



11 East Superior Street, Suite 420  
Duluth, MN 55802  
218.724.8578  
tkda.com

October 11, 2018

Via Email Only: [jshoberg@duluthmn.gov](mailto:jshoberg@duluthmn.gov)

Mr. Jim Shoberg, PLA  
Project Coordinator  
City of Duluth  
Parks and Recreation Department  
411 West 1st Street, #17  
Duluth, Minnesota 55806

Re: Proposal for Engineering Services  
Sargent Creek Bridge Rehabilitation Design Services

Dear Mr. Shoberg:

TKDA is pleased to submit this Proposal to provide Engineering Services related to the rehabilitation of the Sargent Creek Bridge on the DWP trail.

Established in 1910, TKDA is a full-service Engineering, Architecture, and Planning firm based in Minnesota. Our longevity is the result of our diverse professionals and the long-standing client relationships built by creating quality design solutions that meet or exceed our clients' expectations. Our services will be provided in the manner described in this Proposal, subject to execution of a mutually-agreeable contract consistent with those previously executed with the City of Duluth.

## I. **EXECUTIVE SUMMARY**

The City of Duluth has received grant funding for the DWP trail restoration as an all season trail through the Federal Recreational Trail Program. In addition to the federal funds, the City of Duluth matched the grant with local funds in order to address erosion and structural deficiencies along the trail. The City has received additional funding which will be used to address structural concerns at the base of the Sargent Creek Bridge and to replace the bridge deck and railings. The City is seeking Professional Engineering Services to assist with developing the construction documents required to obtain contractor bids to complete the construction of the project in 2019.

The focus of our Professional Engineering Services will be to evaluate the existing bridge, develop conceptual rehabilitation and replacement options. Based on the selected option, we will develop a biddable set of construction documents for the rehabilitation of the Sargent Creek Bridge foundation. Work tasks will include engineering design, developing construction documents, bidding assistance, and construction observation/administration as needed to supplement City staffing. The main goal of the proposed project is to address erosion and the bridge foundation deficiencies using the remaining DWP Trail Restoration budget. It is anticipated that construction elements will include repairing erosion along the Sargent Creek stream bed underneath the existing bridge and repair the scoured areas beneath the bridge pier foundations.

Our Project Team has extensive experience in delivering this type of project and is committed to delivering this project on the schedule established by the City. Our recent experience with the City of Duluth on the Western Waterfront Trail Renewal Project, Western Waterfront Vegetation Restoration

Projects, and Clyde Connector Trail Project demonstrates our ability to listen to City staff, provide support where needed, and to provide Engineering solutions tailored to match the City's budget for a project of this type. The following section includes a brief summary of our experience related to this project for the City of Duluth.

## II. KEY PERSONNEL/QUALIFICATIONS

TKDA has the knowledge and experience to provide a quality project for the City of Duluth at a reasonable cost. Our Team is comprised of professionals who work and live in the Northland and who have delivered similar projects for local agencies including the City of Duluth, St. Louis County, and others. Team members are well-versed in applicable design standards, writing project memorandums, plan development standards, developing technical specifications, and contract administration.



**Jeff Goetzman, PE** will serve as the Project Manager providing QA support and has over 25 years of experience in the design and management of street, bridge, drainage, and municipal type projects. Jeff served as both County Bridge Engineer and Resident Engineer for the St. Louis County Public Works Department, was employed as Assistant County Highway Engineer for Renville County, and is a former Public Works Director for Superior, Wisconsin. In these positions, he gained extensive experience in working within municipal systems and in overseeing capital improvement projects including street, trail, and utility construction. Jeff's project design work includes dozens of Federal and State Aid-bridge, highway, and municipal type projects. His experience from both the owner and designer perspectives is valuable in developing projects such as this. Some of Jeff's recent and relevant experience includes:

- Western Waterfront Trail Renewal | Duluth, MN
- Clyde Connector Trail/Stewart Creek Bridge | Duluth, MN
- Municipal Trail Feasibility Study | Superior, WI



**John Sanders, PE** will serve as the Design Engineer for the bridge portion of the Project. John has been with TKDA since 1988 and has extensive experience in the design of railroad bridges and retaining walls, including new construction and rehabilitation. John has served as TKDA's Project Manager and lead Design Engineer for BNSF Railway Company bridge rehabilitations and bridge rebuilds at more than 340 sites in 17 states. He has also completed designs of bridges and retaining walls for the Minnesota Department of Transportation, including new construction and rehabilitation, and is accomplished in the use of MicroStation and AutoCAD for construction document preparation. As a TKDA Project Manager since 1997, John oversees budgets and is responsible for quality control, scheduling, and client contacts. Some of John's relevant project experience includes:

- Stewart Creek Bridge Restoration | Duluth, MN
- MnDNR Duluth 93rd Avenue Pedestrian Bridge | Duluth, MN
- MnDNR Duluth Grand Avenue Pedestrian Bridge | Duluth, MN





**Will DeRocher, PE** will serve as Lead/Project Engineer in developing the design elements and creating construction documents for reinforcement of grade and scour protection for the bridge footings. Will is a registered engineer in TKDA’s Municipal Services Group, with experience in hydraulic design, drafting and construction administration. Will has experience working with the City of Duluth doing multiple trail design and restoration projects. Some of Will’s relevant experience included the following:

- DWP Trail Rehabilitation Design | Duluth, MN
- Western Waterfront Trail Renewal | Duluth, MN
- Clyde Connector Trail/Stewart Creek Bridge | Duluth, MN
- Hydraulic studies for culvert replacement | St Louis County, MN
- Municipal Trail Feasibility Study | Superior, WI

### III. RELATED PROJECT EXAMPLES

TKDA has extensive experience designing and constructing projects that are required to meet federal, state, county, and municipal standards, and we have strong relationships with the various review agencies. These relationships gained through years of experience help us to achieve our clients’ project and funding goals. We have numerous projects with the City of Duluth and surrounding communities and have trained staff using current design standards. Our knowledge of standards and quality processes will lessen rework, saving you time and money.

Our Team for this project has a breadth of experience in development of roadway, municipal, trail, and building projects which involve many sets of design standards including accessibility guidelines. This project involves repairing damage to the lower portion of the Sargent Creek Bridge to help restore the grade and re-purposing as a pedestrian/trail structure. The following projects are examples of recent work by our Team.

#### Western Waterfront Trail Renewal, Duluth, MN



The Western Waterfront Trail offers nearly five miles of waterfront accessible to all. Several marsh habitats along the shoreline make this a gem in the park system of Duluth. This trail was designed specifically to provide non-motorized access on an old railroad right-of-way, on a route that provided service between Duluth and St Paul in the late 1800s.

The trail today links the Riverside neighborhood to the Lake Superior Zoo, and nearby is the Willard Munger State Trail, a paved pathway that links this area to Jay Cooke State Park

and other communities south of Duluth.

TKDA’s work on this project included organizing and responding to public input through the use of town hall style meetings, design in connection with restoring the surface and width on 3.4 miles of the trail, re-establishing proper drainage by replacing washed out 15- and 18-inch culverts, replacing bridge





decking on two steel pedestrian bridges, and replacing a deteriorating 25-foot long section of boardwalk in a wetland with a 25-foot single-span timber pedestrian bridge. Additionally the project included regrading four sections of trail, approximately 1,100 feet total, to meet guidelines for accessible trails. Through the regrading efforts, a handicap accessible access point is provided at the trailhead parking lot to provide better accommodations for a broad spectrum of users.



**Clyde Connector Trail**  
**Stewart Creek Bridge Rehabilitation**  
**Duluth, MN**

The Clyde Connector Trail connects the Munger State Trail and Skyline Parkway and is a 10-foot wide natural surface trail. The Stewart Creek Bridge is an existing railroad bridge on the DWP grade adjacent to the Clyde Trail, and was rehabilitated with new decking and railings to improve safety for trail users.

TKDA's work on this project includes design and construction administration in connection with grading and restoring the surface and width on 0.2 miles of the trail, creating new alignment for 0.3 miles of trail,

re-establishing proper drainage by replacing washed out culverts and creating storm water catchments, replacing bridge decking and railings on the Stewart Creek Bridge, and removing a deteriorated timber rail trestle bridge. The project was completed in June, 2018.



#### **IV. PROJECT WORK PLAN AND TIMELINE**

##### **TASK 1 • PROJECT KICK-OFF AND SCOPING MEETING**

A kick-off meeting with the City of Duluth will set expectations. We anticipate that the kick-off meeting can address the bridge and possibly trail aspects of the Project. TKDA will meet on site with City representatives to review Project scope and complexity, design criteria, and existing conditions.

A major element of the Project includes developing construction documents for the rehabilitation of the Sargent Creek Bridge for use by pedestrians, skiers, mountain bikers and service vehicles.

Our Team is familiar with the Project site and has made a preliminary review of the bridge. Early on in the Project, we will finalize the schedule and discuss the best means of communication for those involved in the Project.

