

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) Highway Operations
4. Civil Service Position Code Description TRANSPORTATION ENGINEER-E	10. Division Bay Region
5. Working Title (What the agency calls the position) Design Engineer	11. Section Development
6. Name and Position Code Description of Direct Supervisor HILL, KIMBERLY S; ENGINEER MANAGER LICENSED-3	12. Unit Region Design
7. Name and Position Code Description of Second Level Supervisor SHELTON, ANNETTE K; ENGINEER MANAGER LICENSED-4	13. Work Location (City and Address)/Hours of Work 5859 Sherman Road, Saginaw, MI 48604 / M-F, 7:30a-4:30p (may vary at discretion of mgmt)
14. General Summary of Function/Purpose of Position This position is responsible for performing a variety of engineering design assignments in the Bay Region Design Unit. This position is responsible for the design and preparation of preliminary and final plans, proposal materials, quantity calculations, and cost estimating for trunkline construction projects, utilizing standard design practices and computerized programs conforming to Michigan Department of Transportation (MDOT) and American Association of State Highway and Transportation Officials (AASHTO) design standards.	

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: 75

Design and prepare preliminary and final plans, details, calculations, and estimates for state roadways and miscellaneous trunkline facilities. This includes elements such as vertical and horizontal alignments, grading, drainage, profiles, storm sewer, guardrail, permanent signing, pavement markings, and maintaining traffic/stage construction plans.

Individual tasks related to the duty:

- Design and prepare contract documents for trunkline construction projects using electronic survey data.
- Develop plan, profile, typical cross sections, alignment, drainage, pavement marking, signing, detail grades, guardrail, storm sewer, title, note, and maintaining traffic/stage construction sheets.
- Utilize engineering design software such as Bentley OpenRoads Designer, Federal Highway Administration (FHWA) Hydraulic Toolbox, and SignCAD, in conjunction with MDOT's Sample Plans for design and drafting functions.
- Follow AASHTO and MDOT's current manuals and guides for design, such as AASHTO A Policy on Geometric Design of Highways and Streets, MDOT Geometric Design Guide, Standard Plans, Special Details, Drainage Manual, and Road Design Manual.
- Prepare 3D models and cross sections to determine grading limits and quantities.
- Develop the Reference Information Documents (RID).
- Compute and check geometric elements to determine whether they meet current MDOT standards. Where those features cannot be obtained, develop design exceptions/variances for the existing condition(s).
- Assist in the coordination of consultant prepared plans that are developed for inclusion with MDOT design plans.
- Identify and resolve utility conflicts.

Duty 2

General Summary:

Percentage: 10

Calculate quantities and prepare cost estimates for MDOT projects. Prepare projects for milestone reviews and e-Proposal. Gather supplemental field information for proposed projects.

Individual tasks related to the duty:

- Calculate contract quantities for cost estimates and add those quantities to the plans in conjunction with MDOT's Plan Quantity Spreadsheet (PQS).
- Utilize AASHTOWARE to produce cost estimates for all major milestones including: scoping, base plans, preliminary plans, final plan completion (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.
- Prepare the contract package at the various stages of development including the plan set and proposal.
- Convert documents to PDF format and assemble proposals and supporting documents for review and certification by supervisor and project manager.
- Fill out appropriate checklists for submittal and place all files within ProjectWise or other file management software as is current practice.
- Develop special provisions for unique items and methods of work.
- Perform field reviews to investigate and gather additional information necessary for design and to ensure proposed design meets the existing conditions. Plan the field review so that on-site visit is efficient, safe measures are utilized, and exposure to traffic is minimized.
- Calculate earthwork volumes (with or without using OpenRoads Designer).

Duty 3

General Summary:

Percentage: 10

Communicate effectively both inside and outside of the design unit. Represent the Region Design Unit at various meetings with other MDOT personnel, representatives of local agencies, the motoring public or other MDOT customers.

