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February 27, 2020

Via Email Only: 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
Fairmount Snowmobile Trail Design

Dear Mr. Shoberg:

TKDA is pleased to submit this Proposal to provide Engineering Services related to the design updates to the Fairmount Snowmobile Trail. As you know, TKDA performed work on predesign and cost-estimating phases of this project in 2019.

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 TKDA has previously executed with the City of Duluth.

I. EXECUTIVE SUMMARY

The City of Duluth is seeking Professional Engineering Services for the design of the Fairmount Snowmobile Trail. Work tasks will include trail rerouting and improvements to trail bridges. As we understand it, this project has \$333,000 of grant funding for bridge work and \$187,500 additional funding from a second source for trail work. The main goal of the improvements is to improve trail safety and accessibility, re-route snowmobile traffic away from residential neighborhoods and improve user experience on the Fairmount Snowmobile Trail.

Fairmount Snowmobile Trail utilizes existing bridges for snowmobile and emergency vehicle traffic. Replacement bridges at Station 30+90, Keene Creek, Knowlton Creek and Kingsbury Creek will be included in the design as these bridges are no longer serviceable to support intended traffic loads. As previously discussed in our 2019 pre-design report, we feel that the four bridges can be replaced with prefabricated structures. This will require site evaluation and abutment design work. We have obtained estimates from local geotechnical firms for providing soil borings at each end of the four bridges as well as a testing firm who can provide regulated waste assessments for the bridges. The trail grade will also require design for repair of eroded areas in the new grade, wetland impacts, brushing, and culverts.

Our project team has experience in delivering these rustic trail type projects to the City of Duluth and are 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 and Stewart Creek Bridge Projects demonstrates our ability to provide engineering solutions tailored to match the City's budget for a project of this type. The following sections demonstrate our experience and approach to delivering 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 projects for local agencies including the City of Duluth, St. Louis County, the City of Hermantown, and others. Team members are well-versed in applicable design standards, writing project memorandums, plan development standards, developing technical specifications, and contract administration.



Will DeRocher, PE will serve as Design Engineer and Project Manager of the Fairmount Snowmobile Project. Will is a registered engineer in TKDA's Municipal Services Group, and has worked on a number of rustic trail projects with the City of Duluth. Will has experience in trail design and construction administration and will serve as the point of contact in the design and construction phases of the project. Will's recent project experience includes:

- Western Waterfront Trail Renewal | Duluth, MN
- DWP Trail Restoration | Duluth, MN
- Stewart Creek Bridge Rehabilitation | Duluth, MN
- Clyde Connector Trail | Duluth, MN
- Grand Avenue Nordic Center Trail | Duluth, MN



John Sanders, PE will coordinate the design 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:

- MnDNR Duluth 93rd Avenue Pedestrian Bridge | Duluth, MN



- MnDNR Duluth Grand Avenue Pedestrian Bridge | Duluth, MN
- Stewart Creek Bridge Rehabilitation | Duluth, MN



Mark Daubenger, PE will be assisting by coordinating design of bridge abutments and reviewing the bridge fabrication drawings. Mark is a Civil Engineer with nearly 27 years of experience and has worked on roadway, trail, bridge, railroad, and aviation projects. Mark's role on projects includes project management, agency and public involvement, feasibility studies, environmental documentation, preliminary and final design, cost estimating, special provisions, bid documents, construction contract administration, and quality management. His involvement in all phases of a project and the range of projects that he has worked on allows him to understand the needs of the project.

A similar project that Mark managed is the Nokomis – Minnesota River Regional Trail that stretched from Minneapolis to Bloomington in the TH 77 (Cedar Avenue) corridor. Mark managed the Nokomis—Minnesota River Regional Trail project which included 3.6-miles of urban trail, the construction of a pedestrian bridge over I-494, and the rehabilitation of the Bloomington Avenue bridge over Crosstown TH 62 for pedestrian use. Another example of Mark's recent work is Medicine Lake Regional Trail Rehabilitation.



Jeff Goetzman, PE will provide advisory and QA/QC efforts for the project. Jeff has over 27 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 project experience includes:

- Western Waterfront Trail Renewal | Duluth, MN
- DWP Trail Restoration | Duluth, MN
- Stewart Creek Bridge Rehabilitation | Duluth, MN
- Clyde Connector Trail | Duluth, MN
- Grand Avenue Nordic Center Trail | Duluth, MN

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. 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 making improvements to the trail grade and bridge structures on the Fairmount Snowmobile Trail in Duluth.

The following projects are recent examples of design work completed 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 will be provided at the trailhead parking lot to provide better accommodations for a broad spectrum of users.

