Position Summary

This summary describes the organization, duties, and requirements of a State of Michigan vacancy. The official position description for this position is available from the HR office for the agency.

Position Code: TRAENGAE97R

Civil Service Class and Level: TRANSPORTATION ENGINEER-A

Working Title (What the agency calls the position): QTL Bridge Inspection Engineer

Name and Position Code Description of Direct Supervisor: STACK, RICHARD; ENGINEER MANAGER LICENSED-3

Department/Agency: TRANSPORTATION CENTRAL OFFICE

Work Area: Southwest Region

Work Location/Hours of Work: 6345 American Avenue, Portage, MI 49002 / 7:30 a.m.- 4:30 p.m. Mon-Fri (hours may vary)

General Summary of Function/Purpose of Position: This is an advanced level position that functions as a Qualified Team Leader (QTL) Bridge Inspector that performs inspection of bridges and culverts in the Region in compliance with State and Federal Highway Administration (FHWA) regulations. Responsibilities include conducting field inspections with a focus on extensive detail (e.g., in-depth inspections, bridge scoping) and/or complex structures (e.g., curved steel beams, trusses), making independent engineering judgments and decisions, preparing inspection reports, participating in bridge scoping, and preparing scoping reports. Call for Projects (CFP), Quality Control (QC) and Quality Assurance (QA), and Bridge Network Asset Management. This position is required to respond to emergencies.
This position is required to operate a motor vehicle or vehicle/trailer combination (e.g., aerial lift truck and ¾-ton pickup with boat trailer) with a gross vehicle weight rating (GVWR) between 10,001 and 26,000 pounds to perform bridge safety inspection duties.

This position requires possession of a valid driver's license to perform bridge safety inspections and other field reviews.

Assigned duties and tasks for each duty.

Duty 1 **Percentage: 50**

Function as a QTL performing bridge and culvert inspections with a focus on extensive detail and/or complex structures in accordance with applicable State and Federal regulations and making independent engineering judgements and decisions.

This duty requires operating a vehicle or vehicle/trailer combination with a GVWR of between 10,001 and 26,000 pounds.

This duty requires possession of a valid driver's license to perform bridge safety inspections and field reviews.

- Perform bridge and culvert inspections by reviewing and completing the Bridge Safety Inspection Report or relying on the information provided to them from the Transportation Maintenance Worker (TMW) 9 or Transportation Engineer 9-P11's completed Bridge Safety Inspection Reports (BSIR).
- Develop the monthly/annual inspection schedule and organize the necessary equipment for inspections.
- Based on visual observations, evaluate the existing condition of bridges and culverts in accordance with the National Bridge Inspection Standards and MDOT bridge inspection policies.
- Document complex field observations reflecting the existing bridge condition on electronic and paper forms such as detailed inspection reports, BSIR, Culvert Safety Inspection Reports (CSIR), Element Inspection Data, and the Structure Inventory & Appraisal form.
- Provide maintenance work crew recommendations for region special crews and designate the appropriate priority.
- After construction or maintenance is performed on a structure, conduct an inventory inspection by collaborating with construction inspector or maintenance work crew.
- Monitor, evaluate, and report on the performance of maintenance and rehabilitation activities to ensure quality and the desired objectives.
- Utilize department computer programs such as MiBridge, JobNet, SMART, and others to input inspections and manage the region bridge inventory.
- Assist statewide crew with fracture critical, fatigue sensitive, or detailed inspections.

Duty 2 **Percentage: 20**

Responsible for working with the Region Bridge Engineer to identify needs, prioritize needs, and recommend potential maintenance, rehabilitation, or replacement activities for the CFP submittal by evaluating inspection data obtained to determine appropriate scopes of work for bridges and culverts. Participate in Statewide/Region strategy for bridge network improvement.