##### **TKDA Responsibilities:**

- Prepare documentation of the Project kick-off meeting and data provided by the City for the TKDA Team, as well as prepare and maintain a detailed Project schedule.

##### **City Responsibilities:**

- Attend on site scoping meeting; assist in providing background information relevant to Project.

##### **TASK 2 • SITE OBSERVATIONS**

The City has decided, based on available funding and desired use, that the Sargent Creek Bridge will be rehabilitated instead of replaced. The bridge over Sargent Creek is an abandoned railroad structure formerly carrying the Duluth, Winnipeg and Pacific Railway. It is a three-span deck plate girder bridge with spans consisting of 44'-48'-44' located within a curved alignment. The existing steel appears to be in relatively good condition, with some concern regarding the cover plates located on the top flange, considering the age of this structure. Based on the May 2015 "DWP Trail Bridge Assessment Report" for the Sargent Creek Bridge, it appears that LHB has previously performed a capacity review and it was their opinion that the structure capacity will be more than adequate to carry an AASHTO H10 loading. We did not include a capacity analysis of the bridge in this Proposal.

We assume that the existing construction plans for this bridge are not available, so as our first step in the Project development, we plan to visit the site to obtain dimensions of in-place bridge components. We will also take notes of the existing terrain, existing erosion and structural issues affecting the bridge. We will perform a topographic survey of the bridge site and creek to determine the existing grades and obtain survey data needed to create construction plans of the areas that will be impacted by construction. Our goal will be to obtain field data to generate conceptual drawings for the most critical elements of the bridge restoration and to develop budgetary cost estimates for those elements. Once this information has been obtained, we will be able to perform the bridge rehabilitation design tasks.

##### **TKDA Responsibilities:**

- Perform on site measurement and observation of the existing Sargent Creek Bridge.



### **TASK 3 • PLANS AND SPECIFICATIONS**

TKDA's Team will prepare construction drawings and specifications as necessary for the rehabilitation of Sargent Creek Bridge and channel below. Our approach to the design work for the bridge rehabilitation, in general, is as follows and will contain the following major areas of design effort:

- The original design to carry railroad loading should be more than adequate to carry the loads of a pedestrian bridge. Other than removing the debris on the top of the girders and around the bearings, we propose leaving the existing steel girders alone. This will reduce the complexity and construction cost of the Project while providing the strength needed for the intended bridge use. The girders support 10-foot long timber. The majority of ties are in poor shape to be reutilized as a subdeck. We recommend the complete removal of the existing timber deck.
- We will detail installing timber decking with wear timbers to create a 12-foot wide deck to provide a smoother ride surface for trail users.
- At the West Abutment, we will detail removal of the deteriorated concrete backwall and detail a replacement with cast-in-place concrete.
- We will perform hydrologic and hydraulic computations for existing and post-construction design and repair of the stream channel below the bridge in accordance with permitting requirements.
- We will complete applicable permit applications for submittal on the project for work in the channel. The City will submit and pay application fees once these are prepared.

TKDA will perform design calculations and develop the construction plans needed to rehabilitate the bridge for trail use as outlined above. The main elements of the design work will include plans for concrete repairs to the spalled elements and enlarged footings, deck modifications, new decking details for the riding surface, railing details, and construction specifications to accompany the plans. We will also prepare an opinion of probable cost for the proposed repairs to confirm the Project is in alignment with the City's budget for the Project.

Construction plans bring together a project's many elements to produce a coherent product to be used for construction of planned improvements. The plans will also include grading and restoration along the washed out section of the creek bed, footing and approach repair work, and estimated material quantities for the proposed improvements.

TKDA's Quality Assurance process plays a major role in controlling project costs. We dedicate time within our schedule for senior TKDA professionals to carefully review construction documents for omissions, errors and clarity prior to issuing. Once approved internally, we then review the documents with our client. This two-step process minimizes errors and reduces the potential need for change orders, saving the City construction costs. The end product will provide the plans and technical specifications that the City needs to assemble the complete bid package for contractor bidding.





