

Job Evaluation ReportCity Service Commission Meeting: June 8, 2021**Department of Public Works**

Current	Recommended
Engineering Drafting Technician I Engineering Technician I PR 3BN (\$33,102 - \$39,970) (Underfill Titles)	Engineering Drafting Technician I Engineering Technician I PR 3DN (\$38,042 - \$44,399) FN: Recruitment is at \$38,483 (Underfill Titles)
Engineering Drafting Technician II (20 Positions) Engineering Technician II (28 Positions) PR 3FN (\$38,508 - \$47,171)	Engineering Drafting Technician II (20 Positions) Engineering Technician II (28 Positions) PR 3FN (\$38,508 - \$47,171) FN: Recruitment is at \$42,030
Engineering Drafting Technician IV (26 Positions) *Engineering Technician IV (40 Positions) PR 3NN (\$44,949 - \$61,296) *FN: Recruitment is at \$45,185	Engineering Drafting Technician IV (26 Positions) Engineering Technician IV (40 Positions) PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$50,182
Engineering Drafting Technician V PR 3QN (\$52,893 - \$68,048) (5 Positions)	Engineering Drafting Technician V (5 Positions) Engineering Technician V (14 Positions) PR 3RN (\$53,597 - \$69,618) FN: Recruitment is at \$56,573
Engineering Technician V PR 3RN (\$53,597 - \$69,618) (14 Positions)	
Engineering Technician VI PR 2IN (\$58,462 - \$81,844) FN: Recruitment is at \$66,324 (10 Positions)	Engineering Technician VI PR 2IN (\$58,462 - \$81,844) FN: Recruitment is at \$67,596 and may be at any point in the range with DER approval. (10 Positions)
Public Works Inspector I PR 3HN (\$43,733 - \$50,649) FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (Underfill Title)	Public Works Inspector I PR 3HN (\$43,733 - \$50,649) FN: Recruitment is at \$45,620 FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (Underfill Title)
Public Works Inspector II PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$45,013 FN: \$40 biweekly for Water Construction Coordinator duties FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (38 Positions)	Public Works Inspector II PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$50,182 FN: \$40 biweekly for Water Construction Coordinator duties FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (41 Positions)
Bridges and Public Buildings Inspector PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$46,347 (3 Positions)	

Sidewalk Repair Specialist PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$49,344 (2 Positions)	Sidewalk Repair Specialist PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$55,201 (2 Positions)
Traffic Operations Assistant* (4 Positions) Engineering Intern (13 Positions)** PR 9PN (\$29,702 - \$37,357) *FN: Sophomores and juniors may be appointed up to \$1,265. **FN: Juniors may be appointed up to \$1,265; Seniors up to \$1,437.	Transportation Operations Assistant (4 Positions) Engineering Intern (13 Positions) PR 9PN (\$29,702 - \$37,357) FN: Recruitment is at \$37,357

Note: Residents receive a rate that is 3% higher.

Port Milwaukee

Current	Recommended
Engineering Technician IV PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$45,185 (1 Position)	Engineering Technician IV PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$50,182 (1 Position)

Note: Residents receive a rate that is 3% higher.

Background

The Department of Public Works has requested a market study to evaluate the rates of pay for various engineering technician and public works inspection positions due to difficulties with recruiting and retention. New job descriptions were analyzed and discussions were held with Timothy Thur – Infrastructure Administration Manager, Lindsey O'Connor – Infrastructure Services Personnel Officer, Patrick Pauly – Water Works Administration Manager, Amy Hefter – Water Works Personnel Officer, and Adam Tindall-Schlicht – Director of Port of Milwaukee. New rates of pay for these positions are based on an assessment of the cost of labor for these positions in Southeastern Wisconsin.

Duties and Responsibilities

Engineering Drafting Technician I & II
<u>DPW - Infrastructure - Administration & Central Services</u> <ul style="list-style-type: none"> • Use MicroStation and geographic information systems (GIS) software to produce technical drawings of the following: City and State paving, sewer, water, street lighting, traffic signals, parking meter layouts, and underground conduit, easements, and vacations. • Update engineering quarter sections and perform other mapping functions. • Compute mathematical calculations such as distances, areas, angles, and dimensions. • Maintain City records for sewers, street lighting, traffic signals, and underground conduit. • Order, compile, file, and distribute information related to City contracts. • Perform database entry for sewers, street lighting, and Diggers Hotline. • Support the Diggers Hotline by responding to customer inquiries. <u>DPW - Water Works – Water Engineering</u> <ul style="list-style-type: none"> • Update water system maps, water facility and construction plans using the current computer-aided drafting design software and database tracking software. • Request field location surveys; compile water service status reports, utility requests and other information for projects.

- Respond to Digger's Hotline requests by providing the necessary utility requests and other information for projects.
- Respond to Digger's Hotline requests by providing the necessary utility plans, as directed.
- Organize and assemble contract documents for the MWW Capital Improvement Program.
- File and maintain the plan storage, computer file storage and inspector reports.
- Review permits as assigned.

Engineering Drafting Technician I: One year of full-time drafting experience using AutoCAD or Micro Station. OR Successful completion of two semesters of high school and/or college-level drafting coursework.

Engineering Drafting Technician II: Two years of full-time civil engineering drafting experience.

