratings** reports, analysis, report study, and the development of several rehabilitation alternatives that would retain the aesthetics and coquina façade of this historic bridge. Constructed in 1925, the crossing is a low-level closed-spandrel-filled cast-in-place reinforced concrete arch. The lagoon bridge, which has substandard traffic barriers and roadway geometry, had been deemed structurally deficient and functionally obsolete, also showed some structural deterioration.
02/09 – 09/11	**I-595 WB over Pine Island Road (Bridge 860648), Broward County, FL – FDOT** **Engineer of Record** responsible for the design of a 540-foot-long four-span bridge. The bridge consisted of plate girders supported on integral concrete post-tensioned straddle caps. Developed construction documents and prepared superstructure and substructure design of plate girders, **load rating**, deck, superstructure components, substructure, and foundation.

11/16 - Present	**SR A1A / North Causeway Bridge over ICWW, Fort Pierce, FL – FDOT** **Engineer of Record** responsible for the superstructure design and plans development for the replacement of SR-A1A North Causeway Bridge. The 4,152-foot-long bridge consists of 26-spans of FIB 84 beams crossing the Intracoastal Coastal Waterway. The three main spans consisted of continuity diaphragms made continuous for live load. Scope of services includes the alignment, bridge super, and substructure design and **load rating**. Also, project engineer for an elevated East Coast Greenway (ECG) pedestrian/bicycle structure, observation deck, and bulkhead walls. The ECG is composed of Florida Slab Beams (FSB) in the straight segment and reinforced flat slabs in the curved alignment. The observation deck is composed of FSB and flat slab type superstructures. The FSBs were designed using corrosion-resistant materials (CFRP and SS strands) with GFRP rebar. The flat slab superstructure and substructure used GFRP rebar. The bulkhead walls consist of concrete sheet piles made of CFRP/SS materials with a bulkhead cap consisting of GFRP.
06/16 – 12/17	**I-75 / I-4 Off Ramp Design, Hillsborough County, FL – FDOT** **Structural Engineer** responsible for the design and plans review of several cantilever and span sign structures, bridge culvert replacement, and **load rating** of existing bridge culvert. The entire scope of work includes the addition of a new auxiliary lane for SB I-75 from south of the Bypass Canal to SB Exit Ramp (Roadway ID 10075000), widening ramp from SB I-75 to EB/WB I-4 (Ramp Number 10075346), and bridge widening for the bridge over Sligh Avenue (Bridge Number 100430). A unique aspect of the approach was the incorporation of this operational improvement into a long-term build-out. This project was expedited for construction due to our unique no-R/W-acquisition and no-impacts-to-FGT approach.
01/04 – 01/11	**SR-50 over Lake Lotta, Orange County, FL – FDOT** **Design Engineer** developed construction documents, performed **load rating**, prepared superstructure and substructure designs including prestressed beams, bent caps, and prestressed piles for the design of a 760-foot, 16-span bridge along with approach retaining walls. The bridge consists of AASHTO Type II prestressed beams supported on concrete bent caps with 18-inch prestressed concrete piles.
09/22 - Present	**NW 17th Avenue Emergency Counterweight Replacement, Miami, FL – Miami-Dade Dept of Transportation and Public Works** **Structural Engineer** Responsible for the review of the steel box counterweight design for replacement of the existing concrete counterweight with a new steel counterweight box filled with concrete and steel ballast. Also, responsible for the design of the deck over the counterweight, purlins and connections supporting the deck over the counterweight.
06/16 – 01/23	**SR 968/SW 1st Street Bridge over Miami River, Miami, FL - FDOT** **Structural Engineer** providing engineering design and **load rating** services during the design and post design phases for the replacement of the nationally registered historic bridge crossing the Miami River. Responsible for the design of bascule pier footings and foundations, king piles bulkhead walls, bascule leaf main girder, and floor beam and counterweight box. Constructed in 1929, the existing 13-span, 650.5-foot, the bridge was the Miami River gateway crossing into downtown Miami. The new 507-foot bridge includes a 315-foot double-leaf bascule span over a widened 125-foot navigation channel. Two new approach spans consist of prestressed concrete beams providing at least 16.5 feet of clearance over North and South River Drives. The bascule span's Exodermic concrete deck protects the steel superstructure and provides a safer and quieter riding surface.
02/09 – 09/11	**I-595 Ramp T-1 (Bridge 860559), Broward County, FL - FDOT** **Project Engineer** involved in the widening of a 1165-foot horizontally curved, 14-span bridge. The spans vary in length from 63' to 91'. The bridge consists of AASHTO prestressed beams supported on concrete hammerhead pier caps. Responsible for the in-depth analysis of the existing pier caps, columns and pile caps and **load rating** of the beams for this bridge widening.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Rafal Wuttrich, PE**	Years of relevant experience with this employer	8
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	22

Degree(s) / Years / Specialization			M.S. / 2001 / Civil Engineering M.S. / 1994 / Civil Engineering / University of Technology, Gdansk, Poland
Active registration number / state / expiration date			Professional Engineer: 63030 / FL / 02/28/2025
Year registered	2005	Discipline	Civil Engineering
Contract role(s) / brief description of responsibilities			**Complex (Movable and Steel Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/19 - Present	**H.004396 Lapalco Boulevard Movable Bridge over Harvey Canal, Westwego, LA – Jefferson Parish DPW/LADOTD** **Structural Engineer** for the pre-design inspection, the rehabilitation and widening of the existing four-lane Lapalco Boulevard to provide a facility carrying three lanes of traffic in each direction, and the design of a new three-lane double bascule movable bridge crossing of Harvey Canal. Scope of work includes rehabilitation to the existing four-lane bridge with three lanes of traffic and a new pedestrian/bike lane. The scope of work also includes the design of a new bridge to be constructed as an independent structure immediately adjacent and north of the existing bridge with a new operator house. Improvements to bridge and roadway approaches for eastbound and westbound traffic is also included in scope of work. **Load rating** was performed using **AASHTOWare BrDR** load rating software. All design work is according to Louisiana DOTD Standard and Specifications and reviewed by LADOTD.
03/23 - Present	**Outerbridge Crossing, New York & New Jersey – Port Authority of New York and New Jersey** **Load rating** Engineer responsible for performing load rating of the existing steel truss bridge. Tasks included collecting and tabulating all the section properties and material information, gathering and organizing any elements contributing to the dead load on the structure in its existing condition performing the analyses using AASHTOWare for the development of the truss bridge models and load rating of gusset plates. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. Additionally, a library of ratings that can be updated will be developed for the client. The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as **AASHTOWare Virtis or CSiBridge**.

06/15 – 08/19	**I-75 CD Ramp over Sligh Avenue, Hillsborough County, FL – FDOT** **Project Engineer** responsible for the preliminary design, Bridge Development Report, and **load rating** of the widening of 233foot three-span interstate ramp bridge over Sligh Avenue. The proposed widening superstructure and substructure included prestressed beams on a hammerhead pier substructure.
03/17 – 06/19	**SR 80 Southern Boulevard Bridges Construction Engineering, West Palm Beach, FL – FDOT** **Structural Engineer** responsible for assistance on the bridge re-design efforts, as well as engineering support for the design of a temporary fender system and falsework support system, needed during the construction of the two bridges. Contractor EOR services included the redesign of the Main Bridge approach span superstructure, which consisted of longitudinally and transversely post-tensioned flat slabs with two 360' five-span continuous units. The original design was specified to be constructed by incremental launching. The proposed redesign was to be constructed cast-in-place on falsework over the water as a Contractor Savings Initiative (CSI). Specialty engineering services included: design and detailing of the Main Bridge approach span falsework over water; preparation of bascule span balance calculations; field instrumentation and measurement of span balance; preparation of bascule leaf field erection and alignment procedures; preparation of post-tensioned concrete shop drawings and erection manual; **load rating** of the temporary bridge approach spans; technical assistance for construction of the Acrow vertical lift span (structural, mechanical, electrical).
02/01 – 08/03	**Treasure Island Causeway, Treasure Island, FL – City of Treasure Island** **Staff Engineer** responsible for design and **load rating** of three replacement bridges including two low-level fixed bridges and a twin double-leaf bascule bridge with 21 feet of vertical clearance over the Gulf Intracoastal Waterway (ICWW). The bascule bridge featured a main span of 176 feet between trunnions. The bascule spans structural system included two main longitudinal plate girders, a composite Exodermic deck system featuring a lightweight concrete riding surface, and a steel box counterweight. Performed finite element analyses of several components such as main girder webs at openings, torque tube for the hydraulic drives.
03/03 – 11/03	**17th Street Causeway Bridge (A1A) Replacement, Fort Lauderdale, FL – FDOT** **Engineer** responsible for performing **load rating analysis** of new superstructure, including double bascule leaf and segmental approach spans. The project involved the design of a "signature" trunnion bascule bridge. The new bridge features twin double-leaf bascule spans (three spans continuous hinged structure) with a span length of 210 feet, center to center of trunnions. The new bridge also features unique transversely and longitudinally post-tensioned concrete V-shaped bascule pier integrally connected to the precast segmental concrete box girder approach spans. The project won a 2004 ACEC National Honor Award and a Prize Bridge Award from the National Steel Bridge Alliance.
04/17 – Present	**SR 75 (US 231) from SR 30A (US 98) to Pipeline Road, Panama City, FL – FDOT** **Project Engineer** responsible for the design of a new 840-foot steel bridge on SR 75, crossing US 231 and the CSX railroad, as part of a new single-point urban interchange (SPUI). The design consists of a single three-span continuous unit (215, 355, and 215 feet) with steel plate girders and a concrete deck. The intermediate pier columns support integral post-tensioned concrete caps. Responsible for Bridge Development Report (BDR), and leading role for all aspects of the structural design.
05/10 – 08/11	**SR 30/US 98 Bridge Replacement over Aucilla River, Lamont, FL – FDOT** **Structural Engineer** responsible for various structural calculations and plan production. The new design replaced two multi-span simply supported steel beam bridges with a single 1,365-foot-long 13-span bridge with precast concrete FIB-54 beams.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Jordan Warncke, PE**	Years of relevant experience with this employer	13
Title	Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization	B.S. / 2011 / Civil Engineering M.S. / 2013 / Civil Engineering
Active registration number / state / expiration date	Professional Engineer: 095213 / NY / 11/30/2023 NHI 130055 – Safety Inspection of In-Service Bridges
Year registered: 2015 / Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities	**Complex (Steel Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/23 - Present	**Outerbridge Crossing, New York & New Jersey – Port Authority of New York and New Jersey** **Load rating Engineer** responsible for performing **load rating** of the existing steel truss bridge. Tasks included collecting and tabulating all the section properties and material information, gathering and organizing any elements contributing to the dead load on the structure in its existing condition performing the analyses using AASHTOWare for the development of the truss bridge models and load rating of gusset plates. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. Additionally, a library of ratings that can be updated will be developed for the client. The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as **AASHTOWare Virtis or CSiBridge.**
01/13 – 08/13	**Ouachita River Bridge, Monroe, LA – LADOTD** **Structural Engineer** responsible for design, inspection, and direct coordination with contractor throughout the project. The Ouachita River Bridge is a double-leaf Strauss Bascule bridge constructed in the early 1930s. H&H provided structural and mechanical support for the replacement of the counterweight trunnion and hanger plates. Responsible for performing a preliminary inspection of the counterweight hanger plates, bascule girder, and counterweight trunnion housing of the existing bridge. Responsible for developing and designing a jacking scheme to relieve the load in the hangers to allow the counterweight trunnion to be replaced. Designed grillage to support the counterweight during completion of work. Developed a jacking procedure and specifications for the project. Responsible for designing the splice connection of the new hanger plates to the existing counterweight. Designed retrofits to the bridge sidewalk, counterweight concrete, and bascule pit access platform that was removed to access the counterweight trunnion. Responsible for coordinating with contractor to determine field conditions and construction limitations. Reviewed all structural steel shop drawings. Resident engineer during assembly of the grillage and jacking assembly and jacking of the counterweight.

06/21 - Present	**WCDPW Glen Island Approach Bridge over New Rochelle Harbor, New Rochelle, NY - Westchester County DPW** **Lead Structural Engineer** for the major rehabilitation of this historic bridge including concrete and stone substructure repairs, steel superstructure replacement and repairs, and replacement of the roadway deck and sidewalk of the 16-span waterway crossing. The spans over New Rochelle Harbor include a single leaf bascule bridge, four steel deck plate girder spans, and reinforced concrete spans at the plaza entering Glen Island. The movable and fixed approach spans are comprised of arch shaped riveted built-up deck girders over the channel. The substructure consists of reinforced concrete piers wrapped in stonework. Mr. Warncke is leading the structural design and **load rating** for all components of the project including detailed seismic analysis for the bascule span and approach spans, calculation of detailed quantities and cost estimate, and the development of detailing and final design drawings.
11/22 - Present	**2021-2025 Biennial and Interim Bridge Inspections, Bronx County, Various Locations, Bronx, NY – NYSDOT** **Load Rating Engineer** for the biennial and interim bridge inspections throughout Bronx County in NYSDOT Region 11. The required services include project coordination/office support, quality control, and field services necessary to complete Bridge Inspection, Inventory and **load rating** work for structures identified by NYSDOT.
04/20 – 06/21	**Emergency Repair of Washington Bridge over the Harlem River, Manhattan & Bronx, NY – NYSDOT** **Load Structural Engineer** for the emergency repair as part of a broader Engineering Services Agreement with New York City DOT. The Washington Bridge is a 2,375-foot arch bridge carrying six lanes of traffic between Manhattan and the Bronx. H&H provided condition inspection, repair, design, **load rating** and construction support engineering to address damage sustained by recent overloads.
04/14 – 07/16	**The Gut Bridge, South Bristol, ME – Maine DOT** **Structural Engineer** responsible for the detailing and designing of the superstructure and 3D finite element analysis. The Gut Bridge is a single-leaf cable stayed bascule bridge replacing an existing bobtail swing bridge. Responsible for preliminary design and layout of the superstructure and examining the possibility of different deck types. Responsible for developing conceptual drawings of the bascule girder and tower to be presented to the public and DOT Detailed superstructure connections, girder splice, and counterweight access hatches. Performed 3D finite element analysis of various orthotropic deck options subjected to live load.
06/16 – 12/17	**2016 Biennial Inspection of the Robert F. Kennedy Harlem Lift Bridge, New York, NY – Triborough Bridge and Tunnel Authority** **Structural Engineer** responsible for **load ratings** of the Harlem River Lift Bridge and associated ramp structures of the Robert F. Kennedy Bridge.
10/18 – 03/19	**2017 Biennial Inspection of the Throgs Neck Bridge, Queens, NY – NYSDOT** **Structural Engineer** responsible for drafting and developing multiple design proposals. These proposals included replacement of the existing structure. Scope of Work included overall management of the structural inspection of the Throgs Neck Bridge and associated ramp structures, as well as the National Bridge Element (NBE) Inspection of all structural elements (including fracture critical elements such as truss chords and gusset plates), **load rating** calculations and updates, inventory updates and report submittals. Supplementary tasks include design document preparation for structural repairs of elements requiring immediate repair, special interim inspections, and scoping studies for future projects related to the facility.
06/15 – 06/19	**Design-Build for the LaGuardia Airport Landside Roadway Network, Flushing, NY – Port Authority of NY & NJ** **Structural Engineer** for the H&H as part of the LaGuardia Gateway Partners team, a PPP (the country's largest) that is designing and constructing a new world-class facility at LaGuardia Airport. The project included demolishing the Central Terminal Building and creating a new world-class facility with a new central entry portal to the airport and improve access to terminals at the airport. Responsible for steel superstructure design of several bridges over 3+ miles of roadway to improve access to the newly reconstructed Central Terminal Building and adjacent terminals. Responsible for pier design, 3D analysis, and **load rating** analysis.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Sophia Naglieri, PE**	Years of relevant experience with this employer	11
Title	Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 2012 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 097888 / NY / 05/31/2025
Year registered	2017	Discipline	Professional Engineering
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
05/14 – 01/15	**2013-2014 Biennial and Interim Bridge Inspection of Long Island Bridges, Long Island, NY – NYSDOT** **Load Rating Engineer** for biennial inspections of over 300 Long Island Bridges in both Nassau and Suffolk Counties. The structures vary in size and type and include the Robert Moses Causeway NB and SB bridges over Great South Bay, as well as the Fire Island Inlet Bridge, Loop Parkway over Swift Creek, Bayville Bridge, Meadowbrook and Wantagh Parkway bridges over Goose Creek and Sloop Channel near Jones Beach. The inspections included decks, structural framing (fracture critical at approximately 100 structures) and piers, as well as all abutments and retaining walls. In addition to these primary structural elements, Hardesty & Hanover inspected the structures appurtenances, signs and their supporting structures, light standards, and electrical equipment on the bridges. Responsibilities included checking the state's **load rating models** for each bridge in **AASHTOWare Bridge** and performing Level 1 load ratings, as necessary.
03/23 - Present	**Outerbridge Crossing, New York & New Jersey – Port Authority of New York and New Jersey** **Load rating Engineer** responsible for performing **load rating** of the existing steel truss bridge. Tasks included collecting and tabulating all the section properties and material information, gathering and organizing any elements contributing to the dead load on the structure in its existing condition performing the analyses using AASHTOWare for the development of the truss bridge models and load rating of gusset plates. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. Additionally, a library of ratings that can be updated will be developed for the client. The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as **AASHTOWare Virtis or CSiBridge** software.

