State of Michigan
Civil Service Commission

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

Position Code
1. TRALSPL2B44R

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 Field Services (BFS)
4. Civil Service Position Code Description TRANSPORTATION ENG LIC SPL 2	**10. Division** Transportation Systems Management & Operations (TSMO)
5. Working Title (What the agency calls the position) Congestion and Reliability Engineering Specialist	**11. Section** Intelligent Transportation Systems (ITS) Operations
6. Name and Position Code Description of Direct Supervisor ENGLE, JOHN; ENGINEER MANAGER LICENSED-3	**12. Unit** Congestion and Reliability
7. Name and Position Code Description of Second Level Supervisor FIRMAN, JASON D; ENGINEER MANAGER LICENSED-4	**13. Work Location (City and Address)/Hours of Work** 6333 Lansing Road, Lansing, MI 48917 / Monday-Friday 7:30a- 4:30p (hours may vary)

14. General Summary of Function/Purpose of Position

This position functions as the statewide Congestion and Reliability Engineering Specialist guiding and supporting the implementation and measurement of statewide traffic congestion and assists with the Michigan Department of Transportation (MDOT) Operations funding template. This position functions as a traffic expert, including identifying new and innovative solutions to improve traffic flow and mobility, and the applicable associated performance metrics for evaluation. This position serves as the statewide expert for the advanced software program Planung Transport Verkehr (PTV) VISSIM and as the expert and resource for the Synchro microsimulation program. This position provides statewide expertise in the area of traffic operational analysis, advanced microscopic traffic modeling, and traffic congestion reduction procedures. This position is responsible for ensuring department consistency and alignment with the Federal Highway Administration (FHWA) on performance measures associated with traffic congestion and operations.

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**

Serve as the Congestion and Reliability Engineering Specialist responsible for the procedures, analysis, and advanced modeling of traffic operations, including new and innovative methods and technologies. This position serves as a statewide expert in the advanced modeling software programs VISSIM and Synchro.

Individual tasks related to the duty:

- Serve as the statewide PTV VISSIM modeling expert by creating and reviewing models of the most complex traffic scenarios such as: closely spaced interchanges and signals, roundabouts, diverging diamond interchanges, active traffic management, hard shoulder running, freeway merging issues, pedestrian and transit impacts, and other new and innovative situations.
- Perform operational analysis of congested roadways utilizing advanced computer software programs including Highway Capacity Software (HCS), Synchro, and VISSIM.
- Serve as a point of contact for MDOT for all VISSIM modeling questions, and assist with the maintenance of PTV software licenses.
- Serve as the custodian of the MDOT VISSIM Protocol document, which is the statewide guidance for consultants and others developing VISSIM traffic models for MDOT and local agencies.
- Prepare and review traffic engineering reports that summarize the results of the VISSIM modeling reports and memos that evaluate the impacts of various transportation improvements and their cost effectiveness.
- Implement standards for operational analysis procedures and advanced traffic modeling to ensure real world conditions are analyzed.
- Provide technical assistance to the MDOT Regions & Transportation Service Centers (TSC) related to operational analysis, micro-simulation (Synchro & VISSIM), and congestion mitigation policies.
- Research additional traffic analysis programs (e.g., Rodel, VISTRO, Transmodeler) and assess new state-of-the-art traffic analysis programs for potential use within MDOT.
- Interpret MDOT geometric, signal, and safety guidelines to create an accurate and reliable operational analysis for the MDOT Regions and TSCs.
- Evaluate traffic issues using traffic counts, signal timing plans, crash statistics, roadway conditions, roadway plans, and research.

Duty 2

General Summary: **Percentage: 30**

Provide guidance and direction to MDOT Regions and TSCs regarding operational analysis of congested locations, particularly in locations that have unique or complex issues such as unique freeway interchange designs or new highway interchanges.

Individual tasks related to the duty:

- Provide regular, timely, and consistent outreach, assistance, and guidance to MDOT Regions and TSCs on large, sensitive, or high-impact/high volume projects that require expertise to perform the analysis, and to ensure overall department alignment for traffic analytic processes.
- Prepare complex geometric and operational scenarios utilizing computer software programs.
- Review traffic modeling performed by consultants. Propose changes, comments, and/or approve the submittals.
- Use expert analysis to review locations submitted by MDOT Regions, in order to determine if they are eligible for Operations funding, and report back to the Region.
- Work with MDOT Regions, TSC's, and local agency staff on the development and implementation of the MDOT Operations Template, including reviewing submittals and assisting the template's managers with tasks assigned.
- Perform field reviews of congested locations to study traffic flow and conditions to ensure accuracy and quality assurance.
- Produce multiple operational scenario improvements to congested locations around the state, based on improvements to delay & queues, level of services (LOS), benefit to cost, time of return, etc.
- Prepare and review traffic engineering reports that evaluate the impacts of various transportation improvements and their cost effectiveness. Provide final outputs to region staff for their consideration and action.

Duty 3

General Summary: **Percentage: 20**

Serve as a statewide technical expert for research projects and ensure MDOT traffic procedures are in alignment with FHWA. Also serve as a subject matter expert to assist MDOT Research, MDOT management, and the department. Represent the unit as a statewide subject matter expert on traffic flow and highway quality of service.

Individual tasks related to the duty:

- Serve as technical resource for MDOT staff in the use of the Regional Integrated Transportation Information System (RITIS) which is a Transportation Performance Measures Reporting and Analysis System/tool.
- Serve as a subject matter expert on research panels and assist project managers on research projects as assigned.
- Work with FHWA to ensure expectations are being met, and that MDOT processes and procedures regarding traffic analysis are in alignment with Federal processes and procedures.
- Participate on panels associated with American Association of Highway and Transportation Officials (AASHTO), Transportation Research Board (TRB), and others as assigned, and where applicable.
- Provide education and training to others on traffic modeling.
- Represent the section at internal MDOT events and disseminate information as a subject matter expert.
- Complete applicable surveys regarding department procedures and practices.

