STATE OF MONTANA
JOB PROFILE AND EVALUATION

The job profile is a streamlined position description and may serve as the core document for all human resource functions such as recruitment, selection, performance management and career and succession planning. It was developed, initially, for use in classifying positions in Pay Plan 020.

If you are converting a position to Pay Plan 020 and the position has not changed simply cut and paste the information needed from the current position description. The position description contains sections that are no longer used to classify the position, such as: Working Conditions and Physical Demands; Management and Supervision of Others; Supervision Received; Scope and Effect; and Personal Contacts. These may still be important to the position and may be included in **Section IV** – **Other Important Job Information.**

When working with a new position, classification request or change to a position in Pay Plan 020, complete the information below to provide the required documentation for classification.

SECTION I – Identification

Working Title Civil Engineer Specialist	Job Code Number 172516	Job Code Title Civil Engineer Specialist
Pay Band 6	Position Number 32011 (same as 36047)	Check ONE box : ☐ FLSA Exempt ☒ FLSA Non-Exempt
Department Transportation		Division and Bureau Highways-Traffic and Safety
Section and Unit Traffic Engineering		Work Address and Phone 2701 Prospect Ave. Helena, MT 59620
Profile Produced By Danielle Bolan		Work Phone 406-444-7295

Work Unit Mission Statement or Functional Description - This section should include a complete statement of the mission or function as it relates to the work unit.

The Traffic Engineering Section is responsible for the design of signing, pavement markings, illumination, signalization, roadway geometry, HES Projects, speed zones, pedestrian crossings, and school crossings associated with federal and state funded highway projects. The section is responsible for all capacity analysis and corridor studies (traffic related) conducted by the Department on State's highways. The section is responsible to review all work done by consultants on all aspects of Traffic Engineering. The Traffic Engineering section is also responsible for supporting other offices within the Department regarding both design and operations and providing general assistance to other governmental entities as time allows.

Describe the Job's Overall Purpose:

This position performs professional Traffic Engineering studies in both urban and rural roadway environments. The position is also responsible for geometric design of both urban and rural intersection, interchanges, and roadway sections using current geometric design practices and techniques. This position identifies traffic control needs for roadways, intersection, and/or freeway interchanges. This position also provides technical traffic engineering assistance to other offices both in the headquarters and the districts as well as local government and the general public.

SECTION II - Major Duties or Responsibilities	**% of Time**
This section should be a clear concise statement of the position's duties. Well written thorough task/duty statements are required here to accurately evaluate the position. 1. What are the major duties or responsibilities assigned to this position? What are the specific tasks involved in accomplishing those duties. Group duties in order of importance and estimate the percent of time needed to perform each duty (estimates are not required for individual tasks). **NOTE:** Because you are identifying **major** duties usually 3-5, the quantity of time probably will not be less than **20%.** If a duty is essential but not performed routinely you should list it. For example, lobbying during the legislative session may not take up a large percent of total work time, but can be an essential duty.	
1. (30%) Performs Traffic Engineering studies in both urban and rural roadway environments. These studies are intended to: a. Review the existing facilities and compare the existing functional capabilities of these facilities to the present functional demands placed on them. b. Identify the capability of the existing facility to accommodate anticipated increases and or changes in functional demand. c. Determine appropriate action plans to address the inadequacies of the facilities under review. d. Develop designs required to carry out the action plans identified. This is accomplished through an appropriate combination of the following engineering analysis techniques organized to fit the individual needs of each assignment. Examples of those analysis techniques are: traffic control assessment (warning, regulatory, informational, and traffic signals), roadway functional class assessment, planning review, accident analysis, capacity analysis, pedestrian studies, and geometric analysis. The action plan is developed through comprehensive interpretation of the results of the above studies related to the proposed goals of the assigned project using current transportation and traffic engineering practices. These assignments also require the results to be reported effectively in writing, graphically, and through oral presentation. These studies are conducted in response to requests from design offices, such as road design and consultant design, as well as directed at planning related	

needs for the department's administrative staff, district offices, planning division, local planning staffs, and government officials.

2. (30%) Geometric design of both urban and rural intersections (signalized and non-signalized), interchanges (all types) and roadway sections using current geometric design practices and techniques. This requires applying substantial ingenuity into the development of designs that can be widely varied and individualized. This type of work varies substantially from project to project. This particular task is targeted at the department's roadway design projects.

3. (30%) Identify traffic control needs for a wide variety of roadways, intersections, and/or freeway interchanges. This includes justification, the type of control, and roadway lane use coordination. This is done to identify the scope of the level of delineation and verbal communication the motorists will need to make appropriate decisions within a highway corridor. It is accomplished through the use of engineering analysis techniques and understanding of the standards and alternatives available in the Manual On Uniform Traffic Control Devices. This type of work is directed at the department's design projects, operational activities, maintenance activities, and individual requests from the public and local officials.

