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: TRAENGE

Civil Service Class and Level: Transportation Engineer-E

Working Title (What the agency calls the position): Bridge Inspector

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 position is part of the Region Bridge Unit and works with other Transportation Engineers and Transportation Maintenance Workers (TMWs) to conduct field inspections of in-service (routine safety inspections) bridges and culverts, detailed inspections in conjunction with Bridge Unit Engineers/Management, prepare inspection reports, participate in bridge scoping, Call for Projects (CFP), and work with the region design unit. 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: 40**

Responsible for performing bridge and culvert inspections under the direction of a Qualified Team Leader (QTL) and conducts research on bridge maintenance issues, takes notes on the condition of structures, and gathers information for bridge inspection reports for National Bridge Inventory structures.

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 inspect/evaluate structures and perform other field reviews.

· Perform bridge and culvert inspections under the direction of a QTL.
· Assist the Transportation Engineer 12/Licensed 12 or Region Bridge Engineer in the development of the monthly inspection schedule and organize the necessary equipment for those inspections.
· Conduct research on bridge maintenance issues, take notes on the condition of structures, and gather information for bridge inspection reports.
· Based on visual observations, evaluate the existing condition of bridges and culverts in accordance with the National Bridge Inspection Standards (NBIS) and Michigan Department of Transportation (MDOT) bridge inspection policies.
· Document field observations reflecting the existing bridge condition on electronic and paper forms such as detailed inspection reports, Bridge Safety Inspection Report (BSIR), Culvert Safety Inspection Report (CSIR), Element Inspection Data, and the Structure Inventory & Appraisal form.
· Provide maintenance work crew recommendations to the Bridge Engineer as identified on the Bridge Inspection Form.
· Conduct an inventory inspection after construction or maintenance is performed on a structure.
· 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 QTL's with Quality Control (QC) inspections
· Work towards and gain certification as a bridge inspection QTL.

Duty 2 **Percentage: 25**

Assist the region design unit with the development of preliminary and final road design plans

· Prepare 3-D models and cross sections to determine grading limits and quantities
· Design and prepare contract plans including 2-D plan, profile, typical cross-sections, alignment, drainage, pavement marking, signing, detail grades (including sidewalk curb ramp design), title and note sheets for state trunkline construction projects. Plans must conform to the MDOT Road Design Manual and MDOT sample plans. This includes the use of design and drafting functions with Microstation and OpenRoads Designer.
· Compute and check geometric elements both manually and on the Computer-Aided Design (CAD) system. As these checks are done, determine whether the preferred elements meet current MDOT standards. Where those elements do not meet current standards design exceptions will be developed for the existing condition(s).
· Calculate contract quantities and add those quantities to the plans in conjunction.
· Prepare preliminary and final Right of Way (ROW) plans for the use in acquiring project ROW.
· Identify utility conflicts and prepare matrix to resolve conflicts with the Transportation Service Center (TSC) and utility companies.
· Perform quality assurance on individually produced work. Peer reviews other designer's quantities and plans.
· Prepare the contract plan package including all plan sheets, detail sheets and special provisions. Assemble these documents in MDOT's current format for submittal during the various stages of development.
· Develop the Reference Information Documents (RID).
· Develop cost estimates utilizing spreadsheets and MDOT's current AASHTOWare program. A cost estimate will be developed and reviewed for all major milestones including scoping, base plans, preliminary plans, Final Plan Coordination (FPC) and final submittal. Major changes in work type or scope will be identified and estimated to update the project team throughout the life of the project.
· Attend milestone meetings for assigned projects. Examples include scope verification, plan reviews, FPC, and pre-construction meetings.

Duty 3 **Percentage: 15**

Responsible for gathering inspection data and assisting with determining the proposed scope of work for bridges and culverts as part of the CFP.

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 inspect/evaluate structures and perform inspections and other work in the field.

· Assist in analyzing the Bridge Safety Inspection Report findings to analyze the safety condition of structures in accordance with applicable State and Federal regulations and prepare recommendations.
· Assist with producing scoping documents consistent with the current MDOT format for bridge scoping.
· As part of a team, gather inspection data and assist with determining the proposed scope of work for bridges and culverts in the network.
· Work with Lansing, Region, and TSC staff to assist with producing scoping documents for all projects referenced in the Call for Projects, consistent with the current MDOT format for bridge scoping.
· Assist with the creation and submittal of project concept statements to reflect accepted repair procedures.
· During the conceptual and scoping phases of a project, work with TSC, region, and central office staff including the lead project manager, systems managers, systems specialists, and functional areas' specialists to help determine project scope, costs, and schedule.

Duty 4 **Percentage: 15**

Gather inspection data and assist with determining the proposed scope of work for bridges and culverts in accordance with asset management principles and goals.

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 inspect/evaluate structures and perform inspections and other work in the field.

· Prepare recommendations for the maintenance, repair, and rehabilitation of bridge structures in keeping with the MDOT strategy for bridges.
· Assist in the development of bridge scoping reports to determine scopes of work using risk-based decision making and coordinating with other assets including utilities and environmental impacts.
· Collect information and perform analysis in the implementation of the region's Capital Scheduled Maintenance program and in the development of the annual bridge crews' maintenance work plan.
· Collect information and perform analysis for the Region bridge program based on changing funding, schedule, or corridor needs.
· Document and archive complex data collected during field inspections.
· Review database for accuracy and revises 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, etc.

Duty 5 **Percentage: 5**

Other duties as assigned.

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

Types of decisions made independently and whom or what those decisions affect: Most decisions are made in conjunction with a QTL.

Types of decisions that require the supervisor's review: When changes in policy are required. When issues are found in the QC process. 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 position is part of the Region Bridge Unit and works with other Transportation Engineers and Transportation Maintenance Workers (TMWs) to conduct field inspections of in-service (routine safety inspections) bridges and culverts, detailed inspections in conjunction with Bridge Unit Engineers/Management, prepare inspection reports, participate in bridge scoping, Call for Projects (CFP), and work with the region design unit. 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.

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 conditions 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/Quality Assurance (QA) Monitoring Program and in Bridge Network Asset Management.

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 9
No specific type or amount is required.

Transportation Engineer 10
One year of professional engineering experience involved in transportation systems and programs equivalent to a Transportation Engineer 9.

Transportation Engineer P11
Two years of professional engineering experience involved in transportation systems and programs equivalent to a Transportation Engineer, including one year equivalent to a Transportation Engineer 10.

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.