



October 13, 2025

Caroline Pedersen, Chief Engineer of Transportation
City of Duluth
411 West 1st Street, Room 240
Duluth, MN 55802

PROPOSAL FOR PROFESSIONAL SERVICES LIFT BRIDGE & MN SLIP BRIDGE INSPECTION SERVICES AMENDMENT

LHB Inc. proposes to amend the current contract (L31089) for the inclusion of subconsultant Hardesty & Hanover's (H&H) inspection and reporting services for the Lift Bridge (L6116) and Minnesota Slip Bridge as provided on the attached fee estimate as well as LHB hours required to assist H&H and document procedures thereby allowing LHB to perform similar inspections in the future. An itemized listing of additional services to be provided is as follows:

LHB Scope of Services

1. Complex bridge inspection and reporting (refer to attached LHB Amendment Fee Estimate dated 08/20/2025)
 - a. Additional time for LHB to be on-site with H&H during week of October 13-17 to assist with inspections at both the Lift Bridge and MN Slip Bridge.
 - b. Review and coordination time for LHB to review and assemble city led complex inspection items. (no additional time added)
 - c. Additional time for review and coordination with H&H for final reporting and documentation.
 - d. Added time for anticipated additional virtual meeting between LHB, H&H and City.
 - e. Added scope for LHB to develop summary memo of In-Depth Complex Inspection procedures and guidelines for City records to reference with future inspections.
 - f. Added scope for miscellaneous electrical and mechanical troubleshooting items including the following:
 - i. Lift Bridge (L6116)
 - 1) Height End coder, Phase Relays and Pilot Duty Switches
 - ii. MN Slip Bridge
 - 1) Gear Reducers, Proximity Switches and Mating Switches
2. Hardesty & Hanover (refer to attached Scope and Fee Estimate from H&H dated 08/20/2025)
 - a. Proposal for Inspection Support for the Mechanical & Electrical Scope Items for the Duluth Aerial Lift Bridge (L6116) and Duluth Pedestrian Bridge (MN Slip Bridge).
3. Traffic Control – Warning Lites (refer to attached Quote dated 7/25/2025)
 - a. Includes mobilization, delivery, set-up and removal of Portable Changeable Message (PCM) Sign providing advanced warning of inspection work to occur during week of Oct. 13-17/ PCM to be placed on Canal Park side of Bridge L6116 for total duration of 2 weeks (Oct. 6-17).
 - b. Includes special instructional signs to be provided at each end of Bridge L6116 (2 signs total), providing statement like "BRIDGE MAINTENANCE IN-PROGRESS, EXPECT DELAYS". The quote represents the city to retain ownership of the special instructional signs, uprights and skids.
4. Aerial Lift Rental for inspection access
 - a. Includes a 2-day rental of an aerial lift to access the machinery houses, counterweights, and counterweight chains.

We appreciate the opportunity to provide you with our services. We look forward to working with you. Please contact Lisa at 218.279.2486 if you have any questions.

LHB, INC.



LISA KARLGAARD, PE



JOSEPH LITMAN, PE

c: LHB Project No. 240567.00

q:\24proj\240567\100 financial\proposals\ammendment 01\individual files\2025-10-13 alb complex inspection amendment_rev.docx



