PID No. 119305   State Job No. ******
Scope of Services Meeting Time: 10:45am   Date: 10/22/24
Location: ODOT Room 2A or Teams
Approved Final Scope of Services Minutes Date:

Travel Demand Forecasting Task Order
Scope of Services

The Department and Ohio's seventeen Metropolitan Planning Organizations (MPOs) maintain travel demand forecasting models for use in project planning, long-range plan development and other analyses including air quality conformity. The Department seeks a qualified firm to assist ODOT staff and perform tasks related to the maintenance and enhancement of the statewide travel demand forecasting model (SW Model), Ohio Medium/Small Modeling System (OMS) models used in the small and medium sized MPOs, the 3C model used in the large sized MPOs, the TransModeler C10 model in Columbus, Cincinnati and Lima, the Economic Impact Model (EIM), Simulation Demand Estimator (SDE) tool, and various utilities used for pre- or post-processing.

The Department is making a concerted effort to update the various input datasets to these models, including highway and transit networks in TransCAD and Cube, and base year land use inventories, including land coverage, land use/development, water/sewer service areas, and base and future year employment and population for all models. It is anticipated that this position will be primarily working to update these GIS inventories. Work could include the annual QCEW data processing as well as other statistical analysis.

The SW Model is an integrated econometric/land use/transport model employing tour-based microsimulation for the transport model components. The size and scope of the model require that it be run on one of ODOT's nine dedicated computers containing 72 microprocessors. Because this model represents a dramatic paradigm shift from traditional travel demand forecasting models, its various components were custom built for ODOT. As such, ODOT requires consultant support to keep the model software operable for use in transportation project analysis. Additionally, enhancements to this model may be requested based upon ODOT needs. A 35k zone network and trip tables are being developed.

The 3C Model is a state-of-the-art Activity Based Model based on the Coordinated Travel-Regional Activity-Based Modeling Platform 2 (CT-RAMP 2). Travel demand is microsimulated at the Micro Analysis Zone (MAZ) level using various leading-edge behavioral model formulations far beyond the simple aggregate statistical models of the four-step model era. Traffic microsimulation was added through the SHRP2 C10 project using Dynus-T, and later TransModeler. The 3C model is implemented for Cleveland/Akron, Columbus/Newark, and Cincinnati and Dayton. There is also a Lima version that is maintained for testing purposes and is available for research. The TransModeler C10 model is in development for Columbus/Newark, Cincinnati and Lima. Additionally, there is a Toledo ActivitySim model that is implemented in TransCAD/TransModeler that may require assistance.

In addition to these advanced models, traditional four-step models are maintained for the small and medium metropolitan areas in Ohio and the consultant's In-House staff may be tasked with providing enhancements or other on-call services related to their upcoming 2020 update.

Additional work may include ODOT utilities including network calculators, CMAQ calculators, and utilities to convert networks and demand between Cube and TransModeler, among others.

The consultant selected for this contract must at a minimum be able to demonstrate detailed knowledge of the SW Model, OMS, 3C models and GIS using TransCAD. The consultant will report to ODOT offices at 1980 West Broad Street using a provided ODOT Desktop. Consultant will be required to adhere to any ODOT telecommuting policies. Currently, telecommuting is allowable on Mondays and Fridays, but any changes to ODOT telecommuting schedules applied to Department staff will also apply consultant. Note that in-person meetings may be required either on or off-site on Mondays or Fridays.

It is unexpected, but possible, that additional tasks could be funded under this IDIQ agreement including:

- Enhance a network management tool for use with Ohio standard network formats (including statewide and MPO networks) that allows projects to be coded to a base network in order to create various alternative networks and export networks out for MPO use.
- Revise the Simulation Demand Estimator utility using Bentley/Caliper software.
- Support for the 3C SHRP2 C10 implementations
- 3C/OMS/C10 model validation work.
- Project level modeling in support of Certified Design Traffic.
- 3C modal enhancements for transit and non-motorized.
- MPO On-Call Modeling Support.
- Additional reporting capabilities for 3C/OMS/C10, including standardized reports in Power BI, Cube or R.

All models and tools will be maintained on github.

Consultant to provide travel demand program assistance on a task order basis as administrated by the Office of Statewide Planning & Research.

All work shall be performed on an actual cost basis. The consultant shall maintain a project cost accounting system that will segregate costs for individual task orders.