Duty 4

General Summary: **Percentage:** **10**

Other engineering support duties and activities representing the system operations section.

Individual tasks related to the duty:

- Participate in safety audits of the state transportation network
- Represent the unit at meetings within the department or with representatives of local governmental units and interested citizens to explain the department's policy regarding various congestion mitigation measures.
- Provide engineering expertise for the section regarding System Operations issues including traffic incident management, work zone safety and mobility and traffic signals.
- Work with internal and external partners to improve the movement of freight including performance measures, new technology and information, and commercial vehicle enforcement.
- Provide technical expert on TRB research projects related to operations-based issues.
- Support Statewide Transportation Operations Center (STOC), West Michigan Transportation Operations Center (WMTOC) and Southeast Michigan Transportation Operations Center (SEMTOC) in managing, monitoring and operating MDOT trunk lines.
- Manage Transportation Performance Measures Reporting and Analysis System contracts/extensions. Apply for funding sources for future tool improvements and additional data sources.
- Other duties as assigned.

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

This position is critical in reducing congestion on state trunk lines. Decisions made by this position can greatly reduce user delay costs caused to the traveling public. The operations template has funded projects shown to reduce user delay costs by millions of dollars per year. This position also serves as the statewide expert to help Regions/TSCs make project decisions on improving traffic flow.

This position is the technical lead in the creation of the MDOT VISSIM protocol. Creating and maintaining this guidance document ensures the Regions/TSCs are supplied with VISSIM traffic modeling that is in alignment with FHWA expectations.

This position directly impacts the mission of MDOT in providing the highest quality integrated transportation services for economic benefit and improved quality of life. This position provides assistance and guidance to MDOT staff in the review of traffic simulation models used for evaluating transportation projects, which is crucial for MDOT to successfully complete these key projects.

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

For high impact projects, or projects requiring MDOT executive level involvement, supervisor guidance should be involved. Supervisor has extensive knowledge in program monitoring, policies and procedures, and is available to provide guidance in these activities when needed. Supervisor also has extensive experience conducting operational analysis and traffic simulation software procedures and is able to provide assistance when needed.

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.

Work is typically performed in an office environment, requiring remaining in a stationary position for extended periods of time. Statewide travel with occasional overnight stays is required. Field investigations may involve being in adverse weather, traversing rough, uneven terrain and working in close proximity to high-speed traffic. Conducting on-site reviews requiring performing engineering measurements. Position may require availability outside normal working hours based on operational needs.

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):

N	Complete and sign service ratings.	N	Assign work.
N	Provide formal written counseling.	N	Approve work.
N	Approve leave requests.	N	Review work.

N	Approve time and attendance.	N	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 functions as the statewide Congestion and Reliability Engineering Specialist guiding and supporting the implementation and measurement of statewide traffic congestion and assists with the Michigan Department of Transportation (MDOT) Operations funding template. This position functions as a traffic expert, including identifying new and innovative solutions to improve traffic flow and mobility, and the applicable associated performance metrics for evaluation. This position serves as the statewide expert for the advanced software program Planung Transport Verkehr (PTV) VISSIM and as the expert and resource for the Synchro microsimulation program. This position provides statewide expertise in the area of traffic operational analysis, advanced microscopic traffic modeling, and traffic congestion reduction procedures. This position is responsible for ensuring department consistency and alignment with the Federal Highway Administration (FHWA) on performance measures associated with traffic congestion and operations.

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?

The ITS Operations Section provides policies, procedures, and standards for operational issues related to the overall integrated transportation system. This unit provides services to other divisions, bureaus, other Department of Transportation's, local agencies, businesses, the public and external customers. The Congestion and Reliability Unit provides performance measure reporting, Transportation Performance Measures Reporting and Analysis System support, and the MDOT Operations Template which is overseen by the unit helps to fund key operational projects statewide.

This position is responsible for the consistency and accuracy of performance measures. This position supports the Regional Integrated Transportation System contract, providing technical experts on the use of the program and the analysis of the probe data. This position supports the operations of the MDOT Operations Template, providing expertise in operational analysis, advanced modeling, and program procedures. This position serves as a statewide expert in the advanced software program VISSIM.

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 Engineering Licensed Specialist 13
Four years of professional experience equivalent to a Transportation Engineer, including two years equivalent to a Transportation Engineer P11 or one year equivalent to a Transportation Engineer 12 or Transportation Engineer Licensed 12.

KNOWLEDGE, SKILLS, AND ABILITIES:

Knowledge of:

- advanced modeling software VISSIM and Synchro including how the programs work, the limitations and capabilities of the programs, the data required, and the results that can be obtained.
- Traffic Flow Theory, the Highway Capacity Manual, and associated simulation software.
- engineering principles.
- MDOT management systems, processes, and procedures.
- scientific principles related to transportation.
- program procedures, technical aspects of the operational analysis, and the reports developed in the statewide program.

Ability to:

- communicate effectively utilizing a variety of communication devices.
- ·organize, evaluate, and present information.
- serve as an expert witness.
- maintain favorable public relations.
- formulate plans, procedures, and controls.
- interpret rules and regulations relative to assigned work.
- analyze and assess operations.

CERTIFICATES, LICENSES, REGISTRATIONS:

- Possession of a valid driver's license is required.
- Possession of a registered professional engineering license as required by the State of Michigan.

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 7/22/2025

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**