Engineering Technician I & II

DPW - Infrastructure – Transportation – Operations

- Operate survey instruments to obtain angles, elevations, distances, points, and other survey information.
- Take survey notes by hand regarding a benchmark circuit, measurements for water or sewer, or preliminary measurements for a project.
- Make engineering-related mathematical computations involving algebra and geometry.
- Make precise measurements of completed construction work using an engineer's tape.
- Perform manual and automated drafting work and prepare field sketches.
- Assist in preparing designs and construction plans using Microstation, including charts, maps, graphs and drawings.
- Collect, analyze and record data for various purposes.
- Compile certificate work used for payments to contractors utilizing computer software such as Excel.
- Set transit lines, gathering data for cross section levels and establishing grades.
- Run surveys relative to various types of projects such as major arterials, properties, street and alley openings, streets, water mains, street repairs, and obstructions.
- Assist in transferring electronically collected data to CADD software to produce preliminary plans for design and sewer and water survey reports.

Engineering Technician I: Successful completion of high school algebra AND high school geometry; six months of full-time experience performing surveying; six months of full-time experience using MicroStation and/or AutoCAD.

Engineering Technician II: Two years of full-time experience performing field surveying.

DPW - Sewer – Environmental

- Field screen storm sewers, outfalls and roadside ditches to determine the presence of dry weather flow, estimate flow rate, take samples and perform tests.
- Prepare and install flow recorders and similar monitoring equipment in sanitary and storm maintenance holes.
- Perform the required checks on the City's Surcharge Level indicators and obtain electric meter readings generated by the City's bypass pumping stations after certain rain events.
- Download data from flow recorders, meters and other monitoring equipment on a regular basis.
- Prepare and update various charts, maps, graphs and drawings.
- Perform office duties including compiling, analyzing and recording data recovered from the charts and tests and hand delivering legal documents to various official entities such as Milwaukee County and the Milwaukee Metropolitan Sewerage District (MMSD).

Engineering Technician I: Successful completion of two semesters of algebra at the high school or college level OR six months of experience conducting water sampling other lab or field sampling.

Engineering Technician II: Two years of experience conducting water sampling or other lab or field sampling.

DPW – Infrastructure – Streets & Buildings

- Operate survey instruments to obtain angles, elevations, distances, points, and other survey information.
- Take survey notes by hand regarding a benchmark circuit, measurements for water or sewer, or preliminary measurements for a project.
- Make engineering-related mathematical computations involving algebra and geometry.
- Make precise measurements of completed construction work using an engineer's tape.
- Perform manual and automated drafting work and prepare field sketches.
- Assist in preparing designs and construction plans using MicroStation, including charts, maps, graphs and drawings.
- Assist in transferring electronically collected data to CADD software to produce preliminary plans for design and sewer and water survey reports.
- Collect, analyze and record data for various purposes.
- Compile certificate work used for payments to contractors, utilizing computer software such as Excel.
- Set transit lines, gathering data for cross section levels and establishing grades.
- Run surveys relative to various types of projects such as major arterials, properties, street and alley openings, streets, water mains, street repairs, and obstructions.
- Communicate with the public by telephone and in person.

Engineering Technician II: Successful completion of high school algebra AND high school geometry. Six months of full-time experience performing surveying. Six months of full-time experience using MicroStation and/or AutoCAD.

Engineering Technician II: Associates Degree in Civil Engineering Technology.

DPW - Water Works – Water Engineering

- Assist in the inspection of water main alterations, extensions, replacements and lead service line replacement projects.
- Enforce proper construction methods and MWW specifications. Ensure proper excavation, safety and traffic control procedures are implemented and followed.
- Inspect and test water main pipes, valves, hydrants, fittings, and all other material used as part of the MWW distribution system.
- Document inspections, including manual drafting, written documentation, data entry into computer software and the use of Global Positioning System (GPS) equipment.
- Provide customer outreach and communication for those affected by construction activities.
- Ensure the contractor provides adequate clean-up of the site when finished.
- Conduct testing and visual inspection of materials to ensure quality of supplies and project completion, including fire flow & hydrostatic testing, pressure testing, torque testing, and weights & measurements.
- Conduct hydrant flow tests to establish hydraulic analyses and studies and to determine system robustness.
- Conduct inspection of emergency leak repairs by contractors.
- Conduct field investigations to troubleshoot system anomalies such as pressure fluctuations and pumping operations.
- Prepare detailed written reports of inspections to document findings.
- Document contractor activities, assist with the inventory and inspection of repair materials, and complete work orders and requisitions.
- Install, monitor and report results from pressure recording devices.
- Assist with calibration of the MWW hydraulic model. Maintain communication with the Control Center regarding the status of the job.
- Consult with area management regarding contractor difficulties or complications.

Engineering Technician I: Successful completion of high school algebra AND high school geometry; six months of full-time experience performing surveying; six months of full-time experience using MicroStation and/or AutoCAD.
Engineering Technician II: duties similar to the essential function listed above.

Engineering Drafting Technician IV

DPW - Water Works – Water Engineering

- Using the current computer aided drafting design software and methods, prepare basic construction drawings, sketches and site plans for the Water Works Capital Improvement Program.
- Request field location surveys and compile water service status reports, utility requests and other information for projects.
- Respond to Diggers Hotline requests by providing necessary utility plans.
- Organize and assemble contract documents for the Water Works Capital Improvement Program.
- File and maintain the plan storage, computer file storage, and inspection reports.
- Assemble maps and records for City and outside agencies.
- Review permits.
- Update water system maps utilizing Geographic Information System (GIS) software and updated data.

Minimum requirements include four years of municipal or utility engineering technician experience as an Engineering Technician or Engineering Drafting Technician, including two years of experience using Computer Aided Drafting and Design software and/or Geographic Information System software performing drafting, design, and GIS map maintenance duties related to the essential functions of the position.