Br L6116 & Slip Bridge '25 Inspection - Ammendment
City of Duluth
KDM, LMK, JDL

240567
October 13, 2025

Project Breakdown Task Description	JDL	ELEC (DL)	LMK		KDM			LMB						
	P2	P3	P4	P5	P7	P9	P10	T1	T3	T5	T7	T10	T12	Total Labor Costs (\$)
	Project Principal	Profess. Eng.	Profess. Eng.	Profess. Eng.	Profess. Eng.	Profess. Eng.	Profess. Eng.	Senior Tech.	Senior Tech.	Lead Tech.	Inter. Tech.	Tech.	Tech.	
	\$ 265	\$ 265	\$ 210	\$ 195	\$ 170	\$ 150	\$ 145	\$ 145	\$ 130	\$ 115	\$ 105	\$ 90	\$ 80	
Br L6116 & Slip Bridge - Inspection Ammendment														\$ -
Project Management				2										\$ 390.00
														\$ -
Task 1 - Complex Inspection and Reporting														\$ -
a) On-Site Inspection with H&H (L6116 & Slip Bridge)	20	16		16		8					32			\$ 17,220.00
b) Coordination/Assistance on City Led Tasks														\$ -
c) Complex Reporting Assistance (LHB support H&H)	4	2		2		16					8			\$ 5,220.00
d) Meetings (LHB, H&H, City - add 1 from previous)	1	1		1		2								\$ 1,025.00
e) In-Depth Complex Inspection Procedures Memo	4			2		12					24			\$ 5,770.00
f) Electrical & Mechanical Troubleshooting Items	4	4				4								\$ 2,720.00
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
														\$ -
Total Hours	33	23	-	23	-	42	-	-	-	-	64	-	-	\$ -
Travel Expenses	Qty	Rate	Cost	Other Direct Expenses					Cost		Labor Cost			\$ 32,345.00
Travel Exp (Airfare, Meals, Hotel, Rental Car, Gas, etc.)			-	Mail / Delivery							Travel Costs			\$ -
		-	-	Printing							Direct Costs			\$ -
		-	-	Other										
		-	-								H&H Complex Inspect/Reprt'g			\$ 77,357.06
		-	-								Warning Lites (PCM & Signs)			\$4,600
		-	-								Aerial Lift (2 days)			\$ 2,000.00
		-	-											
Total Travel Costs			-	Total Direct Costs					-		Total Estimated Cost			\$ 116,302.06



August 20, 2025

Mr Joe Litman
LHB Corporation
21 West Superior Street,
Suite 500
Duluth, MN 55802

RE: Proposal for Inspection Support for the Mechanical & Electrical Scope Items, for the
Duluth Aerial Lift Bridge and Duluth Pedestrian Bridge

Mr Litman,

Please find our understanding of the scope of work to assist in the inspection of the mechanical and electrical components for the two referenced bridges. We have attached our cost breakdown to provide these services for review. We anticipate invoicing services at an hourly rate plus expenses.

Note: It is assumed that any required access and equipment will be provided by LHB and/or the City of Duluth.

OBJECTIVE:

H&H will provide a team of three movable bridge engineers to assist in the special inspection as noted below in conjunction with LHB for the two movable bridges owned and operated by the City of Duluth. The purpose of the inspection is to evaluate the condition of the machinery and electrical systems and components and to also provide recommendations to transfer knowledge through specific experiences to the City and LHB teams. The H&H team will be comprised of one senior mechanical engineer, one senior electrical engineer and one junior mechanical engineer.

The primary objective is to focus on the wire ropes, and span and counterweight guides for the Aerial Lift Bridge. This includes providing input and recommendations to adjust rope tensions and methods to achieve equalization within groups.

TASKS TO BE PERFORMED:

Task 1A: Mobilization for Inspection Work

Task 1B: Office Consultation prior to inspection work

Task 2: Two Bridge Inspection and Summary Report with Meetings

SCOPE OF SERVICES:

Duluth Aerial Lift - Counterweight Wire Ropes: Evaluate the existing Counterweight (CWT) rope condition and tensions by the vibration method and converting frequency of oscillation to tension values. Provide instructions for future adjustments of the CWT rope tensions using the existing block socket detail. It is noted that this requires significant effort due to the tension values and number of ropes. The purpose is to instruct the City and LHB to perform this task in the future without H&H involvement. The target required percent deviation of tension per rope cluster is 5%. Additionally, H&H will instruct how to estimate remaining life based on the wear measurements recorded at critical locations.

Duluth Aerial Lift - Operating Wire Ropes: Evaluate the existing operating rope condition. Evaluate the tensions by measuring torque values at the screw actuator take-up assembly. Condition of the ropes will be performed not only of the wear indications (flat patterns) of the wires that pass over the operating drums, but equally important at the termination points. It is noted that the previous operating ropes failed due to water entrapment at the deflector sheaves located at the base of the tower, and not due to wear of the active section of ropes.

Duluth Aerial Lift - Counterweight Guides & Span Guides: After evaluating the wire ropes, the team will inspect the guide systems during dynamic lifting of the span within the towers.

Pedestrian Bascule Bridge – Evaluate the new operating system, the new span locking system and the linkage pins. Electrically monitor the motor function through test operations and compare the two leaves. We anticipate this will require a one-day base line inspection survey in conjunction with LHB of the new operating machinery installed circa 2016-2017.