- Evaluate the Bridge Safety Inspection Report findings to analyze the safety condition of the structures in accordance with applicable State and Federal regulations and develop the extensive Bridge Scoping Package using risk-based decision making and coordinating with other assets including utilities and environmental impacts.
- Identify the primary goals of the projects based on the Bridge Safety Inspection Report and determine appropriate repairs/replacement and cost estimates based on the condition of the Bridge.
- Work with Lansing, Region, and Transportation Service Center (TSC) staff to produce scoping documents consistent with the current MDOT format for bridge scoping.
- Work with the Region Bridge Engineer to identify needs, prioritize needs, and recommend potential maintenance, rehabilitation, or replacement activities for the CFP submittal by evaluating inspection data obtained to determine appropriate scopes of work for bridges and culverts.
- Participate in Statewide/Region strategy for bridge network improvement.
- Create and submit project concept statements to reflect accepted repair procedures.
- During the conceptual and scoping phases of a project; work with TSC, Region, and Lansing staff including the lead project manager, systems managers, systems specialists, and functional areas' specialists to help determine project scope, costs, and schedule.
- Assist with analyzing data to document how the Region is meeting or attempting to meet the strategic direction set by the department with respect to asset management.
- Based on strategies identified in CFP, develop potential list of structures for future scoping needs.

Duty 3 **Percentage: 15**

Responsible for working with the Region Bridge Engineer to assist in the development of the Region's annual bridge program by identifying needs, prioritizing needs, and recommending potential maintenance, rehabilitation, or replacement activities to meet MDOT's strategies for bridges. Monitor, evaluate, and report on the performance of maintenance and rehabilitation activities to ensure quality and the desired objectives.

- Using technical knowledge relative to the maintenance and rehabilitation of bridge and culvert repairs, assist in the development of the region's annual bridge program by identifying needs, prioritizing needs, and recommending potential maintenance, rehabilitation, or replacement activities to meet MDOT's strategies for bridges.
- Maintain proficiency with Remote Operated Vehicles and Sonar used in bridge and culvert inspections.
- Coordinate maintenance work activities with the TSCs, Region, and Statewide personnel.
- Lead the implementation of the region's Capital Scheduled Maintenance bridge program and the development and assist in prioritization of the annual bridge crews' maintenance work plan.
- Adapt the Region bridge program based on changing funding, schedule, or corridor needs by providing final recommendations to the Region Bridge Engineer.
- Document and archive complex data collected during the field inspections.
- Review database for accuracy and revise data, if necessary.
- Upload field information to regional and statewide database systems.
- Generate standard reports and create specialized reports for the region engineer, region bridge engineer, and the statewide bridge systems manager.
- Participate in the annual inspection calibration meeting, as well as region inspection team meetings, to incorporate the latest standards and techniques and maintain a current working knowledge of the inspection program.

Duty 4 **Percentage: 10**

Responsible for leading, developing, and/or participating in the Region's bridge safety inspection QA/QC monitoring program and investigating, evaluating, and reporting on the actual condition of structures within the Region with requirements outlined in applicable State and Federal regulations and recommending changes to ensure MDOT maintains the highest quality structures.

- Serve as part of the QA program by ensuring that the QC checks are completed and if applicable, investigate issues that need followed up on.
- Participate in the statewide bridge safety inspection QC/QA monitoring program.
- Conduct data quality checks on the Regions bridges.

Duty 5 **Percentage: 5**

Other duties as assigned.

- Attend necessary training to maintain bridge inspection qualifications.
- Attend meetings as necessary.
- Perform other duties as assigned.

Types of decisions made independently and whom or what those decisions affect: As a QTL, independently perform inspections within FHWA guidelines to ensure public safety, document repair recommendations, and follow up on recommendations as necessary to promote public safety, determine the extent of bridge damage caused by vehicles, extent of scour during a storm event, and/or structural stability due to corrosion, and plan of action for each event.

Types of decisions that require the supervisor's review: When changes in policy are required. When immediate follow up is necessary.