DPW – Infrastructure – Administration

- Draft construction plans for state and local paving, bridges, sewers, underground conduit, street lighting, and signals using manual or computer aided drafting (CAD) and geographic information system (GIS) software.
- Update permanent engineering records with as-built information.
- Update and maintain engineering databases, plat pages, and other records.
- Draft easement plans for sewers for construction projects and street vacations.
- Assist in training new employees by orienting them to the department and to the varying types of work projects.
- Perform departmental review of tasks such as street/alley vacations, right of way openings, oversized load permits, DPW permits, Diggers Hotline tickets, address assignments, honorary street names and sewer plans for underground conduit.
- Create custom maps in response to DPW and Aldermanic requests; assign manhole numbers and plan file numbers.
- Conduct research and train others for technical issues; troubleshoot and develop new drafting aids. Create timelines for work distribution for project completion.

Minimum requirements include regular status as a City of Milwaukee employee, having successfully completed a probationary period for a civil service position. Five years of drafting experience, with at least one year of experience as an Engineering Drafting Technician II or Engineering Technician II.

Engineering Technician IV

DPW - Infrastructure – Transportation – Operations

Engineering Technician IV

- Planning and design of underground conduit and manhole facilities, including material selection, location, routing, preliminary field investigation and final site layout.
- Preparation of underground conduit and manhole facility plans, specifications, cost estimates, and other bid documents for system installation.

- Evaluate manhole condition and assist in the development of an annual manhole repair and replacement program.
- Maintain a database of communication and electrical manholes and their condition.
- Maintain a database/inventory of conduit usage by various City agencies and other public and private utilities.
- Coordinate conduit/manhole installation activity with City and other public and private agencies and utilities.
- Compile and provide information to contractors, architects, public utilities, and City, County and State governmental agencies on current conduit and manhole facilities, and on City policies and practices related to the conduit system.
- Review and process permit requests, requests by private utilities to access and occupy City conduits and manholes, and assist in the development of occupancy and lease agreements for the use of City conduit and manholes.

Minimum requirements include an Associate's Degree in Civil Engineering or Engineering field and three years of related engineering or construction experience performing duties similar to the essential functions listed above. OR Five years of related engineering or construction experience performing duties similar to the essential functions listed above.

DPW - Water Works – Water Engineering

- Conduct thorough inspections and provide detailed documentation of water main alterations, extensions and replacements, as well as lead service line replacements.
- Assist in the coordination and scheduling of work associated with contracted projects.
- Oversee the overall construction project to ensure it is performed in a timely and cost effective manner.
- Approve or reject materials based upon specifications and acceptable tolerances.
- Communicate with MWW inventory staff as to the status of materials inspected and tested.
- Communicate material defect findings to vendors and manufacturers.
- Enforce proper construction methods and MWW specifications.
- Ensure proper excavation, safety and traffic control procedures are implemented and followed.
- Inspect and test water main pipes, valves, hydrants, fittings, and all other material used as part of the MWW distribution system.
- Document inspections, including manual drafting, written documentation, data entry into computer software and the use of Global Positioning System (GPS) equipment.
- Provide customer outreach and communication for those affected by construction activities.
- Ensure the contractor provides adequate clean-up of the site when finished.
- Conduct testing and visual inspection of materials to ensure quality of supplies and project completion, including fire flow & hydrostatic testing, pressure testing, torque testing, and weights & measurements.
- Conduct hydrant flow tests to establish hydraulic analyses and studies and to determine system robustness. Conduct inspection of emergency leak repairs by contractors.
- Conduct field investigations to troubleshoot system anomalies such as pressure fluctuations and pumping operations.
- Prepare detailed written reports of inspections to document findings.
- Document contractor activities, assist with the inventory and inspection of repair materials, and complete work orders and requisitions.
- Install, monitor and report results from pressure recording devices.
- Assist with calibration of the MWW hydraulic model. Maintain communication with the Control Center regarding the status of the job.
- Consult with area management regarding contractor difficulties or complications.

Minimum requirements include an Associate's Degree in Civil Engineering or Engineering field from an accredited college or university and two years of related engineering or construction experience performing duties similar to the essential functions listed above. OR Four years of experience as a municipal, utility engineering technician, surveying technician, public works inspector, or construction materials inspector performing work related to the essential functions of the position.

DPW – Water Works – Distribution

- Conduct thorough inspection and provide detailed documentation of lead service line replacement projects to completion.
- Enforce proper construction methods and MWW specifications.
- Consult with Distribution Managers for field alterations, if needed.
- Document bid quantities for payment processing.
- Assist with administration of the lead service line replacement program: process inspection reports and bid quantities for payment, enter project data into computer software systems, coordinate and schedule project with property owner, tenant and contractor to completion.
- Ensure MWW specified and inspected materials are properly handled and installed.
- Ensure proper excavation, safety, and traffic control procedures are implemented and followed.
- Provide information to and field questions from contractors, City staff, and the public regarding the status of projects; receive complaints, and recommend solutions or obtain direction from Engineering for resolution.
- Provide customer outreach and communications for those affected by the construction activities and ensure the contractor provides adequate clean-up of the site when finished.
- Oversee the overall project in a timely and cost-effective manner.
- Conduct inspection of emergency leak repairs by contractors as needed.
- Document contractor activities, assist with repair materials and complete work orders and requisitions.
- Maintain communication with Control Center regarding the status of the job.
- Consult with Distribution Management regarding contractor difficulties or complications.
- Document job details and provide to section management.
- Assist with distribution system leak survey program.

