

**Opportunity Title:** Geospatial Data Analysis Fellow

**Opportunity Reference Code:** DOT-2016-0002

**Organization** U.S. Department of Transportation (DOT)

**Reference Code** DOT-2016-0002

**How to Apply** A complete application consists of:

- An application
- A current resume/CV
- Transcripts – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. Selected candidate may be required to provide proof of completion of the degree before the appointment can start.

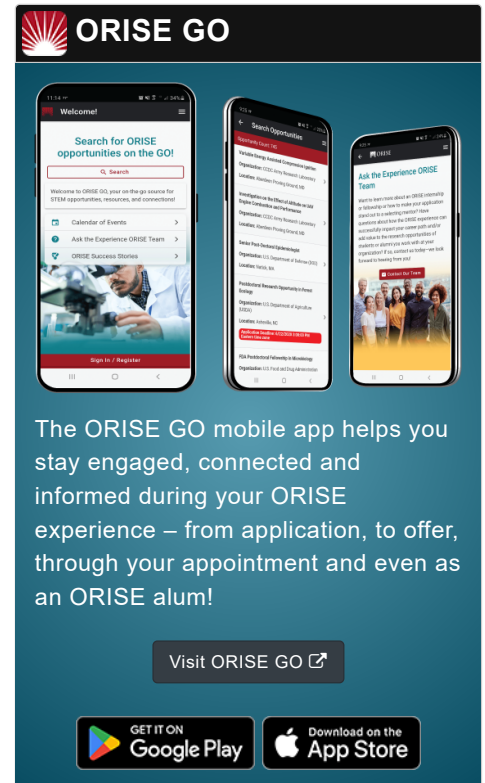
All documents must be in English or include an official English translation. If you have questions, send an email to [SciEdPrograms@orau.org](mailto:SciEdPrograms@orau.org). Please include the reference code for this opportunity in your email.

**Application Deadline** 7/28/2017 12:00:00 AM Eastern Time Zone

**Description** Are you ready to bring transformative change to traditional 2-D mapping techniques at the Federal level? Have you ever wanted to influence and improve the effectiveness of geospatial data at the national level? Are you obsessed with simplifying complex problems with data and visuals that easily convey information in new, understandable ways? Take an appointment with our team as we lead the creation of new national geospatial transportation products in the era of big data, and where you build new geospatial data sets and implement innovative geospatial analysis.

The future of geospatial transportation datasets holds great promise as well as new challenges. The democratization of data and omnipresence of technology in transportation has created the opportunity for vast new empirical data resources with profound impacts on data velocity, volume and bias. These changes push us, as analysts and statisticians, to rethink our relationship with data. In this 24 hour a day instantaneous environment, the pressure to deliver fresh data is relentless. A constant call to balance the decennial, quinquennial or even annual data releases with near real time data and analysis exists for many data providers. You will explore opportunities to advance geospatial data resources that are appropriate for statistical analysis and you will build new data sets for BTS to use in analysis and publish to the world.

You will be using, adapting and transforming data and collection processes originally designed for other ends to provide new data for transportation analysis. You will wrangle automobile, plane



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and ship probe data feeds into meaningful geospatial datasets, and extract data from remote sensing operations. You will design and build innovative, new data sets that capture emerging areas of transportation.

You will have the opportunity to develop close working relationships with other DOT offices, and other Federal agencies that maintain geospatial data and analytical capabilities, which can aid in the understanding of the transportation industry. You will participate in inter-agency efforts relating to the development and improvements of geospatial data and analysis applications, and you will conduct research on existing and emerging technologies, processes and approaches that can be used to enhance the geospatial analysis of transportation and the implement this research.

Finally you will have the chance to assist in development and updates to the National Transportation Atlas Database (NTAD), a set of nationwide geographic databases of transportation facilities, transportation networks, and associated infrastructure.

Who are we? We are the U.S. Department of Transportation's Bureau of Transportation Statistics (BTS) Office of Spatial Analysis and Visualization (OSAV). The BTS is the Principal Federal Statistical Agency that provides objective, comprehensive, and relevant information on the extent and use of the Nation's transportation system, how well the system performs, and the effects of the system on society and the environment. The OSAV develops geospatial information and visualization tools, conducts spatial and network analyses, develops performance measures related to the transportation network and geographic accessibility provided by the network, prepares maps for BTS publications, coordinates the transportation layer of the National Spatial Data Infrastructure, and publishes the NTAD. OSAV employs high quality cartography and innovative web applications to produce relevant, high quality, timely, comparable, complete, and accessible geospatial products and statistical visualizations.

### **Participant Benefits**

The selected candidate will receive a stipend as support for living and other expenses during this appointment. Stipend rates are determined by DOT officials and are based on the candidate's academic and professional background. The candidate may also be eligible to receive a health insurance allowance and reimbursement for travel expenses. This appointment is full-time for one year and may be extended in increments of up to one year, contingent upon project needs and funding availability.

### **Nature of the Appointment**

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Participants will not enter into an employee/employer relationship with ORISE, ORAU, the DOT, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

**Qualifications** The successful applicant has received a Bachelor's degree (master's degree desired) in related field required (preferably in Geographic Information Systems, Geography, Social or Behavioral Science, Computer Science, Information Systems, Math or Statistics, Earth or Geo Science, Engineering, Business).

The ideal candidate will have a combination of the following:

- Proficiency translating high level business requirements into detailed design specifications;
- Experience presenting results in a clear, effective, and attractive manner to inform next steps;
- Strong written and verbal communications skills;
- A self-starter with the ability to perform work with limited supervision and changing outcome goals;
- Knowledge of U.S. transportation systems;
- Ability to work across various offices and work units to obtain information, collaborate on data-related projects, and validate findings and conclusions;
- Ability to work with subject matter experts to identify and mitigate data limitations;
- Proficiency developing scripts to support the automation, discovery, acquisition, collection, aggregation, processing, preparation, delivery, storage, analysis and publication of large datasets;
- Experience using various programming languages to create processes that identify variation, investigate patterns and perform data interpretation against large datasets;
- Knowledge of open and proprietary exchange formats used in GIS-specific applications, including: REST/JSON, GeoJSON, XML, geodatabases, Web Mapping Services (WMS), and Web Feature Services (WFS);
- Comprehensive experience with the ESRI suite of products (ArcGIS Desktop, ArcGIS Server, ArcSDE, ArcObjects, JTX/Workflow Manager);
- Demonstrated knowledge and use of industry standard database tools and languages including standard SQL Oracle/Microsoft/Postgres Relational Databases and geodatabase extensions to relational databases, SQL.










**Eligibility Requirements**

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree, Master's Degree, or Doctoral Degree.
- **Discipline(s):**

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- **Communications and Graphics Design** (1 )
- **Computer, Information, and Data Sciences** (16 )
- **Earth and Geosciences** (21 )
- **Engineering** (27 )
- **Environmental and Marine Sciences** (14 )
- **Life Health and Medical Sciences** (10 )
- **Mathematics and Statistics** (10 )
- **Other Non-Science & Engineering** (5 )
- **Social and Behavioral Sciences** (28 )