05/15 – 12/16	**2015-2016 Biennial and Interim Inspections of Gowanus Spans, Brooklyn, NY – NYSDOT** **Load Rating Engineer** for biennial inspection of over 320 spans of Gowanus Viaduct in Brooklyn, NY. The inspections included decks, structural framing, fracture critical members, piers, as well as all abutments and retaining walls. In addition to these primary structural elements, Hardesty & Hanover inspected the structures appurtenances, signs and their supporting structures, light standards, and electrical equipment on the bridges. Responsible for checking the state's **load rating models** for each bridge in **AASHTOWare Bridge** and performing Level 1 load ratings as necessary, developing new models for the Gowanus Mainline Bridge, and updating models of rehabilitated structures.
07/12 – 12/22	**Rehabilitation of the Center Avenue and Lemoine Avenue Bridges, Fort Lee, NJ - Port Authority of NY & NJ** **Structural Engineer** for the $50 million rehabilitation of two heavily travelled bridges on the I-95 corridor. Work involves deck replacement, superstructure replacement on selects spans, seismic upgrades, **load rating**, utility and lighting work, complex MPT and, staged construction. Specific responsibilities include design analysis of existing substructure elements, design of substructure modification details, and design of seismic retrofit for substructure elements.
10/13 – 01/15	**Replacement of Four Bridges on the Bronx River Parkway over MNR, Amtrak, and NYCT, Bronx, NY – NYSDOT** **Structural Engineer** for $210 million project which involved a replacement of three bridges on the Bronx River Parkway, spanning over a busy commuter rail corridor, including Metro North: Amtrak and CSX tracks. The project also included rehabilitation of a 1,500-foot viaduct over NYCT train yard. Project involved preliminary and final design, including development of the replacement alternatives utilizing steel trapezoidal box girders, prestressed concrete beams, and concrete segmental box girders, **load rating,** utility relocation/protection, evaluation of environmental, wetland, and land use impacts, including tree survey and development of Section 4(f) documents. The project scope included the following components: 1) replacement of a two-span bridge over Amtrak and CSX (3 tracks) and eliminating center pier to increase horizontal railroad clearances; 2) replacement of concrete arch structure over the Bronx River; 3) replacement of 1500 ft. of viaduct over NYCT yard (12 tracks); 4) replacement of a single-span structure over Metro North (6 tracks). Responsibilities included the design of structural repairs of the bridge over Metro North (Site A) in addition to the presentation development for the proposed project over Amtrak tracks (Site B).
01/14 – 04/14	**Design-Build Proposal for LaGuardia Airport Landside Roadway Network, Flushing, NY – Port Authority of NY & NJ** **Structural Engineer** for the design of 3+ miles of elevated and at-grade roadway to improve access to the newly reconstructed Central Terminal Building (CTB) and adjacent terminals. Hardesty & Hanover is part of the LaGuardia Gateway Partners team, a PPP (the country's largest) that will design and construct a new world-class facility at LaGuardia Airport. The project includes demolishing the CTB and creating a new facility with a new central entry portal to the airport and improved access to terminals at the airport. Infrastructure challenges include on-site stormwater drainage management, extensive utility coordination, embankment settlement, and tight vertical and horizontal clearances. Also includes design of associated retaining walls for the approaches connecting these retaining walls.
07/14 - Present	**Replacement for the Bruckner Expressway over Westchester Creek (Unionport Bridge), New York, NY – NYSDOT** **Structural Engineer** on federally funded final design project for a new single leaf bascule bridge. The current phase of the project involves extensive coordination effort with various stakeholders including NYSDOT, FHWA, as well as local communities during the alternative development phase and Design Report preparation. Responsibilities include the design of the construction staging and substructure foundation at the west approach, the development of the construction schedule and assisting in the development of the final contract drawings. Other responsibilities included the preparation of the Preliminary Structure Plans and **load rating** for the NYSDOT.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Jonathan Hewko, PE**	Years of relevant experience with this employer	6
Title	Structural Engineer	Years of relevant experience with other employer(s)	3

Degree(s) / Years / Specialization			B.S. / 2013 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 53578 / MD / 12/9/2024 NHI 130055 – Safety Inspection of In-Services Bridges
Year registered	2018	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Complex (Steel Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/21 – 03/21	**Bridge No. 1 Structural Analysis and Bridge Modeling, Ontario, Canada – Saint Lawrence Seaway Management Corporation** **Lead Structural Engineer** Bridge No. 1 is a rolling bascule lift bridge in St. Catharines, Ontario, which carries two lanes of traffic over the Welland Canal that is owned by the Saint Lawrence Seaway Management Corporation. Responsibilities for this project included: Creating and analyzing the full three-dimensional computer model using the CSiBridge software. The analysis included studying the effects of dead load, live load, wind, and seismic loads following current CSA code requirements. A sub-consultant was used to perform the enhanced bridge inspection and coordinated with them to obtain as-inspected conditions to provide an as-built and as-inspected **load rating analysis**. The results of the analysis and any critical findings were provided in a final detailed report given to the St. Lawrence Seaway.
01/20 – 01/22	**Bridge No. 5 Structural Analysis and Rehabilitation, Ontario, Canada – Saint Lawrence Seaway Management Corporation** **Structural Engineer** Bridge No. 5 is a vertical lift bridge in St. Catharines, Ontario, which carries two lanes of traffic over the Welland Canal that is owned by the Saint Lawrence Seaway Management Corporation. The bridge was originally built in the 1930s and has had several rehabilitations completed to it over the years. The previous inspection report that was presented to the SLSMC indicated moderate to severe corrosion in the front tower columns at the intermittent diaphragm connections. H&H was tasked with doing an in-depth hands-on inspection of these diaphragms to quantify the amount of material loss on the interior of the front tower columns as well as creating a full model of the bridge to perform a **load rating analysis** and wind analysis on the structure which were both my responsibility. The wind analysis indicated that the rear tower legs were inadequate for the new design wind loading criteria and showed a slight overstress in the front tower columns due to the material loss. The SLSMC awarded H&H the contract to develop full rehabilitation plans to address the two issues with the tower structure. For this rehabilitation, Jonathan was solely responsible for the creation of the contract drawings, the engineering calculations, cost estimate, and the construction schedule to be used when the project goes out to tendering. Construction was completed in January 2022.
10/20 – 05/21	**1st Avenue and Park Avenue Tunnel Load Rating, New York, NY – NYSDOT** **Structural Engineer and Load Rating Engineer** to perform field inspections on the *1st Avenue and Park Avenue Tunnels* and perform a **load rating analysis** utilizing the As-Built Plans and inspection reports developed during the field inspections. The 1st Avenue Tunnel consists of steel bent frame structures that are spaced approximately every 7 feet for the entire length of the tunnel. The steel bents are

	encased in concrete and the dead load was accounted for appropriately. SAP 2000 was used to model the governing steel bent frame sections which was based on the amount of fill above the structures while also considering the "W" sections that were used in each section. A 2-D frame was created, and the dead and live loads were applied to each frame structure while taking into consideration the amount of distribution that is present that the live load could be reduced by. The steel bent cap beams and supporting wall columns were analyzed for moment, shear, and axial forces (wall columns only). The **Park Avenue Tunnel** was built in the early 1900s as an unreinforced masonry arch structure with two portal sections on the North and South ends. A **load rating** was completed in 2007 on the unreinforced masonry arch, and it was found the masonry was overstressed which led to the current rehabilitation of the tunnel. The rehabilitation consists of reinforcing the arch with lattice girders every two feet and then encasing the girder with shotcrete. The newly reinforced masonry arch was rated using the LRFR Method since the strength of the effective section could be calculated. The unreinforced masonry walls were analyzed utilizing the ASR Method, as recommended by the AASHTO MBE. Due to the high trusting loads that are induced into the unreinforced masonry walls, soil spring were developed to allow the bases of the walls to be pinned and consider the passive restraint the soil provides on the walls to resist the active forces applied with the application of live load above. The reinforced arch was analyzed for moment, shear, and bearing forces while the unreinforced masonry walls were analyzed for the combination of axial and flexural stresses.
03/20 – 09/20	**Fort McHenry and Baltimore Harbor Tunnel Load Rating, Baltimore, MD - Maryland Transportation Authority** **Structural Engineer and Load Rating Engineer** H&H was tasked by the MDTA to perform a load rating analysis on the cut and cover sections of the tunnel for the two major tunnels they own in Baltimore, MD. He was responsible for **load rating** analysis of the various sections. The Fort McHenry Tunnel consisted of Cast in Place sections for both the East and West Cut and Cover approaches. The various cross sections were broken into 1ft equivalent strips for the analysis and analyzed as 2D frame structures. With the presence of backfill, the HL-93 Live Loading on each section could also be distributed through the fill to reduce the live load effects on the top slab of the tunnel structure. All dead load effects and live load effects were extracted from SAP and the **load rating** analysis was competed utilizing excel to determine the respective **load rating** factor for each element analyzed. The load effects on every floor beam and girder were extracted from CSiBridge and the governing floor beam type was determined and analyzed accordingly for the load effects. The supporting wall structures were rated using hand calculations using the dead and live load reactions extracted from CSiBridge considering the lateral load effects acting on the wall structures.
03/23 - Present	**Outerbridge Crossing, New York & New Jersey – Port Authority of New York and New Jersey** **Load rating Engineer** responsible for performing **load rating** of the existing steel truss bridge. Tasks included collecting and tabulating all the section properties and material information, gathering and organizing any elements contributing to the dead load on the structure in its existing condition performing the analyses using AASHTOWare for the development of the truss bridge models and **load rating** of gusset plates. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. Additionally, a library of ratings that can be updated will be developed for the client. The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as AASHTOWare Virtis or CSiBridge.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Anthony Wheeler, PE**	Years of relevant experience with this employer	3
Title	Senior Structural Engineer	Years of relevant experience with other employer(s)	7

Degree(s) / Years / Specialization			M.E. / 2012 / Structural Engineering B.S. / 2011 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 096549 / NY / 6/30/2024 NHI 130056 – Safety Inspection of In-Services Bridges for Professional Engineers
Year registered	2016	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/22 – 09/22	**I-82 Columbia River Bridge at Umatilla, Umatilla, OR – WSDOT** **Bridge Designer** for the **Load Rating** of this cast-in-place balanced cantilever segmental bridge that opened to traffic in 1988. The bridge has eight spans and a length of 3,365 feet and features two 660-foot spans (approximately) crossing the Columbia River. These two spans are supported by fixed, twin-walled columns.. In service, the twin-wall piers provided increased longitudinal flexibility to accommodate creep, shrinkage, and thermal movements. The superstructure of the I-82 westbound bridge is a variable depth box girder with a width of approximately 51 feet. The bridge carries two 12-foot lanes, shoulders, and a barrier separating the pedestrian lane. H&H completed an in-depth **load rating** of the I-82 westbound bridge. Anthony was involved in the three-dimensional model using CSiBridge software, including construction stages and calculated the time-dependent properties of the concrete. Anthony reviewed flexural and shear capacities of the concrete segments.
06/21 – 01/22	**Belt Parkway Design-Build, New York, NY - NYSDOT** **Senior Structural Engineer** responsible for the NYSDOT Level I **load rating** and seismic evaluations as well as the preliminary design of four bridges carrying the Belt Parkway. The current bridges are three-span steel superstructures utilizing steel cap girder piers and are being replace with single-span steel superstructures. Mr. Wheeler also prepared the preliminary plans including staging alternatives for four alternatives for the four bridges.
12/20 – 03/22	**Goethals Bridge Load Rating, New York, NY - Port Authority of NY & NJ** **Senior Structural Engineer** responsible for checking the analytical model for the Eastbound and Westbound cable stayed bridges. Mr. Wheeler also **load rated** the main load carrying edge girders.
08/20 – 11/20	**John F. Kennedy Airport Terminal Bridges Load Ratings, New York, NY | Triborough Bridge and Tunnel Authority** **Senior Structural Engineer** leading the **load rating** efforts of four steel and two concrete bridges. The airport bridges include approach ramps and the arrival platforms.

11/12 – 01/13	**Theodore Roosevelt Bridge Approach Structures (Open End Contract), Washington, DC - District of Columbia DOT** **Structural Engineer** involved in **load rating** three rigid frame bridges. The bridges consisted of two 2-span rigid frames and one 3-span rigid frame as well as pile supported slabs. The rigid frames were rated using STAAD and Excel with Visual Basic for the standard AASHTO-LRFD trucks; the pile supported slabs were rated using STAAD and MathCAD.
12/15 – 03/18	**George Washington Bridge Rehabilitation of Pedestrian Ramps, Fort Lee, NJ and New York, NY - Port Authority of NY & NJ** **Structural Engineer** for development, final design, and construction support services for the construction of an ADA compliant bicycle and pedestrian ramp pathway along the bridge's upper level at the New York and New Jersey ends of the bridge. The ramps extend the existing sidewalks to the ground without interruption, eliminating existing stairways and other impediments. Duties included structural analysis of bridge for stability and **load rating** using various finite element analysis software and creating contract drawings using AutoCAD.
07/15 – 08/15	**Mayo Bridge Load Rating, Richmond, VA - City of Richmond** **Senior Structural Engineer** responsible for performing structural analysis and **load rating** of this 100-year-old concrete arch bridge. Responsibilities included performing calculations and analysis to determine the appropriate **load rating** based on the properties of the bridge concrete arches.
08/12 – 09/12	**I-295 SB over Ramps, Bridge S-6, and Good Hope Road (Open End Contract), Washington, DC - District of Columbia DOT** **Structural Engineer** involved in **load rating** a 7-span curved steel girder bridge. The bridge was rated for DC permit trucks and standard AASHTO-LRFD trucks. The concrete deck was rated using MathCAD, Excel, and STAAD, and the girders were rated using Descus.
09/12 – 01/13	**EB I-695 over Anacostia River (Open End Contract), Washington, DC - District of Columbia DOT** **Structural Engineer** involved in **load rating** a 10-span curved steel girder bridge. The bridge was rated for DC Permit Trucks and standard AASHTO-LRFD trucks. The concrete deck was rated using MathCAD, Excel, and STAAD, and the girders were rated using Descus.
03/14 – 04/14	**Bridge Repair Plans for Three Bridges, Washington, DC - District of Columbia DOT** **Structural Engineer** involved with drafting repair plans based on defects included in the inspection reports. 2 bridges were cast-in-place open box bridges and the third was an adjacent box beam Bridge. Anthony also analyzed the adjacent box beam bridge to determine its **load rating** due to broken prestressing strands.
03/14 – 07/14	**Multi-Bridge Load Rating (Open End Contract), Washington, DC - District of Columbia DOT** **Structural Engineer** involved with reanalyzing previously load rated bridges for DDOT to include new AASHTO and permit trucks. Main tasks included modifying previous STAAD, Descus, Bar7, MathCAD, and Conspan models and updating the live loading. Using new methods for **load rating** developed by Mr. Wheeler the Rigid Frame bridges were completely recalculated in STAAD and Excel. The styles of bridges load rated were: Open Spandrel Arch bridges, Concrete Arch Bridges with soil loading, Steel Arch Bridge, Straight Steel Plate Girder Bridges, Concrete Rigid Frame Bridge, Pin and Hanger Steel Bridge, Concrete Cast in Place Open Box Beam Bridge.
09/14 – 10/14	**SB I-695 over M Street, 11th Street, and CSX Tracks (Open End Contract), Washington, DC - District of Columbia DOT** **Structural Engineer** involved in **load rating** a three-span curved steel girder bridge. The bridge was rated for DC Permit Trucks as well as the standard AASHTO-LRFD trucks. The concrete deck was rated using MathCAD, Excel, and STAAD, and the girders were rated using Descus. Mr. Wheeler also developed a program to more accurately determine distribution factors in lieu of the DESCUS Auto DF function.

16. Staff Experience:

Firm Employed by	Hardesty & Hanover		
Name	**Michael Fahey, PE**	Years of relevant experience with this employer	7
Title	Structural Engineer	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			M.S. / 2017 / Civil Engineering B.S. / 2014 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 101269 / NY / 6/30/2024
Year registered	2019	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Complex (Steel Structures) Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
11/20 – 02/21	**New Jersey Transit Group F Bridge Inspection, NJ - New Jersey Transit** **Structural Engineer** for field inspections and **load ratings** of approximately 40 railroad bridges. Responsible for field inspections, inspection report preparation, and load ratings as necessary based on inspection findings.
01/17 – 01/20	**Design-Build for the LaGuardia Airport Landside Roadway Network, Queens, NY |- Port Authority of New York and New Jersey** **Structural Engineer** on the H&H team for the final design of new airport roadway systems. Part of the LaGuardia Airport Redevelopment project, the elevated and at-grade roadways improve access to the future Central Terminal Building, adjacent terminals, and parking structures. Responsible for construction support services throughout the duration of the project including preparing construction support service documents and reports, responding to contractor RFIs, reviewing contractor submittals, construction site inspections, change order design tasks, quality control and assurance documentation, and **load ratings**.
09/16 – 03/17	**Rehabilitation of the Route 133 Truss Bridge over the Housatonic River, Brookfield, CT - CTDOT** **Structural Engineer** on the H&H team for the design phase performing **load ratings** for this 4-span simply supported Pratt through truss bridge carrying 2 lanes of traffic over the Housatonic River. H&H was responsible for calculating LRFR load ratings of the as-built, as-inspected, and as-rehabilitated condition of the bridge.
11/16 – 01/17	**East Haddam Swing Bridge (Route 82) over the Connecticut River, East Haddam and Haddam, CT | CTDOT** **Structural Engineer** for **load ratings** for rehabilitation of this four-span truss swing bridge. The bridge, which opened in 1913 has a 465 feet center bearing swing span and carries 2 lanes of Route 82 traffic over the Connecticut River. The structural feasibility study is for the addition of an external sidewalk to allow pedestrian access across the bridge, which has a narrow 24.5 feet roadway. The final phase included comprehensive structural, mechanical, and electrical repairs and upgrades.
02/16 – 02/17	**Rehabilitation of the Aetna Viaduct, Phase II, Hartford, CT - CTDOT** **Structural Engineer** on the Final Design Services for **Load Rating** and Structural Rehabilitation of Bridges carrying I-84 over Amtrak's Hartford, CT Fastrak busway, parking areas, and local streets. The rehabilitation included deck & deck joint rehabilitation, structural steel rehabilitation, bearing replacement, parapet safety upgrades, illumination, IMS facilities, and concrete substructure repairs

06/14 – 08/14	**Replacement of the Sarah Mildred Long Vertical Lift Bridge, Portsmouth, NH, and Kittery, ME - Maine DOT** **Structural Engineer** for a new vertical lift bridge, responsible for providing design services for the preliminary design, final design, and design support during construction, including providing a preliminary design report, plans, design and design check computations, **load ratings**, specifications, and estimates. The project was constructed using CMGC delivery. The new bridge carries crucial commercial traffic and heavy freight rail between Portsmouth, NH, and Kittery, ME. Responsible for the design calculations and drafting of various bolted and welded superstructure steel connections.
02/15 – 01/16	**Analysis of the Bridge 1765 and Bridge 1766, Eastbound and Westbound I-84, Hartford, CT - CTDOT** **Structural Engineer** responsible for performing a structural analysis of the 10-span viaduct and preparing design calculations of welded superstructure steel repairs at various locations, steel bolsters at bearing locations, new elastomeric bearings, and concrete parapet retrofits. CADD drawings were prepared for substructure concrete repairs, superstructure steel repairs, bearing replacements, joint repairs, and deck repairs. Also, a detailed **load rating** analysis of the viaduct was performed using **AASHTOWare Bridge Rating**.
08/14 – 04/15	**Preliminary Design of the I-84, Hartford, CT - CTDOT** **Structural Engineer** responsible for preliminary design and **load rating** calculations of superstructure steel repairs at girder ends, hinges, and pin and hanger locations of this 10-span rolled steel multi-girder superstructure with a reinforced deck. In addition, calculations were prepared to replace existing sliding plate bearings with new elastomeric expansion bearings. During the preliminary design, several field inspections were performed to determine and verify the existing condition of the concrete substructure, superstructure steel, bearings, and deck.
02/17 – 04/17	**Rehabilitation of the Route 37 Mathis Bridge, South Amboy, NJ - NJDOT** **Structural Engineer** responsible for analyzing the warning gates on the approaches to a double leaf bascule bridge carrying Route 37 Mathis Bridge over Barnegat. H&H provided **load rating** and design services for the deck replacement, bascule structural, mechanical, and electrical bridge operating systems rehabilitation. Responsible for reviewing manufacturer shop drawings, calculations, and finite element analysis for the barriers.
07/14 – 02/15	**Replacement of the Unionport Bridge, Bronx, NY - NYSDOT** **Structural Engineer** for the replacement of a bridge built on preserved sections of the original 1915 bridge foundations. The Unionport Bridge is in a very demanding area as regards traffic and urban development. Maintained traffic across the bridge during construction was a critical factor in evaluating bridge types and construction strategies. Responsible for the preparation of the structure justification report (SJR), planning and drafting a staged construction plan, and creating a geometrical alignment model in GeoMath to determine navigational clearances and other elevations.
07/14 – 11/14	**On-Call Engineering Services for Movable Bridges, New Haven, CT - City of New Haven** **Structural Engineer** assisting with preliminary, final design, and **load rating** services for movable bridges in the City of New Haven. Performed inspections of the substructure and superstructure for the Grand Avenue Swing Bridge and State Street Bridge.