Minimum requirements include an Associate's Degree in Civil Engineering or Engineering field and two years of related engineering or construction experience performing duties similar to the essential functions listed above. OR Four years of related engineering or construction experience performing duties similar to the essential functions listed above.

DPW - Infrastructure - Facilities Management

- Assist with contacting contractors for bids and construction related information.
- Prepare estimates for paving projects, including quantities and unit pricing.
- Create plans and specifications for small paving projects and coordinate their construction.
- Conduct field surveys and assist with condition assessments.
- Research records, reports and files for data input.
- Prepare and maintain records, reports and files, including but not limited to the certification and maintenance of underground storage tanks and fueling systems.
- Plan and direct paving projects, including maintaining storm water pollution prevention plans.

Minimum requirements include an Associate's Degree in Civil Engineering or Engineering field and two years of related engineering or construction experience performing duties similar to the essential functions listed above. OR Four years of related engineering or construction experience performing duties similar to the essential functions listed above.

DPW – Infrastructure - Street Lighting

- Review permit requests for impact on City street lighting facilities.
- Compile and provide information on current lighting facilities, required work, and agencies for which work is needed (e.g. public utilities, contractors, City, County or State government agencies).
- Coordinate the protection, adjustment or relocation of street lighting facilities in conjunction with City projects or to accommodate other construction projects.
- Maintain records and perform all planning and design work related to the installation, operation, maintenance or removal of City alley lighting facilities.
- Receive and investigate complaints and requests for additional lighting facilities from alderman and City residents.
- Perform planning, drafting, field investigation, feasibility studies, data gathering, final site layout, plan preparation, cost estimates, work orders, time table and material lists in conjunction with street lighting capital improvement projects.

Minimum requirements include an Associate's Degree in Civil Engineering or Engineering field and two years of related engineering or construction experience performing duties similar to the essential functions listed above. OR Four years of related engineering or construction experience performing duties similar to the essential functions listed above.

Port Milwaukee – Engineering Division

- Inspect sewer, water, paving and asphalt resurfacing construction projects to ensure compliance with plans and specifications guaranteeing that the line and grade points comply with plans and specification.
- Gather, analyze and record data to prepare written reports, including sketches, for regularly scheduled inspection of Port facilities; private and public dockwalls; public safety and conceptual development projects.
- Perform land survey calculations and measurements involving algebra, geometry and trigonometry, plotting for harbor waterways, drafting, and inspecting Port facilities and public/private dock walls. Calculations involve algebra, geometry and trigonometry.
- Perform manual and computer aided drafting; prepare field sketches, charts, maps, graphs and drawings.
- Maintain computer hardware, software and program applications under direction of the Civil Engineer III.
- Organize engineering records, drawings, pictures and files for ease of retrieval.
- Collect and transport various terminal samples and perform tests as required.
- Provide team assistance for measuring and plotting harbor water depth.
- Operate outboard motor and sounding equipment as required.
- Promote good relations with contractors and with the public.
- Maintain computer hardware, software and program applications under direction of the Harbor Engineer
- Coordinate and oversee the design and maintenance of Port's water system with Milwaukee Water Works, Port tenants and customers
- Provide technical support to the Port Director, the Board of Harbor Commissioners, Wisconsin Commercial Ports Association, and other key stakeholders and Port partners.
- Serve as department liaison to City's Information Technology Management Division and main technology contact for Port staff.

Minimum requirements include an Associate's Degree in Civil Engineering or related field. OR 4-6 related engineering and/or construction experience. Two years of drafting/mechanical drawing course work with ability for creative drawing. One year experience equivalency in Engineering Technician I duties and responsibilities. Basic working knowledge of computer hardware maintenance and network systems operations. Working knowledge of Microsoft Office, CAD, MicroStation and ACT.

Engineering Drafting Technician V**DPW - Infrastructure - Administration & Central Services**

- Prioritize, assign, coordinate and review drafting work, such as, sewer, street lighting, underground conduit, bridges and paving with Engineering Technician II and IV.
- Modify software databases and programs for sewers, street lighting, underground conduit and paving.
- Review and communicate with utilities in regards to locations, permits and WisDOT Trans220/DT1077 forms.
- Maintain official maps, quarter sections and plat pages.
- Prepare right-of-way projects including openings, right-of-way vacations and easements.
- Review certified survey maps and subdivision plats.
- Conduct investigations and prepares responses to Aldermanic and citizen complaints.
- Maintain as-built plans for sewer, street lighting and underground conduit.
- Oversee Diggers Hotline requests, printing operation and storeroom.

Minimum requirements include five years of civil engineering drafting experience, with at least one year at the level of an Engineering Drafting Technician IV or Engineering Technician IV performing essential functions related to this position.

Engineering Technician V**DPW – Infrastructure – Streets and Bridges**

- Prepares field plans (existing levels and location) and surveys relative to grade separation, structures, major arterials, properties, street and alley openings, vacations, streets, sewers, water mains, tunnels, dredging, street repairs, obstructions, drainage complaints and other miscellaneous projects assigned to this section.
- Checks land descriptions, plats of surveys, and subdivisions.
- Designs and prepares paving plans for all streets and alleys under City jurisdiction.
- Designs and prepares plans for special streetscape treatments, alignments, etc.
- Designs major arterials for State and/or Federal Aided projects, as requested.
- Performs line and grade layout prior to construction for paving sewer, water, bridges, etc.
- Measures completed work for sewer and street projects.
- Prepares certificates of completed street construction work showing quantities of work actually done by contract.
- Coordinates, directs, plans and organizes the activities of the field crew.
- Trains personnel in field work and designs.
- Prepares estimates of quantities and costs for proposed paving projects.

