



4/28/22

## Now hiring: Transportation Engineer II/III

### AGENCY

The Metropolitan Washington Council of Governments (MWCOCG or simply COG) is an independent, nonprofit association that brings area leaders together to address major regional issues in the District of Columbia, suburban Maryland, and Northern Virginia. The National Capital Region Transportation Planning Board (NCRTPB or simply TPB) is the federally designated Metropolitan Planning Organization (MPO) for the Washington, D.C. metropolitan area. The TPB is also one of three policy boards that operate at COG. COG is the administrative agent for the TPB, and the TPB is staffed by COG's Department of Transportation Planning (DTP). COG has a staff of about 120 employees, half of whom work in the DTP. COG was founded in 1957. The TPB was created in 1965 and became associated with COG in 1966.

### CONTEXT

COG's DTP is divided into five teams. The largest of these teams is the Travel Forecasting and Emissions Analysis team, which currently has 16 people and whose mission is to provide technical services to both TPB and COG in the areas of 1) regional travel demand forecasting and 2) the estimation of and planning for air pollution from motor vehicles, known as mobile emissions.

The team is divided into two groups: the Model Development Group (MDG) and the Model Application Group (MAG). The mission of the MDG is to develop, maintain, and improve the TPB's regional travel demand forecasting models. The MDG is responsible for developing, maintaining, applying, and improving the TPB's family of regional travel demand forecasting models. At any given time, the COG/TPB staff maintains at least two travel demand models: 1) one or more production-use travel models; 2) one or more developmental travel models. The mission of the MAG is to apply the production-use travel model to regional and corridor studies, including the development of the region's Long-Range Transportation Plan (LRTP) and an assessment of air quality impacts of the LRTP, using the U.S. Environmental Protection Agency's (EPA) Motor Vehicle Emission Simulator (MOVES) model. Transportation networks are an important input to the regional model, and both groups support network development.

### JOB OFFER

COG/TPB seeks to hire a transportation engineer to work in its Model Development Group (MDG), to be filled at one of two levels, Transportation Engineer II (Grade 7) or Transportation Engineer III (Grade 8), depending on qualifications (see below). The Transportation Engineer position will serve under the direction of a Senior Engineer or Principal Engineer and will focus on a variety of challenging technical tasks. While TPB staff currently maintains an aggregate, trip-based regional travel demand model, known as Generation 2, or Gen2, Model, for production use, staff are also developing the TPB's next-generation, activity-based travel demand model, known as the Generation 3, or Gen3, Model, with consultant assistance. Additionally, a third line of development occurs because of COG's affiliation with the ActivitySim Consortium, a group of 11 public-sector agencies, which guides the development of the open-source ActivitySim software, which is a major component of COG/TPB's Gen3 Travel Model.

COG/TPB is seeking someone who can perform professional-level work in support of activities such as running, developing, maintaining, and/or improving the TPB's regional travel demand forecasting models. This is a technical position requiring strong quantitative skills and a solid understanding of travel demand forecasting processes, computer programming, and transportation planning principles. This person should be passionate about learning, improving technical skills, public service, and making significant contributions that will improve the agency and the region. Work is performed under the general supervision of a higher-level transportation engineer/program manager, but the candidate should exhibit a certain degree of independence and self-direction. COG/TPB offers a friendly, collegial work environment, challenging technical work, with competitive pay and benefits in the Nation's Capital.

### Minimum Qualifications

- **Transportation Engineer 2:** Either 1) Master's degree in transportation engineering, civil engineering, transportation planning, urban planning, computer science, or a related field. OR 2) Bachelor's degree in a related or non-related field and two years of applicable work experience. OR 3) Any combination of education, experience, and training that is equivalent to one of the two preceding qualifications, as demonstrated by college-level courses in areas such as Mathematics, Operations Research, Quantitative Analysis, Statistics, and Computer Modeling.
- **Transportation Engineer 3:** Either 1) Master's degree in transportation engineering, civil engineering, transportation planning, urban planning, computer science, or a related field and two years of applicable work experience. OR 2) Bachelor's degree in a related or non-related field and three years of applicable work experience. OR 3) Any combination of education, experience, and training that is equivalent to one of the two preceding qualifications, as demonstrated by college-level courses in areas such as Mathematics, Operations Research, Quantitative Analysis, Statistics, and Computer Modeling.
- Ability to work cooperatively in a team environment within and between COG departments.
- Strong analytical and problem-solving skills, with an ability to interpret technical findings and share them with general audiences.
- Solid verbal and written communications skills.
- Strong familiarity with standard business software (Excel, Word and PowerPoint).
- Experience with the standard four-step urban transportation planning process and theory.
- Familiarity with emissions modeling (EPA's Mobile or MOVES mobile emissions models) and theory.
- Interest in regional planning, air quality planning and travel demand modeling.