**TKDA Responsibilities:**

- Prepare documentation of the project kick-off meeting and the data provided by the City to the TKDA Team. We will prepare and maintain a detailed project schedule.
- Review record plans and determine public and private utility relocation needs.
- Develop construction plans including all disciplines in conformance with design standards.
- Evaluate creek hydraulics and prepare designs in accordance with Federal, State and Local rules.
- Provide City with regular updates on design progress via email or teleconference.
- Submit Design Status Report at 30%, 60%, and final stages of completion. Plans will be submitted to City for review and approval. We anticipate reviewing the bridge elements early on and providing a conceptual plan of what can be accomplished within the City's budget for the 30%-level plan submittal.
- Develop and maintain construction cost estimates for 60% and final design stages.
- Submit final plans, special provisions and all required documents to the City to assemble complete bidding package for the project. TKDA will provide design files in CAD, PDF, and/or paper format as needed. Special provisions and final plans will be provided to City by December 2018, to allow time to prepare the bid package and advertisement.

**City Responsibilities:**

- Attend onsite scoping meeting; assist in providing background information relevant to the project.
- Provide any additional background/record drawing information that may be required to complete the design work.
- Perform plan reviews and provide feedback as required to maintain the project schedule.
- Submit permit applications and handle public involvement as necessary for the project.

**TASK 4 • BIDDING ASSISTANCE**

On completion of the final plans and specifications for the trail work, TKDA will provide the City with special provisions and construction plans necessary for contractor bidding and award. We have included time in our Proposal for responding to contractor questions during the bidding process, as well as attend a pre-bid meeting one week after the advertisement for construction bids has been placed. This meeting often brings clarity to potential bidders, resulting in better construction pricing for the City.

**TKDA Responsibilities:**

- Final construction plans and special provisions/technical specifications needed to obtain contractor bids.
- Assist in responding to contractor questions during project's bidding phase.
- Host/attend a pre-bid meeting to explain the project details and answer bidder questions.
- Record the pre-bid meeting minutes.



**City Responsibilities:**

- Prepare the contractor bidding package, advertise project, and sell/deliver plans/specifications.
- Set time/date/location for pre-bid meeting.

**TASK 5 • CONSTRUCTION OBSERVATION**

TKDA has included an estimate of hours required for field observation of contractor methods and performance of the work shown in the construction plans and to verify compliance with those plans per the City’s request. Our approach is to offer assistance which supplements the work efforts of City staff assigned to the project. We will use these hours only as needed and directed by the City. On recent projects such as the Western Waterfront Trail Renewal Project, Clyde Connector Trail, and Stewart Creek Bridge Projects, TKDA staff provided construction staking and measurement of quantities and made periodic onsite observations when City staff were on other assignments or needed assistance. We propose to follow that model on this project as well.

This time will also be used for administration of the contract between the City and the contractor, which will include processing payment applications and change orders. During construction, we would anticipate a need for staking of proposed grading underneath the bridge.

**SCHEDULE**

The TKDA Team understands that work associated with this project must be completed so as to facilitate advertising the project for bids in June 2018 and we have the resources, available personnel, expertise and enthusiasm to immediately begin work on your project. We have estimated the following schedule for completion of the Sargent Creek Bridge Restoration Project:

October 11, 2018	Proposal Submitted to City
October 23, 2018	Kick-off/Onsite Scoping Meeting w/City
October 23-26, 2018	Obtain Topographic Survey Information/Field Review
November 16, 2018	Plans (30%) Submitted to City for Concept Concurrence
January 11, 2019	Plans (60%) Submitted to City for Review
January 25, 2019	Final Plan/Special Provision Revisions made
January, 2019	Approved P/S/E to City for Bidding
February, 2019	Advertise for Contractor Bids
February, 2019	Pre-bid Meeting with Contractors
May-September, 2019	Project Construction





## **V. ADDITIONAL SERVICES**

If authorized in writing by the City of Duluth, we will furnish or obtain from others Additional Services of the types listed below which are not considered as basic services under this Proposal. Additional Services shall be billable on an Hourly Time and Materials basis and such billings shall be over and above any maximum amounts set forth in this Proposal.

- A. Further effort or documentation beyond that described in SECTION IV.
- B. Permit application fees and publication costs.
- C. Significant alteration to the proposed schedule or performance of public involvement meetings.
- D. A full rating of the Sargent Creek Bridge, with in-depth steel measurements.
- E. Other subconsultants such as a cultural resources firm and geotechnical firm should this need to be field-verified by specialized personnel.

## **VI. CITY'S RESPONSIBILITIES**

These responsibilities include, but are not limited to, the following:

- A. Designate one individual to have complete authority to transmit instructions, receive information, interpret and define policies, and make decisions with respect to critical elements pertinent to the project.
- B. Provide TKDA with access to the site as required to perform services listed in SECTION IV.
- C. Provide reviews of materials furnished by TKDA in a reasonable and prompt manner so that the Project schedule can be maintained.