Minimum requirements include five years of experience in field engineering, at least two years of which must have been at the level of an Engineering Technician IV, or a Civil Engineer I, performing duties related to the Essential Functions listed above.

Public Works Inspector I**DPW – Infrastructure – Streets and Bridges**

- Inspect the construction of sewer, water, paving, and asphalt resurfacing projects to ensure compliance with plans and specifications.
- Determine that all materials and quality of work meet established standards.
- Ensure that line and grade points comply with markings on the engineers' stakes.
- Prepare accurate daily records, including making sketches of work in progress or completed work and technical project changes.
- Interpret plans to ensure that installations are in compliance with legal requirements, safety regulations and construction standards.

- Serve as the first point of contact for questions from contractors, City staff, and the public regarding the status of projects; receive complaints and recommend solutions or escalate to a manager for resolution.

Minimum requirements include two years of experience in an engineering or technical field position, such as construction lead worker, construction inspection, or as a surveyor performing duties related to the essential functions above. OR Twelve months of full-time experience as a City of Milwaukee Infrastructure Repair Crew Leader, Engineering Technician II or a higher-level position performing duties related to the essential functions above. OR Associate degree in engineering or a related technical program from an accredited college or university.

Sidewalk Repair Specialist

DPW – Administrative Services – Contract Administration

- Responsible for preparing, coordinating and implementing of the Divisions annual sidewalk programs worth approximately \$1.5 million.
- Determine contract areas for the Divisions sidewalk replacement programs. Notify other city agencies and utilities of proposed contract locations and scope.
- Survey properties for defective sidewalk, compile property data including approximate assessable/non-assessable determination for the contract.
- Prepare letters for property owners. Act as the Divisions representative for all inquiries from property owners and public officials on sidewalk contract matters.
- Direct and coordinate activities of contractors. Enforce Divisions specifications, accept completed work and direct guarantee replacement.
- Generate and keep data current for the Sidewalk replacement programs in Excel spreadsheets.
- Prepare accurate daily reports of work completed by contractors. Reports are used as a basis of payment to contractors.
- Approves and submits sidewalk repair orders used to prepare assessment bills sent to property owners.
- Instruct, train and direct Public Works Inspectors assigned to assist in developing the annual sidewalk program.

Minimum requirements include a minimum of 5 seasons experience in street and/or sidewalk construction with a minimum of 2 years at the level of Public Works Inspector II. OR a minimum of 2 years of sub-professional civil engineering experience at the level of Infrastructure Repair Crew Leader, Engineering Technician II or higher.

Bridges and Public Buildings Inspector

DPW – Infrastructure – Construction Management

- Inspects new building construction and alteration projects to insure compliance with contract documents. Building systems to be inspected include roofing, heating and ventilating and air conditioning, plumbing, life safety, electrical and structural including power and lighting, reinforced concrete, structural steel, underground tanks, masonry, precast concrete, etc.
- Monitors progress of all contractors and subcontractors, and assists contractors in the coordination of overall project to meet construction schedules.
- Performs inspections on multiple projects on a daily basis.
- Prepares daily inspection reports, interviews contractor's employees and prepares reports of wage and hour information, contract compliance and monthly summary reports and minutes on construction progress meetings.
- Inspects site work on building projects including landscaping, sewer, water and paving work.
- Inspects condition of existing buildings and prepares evaluations as part of long term capital and maintenance planning.

Minimum requirements include a minimum of 2 years of full time experience as a Public Works Inspector I in Construction or Public Works Inspector 1 in Field Operations.

DPW – Infrastructure – Facilities

- Inspect building systems including roofing, underground tanks, heating, ventilating and air conditioning, plumbing, life safety, electrical and structural components.
- Monitor progress of all contractors and subcontractors, and assist contractors in the coordination of overall project to meet construction schedules.
- Perform inspections on multiple projects on a daily basis.
- Prepare daily inspection reports, interview contractor's employees and prepare reports of wage and hour information, contract compliance and monthly summary reports, and minutes on construction progress meetings.
- Inspect site work on building projects including landscaping, sewer, water and paving work.
- Inspect condition of existing buildings and prepare evaluations as part of long-term capital and maintenance.

Minimum requirements include regular status as a City of Milwaukee employee, having successfully completed a probationary period for a civil service position; State of Wisconsin Department of Health Services Asbestos Supervisor certification within one year of appointment and throughout employment; Two years of full-time work experience as a Public Works Inspector I.

Transportation Operations Assistant

DPW – Infrastructure

- Perform field observations of traffic conditions; collect data relative to people walking, biking and driving, motor vehicle speeds, traffic signal operations and curbside usage.
- Assist staff in the field layout of traffic control devices.
- Prepare engineering plans for various pedestrian, bicycle and traffic safety improvement projects.
- Summarize and enter traffic data into Excel and geographic information system (GIS) databases.
- Prepare graphics, maps and other displays for community engagement events.
- Prepare work orders for the installation of bicycle racks, signs, and pavement markings.
- Assist in the drafting of various plans and policies related to Complete Streets, mobility, innovation and other multimodal improvements.

Minimum requirements include current enrollment as a sophomore or higher at an accredited college or university in urban planning, civil engineering, transportation planning, architecture, urban studies, public policy, public administration or a closely related field.

Engineering Intern

DPW – Infrastructure

- Assist engineers with record keeping, design plans and specifications.
- Assist engineers with field inspections.
- Assist engineering technicians with field work and record keeping.
- Assist DPW inspectors with project inspections and record keeping.
- Input data for maintaining the City of Milwaukee Road Life files.
- Assist in the distribution of notices to property owners around construction sites.
- Assist engineers with stormwater management charge calculations.
- Assist field technicians with outfall testing, smoke and dye testing and sanitary flow monitoring work.
- Conduct traffic counts and/or complete streets activities.
- Assist with the collection of traffic data, including signing and marking.