16. Staff Experience:

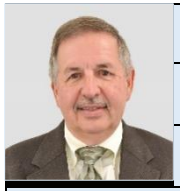
Firm Employed by	Hardesty & Hanover		
Name	**Michael Delemont, PE**	Years of relevant experience with this employer	1
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	22

Degree(s) / Years / Specialization			M.S. / 2002 / Civil Engineering B.S. / 2000 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 43170 / LA / 9/30/2025
Year registered	2019	Discipline	Structural Engineering
Contract role(s) / brief description of responsibilities			**Complex (Movable Structures) Load Rating. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
02/19 – 12/19	**Maple-Oregon Bascule Bridge, Sturgeon Bay, WI - Wisconsin DOT** **Bridge Lead/ Lead Bridge Engineer** for the rehabilitation of a double-leaf bascule bridge with prestressed girder and slab approach spans. Project involved concrete deck repairs, polymer overlay, bascule span balancing, and **load rating.** Design completed in 2019. Construction completed in 2020.
01/13 – 11/13	**Houghton-Hancock Vertical Lift Bridge Load Rating, Hancock, MI - Michigan DOT** **Lead Structural Engineer** Led the **load rating** of the double-decker truss vertical lift bridge and approach spans. The bridge superstructure consists of stringers, floorbeams and girders for the approach spans, as well as stringers, floorbeams and truss members for the approach truss span and lift truss span. The LFR load rating involved modeling the bridge in STAAD to rate these members for AASHTO, Michigan Legal, and Michigan Overload vehicles.
05/13 – 12/13	**Charlevoix Bascule Bridge Load Rating, Charlevoix, MI - Michigan DOT** **Lead Structural Engineer** who led the **load rating** of the complex bascule bridge. The LFR load rating involved modeling the bridge in STAAD to rate the bascule girders, floorbeams, and stringers for AASHTO, Michigan Legal, and Michigan Overload vehicles.
02/21 – 12/22	**Lake Street Bascule Bridge, Chicago, IL - Chicago DOT** **Lead Bridge Engineer** for the major rehabilitation and **load rating** of a double-leaf bascule truss with roadway traffic on the lower level and CTA rail on the upper level. The portions of the truss over the Chicago River will be floated-in with barges to minimize CTA outages. Design to be completed in 2023. Construction scheduled for 2023.
06/18 – 10/19	**I-39 Flyover Bridges, Beloit, WI - Wisconsin DOT** **Structural QA/QC Quality Reviewer** for the design and **load rating** of a new 574' long four-span curved steel plate girder bridge connecting I-39/90 SB to I-43 NB.
05/12 – 12/14	**I-43 Bridge Rehabilitation, Howard Avenue to Valley Bridge, Milwaukee County, WI - Wisconsin DOT** **Lead Structural Engineer and Deputy Project Manager** for the I-43 Bridge Rehabilitation project which included the rehabilitation and **load rating** of 22 bridges within the I-43 corridor from the Mitchell Interchange to the Marquette Interchange, including the Menomonee

	Valley High-Rise Bridge. Ten bridges carrying the mainline received deck overlays. Seven overpasses carrying local roadways over the freeway had their decks replaced. Four ramp bridges had their decks replaced. All structures had substructure repairs and painting. One pedestrian bridge was also rehabilitated.
02/10 – 07/12	**USH 41/I-43 Flyover Structures, Brown County, WI - Wisconsin DOT** **Project Engineer** for preliminary engineering and final LRFD design and **load rating** of three curved welded steel box girder structures for primary directional radial interchange ramps. Designed structural steel and bearings in accordance with AASHTO LRFD and WisDOT LRFD bridge specifications. Prepared plans, specifications, and estimates for the steel fabrication contract.
09/09 – 12/10	**USH 41/STH 29 Flyover Structures, Brown County, WI - Wisconsin DOT** **Project Engineer** for preliminary engineering and final LRFD design and **load rating** of three curved welded steel box girder structures for primary directional radial interchange ramps. One structure had 15 spans with a total length of 2678 feet and another 10 spans with a total length of 2117 feet, and the third one 2 spans with a total length of 374 feet. Designed structural steel and bearings in accordance with AASHTO LRFD and WisDOT LRFD bridge specifications. Prepared plans, specifications, and estimates for the steel fabrication contract.
09/05 – 09/08	**17th Street Bascule Bridge over the East Twin River, Two Rivers, WI - City of Two Rivers** **Project Engineer** for the design and **load rating** of a new single-leaf bascule bridge over the East Twin River. During the preliminary project phase participated in the inspection of the old bridge, feasibility study development, and preparation of preliminary plans for the replacement. Performed the final design including preparation of plans for the steel superstructure and the concrete substructure. Prepared structural specifications and cost estimates. Performed shop inspection of the steel fabrication and provided structural expertise and support during construction.
02/18 – 12/20	**Racine Street Bascule Bridge over the Fox River, Menasha, WI - Wisconsin DOT** **Structural Engineer** Lead bridge engineer for the final design and **load rating** of full replacement of an existing double-leaf rolling lift bascule structure with a new similar structure. Engineer of record for the superstructure design. Coordinated all bridge design disciplines including structural, mechanical, electrical, architectural, and WisDOT-designed approach spans. Provided support during construction. Design completed in 2020.
03/15 – 10/16	**1st Street Bridge Rehabilitation, Milwaukee, WI - City of Milwaukee** **Bridge Lead** for rehabilitation and **load rating** of a double-leaf trunnion-style bascule bridge over the Kinnickinnic River. Led the completion of a rehabilitation study, final design and construction support. Reviewed submittals and assisted with questions during construction. Design completed in 2016.
06/19 – 12/22	**IH 43/894 Bridge Rehabilitation, Milwaukee, WI - Wisconsin DOT** **Project Manager and Lead Structural Engineer** for thirteen bridges between the Hale Interchange and the Mitchell Interchange. Five bridges carrying the mainline and five overpasses carrying local roadways over the freeway received deck overlays. One overpass bridge at 68th Street was replaced. All structures will undergo substructure repairs and painting. Design and **load rating** completed in 2022. Construction occurred over several projects, the last of which is to be completed in 2023.

16. Staff Experience:



Firm Employed by	Gresham Smith		
Name	**John Weres, PE**	Years of relevant experience with this employer	6
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	37

Degree(s) / Years / Specialization			B.S. / 1980 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0036429 / LA / Exp. 9/30/25 NHI 130055 – Safety Inspection of In-Services Bridges NHI 130078 - Fracture Critical Inspection Techniques for Steel Bridges NHI 130092 Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures
Year registered	2011	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits and Load Rating Training. Meets MPR 4.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/19 – 03/20	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Project Manager*. Task Order 1 -** Retainer project for various bridge inspections of major river crossings. Completed hands-on inspection of fracture critical elements on several structures including the LA1 Truss over Atchafalaya River at Simmesport, LA8 Segmental Bridge over Red River at Boyce and the US165 Vertical Lift Bridge over Red River. Gresham Smith was able to complete the inspection of Bridge 005860, in Jeanerette, a steel swing truss and Bridge 009130, in Charenton, a steel swing truss – within the original budget for the initial three bridges.
04/20 -09/20	**Complex Bridge Inspections, Statewide, LA | TO 2 - Emergency Bridge Repairs, US 71 in Downtown Shreveport, LA - LADOTD** ***Project Manager*.** In April 2020, a train derailment damaged Bent 3 of the Spring Street Bridge forcing the roadway closure. Gresham Smith was selected to perform the bridge repairs to open the bridge. Working with the selected contractor, helical piles were designed to support the new column foundations and crash wall. John served as the design coordinator and facilitated the repairs.
07/20 - Present	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Project Manager*. Task Order 3 -** Retainer project for various movable bridge inspections. Completed hands-on inspection of fracture critical elements on several structures and coordinated the efforts of mechanical and electrical staff and served as EOR for the reports including the Bridge 006210 Vertical Lift Bridge at Loreauville, LA, Bridge 054360 Gross Tete Steel Swing Bridge and Bridge 054472 Indian Village Steel Swing Bridge in Iberville Parish. Due to cost savings on the initial 3 bridges in Task Order 2, we were able to complete the inspection of Bridge 006306, Bayside Bridge in Jeanerette, a steel swing bridge – within the original budget.
06/14 – 03/17	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Deputy Project Manager/Project Manager*.** Retainer project for various bridge inspections of major river crossings. Completed hands-on inspection of fracture critical elements on several structures including the Louisa Bascule Bridge in St. Mary's Parish. John served on the field inspection teams for the I-20 Mississippi River Bridge in Vicksburg and the LA 47 Bridge over the Mississippi River Gulf Outlet.

	Under a separate task order, John led the evaluation of US 190 Bridge over US 22, including bridge rating with **AASHTOWare BrR**. The study was to determine the structural adequacy of the bridge with the addition of a center median.
06/21 – 08/21	**Florida DEP, Florida Keys Overseas Heritage Trail Historic Bridge Evaluation, Marathon, FL - FDOT** ***QA/QC.*** Inspect and evaluate two historic bridges, the Seven Mile Bridge and the Bahia-Honda Historic Truss. John led the field evaluations, including drone video documentation and development of the recommendations report. This historic, former railroad structure includes a 247' Parker Truss main span with 24 Pratt truss approach spans as well as 9 plate girder approaches.
07/19 - Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Senior Structural Engineer.*** John provided bridge **load rating** for approximately 141 complex structures and 137 standard structures across the state of Tennessee. Structures were analyzed utilizing finite element methods and CSiBridge software. Structures load rated consisted of curved steel tub girders, steel arches with steel cables supporting steel floor beam – stringer systems, deck trusses, bascule arched steel truss, steel girder-floor beam-stringer system bridges, steel rigid K-frame bridges, and reinforced concrete rigid k-frames with spliced prestressed girders for center span bridges. Standard structures were analyzed using **AASHTOWare BrR** software.
04/15 – 03/17	**I-49 Lafayette Connector, Lafayette, LA - LADOTD** ***Deputy Lead Structural Design Engineer.*** Served as Deputy Lead Structural Design Engineer for the concept design for a 4-mile long elevated structure through an urban area. Structure concepts included post-tensioned concrete U-girders, span-by-span segmental boxes, and steel trapezoidal boxes. John coordinated the efforts of the individual design teams for each structure type and served as the public coordination lead for the structures as part of an overall community involvement plan on developing the proposed structure type for this $800M project.
06/15 – 03/17	**State Project No. H.004367.5 – Earhart Expressway Connector, Metairie, LA - LADOTD** **Deputy Project Manager, Lead Structures Engineer.** Preliminary and final design for a 7,000-foot urban expressway structure as part of the Earhart Expressway to Airline Highway Connector project. Preliminary design activities included survey, SUE, development of design criteria, development of bridge typical sections and development of proposed span arrangements and coordination with CN Railroad for the placement of bridge piers within the railroad right-of-way.
01/02 – 03/06	**Allegheny Ludlum Truss Renovation, Westmoreland County, PA** ***Project Manager.*** John served as lead construction manager responsible for the administration and inspection of the project. John reviewed all contractor submittals including demo and erection procedures, falsework design, change orders, material testing reports, and construction activity. This was a $2.3 million rehabilitation of a 700' steel truss. The project included redecking, steel repairs, and full repainting. Maintaining traffic on the two-lane through truss structure at all times was a critical component as the bridge served as the only vehicular access for a specialty steel mill, and the finished rolled galvanized steel plates had to be driven across the bridge daily.
04/08 – 09/10	**Clymer Borough Bridges, Clymer, PA - PENNDOT** **Project Manager**. Mr. Weres served as project manager for the $7 million project that included replacement of a 135' steel pony truss and a 65' concrete box structure using phased construction. To meet hydraulic requirements and maintain the roadway profile within the urban area of Clymer, PA, a new thru truss was designed to minimize the structure depth. Internal redundancy was built into the truss details and galvanized steel was utilized to reduce long term maintenance.

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Thong (Tom) Tran, PE**	Years of relevant experience with this employer	10
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	22

Degree(s) / Years / Specialization			B.S. / 1991 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0032072 / LA / Exp. 3/31/24
Year registered	2005	Discipline	P.E./Civil
Contract role(s) / brief description of responsibilities			**Quality Assurance / Quality Control. Meets MPR 4**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/19 – 03/20	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***QA/QC*. Task Orders 1, 3 & 4 -** Retainer project for various bridge inspections of major river crossings. Completed hands-on inspection of fracture critical elements on several structures including the LA1 Truss over Atchafalaya River at Simmesport, LA8 Segmental Bridge over Red River at Boyce and the US165 Vertical Lift Bridge over Red River. Tom provided quality control reviews on the bridge inspection reports for several truss structures.
04/20 -09/20	**Complex Bridge Inspections, Statewide, LA - Emergency Bridge Repairs, US 71 in Downtown Shreveport, LA - LADOTD** ***QA/QC.*** In April 2020, a train derailment damaged Bent 3 of the Spring Street Bridge forcing the roadway closure. Gresham Smith was selected to perform the bridge repairs to open the bridge. Working with the selected contractor, helical piles were designed to support the new column foundations and crash wall. Tom provided quality control reviews for the design.
07/19 - Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** **QA/QC.** Bridge **load rating** for complex structures and standard structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The standard structures were analyzed using the **AASHTOWare BrR** software. Tom provided quality control reviews on the **load rating.** Project consisted of complex structures load rated including: • Curved Steel Tub Girders • Steel Tubs with Cantilever Approach Spans • Curved Steel I Girders • Steel K-Frames • Steel Arches • Bascule Truss • Steel Through Girder • Steel Trusses • Girder-Floor Beam-Stringers

01/96 – 12/96	**South Carolina Movable Bridge Inspections, South Carolina DOT, Various Locations, SC** **Bridge Inspector.** Tom performed hands on visual inspection of movable steel truss bridges using bucket trucks. Second phase of project included detailing contract drawings for rehabilitation based on inspection report. Many of the repairs include partial member replacements due to impact damage, heat straightening, painting, and concrete repairs
01/95 – 12/95	**Megasite Rail Bridge Design Build, Savannah, GA – Georgia Ports Authority** **Project manager** working with Rogers Bridge Contractor on this design build project. The design was a steel thru girder railroad bridge over the Savannah Canal in Savannah, GA for the Georgia Ports Authority. The structure is a 105' single span steel thru girder bridge. The selection of the steel thru girder superstructure type allowed the rail profile to be set as low as possible.
06/21 – 08/21	**Florida DEP, Florida Keys Overseas Heritage Trail Historic Bridge Evaluation, Marathon, FL - FDOT** ***QA/QC.*** Florida DEP selected Gresham Smith to inspect and evaluate two historic bridges, the Seven Mile Bridge and the Bahia-Honda Historic Truss. Tom provided quality control review on the report for the possible preservation of the Bahia-Honda truss structure. This historic, former railroad structure includes a 247' Parker truss main span with 24 Pratt truss approach spans as well as 9 plate girder approaches.
08/20 - Present	**Statewide Engineering On-Call for Bridge Repair, Statewide, GA - GDOT** ***Project Manager.*** This contract includes, Inspection, **load rating** and repair of problematic bridges throughout the state of Georgia. Typical scope includes inspection of bridge, verification of repair needed, development of repair plans, development of special provision, advertisement of project, review of shop drawings and post construction services as needed. Repair includes cathodic pile encasement, carbon fiber wrap strengthening, latex modified concrete overlays.
11/14 – 12/17	**MS-309 Bridge Replacements, Marshall County MS - MDOT** **Lead Bridge Engineer.** Tom served as the EOR for this project. The design included replacing full timber structures with AASHTO beam structures supported by either concrete piles or steel pipe piles. Span lengths ranged from 41' to 140'. Structure arrangements varied from 3-span to 6-span structures. Work included Services During Construction, scheduled for completion Fall 2021. Tom led the design effort for development of a link-slab system, the first used in Mississippi to eliminate deck joints.
01/13 – 06/14	**ITS Design and Implementation Services, WO#4: I-10 Twin Span ITS-Orleans & St. Tammany Parishes, Statewide, LA -LADOTD** ***Structures Design Lead.*** Tom led the detailed structural analyses of new camera poles and the DMS poles could be installed on the existing foundations within the bridge structure. The DMS pole required a butterfly cantilever to support the new front access LED DMS enclosure. This was the first of each to be installed along the interstate system in Louisiana.
1/18 – 12/18	**Signal truss bridge at the US 78 / SR 124 intersection in Gwinnett County, GA.** **Engineer of Record.** This project involved the re-design of the intersection to incorporate a continuous flow intersection (CFI). Due to the severe skew of the CFI and other utility constraints at the intersection, there was a need to span the entire intersection with a 191' long steel truss structure to support all 14 traffic signal heads.
01/05 – 12/05	**Natchez Trace Parkway over Liberty Road, Design Build; Adams County, MS –** Structural project manager and engineer of record responsible for the design of this 3- span 227' long bridge. The 157' long main span is a cast-in-place, post-tensioned arch concrete multi-cell box girder section.