Stewart Creek Bridge Rehabilitation on DWP Trail, Duluth, MN

The City of Duluth retained TKDA for engineering services for design and construction management to rehabilitate the bridge carrying the multi-use DWP Trail over Stewart Creek in Duluth, Minnesota. Formerly carrying the Duluth, Winnipeg and Pacific Railway, the goal was to rehabilitate the Stewart Creek Bridge so that it was safe for pedestrians, skiers, mountain bikers, equestrians, snowmobilers, and service vehicles.



The five-span deck plate girder bridge has spans consisting of 60'-30'-60'-30'-60' (240' steel bridge) A new 12' wide prefabricated timber deck along with a 2" deep timber wearing course was installed on top



of the girders. The bridge overlooks the St. Louis River Valley so it was important to the City of Duluth that the scenic views could be appreciated. TKDA incorporated an overlook at the midpoint of the bridge as well as a “see-through” railing. TKDA’s design called for wire rope cables in the railing as opposed to the traditional timbers to allow the bridge users to view the scenic beauty surrounding the bridge.



Willard Munger State Trail, 93rd Avenue Pedestrian Bridge, Duluth, MN

The Minnesota Department of Natural Resources retained TKDA for Engineering Services for Design and Construction Management to rehabilitate the bridge carrying the Willard Munger State Trail over 93rd Avenue in Duluth, Minnesota. The goal of this project was to rehabilitate the existing trail bridge to meet AASHTO specifications and also meet ADA standards and to provide a surface to better serve the multiple types of use that this trail serves.

TKDA performed an existing bridge assessment. With this information, TKDA recommended repairs and checked the capacity of the superstructure to carry the dead load of a proposed deck in addition to the live load of either pedestrians or H-15 vehicle. During the conceptual phase, deck replacement alternatives were evaluated and the transversely laminated timber deck with a bituminous wear surface option was selected.

The former railroad bridge over 93rd Avenue was constructed in 1915. This bridge consists of three through plate girder spans with span lengths of 13'-0", 63'-5", 13'-0". The bridge was constructed on a 1.06% grade descending toward the north. The substructures are skewed 49 degrees 31 minutes from perpendicular and bear on timber piling. Final design plans were created to provide a 12-foot minimum clear width.

TKDA also provided Construction Administration and Construction Observation services during the construction phase through project close-out.

Willard Munger State Trail, Grand Avenue Pedestrian Bridge, Duluth, MN

The Minnesota Department of Natural Resources retained TKDA for Engineering Services for Design and Construction Management to rehabilitate the bridge carrying the Willard Munger State Trail over Grand Avenue (TH 23) in Duluth, Minnesota. The goal of this project was to rehabilitate the existing trail bridge to meet AASHTO specifications and also meet ADA standards and provide a surface to better serve the multiple types of use that this trail provides.



TKDA performed an existing bridge assessment. With this information, TKDA checked the capacity of the superstructure to carry the dead load of a proposed deck in addition to the live load of either pedestrians or H-15 vehicle. During the conceptual phase, deck replacement alternatives were evaluated and the cast-in-place concrete deck option was selected.

This former railroad bridge was originally constructed in 1940 and consists of four 60-foot-long steel beam spans bearing on cast-in-place concrete substructures that are skewed 59 degrees 33 minutes



from perpendicular. The bridge was constructed on a 0.98% grade descending toward the north. A Cooper's E-72 loading, which includes a 72,000 pound axle, was used for the design. The substructures utilize spread footings.

Final design plans were created to provide a 12-foot minimum clear trail width. The existing ornamental metal railing system was salvaged, refinished and installed on new concrete curbs to meet current AASHTO Specifications.

TKDA provided Construction Administration and Construction Observation services during the construction phase through project close-out.



Medicine Lake Regional Trail Rehabilitation, Plymouth, MN

TKDA worked with TRPD to develop plans for reconstruction of the Medicine Lake Regional Trail (MLRT), which is an integral component of the metropolitan area system. The MLRT is an off-road multi-use trail that provides a link to the Luce Line and Rush Creek Regional Trails and a number of local trails, and provides service to Fish Lake Regional Park, Elm Creek Park Reserve, and French Regional Park. The MLRT has been developed and added to over the span of several years.

TKDA evaluated the existing trail condition and provided recommendations for areas to be reconstructed. The project involved schematic design and evaluation of alternative trail realignment options in several areas, including a bicycle/pedestrian bridge over Elm Creek and segments of boardwalk across two wetland areas. In addition, safety and operational issues were identified and evaluated, including ADA and PROWAG requirements, for consideration in the reconstructed trail. Following review of the schematic design, TKDA provided final design and construction administration services for the trail, bridge, and boardwalk.

The completed project provides safe, accessible, and interesting recreational experiences for users of this important link in an exceptional regional trail system.