Minimum requirements include current enrollment as a sophomore or higher in an accredited college or university in pre-civil engineering, construction management, civil engineering, public works inspection, or a closely related program.

Market Rates of Pay

In conducting a cost of labor analysis for these titles, staff conducted an analysis of market rates of pay from the Economic Research Institute (ERI), and the US Bureau of Labor Statistics (BLS) salary survey services to which the Department of Employee Relations subscribes.

Drafting Technician, ERI

Years of Experience	10th Percentile	25th Percentile	Survey Mean	75th Percentile	90th Percentile
7	\$43,294	\$46,741	\$51,436	\$55,935	\$60,631
6	\$41,895	\$45,259	\$49,771	\$54,083	\$58,607
5	\$40,399	\$43,702	\$48,046	\$52,154	\$56,494
4	\$38,801	\$42,061	\$46,270	\$50,167	\$54,308
3	\$37,107	\$40,330	\$44,445	\$48,144	\$52,070
2	\$35,345	\$38,508	\$42,567	\$46,104	\$49,809
1	\$33,573	\$36,610	\$40,625	\$44,051	\$47,560

Source: ERI as of 04/01/2021

ERI defines a Drafting Technician as a position that creates or readjusts basic, detailed, and complex drawings, drawing components, maps, and drafting documents utilizing a computerized drafting system; and scans and alters drawings, applying general knowledge of drafting technology; Drafts preliminary design sheets based on standards and typical drawing components for review by Engineers; Creates new drawings, converts film to computer aided design, plots vendor supplied electronic prints, compiles drawing packages for projects, creates graphics for area procedures, and creates specialized drawings as needed.

Civil Engineering Technician, ERI

Years of Experience	10th Percentile	25th Percentile	Survey Mean	75th Percentile	90th Percentile
7	\$52,850	\$57,254	\$63,187	\$68,874	\$74,681
6	\$51,138	\$55,377	\$61,109	\$66,597	\$72,218
5	\$49,347	\$53,403	\$58,918	\$64,193	\$69,614
4	\$47,495	\$51,350	\$56,632	\$61,680	\$66,887
3	\$45,594	\$49,245	\$54,275	\$59,083	\$64,064
2	\$43,647	\$47,119	\$51,877	\$56,431	\$61,176
1	\$41,646	\$44,987	\$49,476	\$53,763	\$58,262

Source: ERI as of 04/01/2021

ERI defines Civil Engineering Technician as a position that answers civil engineering problems, using the principles and theories of science, engineering, and mathematics; Assists Civil Engineer in planning the building of highways, buildings, bridges, dams, wastewater treatment systems, and other structures, and performs related surveys and studies; Helps Civil Engineer in application of principles, methods, and techniques of civil engineering technology; Work is more limited in scope and more practically oriented than that of scientists and engineers.

Construction Inspector, ERI

Years of Experience	10th Percentile	25th Percentile	Survey Mean	75th Percentile	90th Percentile
7	\$62,778	\$68,498	\$76,069	\$83,469	\$90,897
6	\$60,955	\$66,500	\$73,857	\$81,042	\$88,271
5	\$59,025	\$64,379	\$71,506	\$78,459	\$85,474
4	\$57,005	\$62,153	\$69,033	\$75,739	\$82,524
3	\$54,921	\$59,847	\$66,466	\$72,909	\$79,450
2	\$52,802	\$57,491	\$63,834	\$70,004	\$76,290
1	\$50,671	\$55,124	\$61,178	\$67,064	\$73,086

Source: ERI as of 04/01/2021

ERI defines Construction Inspector as a position that inspects construction of bridges, buildings, dams, highways, and other types of construction work to ensure that procedures and materials comply with plans and specifications; Measures distances to verify accuracy of dimensions of structural installations and layouts; Verifies levels, alignment, and elevation of installations, using surveyor's level and transit; Observes work in progress to ensure that procedures followed and materials used conform to specifications; Examines workmanship of finished installations for conformity to standard and approves installation; Interprets blueprints and specifications for contractor and discusses deviations from specified construction procedures to ensure compliance with regulations governing construction.

The following tables provide wage information from BLS for Civil Engineering Technologists and Surveying and Mapping Technicians in the greater Milwaukee metropolitan area.

Civil Engineering Technologist
Milwaukee-Waukesha-West Allis Metro Area

10th Percentile	25th Percentile	Median Wage	75th Percentile	Annual 90th Percentile
\$34,507	\$42,177	\$56,406	\$69,809	\$80,733

Source: BLS. Published in May of 2019; aged by 2% to approximate 2020-2021 rates.

BLS defines Civil Engineering Technologist as a positions that applies theory and principles of civil engineering in planning, designing, and overseeing construction and maintenance of structures and facilities under the direction of engineering staff.

Surveying and Mapping Technicians
Milwaukee-Waukesha-West Allis Metro Area

10th Percentile	25th Percentile	Median Wage	75th Percentile	Annual 90th Percentile
\$34,517	\$41,024	\$49,439	\$58,915	\$70,196

Source: BLS. Published in May of 2019; aged by 2% to approximate 2020-2021 rates.

Perform surveying and mapping duties, usually under the direction of an engineer, surveyor, cartographer, or photogrammetrist, to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of maps.