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Courtney Rome, PE**	Years of relevant experience with this employer	6
Title	Bridge Engineer	Years of relevant experience with other employer(s)	7

Degree(s) / Years / Specialization			B.S. / 2009 / Civil Engineering
Active registration number / state / expiration date			Professional Engineer: 0043355 / LA / Exp. 9/30/25 NHI 130055 – Safety Inspection of In-Services Bridges
Year registered	2019	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits and AASHTOWare Load Rating. Meets MPR 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/19 – Present	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Engineer.*** As an NHI Certified Bridge Inspector, Courtney is performing bridge inspections for various complex bridge structures throughout Louisiana, including steel trusses, concrete structures and moveable bridges.
07/19 – Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Project Engineer***. *P*rovided bridge **load rating** for approximately 141 complex structures and 137 standard structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The structures load rated consisted of curved steel tub girders, steel arches with steel cables supporting steel floor beam – stringer systems, deck trusses, bascule arched steel truss, steel girder-floor beam-stringer system bridges, steel rigid K-frame bridges, and reinforced concrete rigid k-frames with spliced prestressed girders for center span bridges. Standard structures were analyzed using **AASHTOWare BrR** software.
10/14 – 09/17	**Statewide Bridge Load Rating Program - ARDOT** ***Staff Engineer***. Performed **load rating** analysis on new and existing bridges to support the development of ARDOT's Load Rating Program using **AASHTOWare BrR software**. Analysis performed in accordance with AASHTO Load and Resistance Factor Rating (LRFR) for multi-girder steel bridges, girder-floorbeam bridges, and truss structures, on the state bridge system. Analysis included making recommendations for load postings to the State Bridge Engineer and developing rehabilitation strategies to reduce or avoid postings.
06/21 -8/21	**Florida DEP, Florida Keys Overseas Heritage Trail Historic Bridge Evaluation, Marathon, FL - FDOT** ***QA/QC.*** Florida DEP selected Gresham Smith to inspect and evaluate two historic bridges, the Seven Mile Bridge and the Bahia-Honda Historic Truss. Both structures are closed to traffic.

11/17 – Present	**SR 178 Benton County Bridge Replacements, MS - MDOT** ***Engineer.*** Gresham Smith provided final design (Phase B) services for the replacement of two water crossings on parallel alignment. Both bridges include utilization of prestressed Florida I-Beams (FIB) to maximize span lengths while minimizing structure depths. Courtney performed the deck design and beam design services for a one-span (135-foot) and three-span (80- x 100- x 80-foot) structure and also completed the design of pipe piles for the pier bents.
07/18 – Present	**SR 149 Simpson County Bridge Replacements, MS - MDOT** ***Engineer.*** Gresham Smith is partnering with MDOT for Phase B (Final Design) for the reconstruction of S.R. 149 near D'Lo, Simpson County, Mississippi. Courtney served as Engineer-of-Record for the two longer structures (Bridge 128.2 and Bridge 128.6). This is the first instance of partial depth deck panels utilized for MDOT as a pilot to verify the ease of construction and as an accelerated (ABC) time condition. Currently, Courtney is reviewing shop drawings for construction.
11/17 – 01/18	**Off-System Underwater Bridge Inspections, Statewide, TN - TDOT** ***QC Reviewer.*** Courtney provided quality control reviews for the inspection reports and graphics. The project included over 50 bridges throughout Tennessee.
06/14 – 12/16	**US Hwy. 82 over UPRR and US 165, Montrose, AR - ARDOT** ***Staff Engineer.*** Superstructure design of a 4-span, multibeam steel girder structure. Also designed multi-column bents with pile foundations, including train collusion forces in Seismic Zone 2.
01/12 – 09/14	**Statewide Bridge Substructure Design Program - ARDOT** ***Staff Engineer***. Designed and reviewed bridge substructure components in accordance with AASHTO LRFD specifications. Experienced in foundations including steel pipe piles, prestressed concrete piles. Drilled shafts and spread footings. Developed expertise in seismic analysis based on Arkansas' wide range of seismic conditions, particularly in north-east Arkansas.
03/12 – 09/14	**AR-14 N over Cache River , Amagon, AR - ARDOT** ***Staff Engineer.*** Performed hydraulic modeling including scour analysis, designed steel beam superstructure and deep pile foundation design in Seismic Zone 4. Developed final contract submittals including special provisions, bid quantities, and cost estimates.
01/10 – 06/12	**I-430/Hwy. 10 Interchange Improvements, Little Rock, AR - ARDOT** ***Staff Engineer.*** Design and plan review of 43' CIP retaining wall. Prepared final bridge submittals including special provisions, bid quantities, and cost estimates. Reviewed contractor work plan.
11/17 – 01/18	**Off-System Underwater Bridge Inspections, Statewide, TN - TDOT** ***QC Reviewer.*** Provided quality control reviews for the inspection reports and graphics. The project included over 50 bridges throughout Tennessee.

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Yun Lin, Ph.D., PE**	Years of relevant experience with this employer	6
Title	Engineer	Years of relevant experience with other employer(s)	7

Degree(s) / Years / Specialization			B.S. / 2008 / Civil Engineering M.S. / 2010 / Civil Engineering Ph.D./ 2015 / Structures
Active registration number / state / expiration date			Professional Engineer: 0042444 / LA / 9/30/24 NHI 130055 – Safety Inspection of In-Services Bridges
Year registered	2018	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating and Load Rating Training. Meets MPR 5**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
01/22 – 08/23	**Staunton District | District Inspection - VDOT** **Program Manager.** Dr. Lin directed inspection and **load rating** efforts for 3600+ bridges, ancillary structures and culverts across 11 counties. He led a team of 15 in-house staff including 4 load rating engineers. Dr. Lin managed communications for bridge load postings, oversaw two consultant contracts for inspection and **load rating**; and prioritized bridge maintenance funds for bridge repairs and replacements.
01/20 – 12/21	**Staunton District - VDOT** **District Load Rating Manager.** Dr. Lin led a team of 4 engineers to perform as-built **load ratings** for new and existing structures. General tasks included ensuring FHWA and State compliance for in-house **load ratings,** conducted training in **AASHTOWare BrR** for internal staff, and provided rehabilitation solutions to District Maintenance Department.
3/17 – 7/17	**Mississippi Bridge Load Ratings, Statewide, MS - MDOT** ***Designer.*** Dr. Lin performed **load rating** calculations for three bridges in Mississippi. To include the special truck load for Mississippi, he created a stand-alone bridge **load rating** Spreadsheet (LFR) for three bascule bridges in Mississippi. The program included all load rating vehicles, all required trucks by MDOT, as well as permit trucks with customized axle loads.
05/17 – 12/18	**Statewide Load Rating Program, Arizona – Arizona DOT** ***Rating Engineer.*** Evaluated and rated over 100 routine bridges utilizing **AASHTOWare BrR** program as part of AECOM's statewide **load rating** program. Work included select inspections to measure and document unknown member information, developing the BrR analysis, and report preparation.
7/19 – Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Project Engineer.*** Bridge **load rating** for complex structures and standard structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The standard structures were analyzed using the **AASHTOWare BrR** software. Dr. Lin led the modeling and analysis of complex structures utilizing both CSiBridge and Midas programs

	where appropriate. Dr. Lin also assisted TDOT with developing and refining their rating approach for Emergency Vehicles (EV). The complex structures load rated consisted of: • 16 Curved Steel Tub Girders • 6 Steel Tubs with Cantilever Approach Spans • 54 Curved Steel I Girders • 29 Steel K-Frames • 2 Steel Arches • 1 Bascule Truss • 1 Steel Through Girder • 2 Steel Trusses • 6 Girder-FloorBeam-Stringers
11/19 – 02/20	**Complex Bridge Inspections, District 08 Bridges - LADOTD** ***Bridge Inspector*.** As an NHI Certified Team Leader, Dr. Lin provided bridge inspection services for the Concrete Segmental Bridge in Boyce LA (Bridge # 037532) and also for the LA 1 truss bridge (Bridge # 036110) in Simmesport, LA. Dr. Lin assisted the team leader for the inspections and in developing the reports.
1/16 – 7/17	**Complex Bridge Inspections, GNO Bridge No. 1 - LADOTD** ***Bridge Inspector*.** Dr. Lin served as on-site inspector and prepared the inspection report for the GNO Bridge No. 1 in New Orleans. Duties included the hands-on inspection of the fracture critical truss elements utilizing bridge access equipment.
1/19 – 1/20	**Pedestrian Walkway Over US-31 in Vestavia Hills Near Wald Park in City of Mountain Brook, Alabama** **Lead Project Engineer.** Dr. Lin served as the lead design engineer and was responsible for superstructure and substructure design for the project. The 175 ft long pedestrian bridge combines a 145 ft long simple span and a 30 ft cantilever span. Dr. Lin was responsible for design calculations and plan productions as well as communications with design architect and another party who was responsible for the elevator shaft (ADA compliance).
8/16 – 3/17	**Earhart Expressway Preliminary Design, Metairie, LA - LADOTD** ***Bridge Designer*.** Dr. Lin performed bridge design and evaluation for the preliminary design of a 1,500' elevated bridge structure in Metairie. Tasks included span arrangement evaluations, development of typical sections for various structure types, and foundation evaluations. Structure types considered included steel tub girders and post-tensioned concrete boxes.
9/10 – 5/15	**West Virginia University** **Doctorial Research Engineer.** Yun worked as a doctorial researcher for WVDOT research projects and led a team of four graduate engineers. Research included developing a plan, assumptions and testing requirements; processing a series of tests on both facilities constructed and in-place construction; and documenting results, including a doctoral thesis on Thermal Stress Analysis. The 3 research studies included: • Thermal Stress Analysis of Mass Concrete Bridge Elements (2014-2015) • Preliminary Analysis of Mass Concrete Bridge Elements (2010-2014) • Innovative Bridge Construction Using Self-Consolidating Concrete (2010-2011)

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Adam Davidson, PE**	Years of relevant experience with this employer	5
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	19

Degree(s) / Years / Specialization			M.S. / 2009 / Structural Engineering B.S. / 2002 / Civil Engineering (Structural Emphasis)
Active registration number / state / expiration date			PE. #110436 / TN / Exp. 1/31/24 NHI 130055 – Safety Inspection of In-Services Bridges NHI 130078 - Fracture Critical Inspection Techniques for Steel Bridges
Year registered	2008 (TN)	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
07/19 – Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Project Manager, Senior Bridge Engineer.*** Adam provided bridge **load rating** management and QC reviews for approximately 141 complex structures and 137 standard structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The structures load rated consisted of curved steel tub girders, steel arches with steel cables supporting steel floor beam – stringer systems, deck trusses, bascule arched steel truss, steel girder-floor beam-stringer system bridges, steel rigid K-frame bridges, and reinforced concrete rigid k-frames with spliced prestressed girders for center span bridges. The standard structures were analyzed using the **AASHTOWare BrR** software.
10/15 – 06/17	**Eastern Federal Lands Highway Division (EFLHD) of the FHWA** ***Senior Bridge Engineer.*** Adam provided bridge **load ratings** on several dozen bridges as part of an on-call contract, containing over 3,347 bridges in over 32 states and Washington, DC including the entire length of the Blue Ridge Parkway and Natchez Trace Parkway. Bridge load ratings prepared using **AASHTOWare BrR** software.
10/17 – 06/19	**Heavy Haul Load Rating (Northern Virginia)** ***Senior Bridge Engineer.*** Adam provided bridge **load ratings** on 20 structures for the passage of several superload hauler configurations with a maximum gross vehicle weight of approximately 1.7 million pounds for the delivery of components to the Panda Stonewall Energy Center in northern Virginia. Structures were analyzed using **AASHTOWare BrR** software and included eight concrete culverts, one arch culvert, three cored slabs, four prestressed concrete girder bridges, and four steel girder bridges. The project also included field verification of the condition of the structures.

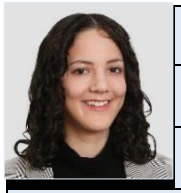
16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Donald McCrary, PE**	Years of relevant experience with this employer	5
Title	Senior Bridge Engineer	Years of relevant experience with other employer(s)	16

Degree(s) / Years / Specialization			B.S. / 2001 / Civil Engineering
Active registration number / state / expiration date			PE. #110436 / TN / Exp. 7/31/25
Year registered	2009 (TN)	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
07/19 – Present	**Complex and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Senior Structural Engineer.*** *P*rovided bridge **load rating** management and QC reviews for approximately 141 complex structures and 137 standard structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The structures load rated consisted of curved steel tub girders, steel arches with steel cables supporting steel floor beam – stringer systems, deck trusses, bascule arched steel truss, steel girder-floor beam-stringer system bridges, steel rigid K-frame bridges, and reinforced concrete rigid k-frames with spliced prestressed girders for center span bridges. Standard structures were analyzed using the **AASHTOWare BrR** software.
10/17 – Present	**Bridge Maintenance and Repair Contract, Regions 1, 2 & 3, TN - TDOT** ***Project Engineer.*** This contract includes underwater bridge inspections, routine structural repairs, superstructure replacements and widening, full structure replacements and Accelerated Bridge Construction projects. Responsibilities include preliminary layouts, bridge inspections, superstructure design, substructure design, quantities, and preparing and organizing plan sheets and detail sheets.
06/17 – 1/18	**I-40 Interchange at SR 255, Davidson County, TN – TDOT** ***Project Engineer.*** The proposed structure is a two-span steel welded plate girder bridge. This project has two other bridge structures along SR 255 crossing MNAA East-West Road and McCrory Creek. The geometric layout and preliminary design were developed for these structures. The MNAA bridge structure proposes a single-span prestressed concrete girder structure that utilizes uniquely modified bulb-tee beams to meet the tight vertical alignment and clearance constraints. The McCrory Creek bridge structure is a three-span traditional prestressed concrete bulb-tee girder bridge.
06/17 – Present	**SR 171 over I-40 Bridge Widening, Wilson County, TN - TDOT** ***Senior Bridge Engineer.*** Engineer-of-Record. This project included the widening of a 249-foot four-continuous-span, concrete structure utilizing 36-inch by 36-inch precast prestressed concrete box beams with composite deck. Donald's responsibilities included bridge inspections, superstructure design, substructure design, quantities, and QA/QC of design and plans.

16. Staff Experience:



Firm Employed by	Gresham Smith		
Name	**Ruth Steele, PE**	Years of relevant experience with this employer	5
Title	Bridge Design	Years of relevant experience with other employer(s)	0

Degree(s) / Years / Specialization			B.S. / 2018 / Civil Engineering
Active registration number / state / expiration date			PE. #126968 / TN / Exp. 10/31/24 NHI 130092 - Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures
Year registered	2022	Discipline	Civil
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
04/22 – Present	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Engineer Intern*.** Retainer project for various bridge inspections of major river crossings. Completed hands-on inspection of fracture critical elements on several structures including the Louisa Bascule Bridge in St. Mary's Parish. Ruth served on the field inspection teams for the I-20 Mississippi River Bridge in Vicksburg. Inspection duties included documenting structural deterioration for the entire western approach that included a mile long, multi-span structure with both steel and concrete beam elements, including isolated fracture critical spans.
07/19 – Present	**Complex Bridge Load Ratings, Statewide, TN - TDOT** ***Project Engineer.*** Ruth rated approximately 59 complex structures across the state of Tennessee. Complex structures were analyzed utilizing finite element methods and CSiBridge software. The structures load rated consisted of: • 9 curved steel tub girder bridges • 22 curved steel I-girder bridges • 2 steel I-girder bridges with adjoining ramps • 4 complex geometry steel bridge • 2 steel girder-floor beam-stringer system bridges • 11 steel rigid K-frame bridges • 3 reinforced concrete multicell bridges • 5 reinforced concrete multicells spliced with prestressed girders for center span bridges • 1 complex geometry bridge modeled in CSiBridge to calculate live load then transferred to **AASHTOWare BrR**. Her work included reviewing the plans and inspection reports, creating models of the bridges in CSiBridge, creating supplemental spreadsheet calculations when needed, and compiling reports.

07/19 – Present	**Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Project Engineer.*** Ruth provided support for approximately 29 standard structures across the state of Tennessee. The standard structures were analyzed using the **AASHTOWare BrR** software. Bridges included prestressed concrete beams, multicell bridges, steel I-girder bridges, and slab bridges. Ruth's work included reviewing existing plans and inspection reports, creating the AASHTOWare models, and creating supplemental calculations for the client report. Ruth developed MathCAD files to facilitate the transfer of information into BrR to improve efficiencies.
05/21 – Present	**I-65 over I-40 Ramp Slab Replacement, *Davidson County, TN*** ***Engineer of Record*.** Gresham Smith was hired by the TDOT to design the slab replacement of the I-65 ramp over I-40 on the south side of the inner loop. The project included analyzing the existing beams to check their strength to hole the new slab and comply with code changes made since the bridge was built. Ruth designed the new slab, designed the girder strengthening needed, over-saw the plan production, and checked the quantities.
06/17 – 07/18	**SR 10 Bridge Widening- Structural Design, *Wilson County, TN* - TDOT** ***Engineer Intern*.** Gresham Smith designed the bridge widening of SR 10 over Spring Creek and over the Cumberland River. This included preparing the structural analysis and design, providing contract plans, and calculating estimates of quantities and cost for the project. Ruth assisted in the design of the cantilever expansion and produced preliminary layouts, construction phasing plan, and detailed beam sheets.
07/18 – 11/19	**SR 1 over Trace Creek Superstructure Replacement, Humphreys County - TDOT** ***Engineer Intern*.** Gresham Smith was tasked with designing the superstructure replacement of SR 1 over Trace Creek. Gresham Smith performed the structural analysis and design of the replacement, provided contract plans, and prepared quantity and cost estimates. Design included the slab, prestressed box beams, abutments, and bent caps. Ruth's responsibilities include preparing the preliminary layout, phased construction sequence, assisting in the box-beam design, and detailing the superstructure, box beam, bent cap, and abutment details.

