

State of Michigan
Civil Service Commission

Capitol Commons Center, P.O. Box 30002
Lansing, MI 48909

Position Code

1.

Position Description

This position description serves as the official classification document of record for this position. Please complete the information as accurately as you can as the position description is used to determine the proper classification of the position.

2. Employee's Name (Last, First, M.I.)	8. Department/Agency TRANSPORTATION CENTRAL OFFICE
3. Employee Identification Number	9. Bureau (Institution, Board, or Commission) Bureau of Bridges and Structures
4. Civil Service Position Code Description Transportation Engineer-E	10. Division Structure Projects
5. Working Title (What the agency calls the position) Structures Testing Engineer	11. Section Structure Construction
6. Name and Position Code Description of Direct Supervisor VACANT; ENGINEER MANAGER LICENSED-3; LIPTAK, RICHARD E; ENGINEER MANAGER LICENSED-4 (INTERIM)	12. Unit Structural Investigation and Testing Unit
7. Name and Position Code Description of Second Level Supervisor LIPTAK, RICHARD E; ENGINEER MANAGER LICENSED-4	13. Work Location (City and Address)/Hours of Work 8885 Ricks Rd. Dimondale, MI. 48917 / 7:30-4:30 (Hours may vary)

14. General Summary of Function/Purpose of Position

The Bureau of Bridges and Structures (BOBS) serves as the subject matter experts for the structural integrity of state owned bridges.

This position functions as a statewide engineer supporting testing on low/moderate risk bridges and ancillary assets (e.g., retaining walls, small drainage structures, short span rural bridges with low traffic volumes) where conditions are predictable and established procedures exist. Duties include, but are not limited to, assisting with preparing and reviewing testing plans and specifications; performing inspections and testing; preparing reports and developing recommendations for others. This position provides statewide support and engineering assistance to the asset owners (Regions/Specialty Areas) for investigation, monitoring, testing and evaluation of bridges, culverts and ancillary structures. This position follows the Michigan Structure Inspection Manual (MiSIM), Michigan Bridge Analysis Guide (BAG), and Michigan Ancillary Structure Inspection Manual (MiASIM). This position requires possession of a valid driver's license to perform structure field inspections.

15. Please describe the assigned duties, percent of time spent performing each duty, and what is done to complete each duty.

List the duties from most important to least important. The total percentage of all duties performed must equal 100 percent.

Duty 1

General Summary:

Percentage: 40

Perform testing of low/moderate risk bridges and ancillary assets supported by research and investigations to develop testing plans and recommend appropriate actions, ensuring the safety and integrity of the structure.,

This duty requires possession of a valid driver's license to perform structure field inspections.

Individual tasks related to the duty:

- Travel statewide to structure field inspections to support or perform research, investigations and testing of structures.
- Perform testing of bridges, culverts and ancillary structures, including but not limited to: weigh in motion testing, ultrasonic testing (UT), dye penetrant testing, magnetic particle testing, infrared thermography (IR), ground penetrating radar (GPR), lidar, out-of-plane distortion of culverts, stream depth and/or scour sensors, culvert videotaping, observation readings of monitoring wells, and earthborn vibration analysis.
- Perform short- and long-term monitoring of bridges, culverts and ancillary structures, including but not limited to: tilt monitoring, , strain measuring, and scour.
- Perform analysis of bridges, culverts and ancillary structures using standards including the Michigan Bridge Analysis Guide. In coordination with senior staff and management, develop monitoring plan or prepare recommendations for bridge design or load rating.
- Review testing data collected by others (researchers, consultants, in-house technicians) and in coordination with senior staff and management, make recommendations based on the findings.
- Prepare reports and recommendations for review by others.
- Performs inspections according to the Michigan Structure Inspection Manual and Michigan Ancillary Structure Inspection Manual.
- Take material samples for testing based on direction of others.

Duty 2

General Summary:

Percentage: 30

Provide statewide support and engineering assistance to the asset owners (Regions/Specialty Areas) for investigation, monitoring, testing and evaluation of bridges, culverts and ancillary structures.

This duty requires possession of a valid driver's license to perform structure field inspections.

Individual tasks related to the duty:

- Provide engineering services and inspection assistance on emergency projects. Examples of these services include, but are not limited to, coordinating testing between the asset owner and statewide crews, developing concepts for emergency traffic control for the Region/Transportation Service Center (TSC) consideration, and other tasks that are helpful to the responding MDOT office in the event of structure emergency.
- Travel statewide to structure field inspections, assist in documenting and measuring structure distress including, but not limited to, deterioration and/or vehicular impact.
- Compile and provide structure field inspection information to create research, investigation, or test plans.
- Compile and provide structure field inspection information for others to be used in the preparation of structure repair detailed engineering drawings.
- Review preliminary and final research, investigation or testing costs prepared by unit technicians or consultants and report costs exceeding the budgeted amount to the Program Manager.
- Manage documents utilizing ProjectWise, BlueBeam Revu, JobNet, Microstation, Microsoft Office Suite, etc.
- Participate in meetings and on-site reviews as needed.
- Provide efficient and timely resolution on testing plan issues.

Duty 3

General Summary:

Percentage: 20

Support bridge and structure research.