## **VI. COMPENSATION**

Compensation to TKDA for services provided as described in this Proposal shall be on an Hourly Time and Materials basis in an amount not to exceed \$46,876. Our Detailed Project Fee Estimate is attached.

The level of effort required to accomplish services can be affected by factors which are beyond our control. Therefore, if it appears at any time that charges for services rendered will exceed the above, we agree that we will not perform services or incur costs which will result in billings in excess of such amount until we have been advised by you that additional funds are available and our work can proceed.

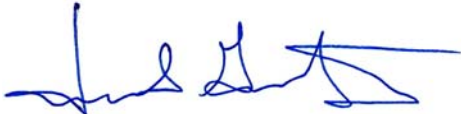


Mr. Jim Shoberg, PLA  
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**VII. CONTRACTUAL INTENT**

We appreciate the opportunity to propose on your project. We agree to execute a mutually agreeable contract that incorporates this Proposal. Please contact Jeff Goetzman at 218.491.7835 or email at [jeff.goetzman@tkda.com](mailto:jeff.goetzman@tkda.com) if you have any questions.

Sincerely,



Jeffrey S. Goetzman, PE  
Project Manager



Dennis M. Postler, PE  
Vice President, Municipal Services

JSG:DMP:sfs  
ATTACHMENT: PROJECT FEE ESTIMATE





**Project Fee Estimate**

<b>Client:</b>	City of Duluth Parks and Recreation Department				<b>Date:</b>	10/11/2018	
<b>Project:</b>	DWP Sargent Creek Bridge Rehabilitation				<b>By:</b>	JSG	
			<b>Estimated Person Hours Required</b>				
<b>Contract Phase</b>	<b>Task</b>					<b>Total Hours</b>	<b>Total Dollars</b>
			Sr Reg Eng	Reg Eng	Sr Reg Eng		
<b>B</b>	<b>Preliminary Survey Phase</b>						
	1	Kick-off meeting with City	2	2		6	\$ 812
	2	Site Observations and Topo Survey at Bridge	2	18		28	\$ 3,162
		Subtotals:	4	20		34	\$ 3,974
<b>C</b>	<b>Preliminary Design Phase</b>						
	1	Sargent Creek Preliminary Bridge Repair Plan	1		1	10	\$ 1,555
	2	Complete Hydrologic/Hydraulics Comps, Permit Rqmnts		12		12	\$ 1,056
	3	Preliminary Stream Restoration Plans	1	6		7	\$ 689
		Subtotals:	2	18	1	29	\$ 3,300
<b>D</b>	<b>Final Design Phase</b>						
	1	Sargent Creek Bridge General Repair Plan	4	2	1	16	\$ 3,470
	2	Removal Plan			2	12	\$ 2,160
	3	Hydraulics/drainage design/DNR Coord.	1	8		9	\$ 865
	4	Railing Details			2	24	\$ 4,044
	5	Misc. Details		4	2	14	\$ 1,884
	6	Steel Details			2	16	\$ 2,788
	7	Concrete Backwall Details			2	40	\$ 6,556
	5	Bridge/channel Armoring at Sargent Creek Bridge		6		6	\$ 528
	6	SWPPP/Permitting (DNR, MPCA, City)	1	12		13	\$ 1,217
	7	Specifications	1	8	4	22	\$ 2,830
	8	Construction Cost Estimate	1	4		6	\$ 670
		Subtotals:	8	44	15	126	\$ 27,012
<b>E</b>	<b>Bidding Phase</b>						
	1	Bidding Assistance	1	4		15	\$ 2,083
		Subtotals:	1	4		15	\$ 2,083
<b>F</b>	<b>Construction Survey and Layout Phase</b>						
	1	Construction Staking-Bridge Armoring		12		12	\$ 1,056
		Subtotals:		12		12	\$ 1,056
<b>G</b>	<b>Construction Administration &amp; Inspection Phase</b>						
	1	Shop Drawing Review				4	\$ 628
	2	RFIs	1	4		11	\$ 1,455
	3	Onsite Observations/Field Visits	8	48		64	\$ 6,768
		Subtotals:	9	52	-	79	\$ 8,851
<b>Total Person Hours</b>			24	150	16	172	328
<b>Billing Rate/Hr x Multiplier</b>			\$ 161	\$ 88	\$ 138	\$ 157	
<b>Total Billable for Charged Time</b>			\$ 3,864	\$ 13,200	\$ 2,208	\$ 27,004	\$ 46,276
<b>Expenses:</b>							\$ 600
<b>Estimated Total Fees</b>							\$ 46,876