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Kris Torres, PE**	Years of relevant experience with this employer	1
Title	Bridge Engineer	Years of relevant experience with other employer(s)	10

Degree(s) / Years / Specialization			M.S. / 2016 / Civil Engineering B.S. / 2013 / Civil Engineering
Active registration number / state / expiration date			P.E. 122486 / TN / 1/31/24 NHI 130055 - Safety Inspection of In-Service Bridges NHI 130092. Fundamentals of LRFR and Applications of LRFR For Bridge Superstructures
Year registered	2020	Discipline	P.E./ Civil
Contract role(s) / brief description of responsibilities			**AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
06/22 – Present	**Complex Bridge and Standard Bridge Load Ratings, Statewide, TN - TDOT** ***Project Engineer****. P*rovided **load rating** for approximately 10 complex structures and 50+ standard structures across Tennessee. Complex structures included curved steel tub girders and steel k-frame bridges. Conventional structures load rated consisted of prestressed concrete bridges of various spans and curvatures. Those structures were analyzed using **AASHTOWare BrR** software.
06/22 – Present	**Complex Bridge Inspections, Statewide, LA - LADOTD** ***Bridge Engineer.*** Kris has inspected more than 15 bridges under Task Orders 4 and 6 for the District 62 Re-Inspection assignment. Bridges have included precast slabs, curved steel girders, rail cars, and full-timber bridges.
08/23 – Present	**City of Clarksville, Northeast Connector Twin Bridges, Clarksville, TN** ***Project Engineer.*** This TDOT Local Programs Hybrid project includes two steel welded plate girder bridges with aesthetic masonry overlooks that overlooks a creek. The twin bridges are nearly 1,000 ft in length and have a slight curvature with integral connections at each bent. Finite Element analysis was done for the girder and cross-frame design. This bridge is also located in a seismically active area where the substructures are designed using displacement-based design methods.
07/22 - 08/23	**I-24 DMS Gantry Standardization, Davidson & Rutherford Counties, TN - TDOT** ***Project Engineer.*** Kris provided structural design and analysis of several overhead 4 chord trusses in order to standardize truss sections and uprights to be modular and replaceable. The project consisted of 67 overhead sign structures and their related foundations. Finite element modeling was used to analyze the truss and the respective uprights. With camber of the different spans taken into account, the amount of truss sections needed to be stored to replace any sign structure was reduced to only a handful.

05/22 - 07/22	**State Route 2 over Creek and SR 2 over SR 15, Tippah County, MS - MDOT** ***Project Engineer.*** Kris performed QAQC on the superstructure design while also being tasked with the seismic analysis and design of the substructure which consisted of a steel pipe pile bent over SR 15. Displacement based seismic design was completed to check the bridge piles and response. The bridge also had a modular MSE wall on both abutments which he checked seismic requirements and design of the MSE straps.
08/22 – Present	**City of Jackson, US 45 Bypass Southern Extension, Jackson, TN** ***Project Engineer.*** This TDOT Local Programs Hybrid project includes approximately nine miles of both new and existing alignment through residential, commercial, industrial and rural areas. Gresham Smith has developed Preliminary Plans and will be developing ROW/Utilities plans for the proposed extension of US 45 Bypass including the proposed realignment of SR 18 (along existing Raines Springs Road) to proposed US 45 Bypass. This project involved preliminary analysis of two highly curved and skewed continuous welded plate girder bridges along with being located in a seismically active area.
10/21 - 02/22	**City of Tuscaloosa, ABC Type Bridge Design, Tuscaloosa, AL** ***Project Engineer.*** Kris provided structural engineering services to analyze and design Prestressed PCI NEXT Beams, precast bent caps, and their related connections with Ultra High-Performance Concrete as well as design the bearings and plan creation.
03/20 - 08/20	**I-40 over State Route 20, Jackson, TN - TDOT** ***Transportation Specialist Supervisor.*** Kris was in charge of fully designing a shallow (33 inch deep) welded steel girder with sharp skews. The bridge was 150 ft wide with phase constructed. The skews forced the cross frames to be in a staggered configuration and had to be designed accordingly. This bridge was also in a high seismic area where displacement-based design and analysis was conducted. The bent is a multi-column reinforced concrete type supported on friction piles. Finite Element analysis was done to check the girders during the critical stages of construction.
01/20 - 06/20	**State Route 4 over Holmes Road, Shelby County, TN - TDOT** ***Transportation Specialist Supervisor.*** Kris was in charge of fully designing the multispan, prestressed concrete bulb tee bridge in a high seismic area. Due to the deep clay layers near the Mississippi river, the response spectrum had to be magnified appropriately from AASHTO specifications per TDOT policy. Displacement based seismic design was also completed on this bridge taking the soil composition into account.
7/19 - 11/19	**State Route 255 (Donelson Pike) over MNAA East-West Road, Davidson County, TN - TDOT** ***Transportation Specialist Supervisor.*** Kris fully designed a bridge on this project and supervised the design as well as served as QAQC on two other bridges with horizontal curves. Bridge types varied from continuous welded plate girder with drilled shaft substructures to large bulb tee prestressed beams on spread footings founded on rock.
09/13 - 10/15	**Structures Research Center Project, Statewide, FL - FDOT** ***Research Engineer***. Load tested a full-scale bridge section that consisted of two full size Florida 36" I-beam with a standard deck thickness and cantilever with barrier with the other beam in a widened condition. The deck, reinforcement, and beams were heavily instrumented with strain gauges, laser displacement transducers, strain rosettes, etc. A load jack was used to simulate vehicular loads in accordance with AASHTO HL-93 tire widths. The specimen was also tested to failure in several deck sections to find the true capacity of the bridge deck to validate use of Empirical Deck Design for new bridge designs and for widenings. Kris monitored the testing and cleaned all the raw data from the instrumentation that was used and provided load-strain and similar plots in order to draw conclusions from the behavior of the bridge deck. Results of this test proved the membrane action being exhibited and changed FDOT design guidelines from explicitly prohibiting empirical deck design to requiring its use on prestressed beams.

16. Staff Experience:

Firm Employed by	Gresham Smith		
Name	**Venkata Sai Surya Praneeth Sathiraju, EI**	Years of relevant experience with this employer	<1
Title	Bridge Engineer	Years of relevant experience with other employer(s)	4

Degree(s) / Years / Specialization			M.S. / 2019 / Structural Engineering B.S. / 2016 / Civil Engineering
Active registration number / state / expiration date			EI. 0035419 / LA / Exp. 9/30/2025 NHI 130055 - Safety Inspection of In-Service Bridges
Year registered	2023 (EI)	Discipline	Civil
Contract role(s) / brief description of responsibilities			**Data Retrieval/Review and Site Visits and AASHTOWare Load Rating.**

Experience dates (mm/yy–mm/yy)	Experience and qualifications relevant to the proposed contract; *i.e.*, "designed drainage," "designed girders," "designed intersection," etc. Experience dates should cover the years of experience specified in the applicable MPR(s).
03/23 – 08/23	**Complex Bridge Inspections, Statewide, LA - LADOTD** **Engineer Intern.** Performing bridge inspections and reports for bridges under the contract. The following are the bridge inspections Venkata was part of under this contract - US 11 over Norfolk Southern, in Slidell, LA; and Old US 51 over Pass Manchac, Manchac, LA
07/23 – Present	**Lover's Key State Park Rehabilitation, Fort Myers, FL – Florida DEP** **Designer.** Venkata is involved in design and plan production of a timber boardwalk replacement in Lover's Key State Park, FL. Internally developed Mathcad files are used in the design of various boardwalk elements involved in this project. A specialty design vehicle was utilized for the live load design to accommodate FDEP maintenance requirements. AASHTO Design of Pedestrian Bridges and AASHTO Bridge Design Specifications are a few among the governing design specifications used for this project.
11/22 – 03/23	**Vertical Lift Bridge Rehabilitation, Perry, LA (H.014465.5) - LADOTD** **Engineer Intern.** The existing structure is a lift span with 10 adjacent approach spans. He was involved in the design rehabilitation work on vertical lift bridge along with the approach spans in Vermillion Parish. He designed reinforced concrete deck, steel stringers for the approach spans and worked on portal modifications for the lift span. He was also involved in checking the **load rating** calculations for the approach spans and vertical lift bridge. He also worked on the plan production process for the structural portion of this multi-disciplinary project. All the load rating calculations were performed using **AASHTOWare BrR** software and internally developed excel spreadsheets.
08/23 - Present	**Standard Bridge Load Ratings, Statewide, TN - TDOT** **Engineer Intern.** Venkata is providing analysis support for standard structures across the state of Tennessee as well as developing and completing MathCAD documents that pull data from bridge plans and inspection reports for input into AASHTOWare. He is also performing input checks for analysis using **the AASHTOWare BrR** software.

11/19 – 08/22	**Countywide Bridge Inspections, IN** **Engineer Intern.** As a part of countywide bridge inspection contract for various counties within Indiana, Venkata was involved in inspections as-well as performing **load rating** updates to numerous bridges that either were previously load posted or newly constructed. Venkata performed load rating updates to Steel girder bridges, prestressed box beams, steel truss bridges to name a few. Bridge load ratings were performed using **AASHTOWare BrR** software and internally developed spreadsheets. All designs followed AASHTO Manual for Bridge Evaluation and AASHTO Bridge Design Specifications.
11/20 – 09/22	**Northsplit Reconstruction Project, IN - INDOT** **Engineer Intern** – North Split Reconstruction Project is in downtown Indianapolis. BF&S was a subconsultant to the lead design engineering firm for this design build project. As a part of the project, BF&S was tasked to work on bridge replacements on New York St., E. Ohio St., E. Michigan St. St. Clair St. among others. Venkata was involved in the design of superstructure and substructure elements whole throughout this project. LEAP Bridge concrete/RC Pier software's were used in the design process. Bridge superstructure types included prestressed I beams, steel girders. Substructure types included integral and semi-integral end bents along with multi column pier on steel piles. All designs followed AASHTO Bridge Design Specifications and Indiana Design Manual guidelines.
08/19 – 06/20	**I-69 Finish Line Project, Johnson Co., IN** **Engineer Intern** –A new interchange was proposed where Old SR 37 (now I-69) meets SR 144. A total of 6 bridges were designed and are being constructed. All the bridges are composed of prestressed girders. Integral end bents were used for all the bridges. Venkata was involved in the design of beams, deck, and substructure units in various capacity for all these bridges. LEAP Bridge concrete/RC Pier software's were used in the design process. All designs followed AASHTO Bridge Design Specifications and Indiana Design Manual guidelines. Venkata was also involved in quantity calculations and cost estimates for various bridges within this project.
03/21 – 05/22	**Terra Haute Trax Project, Terra Haute, IN** **Engineer Intern** – At grade railroad crossings are present at 8th Ave and N 13th Ave in Terra Haute, Indiana. The purpose of the project is to replace these at-grade crossings with either a bridge at each crossing or one bridge with two roundabouts to access 8th Ave and N 13th Ave. Due to the relatively large skew at which railroad tracks intersect the 8th Ave and N 13th Ave at the project location, the latter was selected and designed. Prestressed girder design was selected for this project. Venkata was involved in the design of all the superstructure and substructure elements. Bridge cross-section geometry is flared to accommodate the sight distance restrictions going from the bridge to the roundabout. That added an extra layer of complexity to the design calculations. LEAP Bridge concrete was used for beam designs and RC Pier software was used for substructure designs. All designs followed AASHTO Bridge Design Specifications and Indiana Design Manual guidelines.
06/20 – 09/21	**Wayne Street Bridge 501, Maimi Co., IN** **Engineer Intern** – The scope of the project included a complete superstructure replacement with pedestrian improvements. Venkata was involved in the design of bridge deck and steel girders for this project. Merlin-Dash software was used in the design of steel girders. All designs followed AASHTO Bridge Design Specifications and Indiana Design Manual guidelines.
08/23 - Present	**Standard Bridge Load Ratings, Statewide, TN - TDOT** **Engineer Intern.** Venkata is providing analysis support for standard structures across the state of Tennessee as well as developing and completing MathCAD documents that pull data from bridge plans and inspection reports for input into AASHTOWare. He is also performing input checks for analysis using the **AASHTOWare BrR** software.

17. Firm Experience:

Firm name	Hardesty & Hanover, LLC			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Lapalco Bridge Over Harvey Canal**			Firm responsibility (prime or sub?)	Prime
Project number	H.004396	Owner's name	Jefferson Parish		
Project location	Jefferson Parish, LA			Owner's Project Manager	Mark Drewes
Owner's address, phone, email	1211 Elmwood Park Blvd., Ste. 802, Jefferson, LA 70123 / phone: 504.736.6500 / mdrewes@jeffparish.net				
Services commenced by this firm (mm/yy)	01/18	Total consultant contract cost ($1,000's)			$7,000
Services completed by this firm (mm/yy)	On-going	Cost of consultant services provided by this firm ($1,000's)			$4,250

H&H is designing this new bascule bridge, parallel to the existing bridge, which upgrades its capacity to six lanes of vehicular traffic. The existing bridge will also be fully rehabilitated to function with the new bridge. The proposed improvement is to reconfigure the existing four-lane (two in each direction) Lapalco Boulevard crossing at Harvey Canal to provide three travel lanes in each direction and one bidirectional bike/pedestrian lane. This increase from the existing four lanes eases traffic congestion and enhances the area's hurricane evacuation route network. The new bridge will provide a 150-foot-wide navigation channel, a 45-foot vertical navigation clearance, and is designed to match the existing bridge.

The. project is being designed to LADOTD Standards and Specifications for Roads and Bridges, the LADOTD Bridge Design Manuals and AASHTO**,** the Manual for Bridge Evaluations; and will be reviewed by LADOTD. Scope of work includes inspection of the existing bridge, survey and geotechnical engineering as well updating the existing Environmental Assessment. Design services include development of Bridge Design Report; roadway design and lighting; utility coordination; **load rating for the existing and new fixed and movable structures;** structural design of foundation and approach spans; the structural, mechanical and electrical design of the bascule bridge; as well as permitting.

Load ratings were performed in accordance with the American Association of State Highway and Transportation Officials (AASHTO) Manual for Bridge Evaluation (MBE), 3rd Edition – 2018. The Load and Resistance Factor Rating (LRFR) method per Section 6 of AASHTO MBE and the LADOTD Bridge Design and Evaluation Manual requirements were used to produce the rating values. Hand calculations combined with live load modeling software GOBEAM, and **AASHTOWare BrR** were used. The live load for the bascule span girders was modeled as a two-span continuous unit with a hinge located at the span lock location, which transmits shear and no moment across the joint. Dead loads for the bascule span rating were obtained from the hand calculations using the as-built plans. Live loads for the bascule span were calculating using GOBEAM analysis software and AASHTOWare. For the bridge, four 12'-0" wide vehicular lanes were considered loaded for this rating. HL93 loading was applied to the roadway of the bridge along with additional rating vehicles as required by LADOTD.

Staff Used in Proposal: *Babak Naghavi, PE; Erik Diaz, PE; Amy Robards, PE; Frederick Wetekamm, PE; Linh Kim, PE; Dalton Hunt, EI; Rafal Wuttrich, PE;*

Scope of Work Relevant to the contract:

- LOAD RATING CALCULATIONS & ANALYSIS
- REHABILITATION/REPAIR DESIGN
- LADOTD STANDARDS & SPECIFICATIONS
- MOVABLE BRIDGE LOAD RATING
- USE OF AASHTOWARE BRDR BRIDGE RATING

17. Firm Experience:

Firm name	Hardesty & Hanover, LLC	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Bridges Services IDIQ Master Contract**	Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Mississippi DOT
Project location	Statewide, MS	Owner's Project Manager	Scott Westerfield, PE
Owner's address, phone, email	401 North West Street, Jackson, MS 39215 | 601.359.7200 | swesterfield@mdot.ms.gov		
Services commenced by this firm (mm/yy)	01/21	Total consultant contract cost ($1,000's)	$1,400
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$1,400

Hardesty & Hanover (H&H) conducted bridge inspections and developed the bridge design plans and specifications for the rehabilitation of the SR 609 and SR 605 bridges under our Mississppi DOT Master Bridge Contract. Rehabilitation plans included structural, mechanical, and electrical bridge components, roadway approaches, improvements to the operator house including HVAC; development of maintenance and repair plans; and preparation of traffic control plans.

SR 605 and SR 609 Bridges: Load rating services were performed for the SR 605 and SR 609 bascule bridges using **AASHTOWare.**

Box Girder Bridges: Load rating services are being performed on two box girder bridges based on inspection findings and plan details for Bridge No. 147.9A at I-59 and Bridge No. 131.5B at I-20 located near Meridian in Lauderdale County. The inspection required night work to avoid lane closures on I-20 and I-59, as well as traffic control for lane closures and use of a confined space rescue team for inspection of inside the boxes.

The analyses include developing a finite element model of each bridge and for load ratings to follow LFR considering MDOT's permitted vehicle legal loads. If warranted, repair recommendations will be made based on the inspection results and the load rating.