Physical effort used to perform this job and environmental conditions of this position: This position requires region wide travel and occasional statewide travel. The job also requires working from aerial buckets, ladders, and boats; the ability to work at heights up to 150 feet requiring the use of a bucket truck and/or scaffolding (rarely) or safety harnesses under or alongside the structure while performing bridge maintenance activities; and the ability to traverse under bridges, over water, wading in water to probe footings, and continually working near heavy traffic. Must be able to transport equipment up to 100 pounds (daily). Ability to sustain long periods in confined spaces; wear adequate personal protective equipment; and sustain extensive and repetitive twisting, bending, climbing, lifting, and squatting. Ability to traverse rough terrain and be exposed to outdoor weather elements. Exposure to hazardous materials. Position may require availability outside normal working hours based on operational needs. This position is required to operate a vehicle and/or vehicle trailer combination with a GVWR of between 10,001 and 26,000 pounds. This position requires possession of a valid driver’s license.

Names and classes and levels of employees whom this position immediately supervises:

Essential functions of this position: This is an advanced level position that functions as a QTL Bridge Inspector that performs inspection of bridges and culverts in the Region in compliance with State and FHWA regulations. Responsibilities include conducting field inspections with a focus on extensive detail (e.g., in-depth inspections, bridge scoping) and/or complex structures (e.g., curved steel beams, trusses), making independent engineering judgments and decisions, preparing inspection reports, participating in bridge scoping, and preparing scoping reports. CFP), QC and QA, and Bridge Network Asset Management. This position is required to respond to emergencies.
This position is required to operate a motor vehicle or vehicle/trailer combination (e.g., aerial lift truck and ¾-ton pickup with boat trailer) with a GVWR between 10,001 and 26,000 pounds to perform bridge safety inspection duties.

This position requires possession of a valid driver’s license to perform bridge safety inspections and other field reviews.

Function of the work area: The function of the work area is to inspect bridges and culverts within a geographical area to manage and ensure structural integrity. This requires the inspection and recording of the information to be used for assessing existing condition and identifying future maintenance and construction work. This position is responsible for performing the physical field inspections on bridges and culverts, determining the proposed scope of work as part of the Call for Projects, participating in the Region’s bridge safety inspection QC/QA Monitoring Program and in Bridge Network Asset.

Education, experience, and credentials typically needed to perform the position's essential functions [Equivalent combinations of education and experience can also be evaluated on an individual basis for applications providing sufficiently detailed descriptions of the other experience.]:

EDUCATION:
Possession of a bachelor's degree in a field of engineering.

EXPERIENCE:

Transportation Engineer 12
Three years of professional engineering experience involved in transportation systems and programs equivalent to a Transportation Engineer, including one year equivalent to a Transportation Engineer P11.

Alternate Education and Experience

Transportation Engineer 9 - 12
Possession of a Michigan Professional Engineer License may be substituted for 6 months of Transportation Engineer experience. This substitution may only be used once for any employee for qualification of appointment or early reclassification.

KNOWLEDGE, SKILLS, AND ABILITIES:

Knowledge of:

- Bridge and culvert elements.
- Good written and oral communication skills.
- Mathematical skills for measuring and computing information.
- Organizational skills.

Ability to:

- Make decisions regarding structural integrity necessary to promote the safety of the motoring public and fellow employees.
- Work effectively with others as a team
- Use computers/various software applications.
- Determine priorities and maintain favorable public relations.
- Serve as an expert witness in court.

CERTIFICATES, LICENSES, REGISTRATIONS:

- This position is a Test-Designated Position. The employee is subject to random drug and alcohol testing while employed in this position.
- Subclass Code Requirement: CMVOSSP – A safety-sensitive position in which the employee is required to operate a commercial vehicle. Requires a valid Medical Examiners Certificate for Commercial Driver Medical Certification and must maintain throughout employment in the position.
- Possession of a valid driver's license is required and must maintain throughout employment in the position.
- Possess status as a Qualified Team Leader which includes:
    - Successful completion of NHI-130055 Safety Inspection of In-Service Bridges course.
    - Successful completion of 18 hours of approved bridge inspection recurrent training over the last 5 years.
    - Successful completion of the Field Proficiency Exam in the last 2 years.