IV. PROJECT WORK PLAN AND TIMELINE

Phase 1 • Project Kickoff and Conceptual Design

This phase will include project scoping and completion of 30% design plans. As a part of this phase, TKDA will hold a kickoff meeting with the City of Duluth to review trail and bridge design requirements, update priorities, and establish the project deadlines. TKDA will develop design plans to 30% completion based on the information provided by the city. The 30% plans will include a trail layout and a preliminary cost estimate for the City of Duluth to review with stakeholders, permitting agencies, and other interested parties. We will work with a bridge fabricator to develop the aesthetics of proposed bridge structures for review by City staff and will develop the trail alignment and layout for final approval.

The Knowlton Creek and Kingsbury Creek bridges exhibit signs of extensive deterioration and will be replaced as a part of this project. Replacement bridges will be designed as economical structures for



passage of H-10 traffic. Anticipated traffic includes pedestrians, snowmobiles, trail maintenance equipment, and emergency response vehicles.

TKDA Responsibilities:

- Conduct a project kickoff meeting with the City of Duluth and other stakeholders.
- Develop a 30% design and cost estimate for the City of Duluth to review with stakeholders, permitting agencies, and other interested parties.

City of Duluth Responsibilities:

- Attend the project kickoff meeting with TKDA.
- Review design documents and cost estimate with stakeholders, permitting agencies, and other invested parties.
- Provide comments and feedback to TKDA to proceed with design documents.

Phase 2 • Design Development

Phase 2 will include the development of construction and bidding documents for the Fairmount Snowmobile Trail updates. Comments and review input from the 30% plans will be incorporated into the design documents. Our work will include obtaining geotechnical information at each bridge abutment through our sub-consultant, working with bridge fabricators to develop abutment and truss details, and finalizing bridge layout diagrams for construction on the trail. TKDA will develop plans and provide additional opportunities for stakeholder input at the 60% and 90% stages of design completion. After receiving input from the final review, TKDA will develop a set of construction plans for the City to post for contractor bidding. These documents will include a plan set, design specifications, and an engineer's estimate of probable cost for the trail and bridge updates. Design parameters will be completed in accordance with state and City of Duluth design requirements. Plans will be prepared such that they can be submitted to permitting authorities for necessary construction permits and to contractors for bidding.

TKDA Responsibilities:

- Prepare and submit construction documents to the City for permitting and contractor bidding.
- Submit design documents to the City for review at 60% and 90% completion.
- Assist the City of Duluth in reviewing bids and provide recommendations for awarding the construction contract to a qualified contractor.
- Coordinate Geotechnical field work and wetland disturbance permitting.
- 100% Plans, Specifications, and Construction Cost Estimate.

City of Duluth Responsibilities:

- Provide timely feedback on design documents.
- Post design documents for contractor bidding.



Phase 3 • Construction Administration

Phase 3 will include construction review and administration services through construction closeout. TKDA will act as the City’s representative by interfacing with the contractor to provide technical input during construction, schedule construction meetings, review pay applications and review construction progress to ensure it is in accordance with the design. TKDA will provide construction staking services as a part of Phase 3 which will include flagging the designed route and providing critical elevation references for design grades and trail structures.

TKDA Responsibilities:

- Provide administrative services to review contractor submittals, pay applications and act as the City’s representative by interfacing with the contractor and providing technical input during construction.
- Provide construction staking services to help layout the trail alignment and critical grades.
- Provide as-built drawings to the City as part of the construction closeout.

City of Duluth Responsibilities:

- Attend Construction meetings when possible.
- Provide construction input as necessary
- Review closeout documents and provide feedback and grant deadline information.

SCHEDULE

The TKDA Team understands that work associated with this Project must be completed so as to facilitate Bidding by mid-summer of 2020 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 Fairmount Snowmobile Trail and Bridge project:

February, 2020	Project award
February 10-14, 2020	Kickoff Meeting
March, 2020	30% Planset for City Review
March, 2020	Geotechnical borings completed
April, 2020	60% Planset for City Review
May, 2020	90% Planset for City Review
June, 2020	Construction documents out to Bid
July 20, 2020	Construction contract awarded
July, 2020	Construction kickoff and tree clearing
August, 2020	Begin trail construction and grading.
November, 2020	Project closeout



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. Additional sub-consultants such as a geotechnical or cultural resources firm should such specialized expertise be needed during the design or construction.

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.

VII. 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 \$65,500. 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.



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VIII. 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 Will DeRocher at 218.491.7384 or email at will.derocher@tkda.com if you have any questions.

Sincerely,



Will DeRocher, PE
Project Manager



Douglas W. Fischer, PE
Vice President, Municipal Services

ATTACHMENT: PROJECT FEE ESTIMATE

WDD:DWF:ayo