Scope of Work Relevant to the Contract:

- LOAD RATING CALCULATIONS & ANALYSIS
- AASHTO MANUAL FOR BRIDGE EVALUATION
- STRUCTURAL STEEL AND CONCRETE REPAIRS
- COMPLEX (MOVABLE STRUCTURES) LOAD RATING AND ANALYSIS
- USE OF AASHTOWARE BRDR BRIDGE RATING SOFTWARE

Staff used in this proposal:

Erik Diaz, PE; Linh Kim, PE; Babak Naghavi, PE; John Corven, PE; Amy Robards, PE; Rob Vicedo, PE; Fred Wetekamm, PE; Dalton Hunt, EI; Dennis Gowins, PE; Eric Johnson, PE; Glen Tindale, PE; Anwer Kaimakchi, EI

17. Firm Experience:

Firm name	Hardesty & Hanover, LLC			Past Performance Evaluation Discipline(s)*	Bridge
Project name	**I-395 Segmental Bridges**			Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Florida Department of Transportation		
Project location	Miami, FL			Owner's Project Manager	Auraliz Benitez, PE
Owner's address, phone, email	FDOT District Six, 1000 NW 111 Avenue, Miami, FL 33172 | 305.470.5471 | Auraliz.Benitez@dot.state.fl.us				
Services commenced by this firm (mm/yy)	03/21	Total consultant contract cost ($1,000's)	$13,000		
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$13,000		

Hardesty & Hanover is designing five new precast segmental bridges that are a part of the SR 836/I-95/I-395 corridor upgrade in Downtown Miami. The Archer Western-De Moya Joint Venture is constructing this design-build project. The segmental bridges are constructed with over 2,000 precast and cast-in-place segments erected using the balanced cantilever method. Typical span lengths range from 225 feet to 255 feet supported on cast-in-place piers with auger-cast pile foundations and include C-Piers as well as integral Straddle and T-Piers.

H&H created the design-build proposal and pre-bid engineering ahead of the selection process and is providing analyses, final design, shop drawings, construction engineering and the design and as-built **load ratings** for the segmental bridges. The project's overall construction value is $840 million, and the segmental bridges have a deck area of 700,000 square feet (approximately $200 million). Longitudinal and transverse load ratings of the 20 continuous structural units of segemental bridges and the integral piers was performed for both temporary and final traffic conditions for both the partially completed and completed bridges, incorporating staged construction and time-dependant analysis. Several of the bridges are connected transversely using longitudinal closure pours, requiring refined analysis in determining load distribution and structural behavior. The **load ratings** are performed in accordance with the AASHTO Manual for Bridge Evaluation and the FDOT Bridge Load Rating Manual per the LRFR methodology, operating and special legal and permit vehicle rating evaluations at the service and strength limit states. Load ratings are performed both as design ratings prior to construction and as-built load ratings following construction prior to traffic. The as-built ratings consider the actual segment cast and erect dates as well as any construction modifications that may have occurred to provide an accurate assessment of the bridge capacity prior to traffic and future permit load applications.

Staff used in this proposal: *John Corven, PE; Dennis Gowins, PE; Eric Johnson, PE; Glen Tindale, PE; Anwer Kamakchi, EI*

Scope of Work Relevant to the Contract:

- LOAD RATING CALCULATIONS & ANALYSIS
- AASHTO MANUAL FOR BRIDGE EVALUATION
- COMPLEX (CONCRETE STRUCTURE) LOAD RATING

17. Firm Experience:

Firm name	Hardesty & Hanover, LLC		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**Outerbridge Crossing Structural Rehabilitation**		Firm responsibility (prime or sub?)	Prime	
Project number	22656000	Owner's name	Port Authority of New York & New Jersey		
Project location	Staten Island, New York & Perth Amboy, New Jersey		Owner's Project Manager	Ramesh Panchalan	
Owner's address, phone, email	4 World Trade Center 20th floor, New York, NY 10007 | 212.435.6230 | rpanchalan@panynj.gov				
Services commenced by this firm (mm/yy)	03/23	Total consultant contract cost ($1,000's)		$5,882	
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)		$2,688	

The Outerbridge Crossing, also known as the Outerbridge, is a cantilever bridge that spans the Arthur Kill between Perth Amboy, New Jersey, and Staten Island, New York. H&H is performing **load rating** of the existing steel truss bridge. The tasks included in this effort are:

Section Properties and Capacity – this task is focused on collecting and tabulating all the section properties and material information that is available.

Dead Load Verification –this task includes gathering and organizing any elements contributing to the dead load on the structure in its existing state. Relying on the original design plans is especially important for the truss spans since there are many secondary members and connection plates whose weights must be accounted for.

Modeling and Analysis - AASHTOWare will be used for the development of the truss bridge models and **load rating** of gusset plates. This program has a built-in gusset plate analysis module available to perform a Level 2 **load rating** of these connections. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. The goal of this client is to maintain a library of ratings that can be updated with as-inspected data as future inspections are completed. AASHTOWare is ideal for this purpose since once the model files are setup, updating section properties and re-generating load ratings is a straight-forward procedure. The program can also be used to generate permit load ratings, if needed.

The structure is rated in accordance with LRFR and LFR methodology including FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges). The models will be structured and well-documented and submitted in a fashion consistent with the Level 1 rating standard. It is critical to understand how a truss functions in addition to the fatigue prone details, specifically for a non-redundant structure, in order to properly analyze a truss bridge. This knowledge allows for a practical analysis and understanding of the results from 2D or 3D analytical tools such as **AASHTOWare Virtis or CSiBridge**. Gusset plates are critical to the integrity of a truss structure. The gusset plates are utilized to connect the chord and web (diagonal and vertical) members together at the truss nodes. While the analysis considers an idealized pin connection for a truss, the gusset plates provide some fixity and must be designed accordingly. These secondary stresses can be substantial relative to the truss forces and may result in structural issues if they have not been properly considered in design. FHWA specific guidelines (since the collapse of the I-35W Bridge in Minneapolis) provide direction on the analysis techniques available to designers to check for overstress in the gussets and to ensure they are functioning as designed.

Staff used in this proposal: *Rafal Wuttrich, PE; David Marcic, PE; Sophia Naglierei, PE; Jordan Warncke, PE; Michael Fahey, PE*

Scope of Work Relevant to the Contract:

- LOAD RATING CALCULATIONS & ANALYSIS
- USE OF AASHTOWARE BRDR
- COMPLEX (TRUSS STRUCTURE) LOAD RATING
- AASHTO MANUAL FOR BRIDGE EVALUATION

17. Firm Experience:

Firm name	Hardesty & Hanover, LLC	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Bridge I-82 Columbia River at Umatilla Load Rating**	Firm responsibility (prime or sub?)	Prime
Project number	N/A	Owner's name	Washington State Department of Transportation
Project location	Umatilla, Oregon	Owner's Project Manager	Mohamad Al-Salman, PE
Owner's address, phone, email	7345 Linderson Way SW, Tumwater, WA 98501 | 360.570.2567 | AlSalM@wsdot.wa.gov		
Services commenced by this firm (mm/yy)	04/22	Total consultant contract cost ($1,000's)	$194
Services completed by this firm (mm/yy)	11/22	Cost of consultant services provided by this firm ($1,000's)	$194

I-82 crosses the Columbia River at Umatilla, Oregon, on two adjacent bridges. The eastbound bridge, carrying traffic south over the river, is a steel through cantilever truss opened to traffic in 1955. The adjacent westbound bridge, which is the subject of this load rating assignment, carries traffic north over the river.

The I-82 westbound bridge is a cast-in-place balanced cantilever segmental bridge that opened to traffic in 1988. The bridge has eight spans and a length of 3,365'. The bridge features two approximately 660' spans crossing the Columbia River. These two spans are supported by fixed, twin-walled columns. These columns provided overturning stability during cantilever construction. In service, the twin-wall piers provide increased longitudinal flexibility to accommodate creep, shrinkage, and thermal movements. The superstructure of the I-82 westbound bridge is a variable depth box girder with a width of approximately 51'. The bridge carries two 12' lanes, shoulders, and a barrier separating the pedestrian lane.

H&H provided **load rating** services for the I-82 westbound segmental bridge. Work was performed in accordance with the latest WSDOT Bridge Design Manual and Design Memos, the 3rd Edition of the AASHTO MBE with interims, and the 9th edition of the AASHTO LRFD Bridge Design Specifications (2020).

H&H rated the post-tensioned concrete segmental box girder bridges in both longitudinal and transverse directions. Longitudinal ratings are based on forces and stresses developed by performing time-dependent construction analyses. The primary tool for these analyses will be the CSiBridge software package. The longitudinal construction analyses, coupled with the live load generation features, feed directly into the load rating capabilities of the software. For bridges of this significance, we typically perform independent analyses using the BRIDGE DESIGNER (BD2 & BD3) software package.

The transverse **load rating** of the segmental box girder superstructure will be based on the inherent capabilities of the CSiBridge software.

Staff used in this proposal: *John Corven, PE; David Marcic, PE; Eric Johnson, PE; Anthony Wheeler, PE; Glenn Tindale, PE; Anwer Kaimakchi, EI*

Scope of Work Relevant to the Contract:

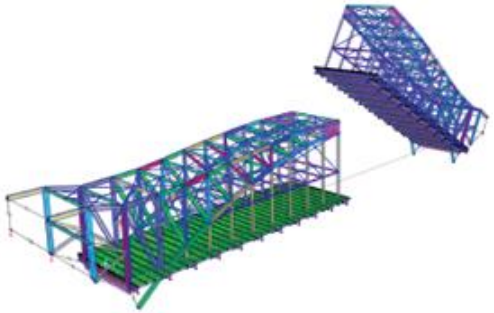
- LOAD RATING CALCULATIONS & ANALYSIS
- AASHTO MANUAL FOR BRIDGE EVALUATION
- COMPLEX (CONCRETE STRUCTURE) LOAD RATING

17. Firm Experience:

Firm name	Gresham Smith		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**Complex Bridge Load Ratings**		Firm responsibility (prime or sub?)	Prime	
Project number	Work Orders 5,11,14,15, 21 & 26; Agreement No. E4149 Work Order 12; Agreement No. E2231 | Work Orders 3 & 7; Agreement No. E 2451	Owner's name	Tennessee Department of Transportation		
Project location	Statewide, TN		Owner's Project Manager	Rebecca Hayworth, PE	
Owner's address, phone, email	James K. Polk Building, Suite 1200, 505 Deaderick Street, Nashville, TN 37243-0338 / 615.253.2448 | rebecca.hayworth@tn.gov				
Services commenced by this firm (mm/yy)	07/19	Total consultant contract cost ($1,000's)	$2,672		
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$2,672		

Over a series of multiple work orders, Gresham Smith performed a total of 117 bridge **load ratings** for existing complex bridge structures for the Tennessee Department of Transportation's (TDOT) Structures Division. Complex Bridge Load Ratings have included: 16 curved steel tub girders, 6 curved tubs with cantilever spans, 54 curved steel I-girders, 29 steel K-frames, 2 steel arches, 1 bascule truss, 1 steel through girder, 2 steel truss spans and 6 girder-floorbeam structures with very sharp skews.

Our team is capable of using a large variety of FEM software packages for refined analysis. Complying with our client's requirement, CSiBridge was used for FEM modeling for these bridges at TDOT's request. Supplemental calculations in Mathcad and spreadsheets were also included. With the DOT's agreement, our team created alternative and sometime creative solutions to overcome software limitations, such as lack of modeling features, overly conservative assumptions, and programming errors, in order to produce load ratings that are most reflective of the current conditions. Field visits were performed when necessary to verify information from bridge plans and inspection reports. After exhausting load rating refinements, our team provided rehabilitation alternatives with schematic illustrations for structures requiring load postings.

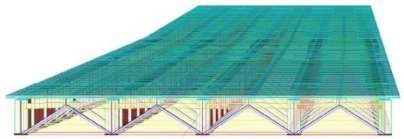


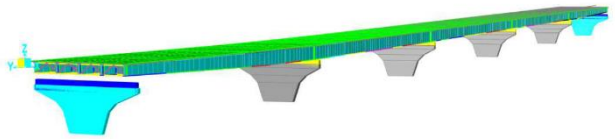
Nature of firm's responsibility: Prime Consultant; Overall responsibility for entire contract.
Firm members involved include: Adam Davidson, Donald McCrary, Ruth Steele, Braden Wells, Courtney Rome, John Weres, Tom Tran, Kris Torres, Venkata Sathiraju, Russell Childs, Tim Dow and Yun Lin.

17. Firm Experience:

Firm name	Gresham Smith		Past Performance Evaluation Discipline(s)*	Bridge	
Project name	**Routine On and Off Bridge Load Ratings**		Firm responsibility (prime or sub?)	Prime	
Project number	Work Order 26; Agreement No. E2149	Owner's name	Tennessee Department of Transportation		
Project location	Statewide, TN		Owner's Project Manager	Rebecca Hayworth, PE	
Owner's address, phone, email	James K. Polk Building, Suite 1200, 505 Deaderick Street, Nashville, TN 37243-0338 / 615.253.2448 | rebecca.hayworth@tn.gov				
Services commenced by this firm (mm/yy)	07/19	Total consultant contract cost ($1,000's)	$1,588		
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$1,588		

Over a series of multiple work orders, Gresham Smith produced over 300 **load ratings** for existing routine bridge structures for the Tennessee Department of Transportation's (TDOT) Structures Division. Typical structure types include multi-beam, tee Beam, truss, frame, girder-floor beam-stringer, slab, and culverts. AASHTOWare BrDR was used for superstructure ratings. Substructure ratings were provided as needed depending on substructure condition ratings and structural continuity.





With a group of specialized load rating engineers and optimized workflow, our team produced accurate **AASHTOWare BrDR** models. Combined with automated reporting and stringent QC and QA processes, load rating reports were produced consistently with few human errors. As a result, it made our client's review process more convenient and effective. When an **AASHTOWare BrDR** rating results in load posting, refined analysis was used as appropriate to improve load ratings. Similar to complex bridge load ratings, rehabilitation solutions were provided when required.

Nature of firm's responsibility: Prime Consultant; Overall responsibility for entire contract.
Firm members involved include: John Weres, Adam Davidson, Donald McCrary, Braden Wells, Tom Tran, Kris Torres, Venkata Sathiraju, Courtney Rome and Ruth Steele.

Understanding the impact to communities and businesses is our goal, to avoid or reduce load posting impacts while ensuring safety and code compliance.

17. Firm Experience:

Firm name	Gresham Smith	Past Performance Evaluation Discipline(s)*	Bridge
Project name	**Complex Bridge Inspections IDIQ – Multiple Task Orders**	Firm responsibility (prime or sub?)	Prime
Project number	4400013322	Owner's name	Louisiana Department of Transportation and Development
Project location	Statewide, Louisiana	Owner's Project Manager	Haylye Browne
Owner's address, phone, email	1201 Capitol Access Road, Baton Rouge, LA | 225.379.1205 | haylye.brown@la.gov		
Services commenced by this firm (mm/yy)	10/19	Total consultant contract cost ($1,000's)	$5,767
Services completed by this firm (mm/yy)	Ongoing	Cost of consultant services provided by this firm ($1,000's)	$2,958

Complex Bridges: Major complex inspections included: Red River Lift Bridge in Alexandria, LA 1 Truss over Atchafalaya River and LA 8 Concrete Segmental Bridge in Boyce. In 2022, Gresham Smith led the in-depth inspection of the I-20 Mississippi River Bridge in Vicksburg. Drone inspections was utilized to supplement the hands-on inspections. SPRAT rope access was utilized to minimize traffic restrictions.

Emergency Repairs: In April 2020, a train derailment impacted the US 71 Bridge over KCS Railroad in downtown Shreveport, causing the emergency closure of the bridge. LADOTD assigned Gresham Smith under TO #2 to prepare design plans to replace bent three and to install a concrete crash wall for future protection. Gresham Smith performed an emergency inspection of the bridge to perform measurements and evaluate potential repairs. Repairs included the installation of helical piles to resist the railroad crash loads on the foundations and utilization of rolled shapes to expedite steel fabrication.

Movable Bridges: Gresham Smith served as the lead for the in-depth inspection of 10 movable bridges, including Mechanical, Electrical, and Structural tasks. The structural tasks included rope access, manlifts and UBI equipment dependent of span details. Mechanical/Electrical inspections included full testing and assessments. Movable bridges included: Bridge 006210 Loreauville Vertical lift bridge, Bridge 054360 Gross Tete Steel Swing Bridge in Iberville Parish and Bridge 054472 Indian Village Steel Swing Bridge in Iberville Parish.

On-System/Off-System Re-Inspections: Gresham Smith was selected to re-inspect multiple bridges in District 62 to establish proper base inspection reports that can be utilized for future in-house District inspectors to ensure consistency and thoroughness. To date, Gresham Smith has inspected more than 35 bridges including timber trestles, concrete slab, railcar bridges, and concrete girder spans.

Nature of firm's responsibility: Prime Consultant; Overall responsibility for entire contract.
Firm members involved include: John Weres, Yun Lin, Courtney Rome, Tom Tran, Russell Childs, Ruth Steele, Braden Wells, Kris Torres, Venkata Sathiraju, Jackson Hartley, Tim Dow, Brennon Hughes and Rebecca Murray.




18. Approach and Methodology:

Project Management: This contract involves document retrieval/review, site inspection/evaluation, load rating modeling/analysis, and training. The H&H team will implement a proven approach to address these challenges while managing several task orders, which may be issued at the same time. Dr. Babak Naghavi, PE, our Project Manager, will assign a Project Engineer for each task order based on the type of bridge and complexity of the work. Project Engineers will be supported by lead engineers experienced in all aspects of bridge evaluation and load rating. This senior group and the Project Engineer will work with Dr. Naghavi to assign production and QC staff experienced with the specific bridge type, such as movable, truss, or segmental. Assigning committed project staff with the relevant expertise and experience to each bridge is the most effective way to ensure that each bridge receives the knowledge and experience needed to achieve project success. The depth of our available technical resources supplemented with professionals from Gresham Smith will allow for our team to deliver quality final products for all task orders on time and within budget, including when multiple task orders are issued simultaneously. We have successfully teamed with Gresham Smith in previous transportation projects.