4. (10%) Provide technical traffic engineering assistance to other offices both in headquarters and the districts as well as local government and the general public using formal written reports, oral presentations at public hearings and/or meetings, and individualized conversations both in person and by telephone.

2. Give specific examples of the types of problems solved, decisions made or procedures followed when performing the most frequent duties.

Traffic Engineering Studies:

Traffic engineering studies are a complex process that must identify the functional interrelationships between a number of different complex functions between pedestrians, bicyclists, passenger vehicles, commercial vehicles, and mass transit vehicles within a roadway segment. Traffic engineering studies consist of conducting site-specific detailed analysis of major principle arterial roadways such as 10th Ave. South in Great Falls, Main Street in Billings, and Central Avenue in Sidney. These roadways comprise of different levels of development from strip development to high intense major shopping centers along the major highway systems. Traffic engineering studies also consist of conducting site-specific detailed analysis of intersections such as Capitol Interchange in Helena, West Billings Interchange in Billings, 10th Avenue South and Fox Farm Road in Great Falls, and 1st Avenue and Main Street in Billings.

Associated with these roadways/intersections decisions are made on the scope of the roadway, environmental, and traffic elements that are pertinent to the study. The engineer must determine and identify the procedures and the approach to gather the necessary information from an existing operating roadway. This consists of traffic counting, roadway survey, aerial mapping, on-site inventories, etc. This position must also conduct visual on-site assessments in establishing judgments of on-site operating characteristics and potential

to be coupled with in-office analytical processes. To render judgments and conclusions on the operation of the corridor, the engineer goes through complex analytical procedures involving roadway capacity analysis, geometric assessments of roadway features related to operating requirements, traffic control needs assessments for motorist acceptance, uniformity, and conformance to the MUTCD, and operating conditions in relation to state statutes and laws.

The engineer must render judgments and conclusions on both the qualitative and quantitative functional potential of the traffic engineering elements studied. The engineer must identify the appropriateness of the existing roadway features to the existing environment, the adequacy of the existing roadway's ability to convey the traffic demands placed on it, and the adequacy of the informational guidance and regulatory traffic control features. The conclusions set the foundation for other decisions to be made. Decisions such as how to enhance or improve the roadway and/or intersection(s) to meet the current demands as well as absorb future growth.

All of the judgments rendered come together to explain the need and direct improvements tailored to unique and functionally diverse roadway environments. Finally, a traffic engineering report must be developed to communicate the findings of the study to a broad audience ranging from technical personnel, to government officials, and to the general public.

Geometric Design of Intersections:

Given two intersecting roadways, identify how to size, manage, and orient the physical feature of the intersection to safely and effectively exchange intersecting traffic between the two roadways. This involves making sure the traffic can physically traverse the intersection (dealing with the design vehicle traffic – typically large trucks), through computer graphic design and empirical analysis of volume carrying capacity decide on the appropriate number and type of traffic lanes to handle the pattern of traffic at the intersection, and evaluate and decide what the proper type of traffic control is needed to manage the traffic at the intersection.

Traffic Control Needs:

Detailed assessments of roadway corridors and/or intersections are conducted to determine the appropriate type of traffic control to be deployed. This assessment must ensure that all types of traffic control deployed work together to provide the traveling public with all the necessary information to traverse a roadway corridor and/or intersection safely and efficiently. This involves designing pavement markings and signs that coordinate with each other and are consistent with the major traffic controls, such as traffic signals. The assessment also involves determining the appropriate traffic control at intersections that governs the relationship between conflicting traffic movements, such as traffic signal control or stop signs. All related traffic control must be made to coordinate with the roadway geometric features.

3. What do you consider the most complicated part of the job?

Establishing and understanding the present capabilities of a roadway and/or intersection and rendering a judgment as to where those capabilities are lacking in meeting existing traffic needs and what will be required of that facility to meet growth and planned changes with a wide variety of traffic needs.

4. What laws, regulations, guidelines, manuals or other written established procedures are available to the incumbent?

Laws: Montana Codes Annotated, the Manual on Uniform Traffic Control Devices, and the National Electric Code.

Regulations: Department's Geometric Design Standards.

Guidelines and Manuals: AASHTO Green Book, Road Design Manual, Traffic Engineering Manuals, Institute of Transportation Engineers Documentation (Trip Generation, Traffic Engineering Handbook, Traffic Engineering Studies), TRB circulars, Highway Capacity Manual, Roadside Design Guide, etc.

5. Which of the duties and/or specific tasks listed under 1. (above) are considered "essential functions" which must be performed by this position (with or without accommodations)? (If you need information or training on the identification of essential functions, please contact MDT Human Resources Division.)