Individual tasks related to the duty:

- Participate on research advisory panels.
- Assist with file management and document control.
- Provide information for research projects when requested.

- Participate in special studies and prepare technical reports as assigned.
- Investigate emerging technologies for testing and evaluation of structures.
- Perform pilot investigations using innovative technologies.

Duty 4

General Summary:

Percentage: 10

Other duties as assigned by the supervisor.

Individual tasks related to the duty:

- Attend meetings related to bridge and ancillary program development including, but not limited to, meetings with internal stakeholders, statewide groups, meetings with industry partners, and bi-weekly staff meetings.
- Participate in unit led training activities and deployment of innovative tools and concepts.
- Perform other duties as needed.

Duty 5

General Summary:

Percentage:

Individual tasks related to the duty:

Duty 6

General Summary:

Percentage:

Individual tasks related to the duty:

16. Describe the types of decisions made independently in this position and tell who or what is affected by those decisions.

Decisions made by this position are in collaboration with senior staff and management.

17. Describe the types of decisions that require the supervisor's review.

All decisions/recommendations regarding testing are made in collaboration with senior staff and management.

18. What kind of physical effort is used to perform this job? What environmental conditions in this position physically exposed to on the job? Indicate the amount of time and intensity of each activity and condition. Refer to instructions.

This position requires occasional statewide travel and periodic out of state travel for periods of time up to several days as well as travel to attend meetings, project locations, or other work-related activities. The position requires performing inspections in the field which may include exposure to outdoor weather elements, traversing various types of terrain, working from ladders, an aerial bucket, or traversing under culverts, over water, wading in water to probe footings, and continually working near heavy traffic. Must be able to wear personal protective equipment. Ability to operate a computer.

Position may require availability outside normal working hours based on operational needs. This position requires possession of a valid driver's license.

19. List the names and position code descriptions of each classified employee whom this position immediately supervises or oversees on a full-time, on-going basis.

Additional Subordinates

20. This position's responsibilities for the above-listed employees includes the following (check as many as apply):

- | | |
|---|--|
| ☐ Complete and sign service ratings. | ☐ Assign work. |
| ☐ Provide formal written counseling. | ☐ Approve work. |
| ☐ Approve leave requests. | ☐ Review work. |
| ☐ Approve time and attendance. | ☐ Provide guidance on work methods. |
| ☐ Orally reprimand. | ☐ Train employees in the work. |

22. Do you agree with the responses for items 1 through 20? If not, which items do you disagree with and why?

Yes

23. What are the essential functions of this position?

This position functions as a statewide engineer supporting basic and intermediate testing of bridges and ancillary assets. Duties include, but are not limited to, assisting with preparing and reviewing basic and intermediate level testing plans and specifications; performing inspections and testing; preparing reports and developing recommendations for others. This position provides statewide support and engineering assistance to the asset owners (Regions/Specialty Areas) for investigation, monitoring, testing and evaluation of bridges, culverts and ancillary structures. This position follows the Michigan Structure Inspection Manual (MiSIM), Michigan Bridge Analysis Guide (BAG), and Michigan Ancillary Structure Inspection Manual (MiASIM). This position supports or performs research, investigations, testing and analysis of structures including but not limited to: tilt monitoring, strain measuring, ultrasonic testing, magnetic particle testing, dye penetrant testing, infrared thermography, ground penetrating radar, lidar, out-of-plane distortion of culverts, stream depth and/or scour sensors, culvert videotaping, observation of monitoring wells, and earthborn vibration analysis.

This position requires possession of a valid driver's license to perform structure field inspections.

24. Indicate specifically how the position's duties and responsibilities have changed since the position was last reviewed.

Downgrading for training purposes.

25. What is the function of the work area and how does this position fit into that function?

The function of the work area is to provide research, testing, and evaluation support for the owners of bridges, culverts and ancillary structures. This position performs basic to intermediate research, monitoring and testing.

26. What are the minimum education and experience qualifications needed to perform the essential functions of this position.

EDUCATION:

Possession of a Bachelor of Science degree in 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.

KNOWLEDGE, SKILLS, AND ABILITIES:

Knowledge of:

- Engineering principles and practices used in the inspection, monitoring, and testing of bridges, culverts and ancillary structures.

Ability to:

- Make mathematical computations.
- Read and interpret non-destructive testing data
- Read and interpret engineering plans, specifications, and technical reports.
- Maintain records and prepare reports and correspondence related to the duties.
- Utilize geospatial software applications.
- Communicate effectively with others.
- Maintain favorable public relations.

**CERTIFICATES, LICENSES,
REGISTRATIONS:**

Possession of a valid driver's license is required and must maintain throughout employment.

Possession of American Society for Non-destructive Testing (ASNT) Level 2 Certification is preferred.

NOTE: Civil Service approval does not constitute agreement with or acceptance of the desired qualifications of this position.

I certify that the information presented in this position description provides a complete and accurate depiction of the duties and responsibilities assigned to this position.

Supervisor

Date

To Be Filled Out By Appointing Authority

Indicate any exceptions or additions to the statements of employee or supervisors.

I certify that the entries on these pages are accurate and complete.

Appointing Authority

Date

I certify that the information presented in this position description provides a complete and accurate depiction of the duties and responsibilities assigned to this position.

Employee

Date