As the first order of business, H&H will prepare a Project Management Plan (PMP), including project schedule and QA/QC Plan addressing phases of work through delivery. The PMP will be updated as needed. Schedules will depend on the scope of work and level of complexity. An example of a typical schedule for a complex load rating is shown below:

Typical Schedule							
	Task	Months					
		1	2	3	4	5	6
Document Retrieval and Review	1						
Site Visits	2						
Load Rating Modeling and Analysis	3						
QA/QC Reviews of Structural Load Ratings	5						
Update Rating Files & Submit Rating Reports	6						

Task 1: Plan and Document Retrieval and Review: H&H will work with DOTD to collect all available as-built drawings, repair details or information, field measurements, and recent inspection reports or previous load ratings for any assigned bridges. If this information is not readily available, H&H will reach out to other potential sources of information, including DOTD headquarters or local district offices and databases, local government offices, bridge tender house files, and/or engineers and contractors who may have been involved in work on the bridge as discovered through other sources. Some of these sources include General Files, AssetWise Bridge Record Data Base (or InspectX), FileNet Manager System, and Inspection Document File Server. H&H will also schedule a site visit for each bridge to collect additional data necessary for load rating analysis and identification of historically problematic details and fatigue prone details. This will verify and supplement the information collected during the document review. H&H will keep an organized record of collected information and electronic document copies will be submitted to the DOTD bridge rating unit through ProjectWise or AssetWise.

Task 2: Site Visits: The document review performed by the H&H team will assist in the planning and preparation for the site visits. Previous inspection reports will provide an overall understanding of the bridge design, use, conditions, and appropriate inspection methods and equipment.

Based on this information, the surrounding land use, and features crossed, our inspection team will determine the most appropriate access means to follow an inspection procedure with an enhanced focus on condition documentation and needed field measurements required for the load rating analysis. The inspections will be focused on identifying conditions that will affect the accuracy of the bridge capacity analysis and any necessary fatigue analysis. Special attention will be paid to areas that are susceptible to corrosion or fatigue cracking. A pre-inspection meeting will be conducted with the inspection and rating team members to ensure that all essential information is obtained and efforts are focused on critical members.

Access means will be selected in a manner that ensures inspection of elements where required while also considering inspector and public safety. Access methods will also consider the overall inspection efficiency for a given

bridge location to keep lane closures or other local disruptions to a minimum. H&H will schedule the necessary access equipment and work zone traffic control services, if needed, with pre-approval from DOTD. Our team will consult with bridge maintenance personnel prior to field work to gather any relevant bridge performance history or recent bridge maintenance issues. In advance of inspection, our team will prepare field notes and sketches to support the documentation and measurements that will be necessary for the type of components to be inspected and ultimately analyzed by the bridge rating team.

H&H inspectors are professional engineers with fracture and fatigue critical certifications and have either OSHA 10-Hour or OSHA 30-Hour safety training with additional OSHA Fall Protection and OSHA Confined Space training. Several H&H inspectors are also SPRAT Level 1-certified rope access technicians in addition to having aerial work platform and under-bridge snooper equipment training, giving our team a broad range of in-house inspection capabilities. The inspection will be supervised by a licensed professional engineer registered in Louisiana with substantial load rating experience. Our inspection teams always conduct a Job Hazard Analysis (JHA) prior to each work shift and/or whenever a change occurs to the work zone or working conditions. This safety meeting identifies all hazards for a given work zone, along with the means of hazard mitigation or safety response that will be established for each. The inspection will be performed in accordance with all applicable AASHTO, DOTD, and FHWA requirements. Key information that may be missing from available as-built plans and reports will be measured or field-verified during the inspection wherever possible, including measurements of bridge elements and overall geometry. Digital cameras with date stamps will be used to document inspection findings for inclusion in the report and electronic submittal. Materials testing of steel coupons or concrete cores may be considered to determine strength parameters for accuracy in load rating analysis, or where other material information may not be available.

Our inspection team will be equipped with the proper tools for the type and construction material of each bridge. For example, steel bridges with any areas of severe corrosion, the extent of the section loss may be hidden beneath layers of exfoliation or lamellar corrosion. Therefore, our inspectors will use a chipping hammer, scraper or screwdriver, and wire brush to remove loose materials and expose the remaining bare steel. This is consistent with the physical inspection techniques outlined in the FHWA Bridge Inspector's Reference Manual (BIRM). Comprehensive thickness measurement points will be established within the corrosion zone to provide sufficient cross-section data for analysis. These measurements will be determined using calipers or a D-meter. The use of additional advanced non-destructive testing techniques may be considered if warranted by the uncovered conditions. A similar approach will be taken for concrete, masonry, or timber structures with inspection tools selected to appropriately assess and document the respective types of deterioration or deficient conditions common for each material type. Our team is also experienced with restitograph testing for timber deterioration.

Following the site inspection, our inspection team will submit a report detailing the findings with supporting measurements, sketches, and photographs. While our inspectors prepare the draft site inspection report they will work closely with the load rating team to provide a full understanding of the as-built and as-inspected bridge conditions. The load rating team will work with the inspection results to complete the load rating tasks as described in our load rating technical summary.

Task 3: Load Rating Modeling & Analysis: For this contract we will perform a system structural model and analysis of the bridge to determine dead load and live load effects in the members. A three-dimensional structural model may also be used for complex bridges where AASHTOWare may not be is applicable. Live load analysis will include design loads, legal loads (include SHV), permit loads, and emergency vehicles (EV), as required by the DOTD Bridge Design and Evaluation Manual (BDEM). Secondary and temperature effects will be considered for structures sensitive to such effects.

Our vast experience in highway bridge design and rating makes us uniquely qualified to address any need the DOTD may have. We have expert knowledge of the latest versions of the AASHTO LRFD Bridge Design Specifications, the AASHTO Manual for Bridge Evaluation, the AASHTO

Standard Specifications for Highway Bridges, and the DOTD BDEM also have extensive experience with the most recent version of AASHTOWare Bridge Rating (BrR) Software, which incorporates the Load and Resistance Factor Rating (LRFR) procedures. H&H has produced quality, readable, and reproducible load rating calculations that can be maintained and edited in an inventory throughout the life of the bridge. The complexity of some bridges may also require the use of specialized analysis software such as CSiBridge, MIDAS, or LUSAS. These programs will be used for parts of the structure that cannot be load rated using AASHTOWare. In instances where AASHTOWare calculations show that a bridge requires posting, we will conduct a refined analysis in an effort to reduce or remove the posting from the bridge.

Review of Documentation: A thorough document review of existing plans, reports and previous load ratings will be performed by our load rating team to develop an efficient workflow for the load rating. The document review task will allow our load rating team to prepare and organize the data that is already available for use and will focus on important load rating information such as section properties and dead load take-offs.

Load Rating Preparation: When required, our approach to load rating will be to assign specialized teams for each structure type. For efficiency, the selected teams will have expertise in load rating for their assigned structure type. In general, these steps will be followed for the load rating.

Step 1: Section Properties and Capacity. This task will focus on collecting and tabulating all the relevant section properties and material information that is available. Member capacities will be developed for all critical sections. Identifying critical locations such as splices and where cover plates start and end will be important during the analysis of the structure to ensure our models are developed properly to provide results at these locations. All member section properties, material and capacity will be assembled and presented in a concise organized table for easy reference. Truss gusset plate geometry and capacity will also be developed as part of this task. The importance of rating the gusset plates cannot be underestimated; however, the needed information to rate a gusset plate is quite extensive. Ideally, as-built shop drawings are required to prepare gusset plate load ratings and then supported with field verification of plate thickness and sizes. We will use this information, if available, or rely on the original design plans for plate thicknesses and estimating plate sizes if needed. Capacities for gussets will be developed using the latest guidelines in the MBE and AASHTO LRFD for gusset plate rating methodology and completed with the AASHTOWare program. A refined analysis will be performed in instances where AASHTOWare calculations show the bridge requires posting.

Step 2: Dead Load Verification. This task will focus on collecting, assembling, and organizing the existing state of the bridge with regard to dead load. For structures that have undergone numerous rehabilitations or major reconstruction, this task will require a review of the original plans and all rehabilitation and reconstruction plans for bridge. The changes that have occurred over the years will be accounted for to determine the dead load. This is important since an inaccurate assessment of weight will produce incorrect load ratings. An approach we take for these types of older bridges is to use the original design plans for as much information as possible, such as stress sheets. This is especially important for the complex or long span trusses or other structures since there are many secondary members and connection plates whose weights must be accounted for. These original forces and stresses will be used as a basis and checking tool to ensure we have an accurate dead load. Measurements will be taken at appropriate locations, such as from the gutter line to the top of barrier to verify deck thicknesses and determine if an overlay or re-decking has occurred.

Step 3: Bridge Models. AASHTOWare, and, if needed, CSiBridge, MIDAS, or LUSAS will be used for the development of the models and load rating. AASHTOWare BrDR is a powerful tool for maintaining bridge inventories. While it can handle a wide range of bridge rating needs, the program has some limitations. Through our extensive experience with this software, we have been able to effectively determine when it is most effective, as well as when the capabilities of the program can be adapted to meet owner needs. BrR does not support curved structures or structures with multiple skew angles of bearing lines at the same support. Consequently, structural units located within a horizontal curve with a chorded framing plan may be input as straight members and spans lengths were corrected by adjusting the skew

angles of the supports. In some instances, more advanced DOTD approved modelling programs will be needed. Many of these programs have built-in modules available to properly perform the load rating of many structure types. The procedure used in developing the models relies significantly on user inputs and in many cases hand-calculations for items such as dead load, distribution factors, and in some cases member capacity. The models will be developed in a clear organized manner, with all back-up information such as hand-calculations properly referenced and linked. A complete load rating calculation package will be generated that may be used as a guide for updating future load ratings. The report will include screen shots from the program for all key areas of input and provide links within the document for easy navigation. Influence lines will be provided for elements that cannot be rated using AASHTOWare. All bridges will be rated in accordance with LRFR methodology including FHWA and AASHTO practices, guidelines, policies, and standards (i.e., AASHTO Manual for Bridge Evaluation, AASHTO Standard Specifications for Highway Bridges, DOTD BDEM). Vehicles to be included are LADV-11, HL-93, and DOTD State Legal Loads, SHV, Permit Loads, and EVs. As-built and as-inspected load ratings will be performed for all bridges. The as-inspected ratings will be based on the latest bridge inspection reports or from our inspection teams' observations. If load posting is required, we will provide schematic recommendations to improve/eliminate the load posting. We will use refined analysis, to the extent possible, in an effort to reduce or remove posting.

Reporting and Recommendations to Improve the Postings: The load rating report will be generated in a complete PDF file, which is commonly used for reference files. Therefore, must be easy to navigate and find needed information. We will provide an organized report, including a cover, table of contents, bookmarks, and links throughout the file for quick navigation. If load posting is required, H&H will provide schematic recommendations to improve/eliminate the load posting.

Update Rating Files: We understand the goal of DOTD is to maintain a library of ratings that can be updated with as-inspected data as future inspections are completed. The programs we have chosen to use for the load rating are ideal for this purpose. Once the model files are setup, updating section properties and re-generating load ratings is a straightforward procedure. The programs may also be used to generate permit load ratings, if necessary. The approach taken by DOTD is a common procedure that many of our clients are using to maintain load ratings of their bridge inventory. Our load rating engineers are familiar with this process and understand the needs of the client. In some scenarios, rating files present problems, such as newer versions or other technical issues, in these cases H&H will troubleshoot these problems and make necessary corrections/ changes in accordance with DOTD and FHWA SNBI requirements. A report of the solution will be presented to DOTD for their records and understanding. H&H understands the more dependable and repeatable our load rating approach is, the more practical the rating preparation will be for future use in rating the structure for emergency conditions and potentially assisting with forming the basis for future repair contracts.

QA/QC Reviews of Structural Load Ratings: H&H utilizes a detailed and thorough QA/QC policy for all structural load ratings and calculations. The process begins with establishment of our team from senior to junior engineers and identifying roles and responsibilities. A QC Engineer is also identified that will review and oversee the checking process. Our practice ensures that checkers of work are qualified and have extensive experience with the type of work being reviewed and checked. Program inputs are verified based on as-built documentation, and outputs reviewed completeness and accuracy. For complex structures, an independent load rating or review may be performed to ensure analytical assumptions and methods are valid and repeatable using an alternate approach. We understand that H&H may provide peer reviews of work performed by others and likewise may have our work reviewed by other consultants. A program wide QA/QC plan will be submitted upon Notice to Proceed and a plan will be refined and updated for each task order assignment so that the process is adapted for each particular assignment.

Task 4: Training: H&H team will train DOTD staff on load rating of complex structures. A formal training course, either virtual or in person, will be developed to assist DOTD load rating group on analysis of more complex structure types. If possible, using AASHTOWare BrR for analysis will be prioritized, otherwise training on other approved software should be included. Incorporating MathCAD documents into the BrR process will also be considered in order to build efficiencies into the rating process. Dr. Yun Lin, PE, from Gresham Smith has developed similar training programs for VDOT and his experience combined with expertise of H&H complex structures and AASHTOWare load rating experts such as John Corven, PE, and Dave Marcic PE, will develop and implement a thorough training program.

19. Workload:

Firm(s)	Past Performance Evaluation Discipline(s) *	Contract Number and State Project Number	Project name	Remaining Unpaid Balance**
Hardesty & Hanover	Bridge	4400023909 H.002798.6	Oaklawn Bridge Walkway / Parking Lighting	$49,888
	Bridge	4400023511 H.009730.5	Bridge Inspection of Complex Structures	$1,047,160
	CE&I/OV	4400017430 H.001498.6	LA 24 and LA 316: Company Canal Bridge, Terrebonne Parish	$1,540,418
	CE&I/OV	4400024021 H.015028.6	LA 302: Bayou Barataria MB Replacement Route: LA 302	$5,193,096
Gresham Smith	Traffic	H.012018.5	Lafayette Adaptive Traffic Signals	$102,493
	CE&I/OV / ITS	H.011500.6	Lake Charles ITS Phase 3	$34,931
	Bridge	H.009730.5	Complex Bridge Inspection TO#7	$115,848
	Road	H.013720.5	LRSP/STRPPP Bonner Street Bridge Pedestrian Improvements	$3,089
	Road	H.013767.5	LRSP/STRPPP Signs and Striping - St. Landry and St. Martin Parishes	$2,111
	Road	H.013073.5	LRSP/STRPPP Greenwell Springs & Wooddale Sidewalks	$45,335
	Traffic	H.015086.5	LRSP/STRPPP LA 14	$122,647
	Road	H.014629.5	LRSP/STRPPP Lafourche Signing and Striping	$4,759
	Road	H.015202.5	LRSP/STRPPP Donaldsonville Signing and Striping	$6,087
	Road	H.015201.5	LRSP/STRPPP Richwood Sidewalks	$3,985
	CE&I/OV	H.009308.6	TO#1 New Orleans DPW SRTS Sidewalk Project	$2,937
	CE&I/OV / ITS	H.013256.6	I-10 Scott to Lake Charles ITS CEI	$121,865
	Planning	H.010074.1	LA 70 at LA 3089 Interchange Stage 0	$193,986

20. Certifications/Licenses:

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(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
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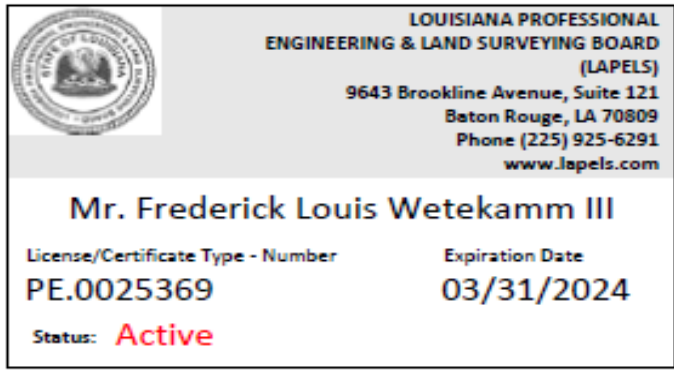
www.lapels.com

Mr. Babak Naghavi

License/Certificate Type - Number	Expiration Date
PE.0020745	09/30/2024

Status: Active



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Mr. Frederick Louis Wetekamm III

License/Certificate Type - Number	Expiration Date
PE.0025369	03/31/2024

Status: Active

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Mr. Erik Rene' Diaz

License/Certificate Type - Number	Expiration Date
PE.0037712	09/30/2025

Status: Active

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Mr. Dennis C. Gowins

License/Certificate Type - Number	Expiration Date
PE.0024468	09/30/2023

Status: Active

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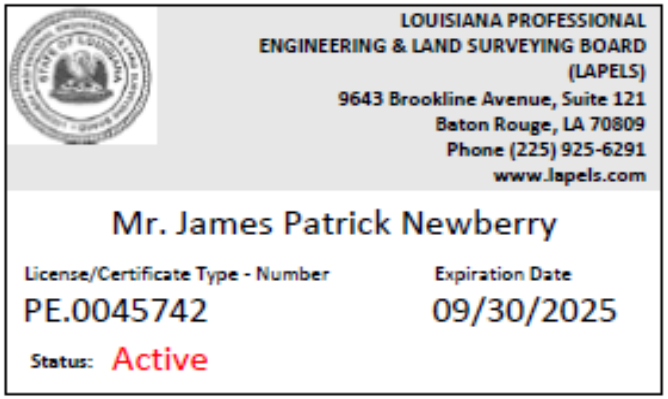
Mr. Roberto Luis Viciedo

License/Certificate Type - Number	Expiration Date
PE.0036533	03/31/2024

Status: Active



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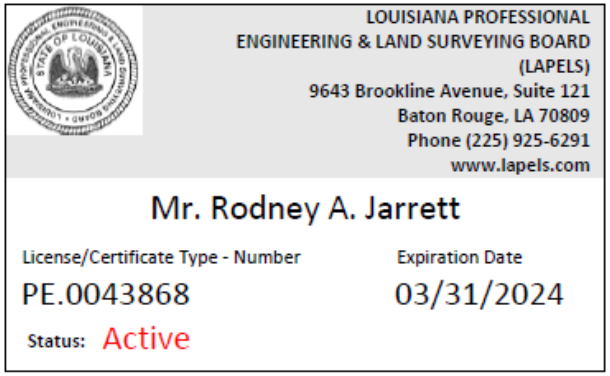
Mr. James Patrick Newberry

License/Certificate Type - Number	Expiration Date
PE.0045742	09/30/2025

Status: Active



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Mr. Rodney A. Jarrett

License/Certificate Type - Number: PE.0043868
Expiration Date: 03/31/2024
Status: Active

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Mr. John Arlington Corven

License/Certificate Type - Number: PE.0038309
Expiration Date: 03/31/2024
Status: Active

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Mr. Steven David Harlacker

License/Certificate Type - Number: PE.0037057
Expiration Date: 09/30/2024
Status: Active