1. Analytical tasks
2. Ability to make Judgments and Recommendations
3. Ability to write written reports and give oral presentations
4. Computer Work
5. On-site field evaluations

6. If this position supervises other positions, complete the following information.

The number of FTE employees directly supervised is .

List the complexity levels/pay bands of each those subordinates .

Please list the Position Numbers for those directly supervised .

Is this position responsible for (please check ONLY those boxes which apply to the position and for which the position has "signatory" authority.)

☐ Hiring ☐ Layoffs/termination of temporary or seasonal workers
☐ Performance Management (conducting and signing performance appraisals as the direct supervisor or the reviewing manager) ☐ Promotions
☐ Direct /Line Supervision ☐ Leadworker ☐ Discipline
☐ Other:

7. Please attach an up-to-date Organizational Chart (or copy from a Power Point document into space below).

SECTION III - Minimum Qualifications - List the minimum requirements for **first day** of work. (These will be the minimum qualifications utilized for **recruitment and performance management purposes**; this information is not used for classification purposes.)

Please list the main knowledge and skill areas required for the job:

Knowledge: Extensive knowledge of Civil Engineering practices with specific emphasis on traffic engineering, operations, and codes concerning traffic control, signage, pavement delineation, accident analysis, statistics, dynamics of vehicular motion, highway geometrics, signal design and the logic behind various types of traffic control, intersection layout, study techniques for the analysis of problems and needs for existing and future conditions on a facility, considerable knowledge of the functions of traffic control equipment. Knowledge of standards, techniques, and engineering alternatives outlined in the Manual on Uniform Traffic Control Devices, AASHTO policies, and the Highway Capacity Manual. Knowledge of engineering mathematics.

Skills: Skill in the use of engineering instruments in the field (Diamond automated speed counters) and in the office (hand drafting tools and computers). Skill in the use of computer software programs (MicroStation-CADD, Microsoft Word, Excel, Highway Capacity software, etc.).

What behaviors are required to perform the duties? **NOTE:** Identifying behaviors used for recruitment and selection and other HR functions are part of building a competency model (see **Creating Competency Models** in Guide). A position description will provide helpful information if a model has not been developed. Often "abilities" from the current PD can be stated as desired and observable behaviors. For example, "the ability to communicate clearly in writing" can be restated "writes clearly and concisely".

Analyze and interpret motorist needs on transportation facilities.
Make individualized decisions.
Collects, prepares, and maintains technical notes and data.
Prepares technical engineering reports.
Read, interpret, and analyze engineering reports, plans, and specifications.
Communicates effectively orally and in writing.
Establish and maintain effective working relationships.

Education and experience: Please indicate the **minimum educational** requirements for this job, as it relates to a new employee on the **first day** of work (not the educational background of the person now in the position), the specific fields of study that are acceptable, and whether a Master's degree (in which fields) will substitute for any of the required job related experience.

Bachelor of Science degree in Civil Engineering or a related engineering degree.

Other training (e.g., software, specific machinery, etc.), certification (e.g., CPA, Professional Engineer, etc.), or licensing (e.g., commercial driver's, pilot, psychologist, etc.) required (please specify):

FE/EIT registration is required.

Please indicate the minimum, amount of **job-related work experience** needed as a new employee on the first day of work (not the experience of the person now in the position). Please indicate the specific types of experience that will be considered job-related.

Thirty Months of Highway engineering experience in project planning, design, construction, or maintenance.

☐ This agency will accept alternative methods of obtaining necessary qualifications.

For recruiting purposes please list specific examples of acceptable alternative methods of obtaining those qualifications. **These examples will appear on a vacancy announcement**.

CORE BEHAVIORS

CUSTOMER ORIENTATION/SERVICE
Creates an atmosphere in which timely and high quality information flows smoothly between self and customer. Encourages open, honest and constructive expression of ideas and opinions. Demonstrates active listening skills. Uses appropriate body language. Seeks to understand others' viewpoint. Analyzes the customer needs and adjusts to the perspective of the customer, when appropriate.

DECISION MAKING
Independently takes action and responsibility for solving problems. Makes decisions designed to achieve desired outcomes**.** Challenges the status quo by taking calculated actions in complex, ambiguous, contentious or hazardous situations to force an issue or set a direction.

PERSONAL ACCOUNTABILITY AND OWNERSHIP
Takes pride in the job. Actively engages in professional self-development opportunities. Accepts individual responsibility for all actions taken.

LEADERSHIP
Shares information, feedback and knowledge (two-way communication) with key persons inside and outside of the organization to ensure successful project outcomes and/or improvement. Includes training, teaching and coaching others. Actively steps into a leadership role.

ETHICS
Models high standards of honesty, integrity, trust, and openness. Knows, understands, and follows through with the correct standards of conduct and moral judgment required; is willing to act outside the norm when needed to adhere to ethical principles. Communicates and demonstrates actions

in a consistent manner. Respects others, regardless of individual capabilities, agendas, opinions or needs.

