

COG/TPB GEN3 TRAVEL MODEL

Status report

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Overview

- Development of the COG/TPB Gen3 Travel Demand Forecasting Model
- Status of the Gen3 Model, Phase 2
- Work since the last TFS meeting (Nov.)
- Next steps for the Gen3 Model



Credit: Mark Moran, 2023

COG/TPB Gen3 Travel Demand Forecasting Model

- 4.5-year, \$1.1M consultant-assisted project to develop a simplified activity-based travel model (ABM) for metropolitan Washington region implemented using open-source ActivitySim software platform (transportation demand model) and Bentley Cube (transportation supply model)
- Model development team: RSG, Baseline Mobility Group (BMG), and COG/TPB staff
- Divided into two phases
 - Phase 1: Develop prototype model, estimating some sub-models
 - Deliver to COG staff; Conduct sensitivity analysis to determine areas for improvement; This phase was completed in FY 23.
 - Phase 2: Based on Phase 1, estimate some other sub-models
 - Calibrate/validate model to meet or exceed validation metrics of trip-based (Gen2) model



Status of the COG/TPB Gen3 Model (Phase 2)

- Phase 2 model development is almost finished!
- Gen3 Model validation metrics meet or exceed those from Gen2 Model; Calibration/validation report is almost finished.
- Phase 2 sensitivity tests are finished; Documentation is nearly finished. (Other sensitivity tests will be conducted as part of usability testing phase)
- The final model (Gen3 Model, ver. 1.0.0) has been submitted to COG staff for review.
 - (In GitHub version control parlance, the consultant team has issued a “pull request”)



Credit: Mark Moran, 2023



Consultant work since last TFS meeting (Nov.)

- RSG staff updated model scripts in response to comments from COG staff.
- RSG staff worked on implementing software (Sharrow) to reduce model run times, but work is still in progress.



Credit: Mark Moran, 2023



COG/TPB staff work since last TFS meeting (Nov.)

- Working to implement toll setting routine in Gen3 Model.
- Working on preparing the model inputs for the upcoming model usability tests.



Credit: Mark Moran, 2023



Next steps for Gen3 Model (1)

- Once COG staff receives final model and model documentation from consultant, COG staff will begin usability testing phase
- Goals of usability testing
 - Prepare final components needed to use Gen3 Model in production work.
 - Determine if Gen3 Model is ready for production work.
 - Process
 - Use the developmental Gen3 Model to conduct model tests that will be conducted by the Gen2 Model for the 2025 LRTP (e.g., air quality conformity analysis, LRTP performance analysis, environment justice analysis, etc.)
 - Conduct additional sensitivity tests as needed
 - Compare the outputs of the two models and assess the usability of the Gen3 Model



Next steps for Gen3 Model (2)

- Once COG staff has determined that the Gen3 Model is ready for production use, COG staff plans to
 - Provide training in using the model to interested modeling stakeholders.
 - Make the model available for dissemination in data requests.
 - This could be before or after the Gen3 Model gets used in an actual production activity, depending on project schedules.
 - Historically, the travel model has been made available for outside users only after it has been used in a major, official project, such as an AQC of the LRTP.
- COG staff plan to support both the Gen2 and Gen3 models for an indefinite period.



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