### Ideal Candidate (one or more of these)

- Passionate about learning, improving technical skills, public service, and making significant contributions that will improve the agency and the region.
- Ability to be a change agent, particularly regarding technical methods.
- Familiarity with both trip-based and activity-based travel demand forecasting models.
- Experience with travel demand forecasting software, such as Cube Voyager.
- Experience with statistical estimation software, such as R, SAS, Alogit, NLOGIT, Biogeme, and/or Larch.
- Experience with geographic information system (GIS) software, such as ArcGIS or QGIS.

- Experience with one or more computer programming languages, such as with R, Python, and Visual Basic .NET (VB.NET)
- Experience with software development principles
- Experience with version control software and/or bug-tracking software
- Knowledge of database management systems (DBMSs).
- Experience with scenario planning and greenhouse gas estimation tools (e.g., VisionEval).
- Experience with EPA's MOVES model.

### **Examples of Work**

- Assists with running, developing, maintaining, and/or improving the regional travel models;
- Creates, updates, and maintains data associated with inputs to the regional travel demand model, such as transportation networks and land use/demographic data;
- Executes, updates, and/or creates computer scripts that are used to summarize and analyze model outputs data;
- Assists with estimating, calibrating, and/or validating the regional travel model;
- Prepares analyses of key data sets for model estimation/calibration/validation, such as the household travel survey or on-board transit surveys;
- Drafts reports, technical memoranda, charts, graphics and creates geographic information system (GIS) maps;
- Supports the staffing and running of a technical subcommittee, such as the Travel Forecasting Subcommittee (TFS).

### **Starting Salary Ranges (FY 23)**

- Transportation Engineer II (Grade 7): \$71,581 to \$104,007, depending on qualifications
- Transportation Engineer III (Grade 8): \$81,589 to \$115,448, depending on qualifications

## **ADDITIONAL INFORMATION**

### **Application Instructions**

To apply for this position, please prepare the following items:

- Cover letter
- Resume
- Salary requirements
- Answers to the supplemental questions

These items can be either emailed, faxed, or mailed to MWCOG:

Metropolitan Washington Council of Governments  
777 North Capitol Street, N.E.  
Suite 300, **Attention OHRM**  
Washington, DC 20002

Further information can be found on MWCOG's Human Resources webpage (<https://www.mwcog.org/about-us/human-resources/>).

MWCOG is an Equal Employment Opportunity (EEO) employer. We do not discriminate on the basis of race, religion, color, sex, age, national origin, disability, sexual orientation or any other class protected by state or federal laws in admission or access to our programs, services, activities, hiring, and employment practices.

### **Identification/Right to Work**

The Metropolitan Washington Council of Governments is committed to compliance with federal and state laws requiring that MWCOG only hires workers who are lawfully entitled to work in the United States (U.S. citizens or nationals and non-citizens with valid work authorization) without discrimination. MWCOG does not sponsor Visas of any type. All persons employed by Metropolitan Washington Council of Governments are required to comply with the Immigration Reform and Control Act of 1986 by presenting documents to verify identity and authorization to work in the United States.

Acceptable forms of identification are listed by the Department of Homeland Security / U. S. Citizenship and Immigration Services on Form I-9, Employment Eligibility Verification.

### **Supplemental Questions for the Position of Transportation Engineer II or III**

Your answers to the Supplemental Questions may be reviewed to help determine if you meet the required skills and how you meet the requested skills for the position to which you have applied. This review may include an automated scoring process and/or a manual review of all or some of the responses.

Note: The specific questions and scoring process used are determined by each hiring authority. Only those individuals who meet the required skills and most closely match the requested skills will be invited to an interview.

1. Are you eligible to work in the United States without sponsorship of a work visa, both now and in the foreseeable future? \*  
☐ Yes  
☐ No If "No," please explain:
2. Describe your experience working with travel demand forecasting models. \*
3. Describe your experience working with mobile emissions modeling software, such as MOVES. \*
4. Describe your experience working with database management systems (DBMS) and/or GIS. \*
5. Describe your experience working with computer programming languages, such as Python or Visual Basic, and software development principles. \*
6. Where did you hear about this job? (Check one or more categories) \*  
☐ I'm a COG employee (internal applicant)

- ☐ MWCOG webpage
- ☐ Social media (e.g., Facebook, Twitter, LinkedIn)
- ☐ Indeed.com
- ☐ Printed publication or newspaper
- ☐ Job fair or career event
- ☐ Word of mouth (friend, family, colleague)
- ☐ Radio
- ☐ Email
- ☐ Professional association job board
- ☐ College/university job board
- ☐ Other website
- ☐ Other

7. Specifically, where did you hear about this job? (Write the name) \*

\* Required question