FLEXIBILITY AND ADAPTABILITY
Accepts change as a healthy and normal part of growth. Receptive to new information and recognizes the validity of various viewpoints; sees situations objectively. Responds positively to changes in direction and priorities, responsibilities or assignments. Adjusts to multiple demands, priorities, ambiguity and change positively. Works effectively within a variety of situations, individuals or groups.

TEAMWORK
Works cooperatively with others as part of a team as opposed to separately or competitively.

CREATIVITY AND PROBLEM-SOLVING
Generates ideas, fresh perspectives and original approaches; open-minded. Uses creativity and originality when problem-solving. Goes beyond traditional ways to address issues and problems.

SECTION IV – Other Important Job Information

List any other important information associated with this position, such as working conditions or other factors which are deemed critical or non-negotiable to the position and which will need to be included on the vacancy announcement or other recruitment documents. (This information will be NOT be used for classification purposes.) For example: The position is required to travel throughout the state in excess of 12,000 miles per year and to perform duties on active construction sites in proximity to heavy equipment, hot asphalt, and high speed traffic, requiring use of hard hats and specialized safety training. OR, This position is not subject to alternative work schedules or working from home as it is required to answer the phone and receive visitors for the agency between the hours of 8am to 5pm, Monday through Friday.

SECTION V – Signatures

My signature below indicates the statements in Section I to IV are accurate and complete.

Employee:		

Signature	**Title**	**Date**
Immediate Supervisor: **Signature**	 **Title**	 **Date**
Name: **Signature**	 **Title**	 **Date**
Division/District Administrator: **Signature**	 **Title**	 **Date**
Departmental Designee: **Signature**	 Chief, Employee Relations Bureau, Human Resources Division **Title**	 **Date**

Recruitment Review: My signature below attests to my review of and determination that the minimum qualifications (education and experience) listed in this profile meet the established recruitment standards of MDT.

Signature **Date:**

Name: **Title:** Human Resource Specialist (District/Helena)
Montana Department of Transportation

Upon completion of this section the preparer, district human resource specialist, or other signing authority should forward the signed hard copy and the electronic copy of this job profile (JP), along with an Agency Classification Request (ACR) and an up-to-date Organizational Chart (if not included in the body of the JP) to the Chief of the Employee Relations Bureau, Human Resources Division, MDT in Helena.

The electronic copy naming convention for JPs sent by the District or from Helena supervisors to Human Resources in Helena should be: (Position#)JP-MDT.doc (e.g., 34015JP-MDT.doc).

*******DO NOT FILL IN THIS PORTION*******

JOB EVALUATION FORM

This section is to be completed by a trained classifier in or contracted by the Human Resources Division, MDT or by State Personnel Division.

Prepared By David R. Brown, Human Resource Specialist	Date February 15, 2004

Position Status: ☒ Reclassified ☐ Vacant ☐ New Position ☒ Career Ladder

Choice of Class Series: The Engineering Series is appropriate because of the predominant engineering related duties.

Position Summary:

This position performs professional Traffic Engineering studies in both urban and rural roadway environments. The position is also responsible for geometric design of both urban and rural intersection, interchanges, and roadway sections using current geometric design practices and techniques. This position identifies traffic control needs for roadways, intersection, and/or freeway interchanges. This position also provides technical traffic engineering assistance to other offices both in the headquarters and the districts as well as local government and the general public.

Benchmark Factoring

Classification Factor Level: 6

The predominate work of this position consists of: Performing professional Traffic Engineering studies in urban and rural environments. This position is also responsible for geometric design of both urban and rural intersections, interchanges, and roadway sections using current geometric design practices and techniques, and identifies traffic control needs for roadways, intersections and/or freeway interchanges.

Factor level Comparison:

As provided in the rules of the state Position Review Form Guide under item 6, “Special Note: Identical Positions”, similar positions that have been factored may be referenced and use in lieu of factoring another position so similar that it would not have factored differently. This position 36047 is predominantly similar in function and level to position 36003 as it existed for factoring on November 5, 1995. This factoring is attached for position 36003.

Benchmark Comparisons:

Classifier Signature	**Title**	**Date**
Agency Approval:	**Title**	**Date**

Upon completion of this section the classifier should make certain that the Job Code Number, Job Code Title and Pay Band on the first page of this document accurately reflect the Choice of Class Series and classification factor level determined above. Attach Organizational Chart, Audit Notes or other pertinent information.

This completed document should now be filed by the classifier in: I:\Classref\Agencyjp\(agency#)\(filename).
File naming convention is: (jobcode&position#)jp(date).doc (e.g. 01850421001jp0201.doc, where date is: month year).