ANTICIPATED SCHEDULE (Fall 2025):

Day one: Duluth Aerial Lift – South Tower

- Base evaluation of span and CWT guides prior to any adjustments of the ropes.
- Evaluation of operating rope conditions at tensions at the South Tower.
- Evaluation of the termination points at the South Tower.
- Evaluate the operating ropes.
- Evaluate span and CWT guides.
- Measure CWT rope tensions South tower.
- Electrical inspection and testing.

Day two: Duluth Aerial Lift – North Tower

- Same as day one.

Day three: Duluth Aerial Lift – South Tower

- Focused discussion on the CWT rope tension measurements and condition evaluation.
- Provide proposed methods for adjustments.

Day four: Duluth Aerial

- Final testing and evaluation of Aerial Lift bridge operation.
- Transition to Pedestrian Bridge.

Day five: Pedestrian Bridge

- Evaluate operating machinery systems.
- Evaluate center locks.
- Evaluate link pins.
- Review motor data during test operations.

DELIVERABLES:

- Letter Report for Fall 2025 Visit

City of Duluth
Proposal to LHB
20-Aug-25

by H&H

		PM	Sr Mech	Sr Elec	Jr Mech		
		\$ 114.25	\$ 96.05	\$ 98.53	\$ 54.05		
	Hourly Billable Rate	\$ 301.61	\$ 253.57	\$ 260.12	\$ 142.70		
Task 1A:	Preparation (Mobilization)	4	8	8	16		
Task 1B:	Office Consultation	2	8	8			
Task 2	Two Bridge Inspection	4	56	56	56		
	Summary Report	4	16	16	24		
	Meetings (two assumed virtual)	2	2	2			
	total hours	16	90	90	96		
	total direct technical labor	\$ 4,825.76	\$ 22,821.30	\$ 23,410.80	\$ 13,699.20	\$ 64,757.06	DTL with Overhead and Profit OH & Profit 1.64
						\$ 64,757.06	Subtotal
						\$ 12,600.00	Expenses \$ 12,600.00
						\$ 77,357.06	
Lodging	18 nights x 225	18	225	\$ 4,050.00			
Airfare	3 flights x 2000	3	2000	\$ 6,000.00			
Rental Car	6 days x 125	6	125	\$ 750.00			
Meals	18 days x 100	18	100	\$ 1,800.00			
				\$ 12,600.00			

* Note: It is assumed that any required access equipment will be provided by LHB of the City of Duluth.



4700 Lyndale Avenue North
Minneapolis, MN 55430-3638
Equal Opportunity Employer

Eric Bertossi
612-363-1374 (cell)
612-521-4200 (office)
612-521-1488 (fax)
800-766-5483 (toll free)
ebertossi@warninglitesmn.com

Quotation

Date 7/25/2025

Contractor: LHB Corp
Contact: Kyle Marynik
Phone: (701)740-4838
Email: Kyle.Marynik@LHBcorp.com

Project #
Contract #
Project Name Aerial Lift Bridge
Duluth

Letting Date 7/25/2025 Start Date 10/6/2025 Sub Completion 10/17/2025

Item #	Description	Qty	Unit	Unit Price	Bid Amount
	Portable Changeable Message Sign <i>Includes 1 mobilization to deliver, set-up, and remove PCMS.</i>	24	UDAY	\$ 125.00	\$ 3,000.00
	Construction Sign-Special <i>To become property of the City of Duluth including uprights and skids.</i>	2	EACH	\$ 800.00	\$ 1,600.00

Total Bid \$ 4,600.00

Note: Traffic Control price does not Include police, light plants, concrete barrier, pavement marking removal, temporary fencing, sweeping, pavement marking, flaggers, incidental sign removal & installation, truck mounted attenuator, bond, permits, temporary surfaces, design/drawing of traffic control plans, or daily inspections. (Add \$300.00 for each non P.E. signed traffic control plan needed)

Quoted price subject to change if work extends beyond stated day of duration.

The prices above are not tied to permanent signing & includes sales tax.

Credit card payments for invoices or contracts will be charged an additional 3.5% fee to offset our credit card processing fees.

Please acknowledge acceptance of this quote within 30 days by signing & dating below. Lack of acknowledgment may result in withdrawal of quote, billing of regular prices and/or delayed installation.

Signature

Date