City of Madison Comparisons

The City of Madison has comparable titles of Construction Inspector 1 and Construction Inspector 2, which are responsible for performing duties similar to those of Public Works Inspector, Engineering Technician, Engineering Drafting Technician, and Building and Bridges Inspector. Job duties for the City of Madison's Construction Inspector 1 & 2 include:

- Assist in the inspection of storm and sanitary sewer, curb and gutter, asphalt and concrete pavement, and sidewalk for conformance to specifications.
- Assist survey crew with a variety of tasks as related to public works construction projects. Maintain assigned equipment.
- Use computerized maps to locate underground storm and sanitary facilities. Mark in field according to established procedures.
- Conduct field inspections using handheld GPS data collector.
- Perform utility marking and locating.
- Perform related work as required

Minimum requirements include Possession of a bachelor's degree in civil engineering. -OR- Possession of an associate degree in Civil Engineering Technology, Engineering Design, or related field.

The City of Madison's salaries for these titles are significantly higher than the City of Milwaukee's current salaries for comparable positions.

Construction Inspector 1					
Annual	Step 1	Step 2	Step 3	Step 4	Step 5
Base	55,579.68	57,508.36	59,090.20	61,372.74	64,952.94
Construction Inspector 2					
Annual	Step 1	Step 2	Step 3	Step 4	Step 5
Base	59,090.20	61,376.64	64,094.16	66,678.04	70,500.82

Analysis

The Department of Public Works has requested a study to evaluate pay for the following positions:

Title	Pay Range	# of Positions	Currently Vacant
Engineering Drafting Technician I	PR 3BN (\$33,102 - \$39,970)	(Underfill Title)	(Underfill Title)
Engineering Technician I	PR 3BN (\$33,102 - \$39,970)	(Underfill Title)	(Underfill Title)
Engineering Drafting Technician II	PR 3FN (\$38,508 - \$47,171)	(20 Positions)	(9 Vacancies)
Engineering Technician II	PR 3FN (\$38,508 - \$47,171)	(28 Positions)	(23 Vacancies)
Engineering Drafting Technician IV	PR 3NN (\$44,949 - \$61,296)	(26 Positions)	(7 Vacancies)
Engineering Technician IV	PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$45,185	(41 Positions)	(19 Vacancies)
Engineering Technician V	PR 3RN (\$53,597 - \$69,618)	(14 Positions)	(5 Vacancies)
Engineering Drafting Technician V	PR 3QN (\$52,893 - \$68,048)	(5 Positions)	(1 Vacancy)
Engineering Technician VI	PR 2IN (\$58,462 - \$81,844) FN: Recruitment is at \$66,324	(10 Positions)	(2 Vacancies)
Public Works Inspector I	PR 3HN (\$43,733 - \$50,649)	(Underfill Title)	(Underfill Title)

Public Works Inspector II	PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$45,013	(38 Positions)	(8 Vacancies)
Bridges and Public Buildings Inspector	PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$46,347	(3 Positions)	(0 Vacancies)
Sidewalk Repair Specialist	PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$49,344	(2 Positions)	(0 Vacancies)
Engineering Intern	PR 9PN (\$29,702 - \$37,357) FN: Juniors may be appointed up to \$1,265; Seniors up to \$1,437	(13 Positions)	(10 Vacancies)
Traffic Operations Assistant	PR 9PN (\$29,702 - \$37,357) FN: Sophomores and juniors may be appointed up to \$1,265	(4 Positions)	(3 Vacancies)

DER Recruitments

Based on an analysis of DER Staffing Services prior recruitment efforts listed below, it is apparent that prior recruitments have attracted few qualified/viable applicants, often leading to few hires in comparison to the number of applicants.

2015 – 2020 Recruitments

Title	Applicants	Rejects	MMQ	No Shows	Fails	Withdrew	Struck	Eligible List	Hired
Engineering Technician I & II	236	124	29	18	5	22	5	19	14

Title	Applicants	Rejects	MMQ	No Shows	Fails	Withdrew	Struck	Eligible List	Hired
Engineering Drafting Technician I & II	219	76	143	50	8	9	2	76	40

The department indicated that it has become increasingly difficult to recruit and retain employees in the above mentioned titles. The current vacancy rate for these positions is 42%, with employees remaining employed within these titles for an average of one year, often voluntarily terminating employment for higher paying positions with other municipalities. Due to vacancies and turnover within these titles, the department has had to outsource projects to consultants to meet deadlines.

Therefore, based upon the current vacancy rate, the cost of labor in southeastern Wisconsin, and the difficulty in recruiting qualified candidates, this report recommends the following changes to classification and rates of pay to assist departments with retaining quality candidates:

Current	Recommended
Engineering Drafting Technician I Engineering Technician I PR 3BN (\$33,102 - \$39,970) (Underfill Titles)	Engineering Drafting Technician I Engineering Technician I PR 3DN (\$38,042 - \$44,399) FN: Recruitment is at \$38,483 (Underfill Titles)
Engineering Drafting Technician II (20 Positions) Engineering Technician II (28 Positions) PR 3FN (\$38,508 - \$47,171)	Engineering Drafting Technician II (20 Positions) Engineering Technician II (28 Positions) PR 3FN (\$38,508 - \$47,171) FN: Recruitment is at \$42,030
Engineering Drafting Technician IV (26 Positions) *Engineering Technician IV (41 Positions) PR 3NN (\$44,949 - \$61,296) *FN: Recruitment is at \$45,185	Engineering Drafting Technician IV (26 Positions) Engineering Technician IV (41 Positions) PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$50,182
Engineering Drafting Technician V PR 3QN (\$52,893 - \$68,048) (5 Positions)	Engineering Drafting Technician V (5 Positions) Engineering Technician V (14 Positions) PR 3RN (\$53,597 - \$69,618) FN: Recruitment is at \$56,573
Engineering Technician V PR 3RN (\$53,597 - \$69,618) (14 Positions)	
Engineering Technician VI PR 2IN (\$58,462 - \$81,844) FN: Recruitment is at \$66,324 (10 Positions)	Engineering Technician VI PR 2IN (\$58,462 - \$81,844) FN: Recruitment is at \$67,596 and may be at any point in the range with DER approval. (10 Positions)
Public Works Inspector I PR 3HN (\$43,733 - \$50,649) FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (Underfill Title)	Public Works Inspector I PR 3HN (\$43,733 - \$50,649) FN: Recruitment is at \$45,620 FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (Underfill Title)
Public Works Inspector II PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$45,013 FN: \$40 biweekly for Water Construction Coordinator duties FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (38 Positions)	Public Works Inspector II PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$50,182 FN: \$40 biweekly for Water Construction Coordinator duties FN: Additional \$80 biweekly for "Resident (Lead) Inspector" (41 Positions)
Bridges and Public Buildings Inspector PR 3LN (\$42,539 - \$59,095) FN: Recruitment is at \$46,347 (3 Positions)	
Sidewalk Repair Specialist PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$49,344 (2 Positions)	Sidewalk Repair Specialist PR 3NN (\$44,949 - \$61,296) FN: Recruitment is at \$55,201 (2 Positions)
Traffic Operations Assistant* (4 Positions) Engineering Intern (13 Positions)** PR 9PN (\$29,702 - \$37,357)	Transportation Operations Assistant (4 Positions) Engineering Intern (13 Positions) PR 9PN (\$29,702 - \$37,357)

*FN: Sophomores and juniors may be appointed up to \$1,265. **FN: Juniors may be appointed up to \$1,265; Seniors up to \$1,437.	FN: Recruitment is at \$37,357
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Note: Residents receive a rate that is 3% higher.

Action Required – Effective Pay Period 14, 2021 (June 27, 2021)

In the Salary Ordinance

Under Pay Range 3BN

Delete the titles of 'Engineering Drafting Technician I' and 'Engineering Technician I'.

Under Pay Range 3DN

Add the titles of 'Engineering Drafting Technician I' and 'Engineering Technician I'.

Create footnotes (3) and (6) and add to the titles of 'Engineering Drafting Technician I' and 'Engineering Technician I'.

(3) Recruitment is at the following rate:

Biweekly	1,480.11
Annual	38,482.86

(6) Recruitment is at the following rate:

Biweekly	1,524.51
Annual	39,637.26

Under Pay Range 3FN

Create footnotes (2) and (4) and add to the titles of 'Engineering Drafting Technician II' and 'Engineering Technician II'.

(2) Recruitment is at the following rate:

Biweekly	1,616.54
Annual	42,030.04

(4) Recruitment is at the following rate:

Biweekly	1,665.04
Annual	43,291.04

Under Pay Range 3HN

Create footnotes (3) and (6) and add to the title of 'Public Works Inspector I':

(3) Recruitment is at the following rate:

Biweekly	1,754.63
Annual	45,620.38

(6) Recruitment is at the following rate:

Biweekly	1,807.27
Annual	46,989.02

Under Pay Range 3LN

Delete footnotes (6) and (13).

Delete and replace footnotes (1) and (8) and add to the title of 'Public Works Inspector II':

(1) Recruitment is at the following rate:

Biweekly	1,930.09
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Annual	50,182.34
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(8) Recruitment is at the following rate:

Biweekly	1,987.99
Annual	51,687.74

Under Pay Range 3NN

Delete and replace footnotes (1) and (4) and add to the titles of 'Engineering Drafting Technician IV' and 'Engineering Technician IV':

(1) Recruitment is at the following rate:

Biweekly	1,930.09
Annual	50,182.34

(4) Recruitment is at the following rate:

Biweekly	1,987.99
Annual	51,687.74

Delete and replace footnotes (3) and (6) and add to the titles of 'Sidewalk Repair Specialist':

(3) Recruitment is at the following rate:

Biweekly	2,123.10
Annual	55,200.60

(6) Recruitment is at the following rate:

Biweekly	2,186.79
Annual	56,856.54

Under Pay Range 3QN

Delete the title of 'Engineering Drafting Technician V'

Under Pay Range 3RN

Add the title 'Engineering Drafting Technician V'

Create footnotes (1) and (2) and add to the title of "Engineering Drafting Technician V" and "Engineering Technician V":

(1) Recruitment is at the following rate:

Biweekly	2,175.91
Annual	56,573.66

(2) Recruitment is at the following rate:

Biweekly	2,241.19
Annual	58,270.94

Under Pay Range 2IN

Delete and replace footnotes (3) and (6) for the title of 'Engineering Technician VI':

(3) Recruitment is at the following rate and may be at any point in the range with the approval of DER:

Biweekly	2,599.87
Annual	67,596.62

(6) Recruitment is at the following rate and may be at any point in the range with the approval of DER:

Biweekly	2,677.87
Annual	69,624.62

Under Pay Range 9PN

Delete footnotes (3) and (6).

Delete and replace footnotes (1) and (4) for the titles of 'Engineering Intern' and 'Transportation Operations Assistant'

(1) Recruitment is at the following rate:

Biweekly	1,436.80
Annual	37,356.80

(4) Recruitment is at the following rate:

Biweekly	1,479.90
Annual	38,477.40

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