Individual tasks related to the duty:

- Provide project status updates as requested in individual meetings with supervisor, at design unit meetings, and development staff meetings.
- Share/request/obtain project related information with supervisor, project manager, Transportation Service Center (TSC), Region, and Central Office personnel.
- Attend meetings as assigned by the supervisor and prepare minutes as required by the supervisor. Such meetings may include scope verification, milestone plan reviews, pre-construction, and internal coordination meetings; attend public information meetings on the various projects in the unit; participate in post-construction reviews to evaluate the design plans, noting suggestions for future projects.
- Develop display material using Computer Aided Design & Drafting (CADD) and aerial photogrammetric information.
- Assist construction personnel with questions related to design plans.
- Maintain project information, organized within design squad templates and document design decisions.

Duty 4

General Summary:

Percentage: 5

Other duties as assigned by the supervisor.

Individual tasks related to the duty:

- Assist the supervisor as needed on various tasks within the unit.
- Stay up to date on design standards, drafting standards, and computer applications.
- Attend training that is relevant to the position as requested by the supervisor.
- Research and make recommendations to enhance technology use for project related tasks.
- Build positive relationships between MDOT and external stakeholders.

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

Decisions at this level are very basic. Those based on past precedents, similar situations, or past experience.

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

Any decision that involves MDOT policy or that is unclear. When interpretation of standards and/or other design guidelines is required. There may be unique situations with no precedent which will require the supervisor's review. Decisions that affect the cost or schedule of a project.

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.

Must be able to remain in a stationary position in an office setting or on the site of an active transportation operation. Involves work in inclement weather and performing duties where traffic may be hazardous. Position requires extensive use of a computer. Ability to traverse uneven ground. Position may require availability outside normal working hours based on operational needs. May require extensive travel. Ability to travel to meetings and seminars. Overnight stays may be required.

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):

- | | |
|---|--|
| <input type="checkbox"/> Complete and sign service ratings. | <input type="checkbox"/> Assign work. |
| <input type="checkbox"/> Provide formal written counseling. | <input type="checkbox"/> Approve work. |
| <input type="checkbox"/> Approve leave requests. | <input type="checkbox"/> Review work. |
| <input type="checkbox"/> Approve time and attendance. | <input type="checkbox"/> Provide guidance on work methods. |

N Orally reprimand.

N 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 is responsible for performing a variety of engineering design assignments in the Bay Region Design Unit. This position is responsible for the design and preparation of preliminary and final plans, proposal materials, quantity calculations, and cost estimating for trunkline construction projects, utilizing standard design practices and computerized programs conforming to Michigan Department of Transportation (MDOT) and American Association of State Highway and Transportation Officials (AASHTO) design standards.

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

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

To prepare construction plans, specifications, and estimates for the Region's highway and other transportation facilities construction program in conformance with federal, state, or local requirements. To ensure the accuracy and completeness of the documents for bidding and construction purposes.

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.
- Possession of a Bachelor of Science degree in civil engineering preferred.

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 registered professional engineer license as required by the State of Michigan may be substituted for 6 months of experience at the Transportation Engineer 9-12 levels. This substitution may only be used once for any employee for qualification of appointment or early reclassification.

KNOWLEDGE, SKILLS, AND ABILITIES:

Knowledge of:

- engineering principles/practices/techniques used to construct, design, and maintain roads and bridges
- engineering office practices/procedures
- the operation of a personal computer and various software

Ability to:

- make mathematical computations
- design engineering projects
- use engineering tools including computers and engineering work stations
- read/interpret engineering plans, specifications, and technical reports
- maintain records and prepare reports
- maintain favorable public relations
- good communication skills
- the ability to work as a team member
- be resourceful and use initiative in carrying out an assignment while working independently

**CERTIFICATES, LICENSES,
REGISTRATIONS:**

- Possession of a valid driver's license.
- Successfully passing the Fundamentals of Engineering (FE) exam is desirable.

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.

N/A

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

JENNIFER HADDON

10/31/2024

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