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Mr. Benjamin Shank Hawthorne

License/Certificate Type - Number: PE.0044620
Expiration Date: 09/30/2024
Status: Active

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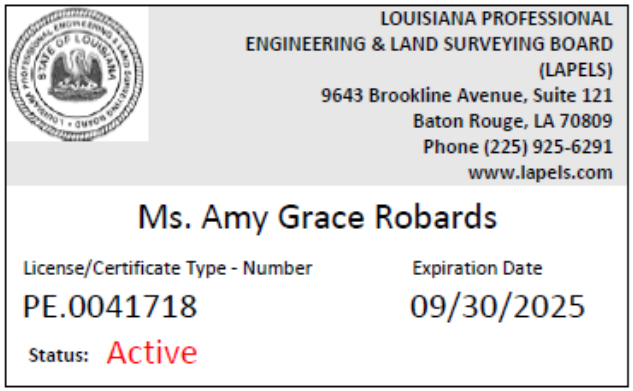
Mr. Michael Alain Delemont

License/Certificate Type - Number: PE.0043170
Expiration Date: 09/30/2025
Status: Active



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Ms. Amy Grace Robards

License/Certificate Type - Number: PE.0041718
Expiration Date: 09/30/2025
Status: Active

National Highway Institute

Certificate of Training

Erik Diaz

has participated in

NHI Course No. 130092 – Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures

hosted by

LA DOTD/LTRC

Date: June 23-26, 2014

Location: Baton Rouge, LA

Hours of Instruction: 24

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Linh Kim

has participated in

FHWA-NHI-130092 Load and Resistance Factor Rating of Highway Bridges

hosted by

Mississippi Department of Transportation

Date: June 07-10, 2022

Location: Jackson, MS

Hours of Instruction: 24

Instructor

Instructor

Local Coordinator

Thomas Harman

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Erik R. Diaz

has Successfully Completed

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

hosted by

Office State Aid Road Construction

Date: June 07-10, 2022

Location: Ridgeland, MS

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Thomas Harman

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI
NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Rodney Jarrett

has participated in

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

hosted by

Whitman, Requardt and Associates, LLP

Date: August 16 - 19, 2016

Location: Baltimore, Maryland

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Valerie Briggs

Valerie Briggs, Director
National Highway Institute

National Highway Institute

Certificate of Training

David Marcic

has participated in

FHWA-NHI-130078

Fracture Critical Inspection Techniques for Steel Bridges

hosted by

Whitman, Requardt and Associates, LLP

Date: July 20 - 23, 2010

Location: Baltimore, MD

Hours of Instruction: 21

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

National Highway Institute

Certificate of Training

AMY ROBARDS

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

LA DOTD/LTRC

Date: April 5-8, 2022

Location: Baton Rouge, LA

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Thomas Harman, Director
National Highway Institute

National Highway Institute

Certificate of Training

FREDERICK WETEKAMM

has participated in

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

hosted by

LA DOTD/LTRC

Date: February 26 – March 1, 2019

Location: Baton Rouge, LA

Hours of Instruction: 25

Instructor

Instructor

Local Coordinator

Michael Davies, Director
National Highway Institute

National Highway Institute

Certificate of Training

Michael Delemont

has satisfactorily completed training in

Fracture Critical Inspection Techniques for Steel Bridges
(Course 130078)

conducted by

Michael Baker Jr. Inc.

Location: Springfield, Illinois

Date: February 25–28, 2003

Hours of instruction: 25

Continuing Education Units: 2.1

Instructor

Director, National Highway Institute
Federal Highway Administration

Coordinator

Director, Office of Professional Development
Federal Highway Administration

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

Jonathan Hewko

has participated in

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Whitman, Requardt & Associates, LLP

Date: October 01-12, 2018
Location: Baltimore, MD 21231

Hours of Instruction: 67

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Dalton Hunt

has Successfully Completed

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Office of State Aid Road Construction

Date: March 21-April 01, 2022
Location: Ridgeland, MS

Hours of Instruction: 67

Instructor

Instructor

Local Coordinator

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Linh Thien Damien Kim

has Successfully Completed

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Office of State Aid Road Construction

Date: March 21-April 01, 2022
Location: Ridgeland, MS

Hours of Instruction: 67

Instructor

Instructor

Local Coordinator

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

BABAK NAGHAVI

has Successfully Completed

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

LA DOTD/LTRC

Date: January 10-12, 2023
Location: Baton Rouge, LA

Hours of Instruction: 18

Instructor

Instructor

Local Coordinator

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

Certificate of Training

DAVID MARCIC

has participated in

FHWA-NHI 130053 Bridge Inspection Refresher Training

hosted by

ACEC/MW

Date: June 7-9, 2016
Location: Laurel, MD

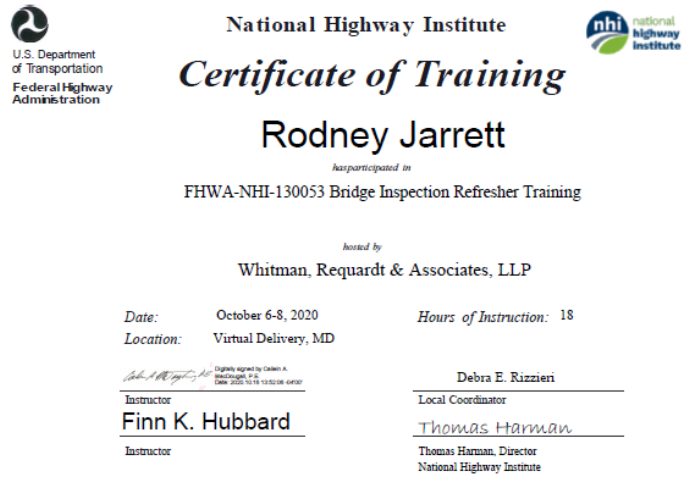
Hours of Instruction: 18

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Rodney Jarrett

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

Date: October 6-8, 2020
Location: Virtual Delivery, MD

Hours of Instruction: 18

Instructor

Finn K. Hubbard
Instructor

Debra E. Rizzieri
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

nhi national highway institute

Certificate of Training

Amy Robards

has Successfully Completed

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Office of State Aid Road Construction

Date:
Location: August 30-September 01, 2022
Ridgeland, MS

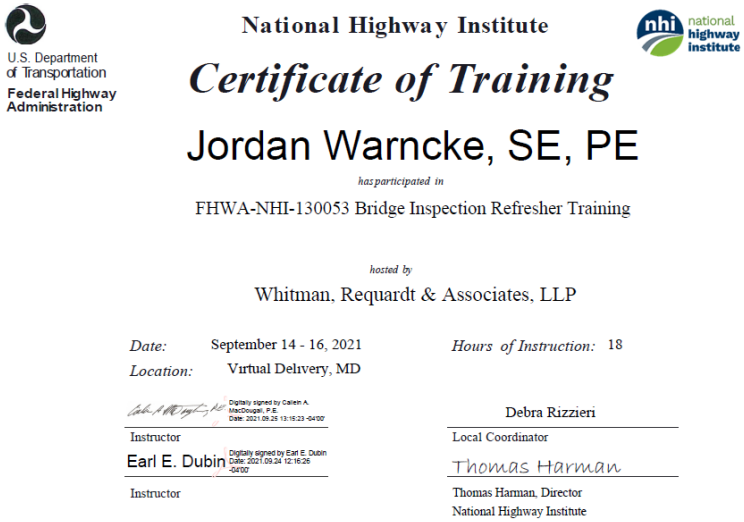
Hours of Instruction: 18

Instructor

Instructor

Marie V Allbritton
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute



U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

nhi national highway institute

Certificate of Training

Jordan Warncke, SE, PE

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

Whitman, Requardt & Associates, LLP

Date: September 14 - 16, 2021
Location: Virtual Delivery, MD

Hours of Instruction: 18

Instructor

Earl E. Dubin
Instructor

Debra Rizzieri
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NATIONAL HIGHWAY INSTITUTE

Certificate of Training

FREDERICK WETEKAMM, P.E.

has participated in

FHWA-NHI-130053 Bridge Inspection Refresher Training

hosted by

LA DOTD/LTRC

Date: January 7-9, 2019 Hours of Instruction: 18

Location: Baton Rouge, LA

Instructor

Instructor

Allison H. Landry
Local Coordinator

Michael Davies, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

ERIK DIAZ

has participated in

FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers

hosted by

LA DOTD/LTRC

Date: October 11-15, 2021 Hours of Instruction: 34

Location: Baton Rouge, LA

Instructor

Instructor

Allison H. Landry
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Michael Delemont

has participated in

FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers

hosted by

HBM Engineering Group, LLC

Date: November 06-10, 2017 **Hours of Instruction:** 34 Hours

Location: Hillside, IL

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Anthony Wheeler

has Successfully Completed

FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers

hosted by

C.V. Associates NY; PE, LS, P.C.

Date: March 07-11, 2022 Hours of Instruction: 34

Location: Harriman, NY

Instructor

Instructor

Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

Gresham Smith Certificates

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. John Steven Weres

License/Certificate Type - Number: PE.0036429
Expiration Date: 09/30/2025
Status: Active

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Thong Quang Tran

License/Certificate Type - Number: PE.0032072
Expiration Date: 03/31/2024
Status: Active

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Dr. Yun Lin Ph.D.

License/Certificate Type - Number: PE.0042444
Expiration Date: 09/30/2024
Status: Active

LOUISIANA PROFESSIONAL
ENGINEERING & LAND SURVEYING BOARD
(LAPELS)
9643 Brookline Avenue, Suite 121
Baton Rouge, LA 70809
Phone (225) 925-6291
www.lapels.com

Mr. Courtney Jermaine Rome

License/Certificate Type - Number: PE.0043355
Expiration Date: 09/30/2023
Status: Active

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

John Weres

has participated in

FHWA-NHI-130092 Load and Resistance Factor Rating of Highway Bridges

hosted by

Mississippi Department of Transportation

Date: June 07-10, 2022
Location: Jackson, MS

Hours of Instruction: 24

Instructor

Instructor

Local Coordinator

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

national highway institute

Certificate of Training

Ruth Steele

has participated in

FHWA-NHI-130092
Load and Resistance Factor Rating of Highway Bridges

hosted by

Texas Department of Transportation

Date: August 10-13, 2021
Location: Online Delivery, TX

Hours of Instruction: 24

Instructor

Instructor

Shandon Richardson
Local Coordinator

Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI
NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Krickstein Torres

has participated in

FHWA-NHI-130092 Fundamentals of LRFR and Applications of LRFR for Bridge Superstructures

hosted by

Tennessee Department of Transportation

Date: March 09-12, 2020
Location: Nashville, TN

Hours of Instruction 24

Instructor

Instructor

Local Coordinator

Michael Davies, P.E.
Director, National Highway Institute

LOUISIANA TRANSPORTATION RESEARCH CENTER

DOTD
LOUISIANA DEPARTMENT OF TRANSPORTATION & DEVELOPMENT

Certificate of Attendance

Yun Lin

has participated in

AASHTOWare Bridge Rating Fundamentals Training

hosted by

LA DOTD/LTRC

Date: August 1st-2nd, 2017
Location: Baton Rouge, Louisiana

Professional Development Hours (PDHs) Awarded: 12

Herman Lee, P.E., PMP
Michael Baker International

Michael S. Pichura, P.E.
Michael Baker International

National Highway Institute

Certificate of Training

Adam Davidson

has participated in

FHWA-NHI-130078 – Fracture Critical Techniques for Steel Bridges

hosted by

Ohio Department of Transportation

Date: September 10-13, 2013 *Hours of Instruction:* 21

Location: Columbus, OH

Instructor

Instructor

Local Coordinator

Richard Barnaby, Director
National Highway Institute

National Highway Institute

Certificate of Training

JOHN WERES

has participated in

FHWA-NHI-130078 Fracture Critical Inspection Techniques for Steel Bridges

hosted by

LA DOTD/LTRC

Date: *February 26 – March 1, 2019* *Hours of Instruction:* 25

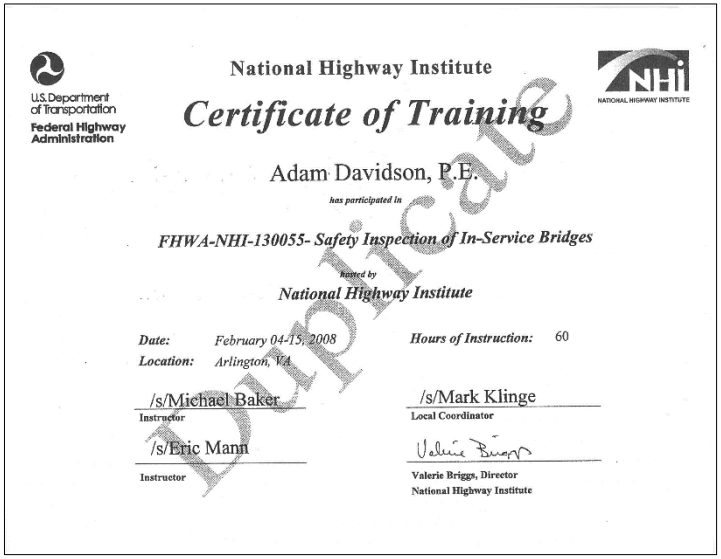
Location: *Baton Rouge, LA*

Instructor

Instructor

Local Coordinator

Michael Davies, Director
National Highway Institute



National Highway Institute

Certificate of Training

Adam Davidson, P.E.

has participated in

FHWA-NHI-130055- Safety Inspection of In-Service Bridges

hosted by

National Highway Institute

Date: *February 04-15, 2008* *Hours of Instruction:* 60

Location: *Arlington, VA*

/s/Michael Baker
Instructor

/s/Eric Mann
Instructor

/s/Mark Klinge
Local Coordinator

Valerie Briggs, Director
National Highway Institute

Duplicate

National Highway Institute

Certificate of Training

ADAM S DAVIDSON

has participated in

FHWA-NHI-130053
Bridge Inspection Refresher Training

hosted by

Indiana Department of Transportation

Date: November 3-5, 2015 *Hours of Instruction:* 18

Location: Indianapolis, IN

Instructor

Instructor

Local Coordinator

Valerie Briggs, Director
National Highway Institute

National Highway Institute

Certificate of Training

Yun Lin

has participated in

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Texas Department of Transportation

Date: April 24- May 5, 2017 *Hours of Instruction:* 67

Location: Fort Worth, TX

A C Rogers Jr. P.E.
Instructor

Local Coordinator

Guy R Lang PE
Instructor

Valerie Briggs, Director
National Highway Institute

National Highway Institute

Certificate of Training

Venkata Sai Surya Praneeth Sathiraju

has participated in

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Indiana Department of Transportation

Date: August 12-23, 2019 *Hours of Instruction:* 67

Location: Greenfield, IN

Instructor

Local Coordinator

Instructor

Michael Davis, P.E.
Director, National Highway Institute

National Highway Institute

Certificate of Training

Thong Q. Tran

has participated in

FHWA-NHI-130055

Safety Inspection of In-Service Bridges

hosted by

Georgia Department of Transportation

Date: June 13-24, 2011 *Hours of Instruction:* 60

Location: Atlanta, GA

Instructor

Local Coordinator

Instructor

Richard Barnaby, Director
National Highway Institute

National Highway Institute

Certificate of Training

John Weres

has participated in

FHWA-NHI-130055 Safety Inspection of In-Service Bridges

hosted by

Kansas Department of Transportation

Date: February 2-13, 2015 *Hours of Instruction:* 67

Location: Topeka, Kansas

Guy R Lang PE
Instructor

Local Coordinator

Instructor

Valerie Briggs, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

nhi national highway institute

Certificate of Training

Krickstein Torres

has Successfully Completed

Safety Inspection of In-Service Bridges for Professional Engineers
Safety Workshop: FHWA-NHI-130056

hosted by

Ohio Department of Transportation

Date: June 6-10, 2022
Location: Columbus, Ohio

Hours of Instruction: 34.0

John Wacherly
Instructor

M. Patrick Kane
Instructor

Victoria Beale
Local Coordinator

Thomas Harman
Thomas Harman, Director
National Highway Institute

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI NATIONAL HIGHWAY INSTITUTE

Certificate of Training

COURTNEY ROME

has participated in

FHWA-NHI-130056 Safety Inspection of In-Service Bridges for Professional Engineers

hosted by

LA DOTD/LTRC

Date: May 13-17, 2019
Location: Baton Rouge, LA

Hours of Instruction: 34

Instructor

Instructor

Allison H. Landry
Local Coordinator

Michael Davies, Director
National Highway Institute

CERTIFICATE of TRAINING

THIS ACKNOWLEDGES THAT

Venkata Sai Surya Praneeth Sathiraju

SUCCESSFULLY COMPLETED

INSPECTING STEEL BRIDGES FOR FATIGUE

SIGNED, Robert J. Connor, Professor of Civil Engineering, Director of S-BRITE Center

S-BRITE Center
PURDUE UNIVERSITY

October 2021

U.S. Department of Transportation
Federal Highway Administration

National Highway Institute

NHI NATIONAL HIGHWAY INSTITUTE

Certificate of Training

Yun Lin

has participated in

FHWA-NHI-130081 LRFD for Highway Bridge Superstructures

hosted by

LA DOTD/LTRC

Date: October 17-20, 2016
Location: Baton Rouge, LA

Hours of Instruction: 25

Instructor

Instructor

Allison H. Landry
Local Coordinator

Valerie Briggs, Director
National Highway Institute

21. QA/QC Plan and/or Work Plan:

Not Applicable. Will submit the QA/QC Plan to DOTD PM within 10 days of the award notification.

22. Sub-consultant information:

If one or more sub-consultants will be used, provide the name, address, point of contact and phone number for each. Otherwise, leave this section blank.

Firm Name (Name must match as registered with Louisiana's Secretary of State)	**Address**	**Point of Contact and email address**	**Phone Number**
Gresham Smith	10000 Perkins Rowe, Suite 280 Baton Rouge, LA 70810	Herbert "Bert" Moore, II Bert.moore@greshamsmith.com	225.282.2101

23. Location:

Not Applicable

3850 N. Causeway Blvd, Suite 1625
Metairie, LA 70002
T: 504.962.9212
la@hardestyhanover.com